Annex – R codes

!! WARNING !!
These are raw materials. Some pieces of codes can be misplaced/missing/useless
A cleaner version of this file will be available on-line in the future

Chapter 2

1- Data import and database creation

```
###importazione e creazione grosso###

library(foreign)
PSMind <- read.spss("C:/Users/matteo/Documents/dottorato/dati/file originali
longitudinale/database longitudinale individuale
(originale).sav",to.data.frame=TRUE)
PSMcal <- read.spss("C:/Users/matteo/Documents/dottorato/dati/SHP-Data-WA-
SPSS/SHP_CA.sav",to.data.frame=TRUE)
PSMlj <- read.spss("C:/Users/matteo/Documents/dottorato/dati/SHP-Data-WA-
SPSS/SHP_LJ.sav",to.data.frame=TRUE)
PSMmp <- read.spss("C:/Users/matteo/Documents/dottorato/dati/SHP-Data-
WA-SPSS/SHP_MP.sav",to.data.frame=TRUE)
PSMso <- read.spss("C:/Users/matteo/Documents/dottorato/dati/SHP-Data-WA-
SPSS/SHP_SO.sav",to.data.frame=TRUE)

PSMtot1 <- merge(PSMind, PSMcal,by="IDPERS")
PSMtot2 <- merge(PSMtot1, PSMlj,by="IDPERS", all.x=T)
PSMtot3 <- merge(PSMtot2, PSMmp,by="IDPERS", all.x=T)
PSMtot <- merge(PSMtot3, PSMso,by="IDPERS", all.x=T)

###selezione sottocampione disoccupati###
library (TraMineR)
seqTOT <- seqdef(PSMtot, var = 5670:5820)

#tutti quelli che hanno almeno un mese di disoccupazione#
```

```
unemplTOT <- seqpm(seqTOT, "unemployment") #1492#
unemplEinactTOT <- seqpm(seqTOT, "unemployed or inactive") #488 non si possono recuperare, giÃ  processati da FORS#

#seleziona subset disoccupati#
i <- 0
for (i in 1:1492){
  j <- unemplTOT$MIndex[i]
  PSMtot$discrimine[j] <- 1}

UNPL <- subset (PSMtot, subset=(discrimine==1))

#allinea su primo mese disoccupazione#
library(TraMineR)
seqALN <- seqdef(UNPL[5670:5820])
UNPL$pos <- seqfpos(seqALN,"unemployment")
library(TraMineRextras)
seqORDmatrix<- seqstart(UNPL[5670:5820], data.start=1, new.start=UNPL$pos, tmax=150) #se hai problemi qui Ã¨ perchÃ¨ i NA non sono riconosciuti come punto di partenza valido (non hai salvato pezzo in ci sistemi il problema?). Nel caso ricodifica (nessuna condizione (=copia i valori vecchi) a parte NA=0) e poi seleziona #
seqORD <- seqdef(seqORDmatrix) #questa Ã¨ la sequenza allineata su primo mese dis. alla fine sono tutti missing perchÃ¨ l'hai preso largo e lui agiunge missing se vai oltre l'ultimo stato#
#creazione matrice e poi sequenze binaria, 1=dato valido, 0=missing#
library(car)
seqORDmatrixBin <- recode(seqORDmatrix, "'full-time paid job (37 hours or more per week)'=1 ; 'inactive'=1; 'part-time paid job (1-36 hours per week)'=1 ; 'unemployment' = 1 ; 'unemployed or inactive'=1; else=0")
seqORDmatrixBin <- matrix (seqORDmatrixBin, nrow =1492, ncol=150) #Ã© giusta, hai controllato#
seqORDmatrixBin[,1] <-2
seqORDbin <- seqdef(seqORDmatrixBin)
N12mesi <- seqpm (seqORDbin, "211111111111") #1219#
N24mesi <- seqpm (seqORDbin, "211111111111111111111111") #859#
N36mesi <- seqpm (seqORDbin, "211111111111111111111111111111111111") #624#
N48mesi <- seqpm (seqORDbin, "211111111111111111111111111111111111111111111111") #474#
```

```
N60mesi <- seqpm (seqORDbin,
"21111111111111111111111111111111111111111111111111111111111111")
#366#

#seleziono tutti quelli con span decentemente lungo data una tolleranza i
qualche missing#

#seqORDbin diventa numerico#

seqORDbinNum <- matrix (0,nrow=1492,ncol=150)
i <-1
for(i in 1:1492) {
  seqORDbinNum [i,] <- as.numeric(seqORDbin[i,]) -1 }

#calcolo valori validi#

#calcolo valori validi primi 12 periodi#
i<-1
validiN12 <- matrix (0,nrow=1492,ncol=1)
for(i in 1:1492) {
  validiN12[i,] <- sum (seqORDbinNum [i,1:12])}

#calcolo valori validi primi 24 periodi#
i<-1
validiN24 <- matrix (0,nrow=1492,ncol=1)
for(i in 1:1492) {
  validiN24[i,] <- sum (seqORDbinNum [i,1:24])}

#calcolo valori validi primi 36 periodi#
i<-1
validiN36 <- matrix (0,nrow=1492,ncol=1)
for(i in 1:1492) {
  validiN36[i,] <- sum (seqORDbinNum [i,1:36])}

#calcolo valori validi primi 48 periodi#
i<-1
validiN48 <- matrix (0,nrow=1492,ncol=1)
for(i in 1:1492) {
  validiN48[i,] <- sum (seqORDbinNum [i,1:48])}

#calcolo valori validi primi 60 periodi#
```

```
i<-1
validiN60 <- matrix (0,nrow=1492,ncol=1)
for(i in 1:1492) {
  validiN60[i,] <- sum (seqORDbinNum [i,1:60])}

#seleziono quelli che ne hanno un minimo di valori validi#

seqORDbinNum2 <- cbind
(seqORDbinNum,validiN12,validiN24,validiN36,validiN48,validiN60)
N12mesi90p <- which  (seqORDbinNum2[,151]> 9) # 10/12 -> 1295#
N24mesi90p <- which  (seqORDbinNum2[,152]> 20) # 21/24 -> 949#
N36mesi90p <- which  (seqORDbinNum2[,153]> 31) # 32/36 -> 712#
N48mesi90p <- which  (seqORDbinNum2[,154]> 42) # 43/48 -> 532#
N60mesi90p <- which  (seqORDbinNum2[,155]> 53) # 54/60 -> 414#

# creazione variabile discrimine N48p90mesi#

DiscrN48p90 <- matrix (N48mesi90p,nrow=532,ncol=1)
RifN48p90 <- UNPL$IDPERS[DiscrN48p90]

#### selezione sottocampione N48p90mesi ####
CampioneN48p90mesi <- UNPL[UNPL$IDPERS %in% RifN48p90, ]


###aggiungere alcune informazioni da file household###
PSMhou <- read.spss("C:/Users/matteo/Documents/dottorato/dati/file originali
longitudinale/database longitudinale houseehold
(originale).sav",to.data.frame=TRUE)
#recupero idhouse che sono un po' sparpagliati tra gli anni
for(i in 1:532) {
  CampioneN48p90mesi$IDmio[i] <- max(CampioneN48p90mesi$IDHOUS99.x[i],
                                     CampioneN48p90mesi$IDHOUS00.x[i],
                                     CampioneN48p90mesi$IDHOUS01.x[i],
                                     CampioneN48p90mesi$IDHOUS02.x[i],
                                     CampioneN48p90mesi$IDHOUS03.x[i],
                                     CampioneN48p90mesi$IDHOUS04.x[i],
                                     CampioneN48p90mesi$IDHOUS05.x[i],
                                     CampioneN48p90mesi$IDHOUS06.x[i],
                                     CampioneN48p90mesi$IDHOUS07.x[i],
                                     CampioneN48p90mesi$IDHOUS08.x[i],
                                     CampioneN48p90mesi$IDHOUS09.x[i],
```

```
                    CampioneN48p90mesi$IDHOUS10.x[i],
                    CampioneN48p90mesi$IDHOUS11.x[i],na.rm =T)
}

#isolazione variabili cantoni, per pesi#
PSMcanton <-
(cbind(PSMhou$idhous..,PSMhou$CANTON99,PSMhou$CANTON00,PSMhou$CA
NTON01,PSMhou$CANTON02,PSMhou$CANTON03,PSMhou$CANTON04,PSMho
u$CANTON05,PSMhou$CANTON06,PSMhou$CANTON07,PSMhou$CANTON08,PS
Mhou$CANTON09,PSMhou$CANTON10,PSMhou$CANTON11))
PSMcanton <- as.data.frame(PSMcanton)
PSMcanton2 <- as.data.frame(matrix(ncol=14,nrow=8868,0))
PSMcanton2$IDmio <- PSMcanton[,1]
PSMcanton2$CANTON99 <- PSMcanton[,2]
PSMcanton2$CANTON00 <- PSMcanton[,3]
PSMcanton2$CANTON01 <- PSMcanton[,4]
PSMcanton2$CANTON02 <- PSMcanton[,5]
PSMcanton2$CANTON03 <- PSMcanton[,6]
PSMcanton2$CANTON04 <- PSMcanton[,7]
PSMcanton2$CANTON05 <- PSMcanton[,8]
PSMcanton2$CANTON06 <- PSMcanton[,9]
PSMcanton2$CANTON07 <- PSMcanton[,10]
PSMcanton2$CANTON08 <- PSMcanton[,11]
PSMcanton2$CANTON09 <- PSMcanton[,12]
PSMcanton2$CANTON10 <- PSMcanton[,13]
PSMcanton2$CANTON11 <- PSMcanton[,14]
PSMcanton <- PSMcanton2[,15:28]

#aggiungo variabili cantone#
CampioneN48p90mesi <- merge(CampioneN48p90mesi,
PSMcanton,by="IDmio",all.x=T)
```

2- Weights

```
##NEL CAMPIONE PRINCIPALE
#sistemazioe variabile
library(car)
CampioneN48p90mesi$appoggioAree <- recode
(CampioneN48p90mesi$CANTONmax, "c(8,23,24)='Region lemanique';
c(4,7,11,13,18)='Espace Mittelland'; c(1,5,6)='Suisse du Nord-Ouest'; 26='Zurich';
c(2,3,9,10,16,17,20)='Suisse orientale'; c(12,14,15,19,22,25)='Suisse centrale';
21='Ticino'")
CampioneN48p90mesi$SEX.y
CampioneN48p90mesi$natUn2Bin
CampioneN48p90mesi$appoggioClassEta <- recode
(CampioneN48p90mesi$classEtaPerPesi, "'<19'='15-24 ans'; '20-24'='15-24
ans';'25-29'='25-49 ans';'30-34'='25-49 ans';'35-39'='25-49 ans';'40-44'='25-49
ans';'45-49'='25-49 ans';'50-54'='50 ans et plus';'55-59'='50 ans et plus';'60-
64'='50 ans et plus';'65-69'='50 ans et plus';'70-74'='50 ans et plus';'>74'='50 ans
et plus'")

#creazione tabella per calcoli pesi
a <- table(CampioneN48p90mesi$appoggioAree,
        CampioneN48p90mesi$SEX.y,
        CampioneN48p90mesi$natUn2Bin,
        CampioneN48p90mesi$appoggioClassEta)

#questi calcoli sono fatti su excel#

#importo tabella pesi#
library(foreign)
TabPerPesi <-
read.spss("C:/Users/matteo/Documents/dottorato/analisi/risultati/9tris - nuovi
pesi/per R.sav",to.data.frame=TRUE)
View(TabPerPesi)

#preparazioni variabili

TabPerPesi[,1] <- as.character(TabPerPesi[,1])
TabPerPesi[,2] <- as.character(TabPerPesi[,2])
TabPerPesi[,3] <- as.character(TabPerPesi[,3])
TabPerPesi[,4] <- as.character(TabPerPesi[,4])
```

```
for (i in 1:length(TabPerPesi[,1])){
  TabPerPesi[i,1] <- gsub(" ", "", as.character(TabPerPesi[i,1]), fixed = TRUE)
  TabPerPesi[i,2] <- gsub(" ", "", as.character(TabPerPesi[i,2]), fixed = TRUE)
  TabPerPesi[i,3] <- gsub(" ", "", as.character(TabPerPesi[i,3]), fixed = TRUE)
  TabPerPesi[i,4] <- gsub(" ", "", as.character(TabPerPesi[i,4]), fixed = TRUE)
}

CampioneN48p90mesi$appoggioAree2 <-
as.character(CampioneN48p90mesi$appoggioAree)
CampioneN48p90mesi$appoggioClassEta2 <-
as.character(CampioneN48p90mesi$appoggioClassEta)

for (i in 1:length(CampioneN48p90mesi$appoggioAree2)){
  CampioneN48p90mesi$appoggioAree2[i] <- gsub(" ", "",
as.character(CampioneN48p90mesi$appoggioAree2[i]), fixed = TRUE)
  CampioneN48p90mesi$appoggioClassEta2[i] <- gsub(" ", "",
as.character(CampioneN48p90mesi$appoggioClassEta2[i]), fixed = TRUE)
}

CampioneN48p90mesi$natUn2Bin2 <-
recode(CampioneN48p90mesi$natUn2Bin, "2=0")

#attribuzione pesi
CampioneN48p90mesi$NEWpeso[i] <- NA

for (i in 1:length(CampioneN48p90mesi$NEWpeso)){
  for (j in 1:length(TabPerPesi[,1])){
    CampioneN48p90mesi$NEWpeso[i] <-
ifelse(((as.character(CampioneN48p90mesi$appoggioAree2[i])==as.character(Ta
bPerPesi[j,1])|is.na(CampioneN48p90mesi$appoggioAree2[i])==T)
                                  &
(as.character(CampioneN48p90mesi$SEX.y[i])==as.character(TabPerPesi[j,2])
|is.na(CampioneN48p90mesi$SEX.y[i])==T)
                                  &
(as.character(CampioneN48p90mesi$natUn2Bin2[i])==as.character(TabPerPesi[j,
3]) |is.na(CampioneN48p90mesi$natUn2Bin2[i])==T)
                                  &
(as.character(CampioneN48p90mesi$appoggioClassEta2[i])==as.character(TabPe
rPesi[j,4])|is.na(CampioneN48p90mesi$appoggioClassEta2[i])==T)),
                                    TabPerPesi[j,12], CampioneN48p90mesi$NEWpeso[i])
```

```
 }}


#correzione per numerosià
CampioneN48p90mesi$NEWpeso2 <-
(CampioneN48p90mesi$NEWpeso*length(CampioneN48p90mesi$NEWpeso))/su
m(CampioneN48p90mesi$NEWpeso)
```

3- Creation monthly data

#creazioni variabili tipo di lavoro per mese#

```
CampioneN48p90mesi$typeWMset99<-0
CampioneN48p90mesi$typeWMoct99<-0
CampioneN48p90mesi$typeWMnov99<-0
CampioneN48p90mesi$typeWMdec99<-0
CampioneN48p90mesi$typeWMjan00<-0
CampioneN48p90mesi$typeWMfeb00<-0
CampioneN48p90mesi$typeWMmar00<-0
CampioneN48p90mesi$typeWMapr00<-0
CampioneN48p90mesi$typeWMmay00<-0
CampioneN48p90mesi$typeWMjun00<-0
CampioneN48p90mesi$typeWMjul00<-0
CampioneN48p90mesi$typeWMaug00<-0
CampioneN48p90mesi$typeWMsept00<-0
CampioneN48p90mesi$typeWMoct00<-0
CampioneN48p90mesi$typeWMnov00<-0
CampioneN48p90mesi$typeWMdec00<-0
CampioneN48p90mesi$typeWMjan01<-0
CampioneN48p90mesi$typeWMfeb01<-0
CampioneN48p90mesi$typeWMmar01<-0
CampioneN48p90mesi$typeWMapr01<-0
CampioneN48p90mesi$typeWMmay01<-0
CampioneN48p90mesi$typeWMjun01<-0
CampioneN48p90mesi$typeWMjul01<-0
CampioneN48p90mesi$typeWMaug01<-0
CampioneN48p90mesi$typeWMsept01<-0
CampioneN48p90mesi$typeWMoct01<-0
CampioneN48p90mesi$typeWMnov01<-0
CampioneN48p90mesi$typeWMdec01<-0
CampioneN48p90mesi$typeWMjan02<-0
CampioneN48p90mesi$typeWMfeb02<-0
CampioneN48p90mesi$typeWMmar02<-0
CampioneN48p90mesi$typeWMapr02<-0
CampioneN48p90mesi$typeWMmay02<-0
CampioneN48p90mesi$typeWMjun02<-0
CampioneN48p90mesi$typeWMjul02<-0
CampioneN48p90mesi$typeWMaug02<-0
CampioneN48p90mesi$typeWMsept02<-0
```

CampioneN48p90mesi$typeWMoct02<-0
CampioneN48p90mesi$typeWMnov02<-0
CampioneN48p90mesi$typeWMdec02<-0
CampioneN48p90mesi$typeWMjan03<-0
CampioneN48p90mesi$typeWMfeb03<-0
CampioneN48p90mesi$typeWMmar03<-0
CampioneN48p90mesi$typeWMapr03<-0
CampioneN48p90mesi$typeWMmay03<-0
CampioneN48p90mesi$typeWMjun03<-0
CampioneN48p90mesi$typeWMjul03<-0
CampioneN48p90mesi$typeWMaug03<-0
CampioneN48p90mesi$typeWMsept03<-0
CampioneN48p90mesi$typeWMoct03<-0
CampioneN48p90mesi$typeWMnov03<-0
CampioneN48p90mesi$typeWMdec03<-0
CampioneN48p90mesi$typeWMjan04<-0
CampioneN48p90mesi$typeWMfeb04<-0
CampioneN48p90mesi$typeWMmar04<-0
CampioneN48p90mesi$typeWMapr04<-0
CampioneN48p90mesi$typeWMmay04<-0
CampioneN48p90mesi$typeWMjun04<-0
CampioneN48p90mesi$typeWMjul04<-0
CampioneN48p90mesi$typeWMaug04<-0
CampioneN48p90mesi$typeWMsept04<-0
CampioneN48p90mesi$typeWMoct04<-0
CampioneN48p90mesi$typeWMnov04<-0
CampioneN48p90mesi$typeWMdec04<-0
CampioneN48p90mesi$typeWMjan05<-0
CampioneN48p90mesi$typeWMfeb05<-0
CampioneN48p90mesi$typeWMmar05<-0
CampioneN48p90mesi$typeWMapr05<-0
CampioneN48p90mesi$typeWMmay05<-0
CampioneN48p90mesi$typeWMjun05<-0
CampioneN48p90mesi$typeWMjul05<-0
CampioneN48p90mesi$typeWMaug05<-0
CampioneN48p90mesi$typeWMsept05<-0
CampioneN48p90mesi$typeWMoct05<-0
CampioneN48p90mesi$typeWMnov05<-0
CampioneN48p90mesi$typeWMdec05<-0
CampioneN48p90mesi$typeWMjan06<-0
CampioneN48p90mesi$typeWMfeb06<-0

CampioneN48p90mesi$typeWMmar06<-0
CampioneN48p90mesi$typeWMapr06<-0
CampioneN48p90mesi$typeWMmay06<-0
CampioneN48p90mesi$typeWMjun06<-0
CampioneN48p90mesi$typeWMjul06<-0
CampioneN48p90mesi$typeWMaug06<-0
CampioneN48p90mesi$typeWMsept06<-0
CampioneN48p90mesi$typeWMoct06<-0
CampioneN48p90mesi$typeWMnov06<-0
CampioneN48p90mesi$typeWMdec06<-0
CampioneN48p90mesi$typeWMjan07<-0
CampioneN48p90mesi$typeWMfeb07<-0
CampioneN48p90mesi$typeWMmar07<-0
CampioneN48p90mesi$typeWMapr07<-0
CampioneN48p90mesi$typeWMmay07<-0
CampioneN48p90mesi$typeWMjun07<-0
CampioneN48p90mesi$typeWMjul07<-0
CampioneN48p90mesi$typeWMaug07<-0
CampioneN48p90mesi$typeWMsept07<-0
CampioneN48p90mesi$typeWMoct07<-0
CampioneN48p90mesi$typeWMnov07<-0
CampioneN48p90mesi$typeWMdec07<-0
CampioneN48p90mesi$typeWMjan08<-0
CampioneN48p90mesi$typeWMfeb08<-0
CampioneN48p90mesi$typeWMmar08<-0
CampioneN48p90mesi$typeWMapr08<-0
CampioneN48p90mesi$typeWMmay08<-0
CampioneN48p90mesi$typeWMjun08<-0
CampioneN48p90mesi$typeWMjul08<-0
CampioneN48p90mesi$typeWMaug08<-0
CampioneN48p90mesi$typeWMsept08<-0
CampioneN48p90mesi$typeWMoct08<-0
CampioneN48p90mesi$typeWMnov08<-0
CampioneN48p90mesi$typeWMdec08<-0
CampioneN48p90mesi$typeWMjan09<-0
CampioneN48p90mesi$typeWMfeb09<-0
CampioneN48p90mesi$typeWMmar09<-0
CampioneN48p90mesi$typeWMapr09<-0
CampioneN48p90mesi$typeWMmay09<-0
CampioneN48p90mesi$typeWMjun09<-0
CampioneN48p90mesi$typeWMjul09<-0

```
CampioneN48p90mesi$typeWMaug09<-0
CampioneN48p90mesi$typeWMsept09<-0
CampioneN48p90mesi$typeWMoct09<-0
CampioneN48p90mesi$typeWMnov09<-0
CampioneN48p90mesi$typeWMdec09<-0
CampioneN48p90mesi$typeWMjan10<-0
CampioneN48p90mesi$typeWMfeb10<-0
CampioneN48p90mesi$typeWMmar10<-0
CampioneN48p90mesi$typeWMapr10<-0
CampioneN48p90mesi$typeWMmay10<-0
CampioneN48p90mesi$typeWMjun10<-0
CampioneN48p90mesi$typeWMjul10<-0
CampioneN48p90mesi$typeWMaug10<-0
CampioneN48p90mesi$typeWMsept10<-0
CampioneN48p90mesi$typeWMoct10<-0
CampioneN48p90mesi$typeWMnov10<-0
CampioneN48p90mesi$typeWMdec10<-0
CampioneN48p90mesi$typeWMjan11<-0
CampioneN48p90mesi$typeWMfeb11<-0
CampioneN48p90mesi$typeWMmar11<-0
CampioneN48p90mesi$typeWMapr11<-0
CampioneN48p90mesi$typeWMmay11<-0
CampioneN48p90mesi$typeWMjun11<-0
CampioneN48p90mesi$typeWMjul11<-0
CampioneN48p90mesi$typeWMaug11<-0
CampioneN48p90mesi$typeWMsept11<-0
CampioneN48p90mesi$typeWMoct11<-0
CampioneN48p90mesi$typeWMnov11<-0
CampioneN48p90mesi$typeWMdec12<-0
CampioneN48p90mesi$typeWMjan12<-0
CampioneN48p90mesi$typeWMfeb12<-0
CampioneN48p90mesi$typeWMmar12<-0

#stendo base #

for(i in 1:532){
  for(j in 1:151){
    CampioneN48p90mesi[i,6069+j] <- as.character(CampioneN48p90mesi[i,5670+j])
  }}

# tipo di lavoro CSP --> 8 tipi (li riduci dopo se mai)#
```

```
CampioneN48p90mesi$WorkDiv1A99<- recode(CampioneN48p90mesi$CSPMAJ99,
"'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic
professions and senior management'=4; 'intermediate professions'=5; 'qualified
non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-
manual and manual workers'=8")
CampioneN48p90mesi$WorkDiv1A00<- recode(CampioneN48p90mesi$CSPMAJ00,
"'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic
professions and senior management'=4; 'intermediate professions'=5; 'qualified
non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-
manual and manual workers'=8")
CampioneN48p90mesi$WorkDiv1A01<- recode(CampioneN48p90mesi$CSPMAJ01,
"'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic
professions and senior management'=4; 'intermediate professions'=5; 'qualified
non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-
manual and manual workers'=8")
CampioneN48p90mesi$WorkDiv1A02<- recode(CampioneN48p90mesi$CSPMAJ02,
"'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic
professions and senior management'=4; 'intermediate professions'=5; 'qualified
non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-
manual and manual workers'=8")
CampioneN48p90mesi$WorkDiv1A03<- recode(CampioneN48p90mesi$CSPMAJ03,
"'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic
professions and senior management'=4; 'intermediate professions'=5; 'qualified
non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-
manual and manual workers'=8")
CampioneN48p90mesi$WorkDiv1A04<- recode(CampioneN48p90mesi$CSPMAJ04,
"'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic
professions and senior management'=4; 'intermediate professions'=5; 'qualified
non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-
manual and manual workers'=8")
CampioneN48p90mesi$WorkDiv1A05<- recode(CampioneN48p90mesi$CSPMAJ05,
"'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic
professions and senior management'=4; 'intermediate professions'=5; 'qualified
non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-
manual and manual workers'=8")
CampioneN48p90mesi$WorkDiv1A06<- recode(CampioneN48p90mesi$CSPMAJ06,
"'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic
professions and senior management'=4; 'intermediate professions'=5; 'qualified
non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-
manual and manual workers'=8")
```

```
CampioneN48p90mesi$WorkDiv1A07<- recode(CampioneN48p90mesi$CSPMAJ07,
"'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic
professions and senior management'=4; 'intermediate professions'=5; 'qualified
non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-
manual and manual workers'=8")
CampioneN48p90mesi$WorkDiv1A08<- recode(CampioneN48p90mesi$CSPMAJ08,
"'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic
professions and senior management'=4; 'intermediate professions'=5; 'qualified
non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-
manual and manual workers'=8")
CampioneN48p90mesi$WorkDiv1A09<- recode(CampioneN48p90mesi$CSPMAJ09,
"'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic
professions and senior management'=4; 'intermediate professions'=5; 'qualified
non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-
manual and manual workers'=8")
CampioneN48p90mesi$WorkDiv1A10<- recode(CampioneN48p90mesi$CSPMAJ10,
"'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic
professions and senior management'=4; 'intermediate professions'=5; 'qualified
non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-
manual and manual workers'=8")
CampioneN48p90mesi$WorkDiv1A11<- recode(CampioneN48p90mesi$CSPMAJ11,
"'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic
professions and senior management'=4; 'intermediate professions'=5; 'qualified
non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-
manual and manual workers'=8")

###calcolo inizio (chiamato spell)###

###creazione variabili con data intervista###
#isolo mese ( e anno) intervista#
CampioneN48p90mesi$spell99 <-
substr(as.Date(as.POSIXlt(CampioneN48p90mesi$PDATE99.y, origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
CampioneN48p90mesi$spell00 <-
substr(as.Date(as.POSIXlt(CampioneN48p90mesi$PDATE00.y, origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
CampioneN48p90mesi$spell01 <-
substr(as.Date(as.POSIXlt(CampioneN48p90mesi$PDATE01.y, origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
```

```
CampioneN48p90mesi$spell02 <-
substr(as.Date(as.POSIXlt(CampioneN48p90mesi$PDATE02.y, origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
CampioneN48p90mesi$spell03 <-
substr(as.Date(as.POSIXlt(CampioneN48p90mesi$PDATE03.y, origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
CampioneN48p90mesi$spell04 <-
substr(as.Date(as.POSIXlt(CampioneN48p90mesi$PDATE04.y, origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
CampioneN48p90mesi$spell05 <-
substr(as.Date(as.POSIXlt(CampioneN48p90mesi$PDATE05.y, origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
CampioneN48p90mesi$spell06 <-
substr(as.Date(as.POSIXlt(CampioneN48p90mesi$PDATE06.y, origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
CampioneN48p90mesi$spell07 <-
substr(as.Date(as.POSIXlt(CampioneN48p90mesi$PDATE07.y, origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
CampioneN48p90mesi$spell08 <-
substr(as.Date(as.POSIXlt(CampioneN48p90mesi$PDATE08.y, origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
CampioneN48p90mesi$spell09 <-
substr(as.Date(as.POSIXlt(CampioneN48p90mesi$PDATE09.y, origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
CampioneN48p90mesi$spell10 <-
substr(as.Date(as.POSIXlt(CampioneN48p90mesi$PDATE10.y, origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
CampioneN48p90mesi$spell11 <-
substr(as.Date(as.POSIXlt(CampioneN48p90mesi$PDATE11.y, origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)

##definisco e ricostruisco le date delle interviste##

library(car)
CampioneN48p90mesi$spell99 <- recode (CampioneN48p90mesi$spell99, "NA='0'")
CampioneN48p90mesi$spell00 <- recode (CampioneN48p90mesi$spell00, "NA='0'")
CampioneN48p90mesi$spell01 <- recode (CampioneN48p90mesi$spell01, "NA='0'")
CampioneN48p90mesi$spell02 <- recode (CampioneN48p90mesi$spell02, "NA='0'")
CampioneN48p90mesi$spell03 <- recode (CampioneN48p90mesi$spell03, "NA='0'")
CampioneN48p90mesi$spell04 <- recode (CampioneN48p90mesi$spell04, "NA='0'")
CampioneN48p90mesi$spell05 <- recode (CampioneN48p90mesi$spell05, "NA='0'")
```

```
CampioneN48p90mesi$spell06 <- recode (CampioneN48p90mesi$spell06, "NA='0'")
CampioneN48p90mesi$spell07 <- recode (CampioneN48p90mesi$spell07, "NA='0'")
CampioneN48p90mesi$spell08 <- recode (CampioneN48p90mesi$spell08, "NA='0'")
CampioneN48p90mesi$spell09 <- recode (CampioneN48p90mesi$spell09, "NA='0'")
CampioneN48p90mesi$spell10 <- recode (CampioneN48p90mesi$spell10, "NA='0'")
CampioneN48p90mesi$spell11 <- recode (CampioneN48p90mesi$spell11, "NA='0'")

#ripescaggio di quelli che hanno valore valido in % lavoro#

spell99NAconverter0 <- ifelse (CampioneN48p90mesi$spell99=='0' &
(CampioneN48p90mesi$SEP99=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$SEP99=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$SEP99=='unemployment'|CampioneN48p90mesi$SE
P99=='inactive'|CampioneN48p90mesi$SEP99=='unemployed or inactive'),'1999-
09','0')
spell99NAconverter1 <- ifelse (CampioneN48p90mesi$spell99=='0' &
(CampioneN48p90mesi$OCT99=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$OCT99=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$OCT99=='unemployment'|CampioneN48p90mesi$O
CT99=='inactive'|CampioneN48p90mesi$OCT99=='unemployed or inactive'),'1999-
10',spell99NAconverter0)
spell99NAconverter2 <- ifelse (CampioneN48p90mesi$spell99=='0' &
(CampioneN48p90mesi$NOV99=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$NOV99=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$NOV99=='unemployment'|CampioneN48p90mesi$N
OV99=='inactive'|CampioneN48p90mesi$NOV99=='unemployed or inactive'),'1999-
11',spell99NAconverter1)
spell99NAconverter3 <- ifelse (CampioneN48p90mesi$spell99=='0' &
(CampioneN48p90mesi$DEC99=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$DEC99=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$DEC99=='unemployment'|CampioneN48p90mesi$D
EC99=='inactive'|CampioneN48p90mesi$DEC99=='unemployed or inactive'),'1999-
12',spell99NAconverter2)
spell99NAconverter4 <- ifelse (CampioneN48p90mesi$spell99=='0' &
(CampioneN48p90mesi$JAN00=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$JAN00=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$JAN00=='unemployment'|CampioneN48p90mesi$JA
N00=='inactive'|CampioneN48p90mesi$JAN00=='unemployed or inactive'),'2000-
01',spell99NAconverter3)
spell99NAconverter5 <- ifelse (CampioneN48p90mesi$spell99=='0' &
(CampioneN48p90mesi$FEB00=='full-time paid job (37 hours or more per
```

```
week)'|CampioneN48p90mesi$FEB00=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$FEB00=='unemployment'|CampioneN48p90mesi$FE
B00=='inactive'|CampioneN48p90mesi$FEB00=='unemployed or inactive'),'2000-
02',spell99NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell99NAconverter5[i]
  CampioneN48p90mesi$spell99[i] <- recode (CampioneN48p90mesi$spell99[i],
"'0'=j")
  j<-0 }



spell00NAconverter0 <- ifelse (CampioneN48p90mesi$spell00=='0' &
(CampioneN48p90mesi$SEP00=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$SEP00=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$SEP00=='unemployment'|CampioneN48p90mesi$SE
P00=='inactive'|CampioneN48p90mesi$SEP00=='unemployed or inactive'),'2000-
09','0')
spell00NAconverter1 <- ifelse (CampioneN48p90mesi$spell00=='0' &
(CampioneN48p90mesi$OCT00=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$OCT00=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$OCT00=='unemployment'|CampioneN48p90mesi$O
CT00=='inactive'|CampioneN48p90mesi$OCT00=='unemployed or inactive'),'2000-
10',spell00NAconverter0)
spell00NAconverter2 <- ifelse (CampioneN48p90mesi$spell00=='0' &
(CampioneN48p90mesi$NOV00=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$NOV00=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$NOV00=='unemployment'|CampioneN48p90mesi$N
OV00=='inactive'|CampioneN48p90mesi$NOV00=='unemployed or inactive'),'2000-
11',spell00NAconverter1)
spell00NAconverter3 <- ifelse (CampioneN48p90mesi$spell00=='0' &
(CampioneN48p90mesi$DEC00=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$DEC00=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$DEC00=='unemployment'|CampioneN48p90mesi$D
EC00=='inactive'|CampioneN48p90mesi$DEC00=='unemployed or inactive'),'2000-
12',spell00NAconverter2)
```

```
spell00NAconverter4 <- ifelse (CampioneN48p90mesi$spell00=='0' &
(CampioneN48p90mesi$JAN01=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$JAN01=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$JAN01=='unemployment'|CampioneN48p90mesi$JA
N01=='inactive'|CampioneN48p90mesi$JAN01=='unemployed or inactive'),'2001-
01',spell00NAconverter3)
spell00NAconverter5 <- ifelse (CampioneN48p90mesi$spell00=='0' &
(CampioneN48p90mesi$FEB01=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$FEB01=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$FEB01=='unemployment'|CampioneN48p90mesi$FE
B01=='inactive'|CampioneN48p90mesi$FEB01=='unemployed or inactive'),'2001-
02',spell00NAconverter4)



i <-0
j<-0
for(i in 1:532) {
  j <- spell00NAconverter5[i]
  CampioneN48p90mesi$spell00[i] <- recode (CampioneN48p90mesi$spell00[i],
"'0'=j")
  j<-0 }


spell01NAconverter0 <- ifelse (CampioneN48p90mesi$spell01=='0' &
(CampioneN48p90mesi$SEP01=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$SEP01=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$SEP01=='unemployment'|CampioneN48p90mesi$SE
P01=='inactive'|CampioneN48p90mesi$SEP01=='unemployed or inactive'),'2001-
09','0')
spell01NAconverter1 <- ifelse (CampioneN48p90mesi$spell01=='0' &
(CampioneN48p90mesi$OCT01=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$OCT01=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$OCT01=='unemployment'|CampioneN48p90mesi$O
CT01=='inactive'|CampioneN48p90mesi$OCT01=='unemployed or inactive'),'2001-
10',spell01NAconverter0)
spell01NAconverter2 <- ifelse (CampioneN48p90mesi$spell01=='0' &
(CampioneN48p90mesi$NOV01=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$NOV01=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$NOV01=='unemployment'|CampioneN48p90mesi$N
```

```
OV01=='inactive'|CampioneN48p90mesi$NOV01=='unemployed or inactive'),'2001-
11',spell01NAconverter1)
spell01NAconverter3 <- ifelse (CampioneN48p90mesi$spell01=='0' &
(CampioneN48p90mesi$DEC01=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$DEC01=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$DEC01=='unemployment'|CampioneN48p90mesi$D
EC01=='inactive'|CampioneN48p90mesi$DEC01=='unemployed or inactive'),'2001-
12',spell01NAconverter2)
spell01NAconverter4 <- ifelse (CampioneN48p90mesi$spell01=='0' &
(CampioneN48p90mesi$JAN02=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$JAN02=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$JAN02=='unemployment'|CampioneN48p90mesi$JA
N02=='inactive'|CampioneN48p90mesi$JAN02=='unemployed or inactive'),'2002-
01',spell01NAconverter3)
spell01NAconverter5 <- ifelse (CampioneN48p90mesi$spell01=='0' &
(CampioneN48p90mesi$FEB02=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$FEB02=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$FEB02=='unemployment'|CampioneN48p90mesi$FE
B02=='inactive'|CampioneN48p90mesi$FEB02=='unemployed or inactive'),'2002-
02',spell01NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell01NAconverter5[i]
  CampioneN48p90mesi$spell01[i] <- recode (CampioneN48p90mesi$spell01[i],
"'0'=j")
  j<-0 }


spell02NAconverter0 <- ifelse (CampioneN48p90mesi$spell02=='0' &
(CampioneN48p90mesi$SEP02=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$SEP02=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$SEP02=='unemployment'|CampioneN48p90mesi$SE
P02=='inactive'|CampioneN48p90mesi$SEP02=='unemployed or inactive'),'2002-
09','0')
spell02NAconverter1 <- ifelse (CampioneN48p90mesi$spell02=='0' &
(CampioneN48p90mesi$OCT02=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$OCT02=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$OCT02=='unemployment'|CampioneN48p90mesi$O
```

```
CT02=='inactive'|CampioneN48p90mesi$OCT02=='unemployed or inactive'),'2002-
10',spell02NAconverter0)
spell02NAconverter2 <- ifelse (CampioneN48p90mesi$spell02=='0' &
(CampioneN48p90mesi$NOV02=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$NOV02=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$NOV02=='unemployment'|CampioneN48p90mesi$N
OV02=='inactive'|CampioneN48p90mesi$NOV02=='unemployed or inactive'),'2002-
11',spell02NAconverter1)
spell02NAconverter3 <- ifelse (CampioneN48p90mesi$spell02=='0' &
(CampioneN48p90mesi$DEC02=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$DEC02=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$DEC02=='unemployment'|CampioneN48p90mesi$D
EC02=='inactive'|CampioneN48p90mesi$DEC02=='unemployed or inactive'),'2002-
12',spell02NAconverter2)
spell02NAconverter4 <- ifelse (CampioneN48p90mesi$spell02=='0' &
(CampioneN48p90mesi$JAN03=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$JAN03=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$JAN03=='unemployment'|CampioneN48p90mesi$JA
N03=='inactive'|CampioneN48p90mesi$JAN03=='unemployed or inactive'),'2003-
01',spell02NAconverter3)
spell02NAconverter5 <- ifelse (CampioneN48p90mesi$spell02=='0' &
(CampioneN48p90mesi$FEB03=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$FEB03=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$FEB03=='unemployment'|CampioneN48p90mesi$FE
B03=='inactive'|CampioneN48p90mesi$FEB03=='unemployed or inactive'),'2003-
02',spell02NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell02NAconverter5[i]
  CampioneN48p90mesi$spell02[i] <- recode (CampioneN48p90mesi$spell02[i],
"'0'=j")
  j<-0 }

spell03NAconverter0 <- ifelse (CampioneN48p90mesi$spell03=='0' &
(CampioneN48p90mesi$SEP03=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$SEP03=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$SEP03=='unemployment'|CampioneN48p90mesi$SE
```

```
P03=='inactive'|CampioneN48p90mesi$SEP03=='unemployed or inactive'),'2003-
09','0')
spell03NAconverter1 <- ifelse (CampioneN48p90mesi$spell03=='0' &
(CampioneN48p90mesi$OCT03=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$OCT03=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$OCT03=='unemployment'|CampioneN48p90mesi$O
CT03=='inactive'|CampioneN48p90mesi$OCT03=='unemployed or inactive'),'2003-
10',spell03NAconverter0)
spell03NAconverter2 <- ifelse (CampioneN48p90mesi$spell03=='0' &
(CampioneN48p90mesi$NOV03=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$NOV03=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$NOV03=='unemployment'|CampioneN48p90mesi$N
OV03=='inactive'|CampioneN48p90mesi$NOV03=='unemployed or inactive'),'2003-
11',spell03NAconverter1)
spell03NAconverter3 <- ifelse (CampioneN48p90mesi$spell03=='0' &
(CampioneN48p90mesi$DEC03=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$DEC03=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$DEC03=='unemployment'|CampioneN48p90mesi$D
EC03=='inactive'|CampioneN48p90mesi$DEC03=='unemployed or inactive'),'2003-
12',spell03NAconverter2)
spell03NAconverter4 <- ifelse (CampioneN48p90mesi$spell03=='0' &
(CampioneN48p90mesi$JAN04=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$JAN04=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$JAN04=='unemployment'|CampioneN48p90mesi$JA
N04=='inactive'|CampioneN48p90mesi$JAN04=='unemployed or inactive'),'2004-
01',spell03NAconverter3)
spell03NAconverter5 <- ifelse (CampioneN48p90mesi$spell03=='0' &
(CampioneN48p90mesi$FEB04=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$FEB04=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$FEB04=='unemployment'|CampioneN48p90mesi$FE
B04=='inactive'|CampioneN48p90mesi$FEB04=='unemployed or inactive'),'2004-
02',spell03NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell03NAconverter5[i]
  CampioneN48p90mesi$spell03[i] <- recode (CampioneN48p90mesi$spell03[i],
"'0'=j")
  j<-0 }
```

```
spell04NAconverter0 <- ifelse (CampioneN48p90mesi$spell04=='0' &
(CampioneN48p90mesi$SEP04=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$SEP04=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$SEP04=='unemployment'|CampioneN48p90mesi$SE
P04=='inactive'|CampioneN48p90mesi$SEP04=='unemployed or inactive'),'2004-
09','0')
spell04NAconverter1 <- ifelse (CampioneN48p90mesi$spell04=='0' &
(CampioneN48p90mesi$OCT04=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$OCT04=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$OCT04=='unemployment'|CampioneN48p90mesi$O
CT04=='inactive'|CampioneN48p90mesi$OCT04=='unemployed or inactive'),'2004-
10',spell04NAconverter0)
spell04NAconverter2 <- ifelse (CampioneN48p90mesi$spell04=='0' &
(CampioneN48p90mesi$NOV04=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$NOV04=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$NOV04=='unemployment'|CampioneN48p90mesi$N
OV04=='inactive'|CampioneN48p90mesi$NOV04=='unemployed or inactive'),'2004-
11',spell04NAconverter1)
spell04NAconverter3 <- ifelse (CampioneN48p90mesi$spell04=='0' &
(CampioneN48p90mesi$DEC04=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$DEC04=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$DEC04=='unemployment'|CampioneN48p90mesi$D
EC04=='inactive'|CampioneN48p90mesi$DEC04=='unemployed or inactive'),'2004-
12',spell04NAconverter2)
spell04NAconverter4 <- ifelse (CampioneN48p90mesi$spell04=='0' &
(CampioneN48p90mesi$JAN05=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$JAN05=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$JAN05=='unemployment'|CampioneN48p90mesi$JA
N05=='inactive'|CampioneN48p90mesi$JAN05=='unemployed or inactive'),'2005-
01',spell04NAconverter3)
spell04NAconverter5 <- ifelse (CampioneN48p90mesi$spell04=='0' &
(CampioneN48p90mesi$FEB05=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$FEB05=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$FEB05=='unemployment'|CampioneN48p90mesi$FE
B05=='inactive'|CampioneN48p90mesi$FEB05=='unemployed or inactive'),'2005-
02',spell04NAconverter4)
spell04NAconverter6 <- ifelse (CampioneN48p90mesi$spell04=='0' &
(CampioneN48p90mesi$MAR05=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$MAR05=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$MAR05=='unemployment'|CampioneN48p90mesi$
```

```
MAR05=='inactive'|CampioneN48p90mesi$MAR05=='unemployed or
inactive'),'2005-03',spell04NAconverter5)


i <-0
j<-0
for(i in 1:532) {
  j <- spell04NAconverter6[i]
  CampioneN48p90mesi$spell04[i] <- recode (CampioneN48p90mesi$spell04[i],
"'0'=j")
  j<-0 }


spell05NAconverter0 <- ifelse (CampioneN48p90mesi$spell05=='0' &
(CampioneN48p90mesi$SEP05=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$SEP05=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$SEP05=='unemployment'|CampioneN48p90mesi$SE
P05=='inactive'|CampioneN48p90mesi$SEP05=='unemployed or inactive'),'2005-
09','0')
spell05NAconverter1 <- ifelse (CampioneN48p90mesi$spell05=='0' &
(CampioneN48p90mesi$OCT05=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$OCT05=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$OCT05=='unemployment'|CampioneN48p90mesi$O
CT05=='inactive'|CampioneN48p90mesi$OCT05=='unemployed or inactive'),'2005-
10',spell05NAconverter0)
spell05NAconverter2 <- ifelse (CampioneN48p90mesi$spell05=='0' &
(CampioneN48p90mesi$NOV05=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$NOV05=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$NOV05=='unemployment'|CampioneN48p90mesi$N
OV05=='inactive'|CampioneN48p90mesi$NOV05=='unemployed or inactive'),'2005-
11',spell05NAconverter1)
spell05NAconverter3 <- ifelse (CampioneN48p90mesi$spell05=='0' &
(CampioneN48p90mesi$DEC05=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$DEC05=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$DEC05=='unemployment'|CampioneN48p90mesi$D
EC05=='inactive'|CampioneN48p90mesi$DEC05=='unemployed or inactive'),'2005-
12',spell05NAconverter2)
spell05NAconverter4 <- ifelse (CampioneN48p90mesi$spell05=='0' &
(CampioneN48p90mesi$JAN06=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$JAN06=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$JAN06=='unemployment'|CampioneN48p90mesi$JA
```

```
N06=='inactive'|CampioneN48p90mesi$JAN06=='unemployed or inactive'),'2006-
01',spell05NAconverter3)
spell05NAconverter5 <- ifelse (CampioneN48p90mesi$spell05=='0' &
(CampioneN48p90mesi$FEB06=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$FEB06=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$FEB06=='unemployment'|CampioneN48p90mesi$FE
B06=='inactive'|CampioneN48p90mesi$FEB06=='unemployed or inactive'),'2006-
02',spell05NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell05NAconverter5[i]
  CampioneN48p90mesi$spell05[i] <- recode (CampioneN48p90mesi$spell05[i],
"'0'=j")
  j<-0 }

spell06NAconverter0 <- ifelse (CampioneN48p90mesi$spell06=='0' &
(CampioneN48p90mesi$SEP06=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$SEP06=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$SEP06=='unemployment'|CampioneN48p90mesi$SE
P06=='inactive'|CampioneN48p90mesi$SEP06=='unemployed or inactive'),'2006-
09','0')
spell06NAconverter1 <- ifelse (CampioneN48p90mesi$spell06=='0' &
(CampioneN48p90mesi$OCT06=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$OCT06=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$OCT06=='unemployment'|CampioneN48p90mesi$O
CT06=='inactive'|CampioneN48p90mesi$OCT06=='unemployed or inactive'),'2006-
10',spell06NAconverter0)
spell06NAconverter2 <- ifelse (CampioneN48p90mesi$spell06=='0' &
(CampioneN48p90mesi$NOV06=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$NOV06=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$NOV06=='unemployment'|CampioneN48p90mesi$N
OV06=='inactive'|CampioneN48p90mesi$NOV06=='unemployed or inactive'),'2006-
11',spell06NAconverter1)
spell06NAconverter3 <- ifelse (CampioneN48p90mesi$spell06=='0' &
(CampioneN48p90mesi$DEC06=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$DEC06=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$DEC06=='unemployment'|CampioneN48p90mesi$D
```

```
EC06=='inactive'|CampioneN48p90mesi$DEC06=='unemployed or inactive'),'2006-
12',spell06NAconverter2)
spell06NAconverter4 <- ifelse (CampioneN48p90mesi$spell06=='0' &
(CampioneN48p90mesi$JAN07=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$JAN07=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$JAN07=='unemployment'|CampioneN48p90mesi$JA
N07=='inactive'|CampioneN48p90mesi$JAN07=='unemployed or inactive'),'2007-
01',spell06NAconverter3)
spell06NAconverter5 <- ifelse (CampioneN48p90mesi$spell06=='0' &
(CampioneN48p90mesi$FEB07=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$FEB07=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$FEB07=='unemployment'|CampioneN48p90mesi$FE
B07=='inactive'|CampioneN48p90mesi$FEB07=='unemployed or inactive'),'2007-
02',spell06NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell06NAconverter5[i]
  CampioneN48p90mesi$spell06[i] <- recode (CampioneN48p90mesi$spell06[i],
"'0'=j")
  j<-0 }

spell07NAconverter0 <- ifelse (CampioneN48p90mesi$spell07=='0' &
(CampioneN48p90mesi$SEP07=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$SEP07=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$SEP07=='unemployment'|CampioneN48p90mesi$SE
P07=='inactive'|CampioneN48p90mesi$SEP07=='unemployed or inactive'),'2007-
09','0')
spell07NAconverter1 <- ifelse (CampioneN48p90mesi$spell07=='0' &
(CampioneN48p90mesi$OCT07=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$OCT07=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$OCT07=='unemployment'|CampioneN48p90mesi$O
CT07=='inactive'|CampioneN48p90mesi$OCT07=='unemployed or inactive'),'2007-
10',spell07NAconverter0)
spell07NAconverter2 <- ifelse (CampioneN48p90mesi$spell07=='0' &
(CampioneN48p90mesi$NOV07=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$NOV07=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$NOV07=='unemployment'|CampioneN48p90mesi$N
```

```
OV07=='inactive'|CampioneN48p90mesi$NOV07=='unemployed or inactive'),'2007-
11',spell07NAconverter1)
spell07NAconverter3 <- ifelse (CampioneN48p90mesi$spell07=='0' &
(CampioneN48p90mesi$DEC07=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$DEC07=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$DEC07=='unemployment'|CampioneN48p90mesi$D
EC07=='inactive'|CampioneN48p90mesi$DEC07=='unemployed or inactive'),'2007-
12',spell07NAconverter2)
spell07NAconverter4 <- ifelse (CampioneN48p90mesi$spell07=='0' &
(CampioneN48p90mesi$JAN08=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$JAN08=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$JAN08=='unemployment'|CampioneN48p90mesi$JA
N08=='inactive'|CampioneN48p90mesi$JAN08=='unemployed or inactive'),'2008-
01',spell07NAconverter3)
spell07NAconverter5 <- ifelse (CampioneN48p90mesi$spell07=='0' &
(CampioneN48p90mesi$FEB08=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$FEB08=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$FEB08=='unemployment'|CampioneN48p90mesi$FE
B08=='inactive'|CampioneN48p90mesi$FEB08=='unemployed or inactive'),'2008-
02',spell07NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell07NAconverter5[i]
  CampioneN48p90mesi$spell07[i] <- recode (CampioneN48p90mesi$spell07[i],
"'0'=j")
  j<-0 }

spell08NAconverter0 <- ifelse (CampioneN48p90mesi$spell08=='0' &
(CampioneN48p90mesi$SEP08=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$SEP08=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$SEP08=='unemployment'|CampioneN48p90mesi$SE
P08=='inactive'|CampioneN48p90mesi$SEP08=='unemployed or inactive'),'2008-
09','0')
spell08NAconverter1 <- ifelse (CampioneN48p90mesi$spell08=='0' &
(CampioneN48p90mesi$OCT08=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$OCT08=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$OCT08=='unemployment'|CampioneN48p90mesi$O
```

```
CT08=='inactive'|CampioneN48p90mesi$OCT08=='unemployed or inactive'),'2008-
10',spell08NAconverter0)
spell08NAconverter2 <- ifelse (CampioneN48p90mesi$spell08=='0' &
(CampioneN48p90mesi$NOV08=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$NOV08=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$NOV08=='unemployment'|CampioneN48p90mesi$N
OV08=='inactive'|CampioneN48p90mesi$NOV08=='unemployed or inactive'),'2008-
11',spell08NAconverter1)
spell08NAconverter3 <- ifelse (CampioneN48p90mesi$spell08=='0' &
(CampioneN48p90mesi$DEC08=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$DEC08=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$DEC08=='unemployment'|CampioneN48p90mesi$D
EC08=='inactive'|CampioneN48p90mesi$DEC08=='unemployed or inactive'),'2008-
12',spell08NAconverter2)
spell08NAconverter4 <- ifelse (CampioneN48p90mesi$spell08=='0' &
(CampioneN48p90mesi$JAN09=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$JAN09=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$JAN09=='unemployment'|CampioneN48p90mesi$JA
N09=='inactive'|CampioneN48p90mesi$JAN09=='unemployed or inactive'),'2009-
01',spell08NAconverter3)
spell08NAconverter5 <- ifelse (CampioneN48p90mesi$spell08=='0' &
(CampioneN48p90mesi$FEB09=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$FEB09=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$FEB09=='unemployment'|CampioneN48p90mesi$FE
B09=='inactive'|CampioneN48p90mesi$FEB09=='unemployed or inactive'),'2009-
02',spell08NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell08NAconverter5[i]
  CampioneN48p90mesi$spell08[i] <- recode (CampioneN48p90mesi$spell08[i],
"'0'=j")
  j<-0 }

spell09NAconverter0 <- ifelse (CampioneN48p90mesi$spell09=='0' &
(CampioneN48p90mesi$SEP09=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$SEP09=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$SEP09=='unemployment'|CampioneN48p90mesi$SE
```

```
P09=='inactive'|CampioneN48p90mesi$SEP09=='unemployed or inactive'),'2009-
09','0')
spell09NAconverter1 <- ifelse (CampioneN48p90mesi$spell09=='0' &
(CampioneN48p90mesi$OCT09=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$OCT09=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$OCT09=='unemployment'|CampioneN48p90mesi$O
CT09=='inactive'|CampioneN48p90mesi$OCT09=='unemployed or inactive'),'2009-
10',spell09NAconverter0)
spell09NAconverter2 <- ifelse (CampioneN48p90mesi$spell09=='0' &
(CampioneN48p90mesi$NOV09=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$NOV09=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$NOV09=='unemployment'|CampioneN48p90mesi$N
OV09=='inactive'|CampioneN48p90mesi$NOV09=='unemployed or inactive'),'2009-
11',spell09NAconverter1)
spell09NAconverter3 <- ifelse (CampioneN48p90mesi$spell09=='0' &
(CampioneN48p90mesi$DEC09=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$DEC09=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$DEC09=='unemployment'|CampioneN48p90mesi$D
EC09=='inactive'|CampioneN48p90mesi$DEC09=='unemployed or inactive'),'2009-
12',spell09NAconverter2)
spell09NAconverter4 <- ifelse (CampioneN48p90mesi$spell09=='0' &
(CampioneN48p90mesi$JAN10=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$JAN10=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$JAN10=='unemployment'|CampioneN48p90mesi$JA
N10=='inactive'|CampioneN48p90mesi$JAN10=='unemployed or inactive'),'2010-
01',spell09NAconverter3)
spell09NAconverter5 <- ifelse (CampioneN48p90mesi$spell09=='0' &
(CampioneN48p90mesi$FEB10=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$FEB10=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$FEB10=='unemployment'|CampioneN48p90mesi$FE
B10=='inactive'|CampioneN48p90mesi$FEB10=='unemployed or inactive'),'2010-
02',spell09NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell09NAconverter5[i]
  CampioneN48p90mesi$spell09[i] <- recode (CampioneN48p90mesi$spell09[i],
"'0'=j")
  j<-0 }
```

```
spell10NAconverter0 <- ifelse (CampioneN48p90mesi$spell10=='0' &
(CampioneN48p90mesi$SEP10=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$SEP10=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$SEP10=='unemployment'|CampioneN48p90mesi$SE
P10=='inactive'|CampioneN48p90mesi$SEP10=='unemployed or inactive'),'2010-
09','0')
spell10NAconverter1 <- ifelse (CampioneN48p90mesi$spell10=='0' &
(CampioneN48p90mesi$OCT10=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$OCT10=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$OCT10=='unemployment'|CampioneN48p90mesi$O
CT10=='inactive'|CampioneN48p90mesi$OCT10=='unemployed or inactive'),'2010-
10',spell10NAconverter0)
spell10NAconverter2 <- ifelse (CampioneN48p90mesi$spell10=='0' &
(CampioneN48p90mesi$NOV10=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$NOV10=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$NOV10=='unemployment'|CampioneN48p90mesi$N
OV10=='inactive'|CampioneN48p90mesi$NOV10=='unemployed or inactive'),'2010-
11',spell10NAconverter1)
spell10NAconverter3 <- ifelse (CampioneN48p90mesi$spell10=='0' &
(CampioneN48p90mesi$DEC10=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$DEC10=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$DEC10=='unemployment'|CampioneN48p90mesi$D
EC10=='inactive'|CampioneN48p90mesi$DEC10=='unemployed or inactive'),'2010-
12',spell10NAconverter2)
spell10NAconverter4 <- ifelse (CampioneN48p90mesi$spell10=='0' &
(CampioneN48p90mesi$JAN11=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$JAN11=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$JAN11=='unemployment'|CampioneN48p90mesi$JA
N11=='inactive'|CampioneN48p90mesi$JAN11=='unemployed or inactive'),'2011-
01',spell10NAconverter3)
spell10NAconverter5 <- ifelse (CampioneN48p90mesi$spell10=='0' &
(CampioneN48p90mesi$FEB11=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$FEB11=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$FEB11=='unemployment'|CampioneN48p90mesi$FE
B11=='inactive'|CampioneN48p90mesi$FEB11=='unemployed or inactive'),'2011-
02',spell10NAconverter4)


i <-0
j<-0
```

```
for(i in 1:532) {
  j <- spell10NAconverter5[i]
  CampioneN48p90mesi$spell10[i] <- recode (CampioneN48p90mesi$spell10[i],
"'0'=j")
  j<-0 }

spell11NAconverter0 <- ifelse (CampioneN48p90mesi$spell11=='0' &
(CampioneN48p90mesi$SEP11=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$SEP11=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$SEP11=='unemployment'|CampioneN48p90mesi$SE
P11=='inactive'|CampioneN48p90mesi$SEP11=='unemployed or inactive'),'2011-
09','0')
spell11NAconverter1 <- ifelse (CampioneN48p90mesi$spell11=='0' &
(CampioneN48p90mesi$OCT11=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$OCT11=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$OCT11=='unemployment'|CampioneN48p90mesi$O
CT11=='inactive'|CampioneN48p90mesi$OCT11=='unemployed or inactive'),'2011-
10',spell11NAconverter0)
spell11NAconverter2 <- ifelse (CampioneN48p90mesi$spell11=='0' &
(CampioneN48p90mesi$NOV11=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$NOV11=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$NOV11=='unemployment'|CampioneN48p90mesi$N
OV11=='inactive'|CampioneN48p90mesi$NOV11=='unemployed or inactive'),'2011-
11',spell11NAconverter1)
spell11NAconverter3 <- ifelse (CampioneN48p90mesi$spell11=='0' &
(CampioneN48p90mesi$DEC11=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$DEC11=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$DEC11=='unemployment'|CampioneN48p90mesi$D
EC11=='inactive'|CampioneN48p90mesi$DEC11=='unemployed or inactive'),'2011-
12',spell11NAconverter2)
spell11NAconverter4 <- ifelse (CampioneN48p90mesi$spell11=='0' &
(CampioneN48p90mesi$JAN12=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$JAN12=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$JAN12=='unemployment'|CampioneN48p90mesi$JA
N12=='inactive'|CampioneN48p90mesi$JAN12=='unemployed or inactive'),'2012-
01',spell11NAconverter3)
spell11NAconverter5 <- ifelse (CampioneN48p90mesi$spell11=='0' &
(CampioneN48p90mesi$FEB12=='full-time paid job (37 hours or more per
week)'|CampioneN48p90mesi$FEB12=='part-time paid job (1-36 hours per
week)'|CampioneN48p90mesi$FEB12=='unemployment'|CampioneN48p90mesi$FE
```

```
B12=='inactive'|CampioneN48p90mesi$FEB12=='unemployed or inactive'),'2012-
02',spell11NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell11NAconverter5[i]
  CampioneN48p90mesi$spell11[i] <- recode (CampioneN48p90mesi$spell11[i],
"'0'=j")
  j<-0 }


#ricodifico in modo sequenziale#

library(car)
CampioneN48p90mesi$spell99 <- recode (CampioneN48p90mesi$spell99 ,"'1999-
09'=1;
                        '1999-10'=2;
                        '1999-11'=3;
                        '1999-12'=4;
                        '2000-01'=5;
                        '2000-02'=6;
                        '2000-03'=7;
                        '2000-04'=8;
                        '2000-05'=9;
                        '2000-06'=10;
                        '2000-07'=11;
                        '2000-08'=12;
                        '2000-09'=13;
                        NA=1")

CampioneN48p90mesi$spell00 <- recode (CampioneN48p90mesi$spell00 ,"'2000-
09'=13;
                        '2000-10'=14;
                        '2000-11'=15;
                        '2000-12'=16;
                        '2001-01'=17;
                        '2001-02'=18;
                        '2001-03'=19;
                        '2001-04'=20;
```

```
                    '2001-05'=21;
                    '2001-06'=22;
                    '2001-07'=23;
                    '2001-08'=24;
                    '2001-09'=25;
                    NA=13")

CampioneN48p90mesi$spell01 <- recode (CampioneN48p90mesi$spell01 ,"'2001-
09'=25;
                    '2001-10'=26;
                    '2001-11'=27;
                    '2001-12'=28;
                    '2002-01'=29;
                    '2002-02'=30;
                    '2002-03'=31;
                    '2002-04'=32;
                    '2002-05'=33;
                    '2002-06'=34;
                    '2002-07'=35;
                    '2002-08'=36;
                    '2002-09'=37;
                    NA=25")

CampioneN48p90mesi$spell02<- recode (CampioneN48p90mesi$spell02,"'2002-
09'=37;
                   '2002-10'=38;
                   '2002-11'=39;
                   '2002-12'=40;
                   '2003-01'=41;
                   '2003-02'=42;
                   '2003-03'=43;
                   '2003-04'=44;
                   '2003-05'=45;
                   '2003-06'=46;
                   '2003-07'=47;
                   '2003-08'=48;
                   '2003-09'=49; NA=37")

CampioneN48p90mesi$spell03<- recode (CampioneN48p90mesi$spell03,"'2003-
09'=49;
                   '2003-10'=50;
```

```
                    '2003-11'=51;
                    '2003-12'=52;
                    '2004-01'=53;
                    '2004-02'=54;
                    '2004-03'=55;
                    '2004-04'=56;
                    '2004-05'=57;
                    '2004-06'=58;
                    '2004-07'=59;
                    '2004-08'=60;
                    '2004-09'=61; NA=49")

CampioneN48p90mesi$spell04<- recode (CampioneN48p90mesi$spell04,"
                    '2004-09'=61;
                    '2004-10'=62;
                    '2004-11'=63;
                    '2004-12'=64;
                    '2005-01'=65;
                    '2005-02'=66;
                    '2005-03'=67;
                    '2005-04'=68;
                    '2005-05'=69;
                    '2005-06'=70;
                    '2005-07'=71;
                    '2005-08'=72;
                    '2005-09'=73;NA=61")

CampioneN48p90mesi$spell05<- recode (CampioneN48p90mesi$spell05,"'2005-
09'=73;
                    '2005-10'=74;
                    '2005-11'=75;
                    '2005-12'=76;
                    '2006-01'=77;
                    '2006-02'=78;
                    '2006-03'=79;
                    '2006-04'=80;
                    '2006-05'=81;
                    '2006-06'=82;
                    '2006-07'=83;
                    '2006-08'=84;
                    '2006-09'=85;NA=73")
```

```
CampioneN48p90mesi$spell06 <- recode (CampioneN48p90mesi$spell06 ,"'2006-
09'=85;
                        '2006-10'=86;
                        '2006-11'=87;
                        '2006-12'=88;
                        '2007-01'=89;
                        '2007-02'=90;
                        '2007-03'=91;
                        '2007-04'=92;
                        '2007-05'=93;
                        '2007-06'=94;
                        '2007-07'=95;
                        '2007-08'=96;
                        '2007-09'=97;NA=85")

CampioneN48p90mesi$spell07 <- recode (CampioneN48p90mesi$spell07 ,"'2007-
09'=97;
                        '2007-10'=98;
                        '2007-11'=99;
                        '2007-12'=100;
                        '2008-01'=101;
                        '2008-02'=102;
                        '2008-03'=103;
                        '2008-04'=104;
                        '2008-05'=105;
                        '2008-06'=106;
                        '2008-07'=107;
                        '2008-08'=108;
                        '2008-09'=109;NA=97")

CampioneN48p90mesi$spell08<- recode (CampioneN48p90mesi$spell08,"'2008-
09'=109;
                       '2008-10'=110;
                       '2008-11'=111;
                       '2008-12'=112;
                       '2009-01'=113;
                       '2009-02'=114;
                       '2009-03'=115;
                       '2009-04'=116;
                       '2009-05'=117;
```

```
                    '2009-06'=118;
                    '2009-07'=119;
                    '2009-08'=120;
                    '2009-09'=121;NA=109")

CampioneN48p90mesi$spell09<- recode (CampioneN48p90mesi$spell09,"'2009-
09'=121;
                    '2009-10'=122;
                    '2009-11'=123;
                    '2009-12'=124;
                    '2010-01'=125;
                    '2010-02'=126;
                    '2010-03'=127;
                    '2010-04'=128;
                    '2010-05'=129;
                    '2010-06'=130;
                    '2010-07'=131;
                    '2010-08'=132;
                    '2010-09'=133;NA=121")

CampioneN48p90mesi$spell10<- recode (CampioneN48p90mesi$spell10,"'2010-
08'=132;
                    '2010-09'=133;
                    '2010-10'=134;
                    '2010-11'=135;
                    '2010-12'=136;
                    '2011-01'=137;
                    '2011-02'=138;
                    '2011-03'=139;
                    '2011-04'=140;
                    '2011-05'=141;
                    '2011-06'=142;
                    '2011-07'=143;
                    '2011-08'=144;
                    '2011-09'=145;NA=133")
CampioneN48p90mesi$spell11<- recode (CampioneN48p90mesi$spell11,"'2011-
08'=144;
                    '2011-09'=145;
                    '2011-10'=146;
                    '2011-11'=147;
                    '2011-12'=148;
```

```
'2012-01'=149;
'2012-02'=150;
'2012-03'=151;
'2012-04'=152;
'2012-05'=153;
'2012-06'=154;
'2012-07'=155;
'2012-08'=156;
'2012-09'=157;NA=145")
```

definizione punti di stop##

#costruisco variabile per cmbio di lavoro## la variabile cambia dopo qialche anno, nel primo periodo sono più di una ma nelle altre non c'è mai cambio di lavoro (hai contollato). non c'è 99#

```
CampioneN48p90mesi$cambioW00 <-
recode(CampioneN48p90mesi$P00L36,"'change of job'=1; else=0")
CampioneN48p90mesi$cambioW01 <-
recode(CampioneN48p90mesi$P01L36,"'change of job'=1; else=0")
CampioneN48p90mesi$cambioW02 <-
recode(CampioneN48p90mesi$P02L36,"'change of job'=1; else=0")
CampioneN48p90mesi$cambioW03 <-
recode(CampioneN48p90mesi$P03L36,"'change of job'=1; else=0")
CampioneN48p90mesi$cambioW04 <-
recode(CampioneN48p90mesi$P04L91,"'change of job'=1; else=0")
CampioneN48p90mesi$cambioW05 <-
recode(CampioneN48p90mesi$P05L91,"'change of job'=1; else=0")
CampioneN48p90mesi$cambioW06 <-
recode(CampioneN48p90mesi$P06L91,"'change of job'=1; else=0")
CampioneN48p90mesi$cambioW07 <-
recode(CampioneN48p90mesi$P07L91,"'change of job'=1; else=0")
CampioneN48p90mesi$cambioW08 <-
recode(CampioneN48p90mesi$P08L91,"'change of job'=1; else=0")
CampioneN48p90mesi$cambioW09 <-
recode(CampioneN48p90mesi$P09L91,"'change of job'=1; else=0")
CampioneN48p90mesi$cambioW10 <-
recode(CampioneN48p90mesi$P10L91,"'change of job'=1; else=0")
CampioneN48p90mesi$cambioW11 <-
recode(CampioneN48p90mesi$P11L91,"'change of job'=1; else=0")
```

```
CampioneN48p90mesi$cambioW00 <-
4+(as.integer(CampioneN48p90mesi$P00L37)*(as.integer(CampioneN48p90mesi$ca
mbioW00)-1))
CampioneN48p90mesi$cambioW01 <-
16+(as.integer(CampioneN48p90mesi$P01L37)*(as.integer(CampioneN48p90mesi$
cambioW01)-1))
CampioneN48p90mesi$cambioW02 <-
28+(as.integer(CampioneN48p90mesi$P02L37)*(as.integer(CampioneN48p90mesi$
cambioW02)-1))
CampioneN48p90mesi$cambioW03 <-
40+(as.integer(CampioneN48p90mesi$P03L37)*(as.integer(CampioneN48p90mesi$
cambioW03)-1))
CampioneN48p90mesi$cambioW04 <-
52+(as.integer(CampioneN48p90mesi$P04L92)*(as.integer(CampioneN48p90mesi$
cambioW04)-1))
CampioneN48p90mesi$cambioW05 <-
64+(as.integer(CampioneN48p90mesi$P05L92)*(as.integer(CampioneN48p90mesi$
cambioW05)-1))
CampioneN48p90mesi$cambioW06 <-
76+(as.integer(CampioneN48p90mesi$P06L92)*(as.integer(CampioneN48p90mesi$
cambioW06)-1))
CampioneN48p90mesi$cambioW07 <-
88+(as.integer(CampioneN48p90mesi$P07L92)*(as.integer(CampioneN48p90mesi$
cambioW07)-1))
CampioneN48p90mesi$cambioW08 <-
100+(as.integer(CampioneN48p90mesi$P08L92)*(as.integer(CampioneN48p90mesi
$cambioW08)-1))
CampioneN48p90mesi$cambioW09 <-
112+(as.integer(CampioneN48p90mesi$P09L92)*(as.integer(CampioneN48p90mesi
$cambioW09)-1))
CampioneN48p90mesi$cambioW10 <-
124+(as.integer(CampioneN48p90mesi$P10L92)*(as.integer(CampioneN48p90mesi
$cambioW10)-1))
CampioneN48p90mesi$cambioW11 <-
136+(as.integer(CampioneN48p90mesi$P11L92)*(as.integer(CampioneN48p90mesi
$cambioW11)-1))

CampioneN48p90mesi$cambioW00 <-
recode(CampioneN48p90mesi$cambioW00,"4=NA")
CampioneN48p90mesi$cambioW01 <-
recode(CampioneN48p90mesi$cambioW01,"16=NA")
```

```
CampioneN48p90mesi$cambioW02 <-
recode(CampioneN48p90mesi$cambioW02,"28=NA")
CampioneN48p90mesi$cambioW03 <-
recode(CampioneN48p90mesi$cambioW03,"40=NA")
CampioneN48p90mesi$cambioW04 <-
recode(CampioneN48p90mesi$cambioW04,"52=NA")
CampioneN48p90mesi$cambioW05 <-
recode(CampioneN48p90mesi$cambioW05,"64=NA")
CampioneN48p90mesi$cambioW06 <-
recode(CampioneN48p90mesi$cambioW06,"76=NA")
CampioneN48p90mesi$cambioW07 <-
recode(CampioneN48p90mesi$cambioW07,"88=NA")
CampioneN48p90mesi$cambioW08 <-
recode(CampioneN48p90mesi$cambioW08,"100=NA")
CampioneN48p90mesi$cambioW09 <-
recode(CampioneN48p90mesi$cambioW09,"112=NA")
CampioneN48p90mesi$cambioW10 <-
recode(CampioneN48p90mesi$cambioW10,"124=NA")
CampioneN48p90mesi$cambioW11 <-
recode(CampioneN48p90mesi$cambioW11,"136=NA")


###definizioni stop in avanti

#2000 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell99[i]
  b <- 6069 + CampioneN48p90mesi$spell00[i]
  appoggio <- seqdef (CampioneN48p90mesi[,a:b])
  CampioneN48p90mesi$APPunemployment00[i] <-
(CampioneN48p90mesi$spell99[i]-1) + (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$APPinactive00[i] <- (CampioneN48p90mesi$spell99[i]-1) +
(seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$APPuneOinactive00[i] <- (CampioneN48p90mesi$spell99[i]-
1) + (seqfpos (appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$stop00[i] <- min
(CampioneN48p90mesi$APPunemployment00[i],CampioneN48p90mesi$APPinactiv
```

```
e00[i],CampioneN48p90mesi$APPuneOinactive00[i],CampioneN48p90mesi$cambio
W00[i],na.rm = T)
}
CampioneN48p90mesi$dist00 <-
round(CampioneN48p90mesi$spell99+((CampioneN48p90mesi$spell00-
CampioneN48p90mesi$spell99)/2), digits = 0)
CampioneN48p90mesi$stop00 <- ifelse (CampioneN48p90mesi$stop00==Inf,
CampioneN48p90mesi$dist00,CampioneN48p90mesi$stop00)

#2001 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell00[i]
  b <- 6069 + CampioneN48p90mesi$spell01[i]
  appoggio <- seqdef (CampioneN48p90mesi[,a:b])
  CampioneN48p90mesi$APPunemployment01[i] <-
(CampioneN48p90mesi$spell00[i]-1) + (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$APPinactive01[i] <- (CampioneN48p90mesi$spell00[i]-1) +
(seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$APPuneOinactive01[i] <- (CampioneN48p90mesi$spell00[i]-
1) + (seqfpos (appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$stop01[i] <- min
(CampioneN48p90mesi$APPunemployment01[i],CampioneN48p90mesi$APPinactiv
e01[i],CampioneN48p90mesi$APPuneOinactive01[i],CampioneN48p90mesi$cambio
W01[i],na.rm = T)
}
CampioneN48p90mesi$dist01 <-
round(CampioneN48p90mesi$spell00+((CampioneN48p90mesi$spell01-
CampioneN48p90mesi$spell00)/2), digits = 0)
CampioneN48p90mesi$stop01 <- ifelse (CampioneN48p90mesi$stop01==Inf,
CampioneN48p90mesi$dist01,CampioneN48p90mesi$stop01)

#2002 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell01[i]
  b <- 6069 + CampioneN48p90mesi$spell02[i]
  appoggio <- seqdef (CampioneN48p90mesi[,a:b])
  CampioneN48p90mesi$APPunemployment02[i] <-
(CampioneN48p90mesi$spell01[i]-1) + (seqfpos (appoggio,"unemployment")[i])
```

```
  CampioneN48p90mesi$APPinactive02[i] <- (CampioneN48p90mesi$spell01[i]-1) +
(seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$APPuneOinactive02[i] <- (CampioneN48p90mesi$spell01[i]-
1) + (seqfpos (appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$stop02[i] <- min
(CampioneN48p90mesi$APPunemployment02[i],CampioneN48p90mesi$APPinactiv
e02[i],CampioneN48p90mesi$APPuneOinactive02[i],CampioneN48p90mesi$cambio
W02[i],na.rm = T)
}
CampioneN48p90mesi$dist02 <-
round(CampioneN48p90mesi$spell01+((CampioneN48p90mesi$spell02-
CampioneN48p90mesi$spell01)/2), digits = 0)
CampioneN48p90mesi$stop02 <- ifelse (CampioneN48p90mesi$stop02==Inf,
CampioneN48p90mesi$dist02,CampioneN48p90mesi$stop02)

#2003 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell02[i]
  b <- 6069 + CampioneN48p90mesi$spell03[i]
  appoggio <- seqdef (CampioneN48p90mesi[,a:b])
  CampioneN48p90mesi$APPunemployment03[i] <-
(CampioneN48p90mesi$spell02[i]-1) + (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$APPinactive03[i] <- (CampioneN48p90mesi$spell02[i]-1) +
(seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$APPuneOinactive03[i] <- (CampioneN48p90mesi$spell02[i]-
1) + (seqfpos (appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$stop03[i] <- min
(CampioneN48p90mesi$APPunemployment03[i],CampioneN48p90mesi$APPinactiv
e03[i],CampioneN48p90mesi$APPuneOinactive03[i],CampioneN48p90mesi$cambio
W03[i],na.rm = T)
}
CampioneN48p90mesi$dist03 <-
round(CampioneN48p90mesi$spell02+((CampioneN48p90mesi$spell03-
CampioneN48p90mesi$spell02)/2), digits = 0)
```

```
CampioneN48p90mesi$stop03 <- ifelse (CampioneN48p90mesi$stop03==Inf,
CampioneN48p90mesi$dist03,CampioneN48p90mesi$stop03)

#2004 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell03[i]
  b <- 6069 + CampioneN48p90mesi$spell04[i]
  appoggio <- seqdef (CampioneN48p90mesi[,a:b])
  CampioneN48p90mesi$APPunemployment04[i] <-
(CampioneN48p90mesi$spell03[i]-1) + (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$APPinactive04[i] <- (CampioneN48p90mesi$spell03[i]-1) +
(seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$APPuneOinactive04[i] <- (CampioneN48p90mesi$spell03[i]-
1) + (seqfpos (appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$stop04[i] <- min
(CampioneN48p90mesi$APPunemployment04[i],CampioneN48p90mesi$APPinactiv
e04[i],CampioneN48p90mesi$APPuneOinactive04[i],CampioneN48p90mesi$cambio
W04[i],na.rm = T)
}
CampioneN48p90mesi$dist04 <-
round(CampioneN48p90mesi$spell03+((CampioneN48p90mesi$spell04-
CampioneN48p90mesi$spell03)/2), digits = 0)
CampioneN48p90mesi$stop04 <- ifelse (CampioneN48p90mesi$stop04==Inf,
CampioneN48p90mesi$dist04,CampioneN48p90mesi$stop04)

#2005 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell04[i]
  b <- 6069 + CampioneN48p90mesi$spell05[i]
  appoggio <- seqdef (CampioneN48p90mesi[,a:b])
  CampioneN48p90mesi$APPunemployment05[i] <-
(CampioneN48p90mesi$spell04[i]-1) + (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$APPinactive05[i] <- (CampioneN48p90mesi$spell04[i]-1) +
(seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$APPuneOinactive05[i] <- (CampioneN48p90mesi$spell04[i]-
1) + (seqfpos (appoggio,"unemployed or inactive")[i])
}
```

```
for (i in 1:532){
  CampioneN48p90mesi$stop05[i] <- min
(CampioneN48p90mesi$APPunemployment05[i],CampioneN48p90mesi$APPinactiv
e05[i],CampioneN48p90mesi$APPuneOinactive05[i],CampioneN48p90mesi$cambio
W05[i],na.rm = T)
}
CampioneN48p90mesi$dist05 <-
round(CampioneN48p90mesi$spell04+((CampioneN48p90mesi$spell05-
CampioneN48p90mesi$spell04)/2), digits = 0)
CampioneN48p90mesi$stop05 <- ifelse (CampioneN48p90mesi$stop05==Inf,
CampioneN48p90mesi$dist05,CampioneN48p90mesi$stop05)

#2006 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell05[i]
  b <- 6069 + CampioneN48p90mesi$spell06[i]
  appoggio <- seqdef (CampioneN48p90mesi[,a:b])
  CampioneN48p90mesi$APPunemployment06[i] <-
(CampioneN48p90mesi$spell05[i]-1) + (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$APPinactive06[i] <- (CampioneN48p90mesi$spell05[i]-1) +
(seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$APPuneOinactive06[i] <- (CampioneN48p90mesi$spell05[i]-
1) + (seqfpos (appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$stop06[i] <- min
(CampioneN48p90mesi$APPunemployment06[i],CampioneN48p90mesi$APPinactiv
e06[i],CampioneN48p90mesi$APPuneOinactive06[i],CampioneN48p90mesi$cambio
W06[i],na.rm = T)
}
CampioneN48p90mesi$dist06 <-
round(CampioneN48p90mesi$spell05+((CampioneN48p90mesi$spell06-
CampioneN48p90mesi$spell05)/2), digits = 0)
CampioneN48p90mesi$stop06 <- ifelse (CampioneN48p90mesi$stop06==Inf,
CampioneN48p90mesi$dist06,CampioneN48p90mesi$stop06)

#2007 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell06[i]
  b <- 6069 + CampioneN48p90mesi$spell07[i]
```

```
  appoggio <- seqdef (CampioneN48p90mesi[,a:b])
  CampioneN48p90mesi$APPunemployment07[i] <-
(CampioneN48p90mesi$spell06[i]-1) + (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$APPinactive07[i] <- (CampioneN48p90mesi$spell06[i]-1) +
(seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$APPuneOinactive07[i] <- (CampioneN48p90mesi$spell06[i]-
1) + (seqfpos (appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$stop07[i] <- min
(CampioneN48p90mesi$APPunemployment07[i],CampioneN48p90mesi$APPinactiv
e07[i],CampioneN48p90mesi$APPuneOinactive07[i],CampioneN48p90mesi$cambio
W07[i],na.rm = T)
}
CampioneN48p90mesi$dist07 <-
round(CampioneN48p90mesi$spell06+((CampioneN48p90mesi$spell07-
CampioneN48p90mesi$spell06)/2), digits = 0)
CampioneN48p90mesi$stop07 <- ifelse (CampioneN48p90mesi$stop07==Inf,
CampioneN48p90mesi$dist07,CampioneN48p90mesi$stop07)

#2008 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell07[i]
  b <- 6069 + CampioneN48p90mesi$spell08[i]
  appoggio <- seqdef (CampioneN48p90mesi[,a:b])
  CampioneN48p90mesi$APPunemployment08[i] <-
(CampioneN48p90mesi$spell07[i]-1) + (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$APPinactive08[i] <- (CampioneN48p90mesi$spell07[i]-1) +
(seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$APPuneOinactive08[i] <- (CampioneN48p90mesi$spell07[i]-
1) + (seqfpos (appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$stop08[i] <- min
(CampioneN48p90mesi$APPunemployment08[i],CampioneN48p90mesi$APPinactiv
e08[i],CampioneN48p90mesi$APPuneOinactive08[i],CampioneN48p90mesi$cambio
W08[i],na.rm = T)
}
```

```
CampioneN48p90mesi$dist08 <-
round(CampioneN48p90mesi$spell07+((CampioneN48p90mesi$spell08-
CampioneN48p90mesi$spell07)/2), digits = 0)
CampioneN48p90mesi$stop08 <- ifelse (CampioneN48p90mesi$stop08==Inf,
CampioneN48p90mesi$dist08,CampioneN48p90mesi$stop08)

#2009 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell08[i]
  b <- 6069 + CampioneN48p90mesi$spell09[i]
  appoggio <- seqdef (CampioneN48p90mesi[,a:b])
  CampioneN48p90mesi$APPunemployment09[i] <-
(CampioneN48p90mesi$spell08[i]-1) + (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$APPinactive09[i] <- (CampioneN48p90mesi$spell08[i]-1) +
(seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$APPuneOinactive09[i] <- (CampioneN48p90mesi$spell08[i]-
1) + (seqfpos (appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$stop09[i] <- min
(CampioneN48p90mesi$APPunemployment09[i],CampioneN48p90mesi$APPinactiv
e09[i],CampioneN48p90mesi$APPuneOinactive09[i],CampioneN48p90mesi$cambio
W09[i],na.rm = T)
}
CampioneN48p90mesi$dist09 <-
round(CampioneN48p90mesi$spell08+((CampioneN48p90mesi$spell09-
CampioneN48p90mesi$spell08)/2), digits = 0)
CampioneN48p90mesi$stop09 <- ifelse (CampioneN48p90mesi$stop09==Inf,
CampioneN48p90mesi$dist09,CampioneN48p90mesi$stop09)

#2010 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell09[i]
  b <- 6069 + CampioneN48p90mesi$spell10[i]
  appoggio <- seqdef (CampioneN48p90mesi[,a:b])
  CampioneN48p90mesi$APPunemployment10[i] <-
(CampioneN48p90mesi$spell09[i]-1) + (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$APPinactive10[i] <- (CampioneN48p90mesi$spell09[i]-1) +
(seqfpos (appoggio,"inactive")[i])
```

```
  CampioneN48p90mesi$APPuneOinactive10[i] <- (CampioneN48p90mesi$spell09[i]-
1) + (seqfpos (appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$stop10[i] <- min
(CampioneN48p90mesi$APPunemployment10[i],CampioneN48p90mesi$APPinactiv
e10[i],CampioneN48p90mesi$APPuneOinactive10[i],CampioneN48p90mesi$cambio
W10[i],na.rm = T)
}
CampioneN48p90mesi$dist10 <-
round(CampioneN48p90mesi$spell09+((CampioneN48p90mesi$spell10-
CampioneN48p90mesi$spell09)/2), digits = 0)
CampioneN48p90mesi$stop10 <- ifelse (CampioneN48p90mesi$stop10==Inf,
CampioneN48p90mesi$dist10,CampioneN48p90mesi$stop10)

#2011 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell10[i]
  b <- 6069 + CampioneN48p90mesi$spell11[i]
  appoggio <- seqdef (CampioneN48p90mesi[,a:b])
  CampioneN48p90mesi$APPunemployment11[i] <-
(CampioneN48p90mesi$spell10[i]-1) + (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$APPinactive11[i] <- (CampioneN48p90mesi$spell10[i]-1) +
(seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$APPuneOinactive11[i] <- (CampioneN48p90mesi$spell10[i]-
1) + (seqfpos (appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$stop11[i] <- min
(CampioneN48p90mesi$APPunemployment11[i],CampioneN48p90mesi$APPinactiv
e11[i],CampioneN48p90mesi$APPuneOinactive11[i],CampioneN48p90mesi$cambio
W11[i],na.rm = T)
}
CampioneN48p90mesi$dist11 <-
round(CampioneN48p90mesi$spell10+((CampioneN48p90mesi$spell11-
CampioneN48p90mesi$spell10)/2), digits = 0)
CampioneN48p90mesi$stop11 <- ifelse (CampioneN48p90mesi$stop11==Inf,
CampioneN48p90mesi$dist11,CampioneN48p90mesi$stop11)
```

```
#2012 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell11[i]
  b <- 6220
  appoggio <- seqdef (CampioneN48p90mesi[,a:b])
  CampioneN48p90mesi$APPunemployment12[i] <-
(CampioneN48p90mesi$spell11[i]-1) + (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$APPinactive12[i] <- (CampioneN48p90mesi$spell11[i]-1) +
(seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$APPuneOinactive12[i] <- (CampioneN48p90mesi$spell11[i]-
1) + (seqfpos (appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$stop12[i] <- min
(CampioneN48p90mesi$APPunemployment12[i],CampioneN48p90mesi$APPinactiv
e12[i],CampioneN48p90mesi$APPuneOinactive12[i],na.rm = T)
}
CampioneN48p90mesi$stop12 <- ifelse (CampioneN48p90mesi$stop12==Inf,
151,CampioneN48p90mesi$stop12-6)
#in quest utlimo non c'è il workdivision perchè viene dall'intervista 2012 che non c'è

CampioneN48p90mesi$stop12[499] <- 151 #questo da problemi non so perchè, così
è a posto#



#ricodifica in avanti#
#1999#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell99[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$stop00[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A99[i]==1)|(CampioneN48p90mesi$WorkDiv1A
99[i]==2)|(CampioneN48p90mesi$WorkDiv1A99[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A99[i]==4)|(CampioneN48p90mesi$WorkDiv1A99[i]==5)|(CampioneN48p90
mesi$WorkDiv1A99[i]==6)|(CampioneN48p90mesi$WorkDiv1A99[i]==7)|(Campione
N48p90mesi$WorkDiv1A99[i]==8)),CampioneN48p90mesi$WorkDiv1A99[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
```

```
   CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2000#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell00[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$stop01[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A00[i]==1)|(CampioneN48p90mesi$WorkDiv1A
00[i]==2)|(CampioneN48p90mesi$WorkDiv1A00[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A00[i]==4)|(CampioneN48p90mesi$WorkDiv1A00[i]==5)|(CampioneN48p90
mesi$WorkDiv1A00[i]==6)|(CampioneN48p90mesi$WorkDiv1A00[i]==7)|(Campione
N48p90mesi$WorkDiv1A00[i]==8)),CampioneN48p90mesi$WorkDiv1A00[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
   CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2001#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell01[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$stop02[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A01[i]==1)|(CampioneN48p90mesi$WorkDiv1A
01[i]==2)|(CampioneN48p90mesi$WorkDiv1A01[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A01[i]==4)|(CampioneN48p90mesi$WorkDiv1A01[i]==5)|(CampioneN48p90
mesi$WorkDiv1A01[i]==6)|(CampioneN48p90mesi$WorkDiv1A01[i]==7)|(Campione
N48p90mesi$WorkDiv1A01[i]==8)),CampioneN48p90mesi$WorkDiv1A01[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
   CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2002#
for (i in 1:532){
```

```
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell02[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$stop03[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A02[i]==1)|(CampioneN48p90mesi$WorkDiv1A
02[i]==2)|(CampioneN48p90mesi$WorkDiv1A02[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A02[i]==4)|(CampioneN48p90mesi$WorkDiv1A02[i]==5)|(CampioneN48p90
mesi$WorkDiv1A02[i]==6)|(CampioneN48p90mesi$WorkDiv1A02[i]==7)|(Campione
N48p90mesi$WorkDiv1A02[i]==8)),CampioneN48p90mesi$WorkDiv1A02[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2003#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell03[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$stop04[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A03[i]==1)|(CampioneN48p90mesi$WorkDiv1A
03[i]==2)|(CampioneN48p90mesi$WorkDiv1A03[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A03[i]==4)|(CampioneN48p90mesi$WorkDiv1A03[i]==5)|(CampioneN48p90
mesi$WorkDiv1A03[i]==6)|(CampioneN48p90mesi$WorkDiv1A03[i]==7)|(Campione
N48p90mesi$WorkDiv1A03[i]==8)),CampioneN48p90mesi$WorkDiv1A03[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2004#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell04[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$stop05[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A04[i]==1)|(CampioneN48p90mesi$WorkDiv1A
04[i]==2)|(CampioneN48p90mesi$WorkDiv1A04[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A04[i]==4)|(CampioneN48p90mesi$WorkDiv1A04[i]==5)|(CampioneN48p90
mesi$WorkDiv1A04[i]==6)|(CampioneN48p90mesi$WorkDiv1A04[i]==7)|(Campione
```

```
N48p90mesi$WorkDiv1A04[i]==8)),CampioneN48p90mesi$WorkDiv1A04[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2005#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell05[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$stop06[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A05[i]==1)|(CampioneN48p90mesi$WorkDiv1A
05[i]==2)|(CampioneN48p90mesi$WorkDiv1A05[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A05[i]==4)|(CampioneN48p90mesi$WorkDiv1A05[i]==5)|(CampioneN48p90
mesi$WorkDiv1A05[i]==6)|(CampioneN48p90mesi$WorkDiv1A05[i]==7)|(Campione
N48p90mesi$WorkDiv1A05[i]==8)),CampioneN48p90mesi$WorkDiv1A05[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2006#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell06[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$stop07[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A06[i]==1)|(CampioneN48p90mesi$WorkDiv1A
06[i]==2)|(CampioneN48p90mesi$WorkDiv1A06[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A06[i]==4)|(CampioneN48p90mesi$WorkDiv1A06[i]==5)|(CampioneN48p90
mesi$WorkDiv1A06[i]==6)|(CampioneN48p90mesi$WorkDiv1A06[i]==7)|(Campione
N48p90mesi$WorkDiv1A06[i]==8)),CampioneN48p90mesi$WorkDiv1A06[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}
```

```
#2007#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell07[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$stop08[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A07[i]==1)|(CampioneN48p90mesi$WorkDiv1A
07[i]==2)|(CampioneN48p90mesi$WorkDiv1A07[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A07[i]==4)|(CampioneN48p90mesi$WorkDiv1A07[i]==5)|(CampioneN48p90
mesi$WorkDiv1A07[i]==6)|(CampioneN48p90mesi$WorkDiv1A07[i]==7)|(Campione
N48p90mesi$WorkDiv1A07[i]==8)),CampioneN48p90mesi$WorkDiv1A07[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2008#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell08[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$stop09[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A08[i]==1)|(CampioneN48p90mesi$WorkDiv1A
08[i]==2)|(CampioneN48p90mesi$WorkDiv1A08[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A08[i]==4)|(CampioneN48p90mesi$WorkDiv1A08[i]==5)|(CampioneN48p90
mesi$WorkDiv1A08[i]==6)|(CampioneN48p90mesi$WorkDiv1A08[i]==7)|(Campione
N48p90mesi$WorkDiv1A08[i]==8)),CampioneN48p90mesi$WorkDiv1A08[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2009#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell09[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$stop10[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A09[i]==1)|(CampioneN48p90mesi$WorkDiv1A
```

```
09[i]==2)|(CampioneN48p90mesi$WorkDiv1A09[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A09[i]==4)|(CampioneN48p90mesi$WorkDiv1A09[i]==5)|(CampioneN48p90
mesi$WorkDiv1A09[i]==6)|(CampioneN48p90mesi$WorkDiv1A09[i]==7)|(Campione
N48p90mesi$WorkDiv1A09[i]==8)),CampioneN48p90mesi$WorkDiv1A09[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2010#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell10[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$stop11[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A10[i]==1)|(CampioneN48p90mesi$WorkDiv1A
10[i]==2)|(CampioneN48p90mesi$WorkDiv1A10[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A10[i]==4)|(CampioneN48p90mesi$WorkDiv1A10[i]==5)|(CampioneN48p90
mesi$WorkDiv1A10[i]==6)|(CampioneN48p90mesi$WorkDiv1A10[i]==7)|(Campione
N48p90mesi$WorkDiv1A10[i]==8)),CampioneN48p90mesi$WorkDiv1A10[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2011#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell11[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$stop12[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A11[i]==1)|(CampioneN48p90mesi$WorkDiv1A
11[i]==2)|(CampioneN48p90mesi$WorkDiv1A11[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A11[i]==4)|(CampioneN48p90mesi$WorkDiv1A11[i]==5)|(CampioneN48p90
mesi$WorkDiv1A11[i]==6)|(CampioneN48p90mesi$WorkDiv1A11[i]==7)|(Campione
N48p90mesi$WorkDiv1A11[i]==8)),CampioneN48p90mesi$WorkDiv1A11[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
```

```
   CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#recupero quelli che non hanno indicato il tipo di lavoro (1)

for (i in 1:532){
  for (j in 1:151){
    a <- 6069 + j
    b <- 5670 + j
    CampioneN48p90mesi[,a] <- recode(CampioneN48p90mesi[,a],"NA=100")
    c <- as.character(CampioneN48p90mesi[i,b])
    CampioneN48p90mesi[i,a] <- ifelse (CampioneN48p90mesi[i,a]==100, c,
CampioneN48p90mesi[i,a])
    CampioneN48p90mesi[,a] <- recode(CampioneN48p90mesi[,a],"100=NA")
  }}


##definizione intervalli retrostop

#1999 (da 1999 a 2012)
for (i in 1:532){
  a <- 6070
  b <- 6069 + CampioneN48p90mesi$spell99[i]
  appoggio <- seqdef (CampioneN48p90mesi[,b:a])
  CampioneN48p90mesi$retroAPPunemployment99[i] <-
(CampioneN48p90mesi$spell99[i]+1) - (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$retroAPPinactive99[i] <-
(CampioneN48p90mesi$spell99[i]+1) - (seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$retroAPPuneOinactive99[i] <-
(CampioneN48p90mesi$spell99[i]+1) - (seqfpos (appoggio,"unemployed or
inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$retrostop99[i] <- max
(CampioneN48p90mesi$retroAPPunemployment99[i],CampioneN48p90mesi$retro
APPinactive99[i],CampioneN48p90mesi$retroAPPuneOinactive99[i],CampioneN48p
90mesi$cambioW99[i],na.rm = T)
}
```

```
CampioneN48p90mesi$retrostop99 <- ifelse (CampioneN48p90mesi$retrostop99==
-Inf,1,CampioneN48p90mesi$retrostop99)


#2000 (da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell99[i]
  b <- 6069 + CampioneN48p90mesi$spell00[i]
  appoggio <- seqdef (CampioneN48p90mesi[,b:a])
  CampioneN48p90mesi$retroAPPunemployment00[i] <-
(CampioneN48p90mesi$spell00[i]+1) - (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$retroAPPinactive00[i] <-
(CampioneN48p90mesi$spell00[i]+1) - (seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$retroAPPuneOinactive00[i] <-
(CampioneN48p90mesi$spell00[i]+1) - (seqfpos (appoggio,"unemployed or
inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$retrostop00[i] <- max
(CampioneN48p90mesi$retroAPPunemployment00[i],CampioneN48p90mesi$retro
APPinactive00[i],CampioneN48p90mesi$retroAPPuneOinactive00[i],CampioneN48p
90mesi$cambioW00[i],na.rm = T)
}
CampioneN48p90mesi$retrostop00 <- ifelse (CampioneN48p90mesi$retrostop00==
-Inf,CampioneN48p90mesi$dist00,CampioneN48p90mesi$retrostop00)

#2001 (da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell00[i]
  b <- 6069 + CampioneN48p90mesi$spell01[i]
  appoggio <- seqdef (CampioneN48p90mesi[,b:a])
  CampioneN48p90mesi$retroAPPunemployment01[i] <-
(CampioneN48p90mesi$spell01[i]+1) - (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$retroAPPinactive01[i] <-
(CampioneN48p90mesi$spell01[i]+1) - (seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$retroAPPuneOinactive01[i] <-
(CampioneN48p90mesi$spell01[i]+1) - (seqfpos (appoggio,"unemployed or
inactive")[i])
}
```

```
for (i in 1:532){
  CampioneN48p90mesi$retrostop01[i] <- max
(CampioneN48p90mesi$retroAPPunemployment01[i],CampioneN48p90mesi$retro
APPinactive01[i],CampioneN48p90mesi$retroAPPuneOinactive01[i],CampioneN48p
90mesi$cambioW01[i],na.rm = T)
}
CampioneN48p90mesi$retrostop01 <- ifelse (CampioneN48p90mesi$retrostop01==
-Inf,CampioneN48p90mesi$dist01,CampioneN48p90mesi$retrostop01)

#2002(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell01[i]
  b <- 6069 + CampioneN48p90mesi$spell02[i]
  appoggio <- seqdef (CampioneN48p90mesi[,b:a])
  CampioneN48p90mesi$retroAPPunemployment02[i] <-
(CampioneN48p90mesi$spell02[i]+1) - (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$retroAPPinactive02[i] <-
(CampioneN48p90mesi$spell02[i]+1) - (seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$retroAPPuneOinactive02[i] <-
(CampioneN48p90mesi$spell02[i]+1) - (seqfpos (appoggio,"unemployed or
inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$retrostop02[i] <- max
(CampioneN48p90mesi$retroAPPunemployment02[i],CampioneN48p90mesi$retro
APPinactive02[i],CampioneN48p90mesi$retroAPPuneOinactive02[i],CampioneN48p
90mesi$cambioW02[i],na.rm = T)
}
CampioneN48p90mesi$retrostop02 <- ifelse (CampioneN48p90mesi$retrostop02==
-Inf,CampioneN48p90mesi$dist02,CampioneN48p90mesi$retrostop02)

#2003(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell02[i]
  b <- 6069 + CampioneN48p90mesi$spell03[i]
  appoggio <- seqdef (CampioneN48p90mesi[,b:a])
  CampioneN48p90mesi$retroAPPunemployment03[i] <-
(CampioneN48p90mesi$spell03[i]+1) - (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$retroAPPinactive03[i] <-
(CampioneN48p90mesi$spell03[i]+1) - (seqfpos (appoggio,"inactive")[i])
```

```
  CampioneN48p90mesi$retroAPPuneOinactive03[i] <-
(CampioneN48p90mesi$spell03[i]+1) - (seqfpos (appoggio,"unemployed or
inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$retrostop03[i] <- max
(CampioneN48p90mesi$retroAPPunemployment03[i],CampioneN48p90mesi$retro
APPinactive03[i],CampioneN48p90mesi$retroAPPuneOinactive03[i],CampioneN48p
90mesi$cambioW03[i],na.rm = T)
}
CampioneN48p90mesi$retrostop03 <- ifelse (CampioneN48p90mesi$retrostop03==
-Inf,CampioneN48p90mesi$dist03,CampioneN48p90mesi$retrostop03)

#2004(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell03[i]
  b <- 6069 + CampioneN48p90mesi$spell04[i]
  appoggio <- seqdef (CampioneN48p90mesi[,b:a])
  CampioneN48p90mesi$retroAPPunemployment04[i] <-
(CampioneN48p90mesi$spell04[i]+1) - (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$retroAPPinactive04[i] <-
(CampioneN48p90mesi$spell04[i]+1) - (seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$retroAPPuneOinactive04[i] <-
(CampioneN48p90mesi$spell04[i]+1) - (seqfpos (appoggio,"unemployed or
inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$retrostop04[i] <- max
(CampioneN48p90mesi$retroAPPunemployment04[i],CampioneN48p90mesi$retro
APPinactive04[i],CampioneN48p90mesi$retroAPPuneOinactive04[i],CampioneN48p
90mesi$cambioW04[i],na.rm = T)
}
CampioneN48p90mesi$retrostop04 <- ifelse (CampioneN48p90mesi$retrostop04==
-Inf,CampioneN48p90mesi$dist04,CampioneN48p90mesi$retrostop04)

#2005(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell04[i]
  b <- 6069 + CampioneN48p90mesi$spell05[i]
```

```
  appoggio <- seqdef (CampioneN48p90mesi[,b:a])
  CampioneN48p90mesi$retroAPPunemployment05[i] <-
(CampioneN48p90mesi$spell05[i]+1) - (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$retroAPPinactive05[i] <-
(CampioneN48p90mesi$spell05[i]+1) - (seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$retroAPPuneOinactive05[i] <-
(CampioneN48p90mesi$spell05[i]+1) - (seqfpos (appoggio,"unemployed or
inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$retrostop05[i] <- max
(CampioneN48p90mesi$retroAPPunemployment05[i],CampioneN48p90mesi$retro
APPinactive05[i],CampioneN48p90mesi$retroAPPuneOinactive05[i],CampioneN48p
90mesi$cambioW05[i],na.rm = T)
}
CampioneN48p90mesi$retrostop05 <- ifelse (CampioneN48p90mesi$retrostop05==
-Inf,CampioneN48p90mesi$dist05,CampioneN48p90mesi$retrostop05)

#2006(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell05[i]
  b <- 6069 + CampioneN48p90mesi$spell06[i]
  appoggio <- seqdef (CampioneN48p90mesi[,b:a])
  CampioneN48p90mesi$retroAPPunemployment06[i] <-
(CampioneN48p90mesi$spell06[i]+1) - (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$retroAPPinactive06[i] <-
(CampioneN48p90mesi$spell06[i]+1) - (seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$retroAPPuneOinactive06[i] <-
(CampioneN48p90mesi$spell06[i]+1) - (seqfpos (appoggio,"unemployed or
inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$retrostop06[i] <- max
(CampioneN48p90mesi$retroAPPunemployment06[i],CampioneN48p90mesi$retro
APPinactive06[i],CampioneN48p90mesi$retroAPPuneOinactive06[i],CampioneN48p
90mesi$cambioW06[i],na.rm = T)
}
CampioneN48p90mesi$retrostop06 <- ifelse (CampioneN48p90mesi$retrostop06==
-Inf,CampioneN48p90mesi$dist06,CampioneN48p90mesi$retrostop06)
```

```
#2007(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell06[i]
  b <- 6069 + CampioneN48p90mesi$spell07[i]
  appoggio <- seqdef (CampioneN48p90mesi[,b:a])
  CampioneN48p90mesi$retroAPPunemployment07[i] <-
(CampioneN48p90mesi$spell07[i]+1) - (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$retroAPPinactive07[i] <-
(CampioneN48p90mesi$spell07[i]+1) - (seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$retroAPPuneOinactive07[i] <-
(CampioneN48p90mesi$spell07[i]+1) - (seqfpos (appoggio,"unemployed or
inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$retrostop07[i] <- max
(CampioneN48p90mesi$retroAPPunemployment07[i],CampioneN48p90mesi$retro
APPinactive07[i],CampioneN48p90mesi$retroAPPuneOinactive07[i],CampioneN48p
90mesi$cambioW07[i],na.rm = T)
}
CampioneN48p90mesi$retrostop07 <- ifelse (CampioneN48p90mesi$retrostop07==
-Inf,CampioneN48p90mesi$dist07,CampioneN48p90mesi$retrostop07)

#2008(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell07[i]
  b <- 6069 + CampioneN48p90mesi$spell08[i]
  appoggio <- seqdef (CampioneN48p90mesi[,b:a])
  CampioneN48p90mesi$retroAPPunemployment08[i] <-
(CampioneN48p90mesi$spell08[i]+1) - (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$retroAPPinactive08[i] <-
(CampioneN48p90mesi$spell08[i]+1) - (seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$retroAPPuneOinactive08[i] <-
(CampioneN48p90mesi$spell08[i]+1) - (seqfpos (appoggio,"unemployed or
inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$retrostop08[i] <- max
(CampioneN48p90mesi$retroAPPunemployment08[i],CampioneN48p90mesi$retro
```

```
APPinactive08[i],CampioneN48p90mesi$retroAPPuneOinactive08[i],CampioneN48p
90mesi$cambioW08[i],na.rm = T)
}
CampioneN48p90mesi$retrostop08 <- ifelse (CampioneN48p90mesi$retrostop08==
-Inf,CampioneN48p90mesi$dist08,CampioneN48p90mesi$retrostop08)

#2009(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell08[i]
  b <- 6069 + CampioneN48p90mesi$spell09[i]
  appoggio <- seqdef (CampioneN48p90mesi[,b:a])
  CampioneN48p90mesi$retroAPPunemployment09[i] <-
(CampioneN48p90mesi$spell09[i]+1) - (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$retroAPPinactive09[i] <-
(CampioneN48p90mesi$spell09[i]+1) - (seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$retroAPPuneOinactive09[i] <-
(CampioneN48p90mesi$spell09[i]+1) - (seqfpos (appoggio,"unemployed or
inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$retrostop09[i] <- max
(CampioneN48p90mesi$retroAPPunemployment09[i],CampioneN48p90mesi$retro
APPinactive09[i],CampioneN48p90mesi$retroAPPuneOinactive09[i],CampioneN48p
90mesi$cambioW09[i],na.rm = T)
}
CampioneN48p90mesi$retrostop09 <- ifelse (CampioneN48p90mesi$retrostop09==
-Inf,CampioneN48p90mesi$dist09,CampioneN48p90mesi$retrostop09)

#2010(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell09[i]
  b <- 6069 + CampioneN48p90mesi$spell10[i]
  appoggio <- seqdef (CampioneN48p90mesi[,b:a])
  CampioneN48p90mesi$retroAPPunemployment10[i] <-
(CampioneN48p90mesi$spell10[i]+1) - (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$retroAPPinactive10[i] <-
(CampioneN48p90mesi$spell10[i]+1) - (seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$retroAPPuneOinactive10[i] <-
(CampioneN48p90mesi$spell10[i]+1) - (seqfpos (appoggio,"unemployed or
inactive")[i])
```

```
}

for (i in 1:532){
  CampioneN48p90mesi$retrostop10[i] <- max
(CampioneN48p90mesi$retroAPPunemployment10[i],CampioneN48p90mesi$retro
APPinactive10[i],CampioneN48p90mesi$retroAPPuneOinactive10[i],CampioneN48p
90mesi$cambioW10[i],na.rm = T)
}
CampioneN48p90mesi$retrostop10 <- ifelse (CampioneN48p90mesi$retrostop10==
-Inf,CampioneN48p90mesi$dist10,CampioneN48p90mesi$retrostop10)

#2011(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + CampioneN48p90mesi$spell10[i]
  b <- 6069 + CampioneN48p90mesi$spell11[i]
  appoggio <- seqdef (CampioneN48p90mesi[,b:a])
  CampioneN48p90mesi$retroAPPunemployment11[i] <-
(CampioneN48p90mesi$spell11[i]+1) - (seqfpos (appoggio,"unemployment")[i])
  CampioneN48p90mesi$retroAPPinactive11[i] <-
(CampioneN48p90mesi$spell11[i]+1) - (seqfpos (appoggio,"inactive")[i])
  CampioneN48p90mesi$retroAPPuneOinactive11[i] <-
(CampioneN48p90mesi$spell11[i]+1) - (seqfpos (appoggio,"unemployed or
inactive")[i])
}

for (i in 1:532){
  CampioneN48p90mesi$retrostop11[i] <- max
(CampioneN48p90mesi$retroAPPunemployment11[i],CampioneN48p90mesi$retro
APPinactive11[i],CampioneN48p90mesi$retroAPPuneOinactive11[i],CampioneN48p
90mesi$cambioW11[i],na.rm = T)
}
CampioneN48p90mesi$retrostop11 <- ifelse (CampioneN48p90mesi$retrostop11==
-Inf,CampioneN48p90mesi$dist11,CampioneN48p90mesi$retrostop11)


#2012(da 1999 a 2012) ####non serve#
#for (i in 1:532){
# a <- 6069 + CampioneN48p90mesi$spell11[i]
#b <- 6220
#appoggio <- seqdef (CampioneN48p90mesi[,b:a])
```

```
#CampioneN48p90mesi$retroAPPunemployment12[i] <-  (151) - (seqfpos
(appoggio,"unemployment")[i])
#CampioneN48p90mesi$retroAPPinactive12[i] <- (151) - (seqfpos
(appoggio,"inactive")[i])
#CampioneN48p90mesi$retroAPPuneOinactive12[i] <- (151) - (seqfpos
(appoggio,"unemployed or inactive")[i])
#}

#for (i in 1:532){
# CampioneN48p90mesi$retrostop12[i] <- min
(CampioneN48p90mesi$retroAPPunemployment12[i],CampioneN48p90mesi$retro
APPinactive12[i],CampioneN48p90mesi$retroAPPuneOinactive12[i],na.rm = T)
#}
#CampioneN48p90mesi$retrostop12 <- ifelse
(CampioneN48p90mesi$retrostop12== -
Inf,CampioneN48p90mesi$dist12,CampioneN48p90mesi$retrostop12)

####forse c'è esrrore nel coding del 198#
CampioneN48p90mesi$retrostop01[198] <- 26
######

#ricodifica indietro#
#1999#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell99[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$retrostop99[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A99[i]==1)|(CampioneN48p90mesi$WorkDiv1A
99[i]==2)|(CampioneN48p90mesi$WorkDiv1A99[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A99[i]==4)|(CampioneN48p90mesi$WorkDiv1A99[i]==5)|(CampioneN48p90
mesi$WorkDiv1A99[i]==6)|(CampioneN48p90mesi$WorkDiv1A99[i]==7)|(Campione
N48p90mesi$WorkDiv1A99[i]==8)),CampioneN48p90mesi$WorkDiv1A99[i],Campio
neN48p90mesi[i,j])
  for (j in a:b){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2000#
for (i in 1:532){
```

```
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell00[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$retrostop00[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A00[i]==1)|(CampioneN48p90mesi$WorkDiv1A
00[i]==2)|(CampioneN48p90mesi$WorkDiv1A00[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A00[i]==4)|(CampioneN48p90mesi$WorkDiv1A00[i]==5)|(CampioneN48p90
mesi$WorkDiv1A00[i]==6)|(CampioneN48p90mesi$WorkDiv1A00[i]==7)|(Campione
N48p90mesi$WorkDiv1A00[i]==8)),CampioneN48p90mesi$WorkDiv1A00[i],Campio
neN48p90mesi[i,j])
  for (j in b:a){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2001#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell01[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$retrostop01[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A01[i]==1)|(CampioneN48p90mesi$WorkDiv1A
01[i]==2)|(CampioneN48p90mesi$WorkDiv1A01[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A01[i]==4)|(CampioneN48p90mesi$WorkDiv1A01[i]==5)|(CampioneN48p90
mesi$WorkDiv1A01[i]==6)|(CampioneN48p90mesi$WorkDiv1A01[i]==7)|(Campione
N48p90mesi$WorkDiv1A01[i]==8)),CampioneN48p90mesi$WorkDiv1A01[i],Campio
neN48p90mesi[i,j])
  for (j in b:a){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2002#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell02[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$retrostop02[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A02[i]==1)|(CampioneN48p90mesi$WorkDiv1A
02[i]==2)|(CampioneN48p90mesi$WorkDiv1A02[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A02[i]==4)|(CampioneN48p90mesi$WorkDiv1A02[i]==5)|(CampioneN48p90
mesi$WorkDiv1A02[i]==6)|(CampioneN48p90mesi$WorkDiv1A02[i]==7)|(Campione
```

```
N48p90mesi$WorkDiv1A02[i]==8)),CampioneN48p90mesi$WorkDiv1A02[i],Campio
neN48p90mesi[i,j])
  for (j in b:a){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2003#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell03[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$retrostop03[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A03[i]==1)|(CampioneN48p90mesi$WorkDiv1A
03[i]==2)|(CampioneN48p90mesi$WorkDiv1A03[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A03[i]==4)|(CampioneN48p90mesi$WorkDiv1A03[i]==5)|(CampioneN48p90
mesi$WorkDiv1A03[i]==6)|(CampioneN48p90mesi$WorkDiv1A03[i]==7)|(Campione
N48p90mesi$WorkDiv1A03[i]==8)),CampioneN48p90mesi$WorkDiv1A03[i],Campio
neN48p90mesi[i,j])
  for (j in b:a){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2004#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell04[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$retrostop04[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A04[i]==1)|(CampioneN48p90mesi$WorkDiv1A
04[i]==2)|(CampioneN48p90mesi$WorkDiv1A04[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A04[i]==4)|(CampioneN48p90mesi$WorkDiv1A04[i]==5)|(CampioneN48p90
mesi$WorkDiv1A04[i]==6)|(CampioneN48p90mesi$WorkDiv1A04[i]==7)|(Campione
N48p90mesi$WorkDiv1A04[i]==8)),CampioneN48p90mesi$WorkDiv1A04[i],Campio
neN48p90mesi[i,j])
  for (j in b:a){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}
```

```
#2005#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell05[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$retrostop05[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A05[i]==1)|(CampioneN48p90mesi$WorkDiv1A
05[i]==2)|(CampioneN48p90mesi$WorkDiv1A05[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A05[i]==4)|(CampioneN48p90mesi$WorkDiv1A05[i]==5)|(CampioneN48p90
mesi$WorkDiv1A05[i]==6)|(CampioneN48p90mesi$WorkDiv1A05[i]==7)|(Campione
N48p90mesi$WorkDiv1A05[i]==8)),CampioneN48p90mesi$WorkDiv1A05[i],Campio
neN48p90mesi[i,j])
  for (j in b:a){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2006#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell06[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$retrostop06[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A06[i]==1)|(CampioneN48p90mesi$WorkDiv1A
06[i]==2)|(CampioneN48p90mesi$WorkDiv1A06[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A06[i]==4)|(CampioneN48p90mesi$WorkDiv1A06[i]==5)|(CampioneN48p90
mesi$WorkDiv1A06[i]==6)|(CampioneN48p90mesi$WorkDiv1A06[i]==7)|(Campione
N48p90mesi$WorkDiv1A06[i]==8)),CampioneN48p90mesi$WorkDiv1A06[i],Campio
neN48p90mesi[i,j])
  for (j in b:a){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2007#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell07[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$retrostop07[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A07[i]==1)|(CampioneN48p90mesi$WorkDiv1A
```

```
07[i]==2)|(CampioneN48p90mesi$WorkDiv1A07[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A07[i]==4)|(CampioneN48p90mesi$WorkDiv1A07[i]==5)|(CampioneN48p90
mesi$WorkDiv1A07[i]==6)|(CampioneN48p90mesi$WorkDiv1A07[i]==7)|(Campione
N48p90mesi$WorkDiv1A07[i]==8)),CampioneN48p90mesi$WorkDiv1A07[i],Campio
neN48p90mesi[i,j])
  for (j in b:a){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2008#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell08[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$retrostop08[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A08[i]==1)|(CampioneN48p90mesi$WorkDiv1A
08[i]==2)|(CampioneN48p90mesi$WorkDiv1A08[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A08[i]==4)|(CampioneN48p90mesi$WorkDiv1A08[i]==5)|(CampioneN48p90
mesi$WorkDiv1A08[i]==6)|(CampioneN48p90mesi$WorkDiv1A08[i]==7)|(Campione
N48p90mesi$WorkDiv1A08[i]==8)),CampioneN48p90mesi$WorkDiv1A08[i],Campio
neN48p90mesi[i,j])
  for (j in b:a){
    CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2009#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell09[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$retrostop09[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A09[i]==1)|(CampioneN48p90mesi$WorkDiv1A
09[i]==2)|(CampioneN48p90mesi$WorkDiv1A09[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A09[i]==4)|(CampioneN48p90mesi$WorkDiv1A09[i]==5)|(CampioneN48p90
mesi$WorkDiv1A09[i]==6)|(CampioneN48p90mesi$WorkDiv1A09[i]==7)|(Campione
N48p90mesi$WorkDiv1A09[i]==8)),CampioneN48p90mesi$WorkDiv1A09[i],Campio
neN48p90mesi[i,j])
  for (j in b:a){
```

```
   CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2010#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell10[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$retrostop10[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A10[i]==1)|(CampioneN48p90mesi$WorkDiv1A
10[i]==2)|(CampioneN48p90mesi$WorkDiv1A10[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A10[i]==4)|(CampioneN48p90mesi$WorkDiv1A10[i]==5)|(CampioneN48p90
mesi$WorkDiv1A10[i]==6)|(CampioneN48p90mesi$WorkDiv1A10[i]==7)|(Campione
N48p90mesi$WorkDiv1A10[i]==8)),CampioneN48p90mesi$WorkDiv1A10[i],Campio
neN48p90mesi[i,j])
  for (j in b:a){
   CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#2011#
for (i in 1:532){
  a <- 6069 + as.numeric(CampioneN48p90mesi$spell11[i])
  b <- 6069 + as.numeric(CampioneN48p90mesi$retrostop11[i])
  c <- ifelse
(((CampioneN48p90mesi$WorkDiv1A11[i]==1)|(CampioneN48p90mesi$WorkDiv1A
11[i]==2)|(CampioneN48p90mesi$WorkDiv1A11[i]==3)|(CampioneN48p90mesi$Wo
rkDiv1A11[i]==4)|(CampioneN48p90mesi$WorkDiv1A11[i]==5)|(CampioneN48p90
mesi$WorkDiv1A11[i]==6)|(CampioneN48p90mesi$WorkDiv1A11[i]==7)|(Campione
N48p90mesi$WorkDiv1A11[i]==8)),CampioneN48p90mesi$WorkDiv1A11[i],Campio
neN48p90mesi[i,j])
  for (j in b:a){
   CampioneN48p90mesi[i,j] <- ifelse ((CampioneN48p90mesi[i,j]=="full-time paid
job (37 hours or more per week)"|CampioneN48p90mesi[i,j]=="part-time paid job
(1-36 hours per week)"), c,CampioneN48p90mesi[i,j])
  }}

#recupero quelli che non hanno indicato il tipo di lavoro (2)
```

```
for (i in 1:532){
  for (j in 1:151){
    a <- 6069 + j
    b <- 5670 + j
    CampioneN48p90mesi[,a] <- recode(CampioneN48p90mesi[,a],"NA=100")
    c <- as.character(CampioneN48p90mesi[i,b])
    CampioneN48p90mesi[i,a] <- ifelse (CampioneN48p90mesi[i,a]==100, c,
CampioneN48p90mesi[i,a])
    CampioneN48p90mesi[,a] <- recode(CampioneN48p90mesi[,a],"100=NA")
  }}


###N 48 mesi 90% ###
##strategia B, tipo lavoro##
#crea sequenza#
library(TraMineR)
library (TraMineRextras)
seq48m90pWC2 <-  seqdef(CampioneN48p90mesi[,6070:6220], weights =
CampioneN48p90mesi$peso)
#allinea su primo mese disoccupazione#
CampioneN48p90mesi$pos48m90pWC2 <-
seqfpos(seq48m90pWC2,"unemployment")
startSeq48m90pAllWC2 <- seqstart(CampioneN48p90mesi[, 6070:6220],
data.start=1, new.start=CampioneN48p90mesi$pos48m90pWC2,
                          tmax=48)

Seq48m90pAllWC2 <- seqdef(startSeq48m90pAllWC2, weights =
CampioneN48p90mesi$peso)
Seq48m90pAllWC2 <- seqrecode(Seq48m90pAllWC2,recodes = list(inactive =
c("unemployed or inactive", "inactive")))
#sequenze#
seqIplot(Seq48m90pAllWC2, sortv="from.start",  cex.legend=0.35, cpal= c("green",
"yellow2", "orange", "blue3"))

#unisco part-time e full-time in lavoro indifferenziato#
Seq48m90pAllWC2B <- seqrecode(Seq48m90pAllWC2,recodes = list("indefined job"
= c("full-time paid job (37 hours or more per week)", "part-time paid job (1-36 hours
per week)")))
seqIplot(Seq48m90pAllWC2B, sortv="from.start",  cex.legend=0.5, cpal=
c("green","yellow2", "red1", "pink", "brown", "red4",  "blue3"))
```

4- Sequence analysis

```
###N 48 mesi 90% ###
##strategia B, tipo lavoro##
#crea sequenza#
library(TraMineR)
library (TraMineRextras)
seq48m90pWC2 <-  seqdef(CampioneN48p90mesi[,6070:6220], weights =
CampioneN48p90mesi$peso)
#allinea su primo mese disoccupazione#
CampioneN48p90mesi$pos48m90pWC2 <-
seqfpos(seq48m90pWC2,"unemployment")
startSeq48m90pAllWC2 <- seqstart(CampioneN48p90mesi[, 6070:6220],
data.start=1, new.start=CampioneN48p90mesi$pos48m90pWC2,
                        tmax=48)

Seq48m90pAllWC2 <- seqdef(startSeq48m90pAllWC2, weights =
CampioneN48p90mesi$peso)
cpal(Seq48m90pAllWC2) <- c("yellow2", "red1", "pink", "brown", "red4", "green3",
"orange",  "blue3","pink","pink","pink","pink","pink")
Seq48m90pAllWC2 <- seqrecode(Seq48m90pAllWC2,recodes = list("inactive" =
c("unemployed or inactive", "inactive")))
#sequenze#
seqIplot(Seq48m90pAllWC2, sortv="from.start",  cex.legend=0.35, cpal=
c("yellow2", "red1", "pink", "brown", "red4", "green3",  "orange",  "blue3"))

#unisco part-time e full-time in lavoro indifferenziato#
Seq48m90pAllWC2B <- seqrecode(Seq48m90pAllWC2,recodes = list("indefined job"
= c("full-time paid job (37 hours or more per week)", "part-time paid job (1-36 hours
per week)")))
seqIplot(Seq48m90pAllWC2B, sortv="from.start",  cex.legend=0.3, cpal=
c("green","yellow2",  "pink", "pink2", "pink4", "red", "red2", "red4", "purple",
"purple2" , "blue3"))

#metto insieme i primi tre livelli perchè strettamente connessi (e rari). Li metto
insieme per favorire il fatto che sequenze con solo uno di questi stati vengano
clusterizzati insieme (hai fatto dei testi e questa è la soluzione migliore)
Seq48m90pAllWC2C <- seqrecode(Seq48m90pAllWC2B,recodes = list("1"  = c(1, 2,
3)))
```

```
alphabet(Seq48m90pAllWC2C) <- c("top-executives and self-employed","indefined job","inactive","intellectuals and managers","middle employees","Non-manual skilled employees","Manual skilled employees","Non-skilled employees","unemployed")
seqIplot(Seq48m90pAllWC2C, sortv="from.start", cex.legend=0.58, cpal= c("pink", "green","yellow", "tan1", "salmon","red", "violetred", "purple4", "blue"))

### matching ###
#matrice distanze (dist=constant)#
dm48m90pWC2C <- seqdist(Seq48m90pAllWC2C, method = "OM", sm="CONSTANT", full.matrix=F,with.missing=TRUE)

###clustering###
#clustering Ward#

dm48m90pWardWC2C <-  hclust(as.dist(dm48m90pWC2C), method = "ward", members = CampioneN48p90mesi$peso)

#analisi silouette e HC#
dm48m90pWardWCSilouette <- as.clustrange(dm48m90pWardWC2C, diss = as.dist(dm48m90pWC2C),
                                         weights = CampioneN48p90mesi$peso, ncluster = 20)
plot(dm48m90pWardWCSilouette, stat = c("ASWw", "HC"), lwd=3, cex=0.5, col=c("red","blue"))
# la soluzione migliore tecnicamente è 10 ma non distingue hard e soft transitions. dopo un po' di test, la migliore risulta essere 15 (PAM)#

#k=15#
CampioneN48p90mesi$dm48m90pWardCut15WC2C <- cutree(dm48m90pWardWC2C, k=15)
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group= CampioneN48p90mesi$dm48m90pWardCut15WC2C , cpal= c("pink", "green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))
seqrplot(Seq48m90pAllWC2C, group = CampioneN48p90mesi$dm48m90pWardCut15WC2C, dist.matrix = as.dist(dm48m90pWC2C),cex.legend=0.75, border = NA, stats=F, cpal= c("green","yellow2",  "pink", "pink4", "orange", "red", "red4", "brown", "purple", "purple4" , "blue3")) #sequenze rappresentative#

#PAM#
#K=15#
```

```
dm48m90pPamCut15WC2C <- wcKMedoids(dm48m90pWC2C, k = 15, weights =
CampioneN48p90mesi$peso,
                          initialclust =
CampioneN48p90mesi$dm48m90pWardCut15WC2C)

CampioneN48p90mesi$dm48m90pPamCut15WC2C <-
dm48m90pPamCut15WC2C$clustering
CampioneN48p90mesi$dm48m90pPamCut15WC2C[67] <- 493 #questa sequenza
viene messa nel cluster 160 (1 long) ma non ha mai lo status 1. Probabilmente viene
messa qui perchè nelle altre c'è tanto lo stato 4 e quindi si assomigliano#
CampioneN48p90mesi$dm48m90pPamCut15WC2C[186] <- 493 #idem come sopra#
CampioneN48p90mesi$dm48m90pPamCut15WC2C[376] <- 493 #idem come sopra#
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pPamCut15WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))
seqrplot(Seq48m90pAllWC2C, group =
CampioneN48p90mesi$dm48m90pPamCut15WC2C, dist.matrix =
as.dist(dm48m90pWC2C),cex.legend=0.75, border = NA, stats=F, cpal=
c("green","yellow2",  "pink", "pink4", "orange", "red", "red4", "brown", "purple",
"purple4" , "blue3")) #sequenze rappresentative#

#correzione 1 #
# metto quelli che hanno tanta disoccupazione prima in gruppo long
unemployment#
#sono gli stessi calcolati nelle analisi precedenti dato che non tipende da come sono
coificate le sequenze#
#il Gr1 (quelli che hanno un po' ma non tanta disoccupazione) non serve perchè non
c'è più distinzione tra long transition e short transition#

#PAM k=15#
CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr <-
CampioneN48p90mesi$dm48m90pPamCut15WC2C

for (i in Gr1){
  CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr[Gr1] <- recode
(CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr[Gr1],
"423=160;373=493;409=292;447=223")
}

for (i in Gr2){
  CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr[Gr2] <- 264
```

```
}

#correzione 2, rimuovo i casi che inquinano, sono gli stessi calcolati nelle analisi precedenti dato che non tipende da come sono coificate le sequenze#
#sono gli stessi calcolati nelle analisi precedenti dato che non tipende da come sono coificate le sequenze#
#il Gr1 (quelli che hanno un po' ma non tanta disoccupazione) non serve perch? non c'? pi? distinzione tra long transition e short transition#

#PAM k=15#
CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2 <-
CampioneN48p90mesi$dm48m90pPamCut15WC2C

for (i in Gr1){
  CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2[Gr1] <- 0
}

for (i in Gr2){
  CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2[Gr2] <- 0
}

###analisi monovariata, cluster corretti###
##sex##
sexPam2Corr <- crosstab
(CampioneN48p90mesi$SEX.y,CampioneN48p90mesi$dm48m90pPamCut15WC2Cc
orr, weight = CampioneN48p90mesi$peso,plot =F)
prop.table(sexPam2Corr$t, 2)

##per classi d'età##
#classi prese da divisione che fa l'OFS, ultime due classi fuse perchè, nel campione l'unltima ha pochissimi casi#
etaPam2Corr <- crosstab
(CampioneN48p90mesi$classAgeUn,CampioneN48p90mesi$dm48m90pPamCut15
WC2Ccorr, weight = CampioneN48p90mesi$peso,plot =F)
prop.table(etaPam2Corr$t, 2)

##nationality##
natPam2Corr <- crosstab
(CampioneN48p90mesi$natUn2Bin,CampioneN48p90mesi$dm48m90pPamCut15W
C2Ccorr, weight = CampioneN48p90mesi$peso,plot =F)
prop.table(natPam2Corr$t, 2)
```

```
##social origin##
originPam2Corr <- crosstab
(CampioneN48p90mesi$Origin,CampioneN48p90mesi$dm48m90pPamCut15WC2Cc
orr, weight = CampioneN48p90mesi$peso,plot =F)
prop.table(originPam2Corr$t, 2)

##education##
eduPam2Corr <- crosstab
(CampioneN48p90mesi$edUn,CampioneN48p90mesi$dm48m90pPamCut15WC2Cc
orr, weight = CampioneN48p90mesi$peso,plot =F)
prop.table(eduPam2Corr$t, 2)

###caratteristiche tecniche###

##per ogni unit?  di tempo, distribuzione dei vari stati#
#PAM#
seqdplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75,
group=CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2, weight =
CampioneN48p90mesi$peso, cpal= c("green","yellow2", "purple", "pink3", "red1",
"brown", "blue3"))

##entropia = disomogeneit?  degli stati in quella unit?  di tempo#
#PAM#
seqHtplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75,
group=CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2, weight =
CampioneN48p90mesi$peso, cpal= c("green","yellow2", "purple", "pink3", "red1",
"brown", "blue3"))

##sequenza modale per ogni unit?  di tempo#
#PAM#
seqmsplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75,
group=CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2, weight =
CampioneN48p90mesi$peso, cpal= c("green","yellow2", "purple", "pink3", "red1",
"brown", "blue3"))

##quanti mesi stanno in media in ogni stato#
#PAM#
seqmtplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75,
group=CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2, weight =
```

```
CampioneN48p90mesi$peso, cpal= c("green","yellow2", "purple", "pink3", "red1",
"brown", "blue3"))

#PAM#
#durata disoccupazione in gruppi#
#26# indifined sequence#
DurUnemployedCorr2C <- crosstab(seqistatd(Seq48m90pAllWC2C)[,9],
CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2, weight =
CampioneN48p90mesi$peso, plot =F)
ref <- matrix(c(1:31,33:39,42,44,45,47,48),nrow=43,ncol=1)
DurUnemployedCorr2C$t<-
cbind(DurUnemployedCorr2C$t[,2:16],ref,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0)
DurUnemployedCorr2C$t[,17] <-
DurUnemployedCorr2C$t[,1]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,17]))/sum(as.integer(DurUnemployedCorr
2C$t[,1]))
#media(quella calcolata nella riga sopra) = 1.95, max=13, min=1
#72# indifined sequence#
DurUnemployedCorr2C$t[,18] <-
DurUnemployedCorr2C$t[,2]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,18]))/sum(as.integer(DurUnemployedCorr
2C$t[,2]))
#media(quella calcolata nella riga sopra) = 12.8, max=27, min=2
#160# 1 hard#
DurUnemployedCorr2C$t[,19] <-
DurUnemployedCorr2C$t[,3]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,19]))/sum(as.integer(DurUnemployedCorr
2C$t[,3]))
#media(quella calcolata nella riga sopra) = 13.5, max=24, min=1
#182# indifined job#
DurUnemployedCorr2C$t[,20] <-
DurUnemployedCorr2C$t[,4]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,20]))/sum(as.integer(DurUnemployedCorr
2C$t[,4]))
#media(quella calcolata nella riga sopra) = 12.3, max=25, min=1
#183# inactivity#
DurUnemployedCorr2C$t[,21] <-
DurUnemployedCorr2C$t[,5]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,21]))/sum(as.integer(DurUnemployedCorr
2C$t[,5]))
#media(quella calcolata nella riga sopra) = 11.1, max=26, min=1
```

```
#223# 6 hard#
DurUnemployedCorr2C$t[,22] <-
DurUnemployedCorr2C$t[,6]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,22]))/sum(as.integer(DurUnemployedCorr
2C$t[,6]))
#media(quella calcolata nella riga sopra) = 11.7, max=24, min=1
#264# unemployement#
DurUnemployedCorr2C$t[,23] <-
DurUnemployedCorr2C$t[,7]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,23]))/sum(as.integer(DurUnemployedCorr
2C$t[,7]))
#media(quella calcolata nella riga sopra) = 35.8, max=48, min=26
#292# 5 hard#
DurUnemployedCorr2C$t[,24] <-
DurUnemployedCorr2C$t[,8]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,24]))/sum(as.integer(DurUnemployedCorr
2C$t[,8]))
#media(quella calcolata nella riga sopra) = 13.0 max=25, min=1
#328# 8 hard(?)#
DurUnemployedCorr2C$t[,25] <-
DurUnemployedCorr2C$t[,9]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,25]))/sum(as.integer(DurUnemployedCorr
2C$t[,9]))
#media(quella calcolata nella riga sopra) = 6.7, max=25, min=1
#373# 4 soft#
DurUnemployedCorr2C$t[,26] <-
DurUnemployedCorr2C$t[,10]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,26]))/sum(as.integer(DurUnemployedCorr
2C$t[,10]))
#media(quella calcolata nella riga sopra) = 3.9, max=15, min=1
#409# 5 soft#
DurUnemployedCorr2C$t[,27] <-
DurUnemployedCorr2C$t[,11]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,27]))/sum(as.integer(DurUnemployedCorr
2C$t[,11]))
#media(quella calcolata nella riga sopra) = 3.9, max=16, min=1
#423# 1 soft#
DurUnemployedCorr2C$t[,28] <-
DurUnemployedCorr2C$t[,12]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,28]))/sum(as.integer(DurUnemployedCorr
2C$t[,12]))
```

```
#media(quella calcolata nella riga sopra) = 5.1, max=13, min=1
#443# 7 soft#
DurUnemployedCorr2C$t[,29] <-
DurUnemployedCorr2C$t[,13]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,29]))/sum(as.integer(DurUnemployedCorr
2C$t[,13]))
#media(quella calcolata nella riga sopra) = 3.3, max=9, min=1
#447# 6 soft#
DurUnemployedCorr2C$t[,30] <-
DurUnemployedCorr2C$t[,14]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,30]))/sum(as.integer(DurUnemployedCorr
2C$t[,14]))
#media(quella calcolata nella riga sopra) = 3.4, max=10, min=1
#493# 4 hard(?)#
DurUnemployedCorr2C$t[,31] <-
DurUnemployedCorr2C$t[,15]*DurUnemployedCorr2C$t[,16]
sum(as.integer(DurUnemployedCorr2C$t[,31]))/sum(as.integer(DurUnemployedCorr
2C$t[,15]))
#media(quella calcolata nella riga sopra) = 4.5, max=23, min=1

###quanto stanno nello stato modale in gruppi##
##PAM##
#26, 72 e 182 saltati perchè indefiniti. 264 saltato perchè è unemployment (quindi
uguale a prima)#

#160, top manager and self employed, hard transition#
DurModale1hWC2Corr2C <-
crosstab(CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2==160,seqistatd(S
eq48m90pAllWC2C)[,1], weight = CampioneN48p90mesi$peso, plot =F)
DurModale1hWC2Corr2C$t
ref <- matrix(c(0:15,17:27,30,32,33,35:39,44:47),nrow=1,ncol=39)
DurModale1hWC2Corr2C<- rbind(DurModale1hWC2Corr2C$t,ref,0)
DurModale1hWC2Corr2C[4,] <-
DurModale1hWC2Corr2C[3,]*DurModale1hWC2Corr2C[2,]
sum(as.integer(DurModale1hWC2Corr2C[4,]))/sum(as.integer(DurModale1hWC2Cor
r2C[2,]))
#media(quella calcolata nella riga sopra) = 16.7, max=27, min=6#
#423, top manager and self employed, soft transition#
DurModale1sWC2Corr2C <-
crosstab(CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2==423,seqistatd(S
eq48m90pAllWC2C)[,1], weight = CampioneN48p90mesi$peso, plot =F)
```

```
DurModale1sWC2Corr2C$t
ref <- matrix(c(0:15,17:27,30,32,33,35:39,44:47),nrow=1,ncol=39)
DurModale1sWC2Corr2C<- rbind(DurModale1sWC2Corr2C$t,ref,0)
DurModale1sWC2Corr2C[4,] <-
DurModale1sWC2Corr2C[3,]*DurModale1sWC2Corr2C[2,]
sum(as.integer(DurModale1sWC2Corr2C[4,]))/sum(as.integer(DurModale1sWC2Cor
r2C[2,]))
#media(quella calcolata nella riga sopra) = 34.0, max=48, min=22#
#493, academic and intellectual professions, hard transition#
DurModale4hWC2Corr2C <-
crosstab(CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2==493,seqistatd(S
eq48m90pAllWC2C)[,4], weight = CampioneN48p90mesi$peso, plot =F)
DurModale4hWC2Corr2C$t
ref <- matrix(c(0, 2:21,23:33,35,36,38:40,42:47),nrow=1,ncol=43)
DurModale4hWC2Corr2C<- rbind(DurModale4hWC2Corr2C$t,ref,0)
DurModale4hWC2Corr2C[4,] <-
DurModale4hWC2Corr2C[3,]*DurModale4hWC2Corr2C[2,]
sum(as.integer(DurModale4hWC2Corr2C[4,]))/sum(as.integer(DurModale4hWC2Cor
r2C[2,]))
#media(quella calcolata nella riga sopra) = 13.5, max=25, min=10#
#373, academic and intellectual professions, soft transition#
DurModale4sWC2Corr2C <-
crosstab(CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2==373,seqistatd(S
eq48m90pAllWC2C)[,4], weight = CampioneN48p90mesi$peso, plot =F)
DurModale4sWC2Corr2C$t
ref <- matrix(c(0, 2:21,23:33,35,36,38:40,42:47),nrow=1,ncol=43)
DurModale4sWC2Corr2C<- rbind(DurModale4sWC2Corr2C$t,ref,0)
DurModale4sWC2Corr2C[4,] <-
DurModale4sWC2Corr2C[3,]*DurModale4sWC2Corr2C[2,]
sum(as.integer(DurModale4sWC2Corr2C[4,]))/sum(as.integer(DurModale4sWC2Cor
r2C[2,]))
#media(quella calcolata nella riga sopra) = 35.0, max=47, min=24#
#292, intermediate jobs (employees), hard transition#
DurModale5hWC2Corr2C <-
crosstab(CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2==292,seqistatd(S
eq48m90pAllWC2C)[,5], weight = CampioneN48p90mesi$peso, plot =F)
DurModale5hWC2Corr2C$t
ref <- matrix(c(0,1,3:41,43:47), nrow=1,ncol=46)
DurModale5hWC2Corr2C<- rbind(DurModale5hWC2Corr2C$t,ref,0)
DurModale5hWC2Corr2C[4,] <-
DurModale5hWC2Corr2C[3,]*DurModale5hWC2Corr2C[2,]
```

```
sum(as.integer(DurModale5hWC2Corr2C[4,]))/sum(as.integer(DurModale5hWC2Cor
r2C[2,]))
#media(quella calcolata nella riga sopra) = 23.3, max=31, min=13#
#409, intermediate jobs (employees), soft transition#
DurModale5sWC2Corr2C <-
crosstab(CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2==409,seqistatd(S
eq48m90pAllWC2C)[,5], weight = CampioneN48p90mesi$peso, plot =F)
DurModale5sWC2Corr2C$t
ref <- matrix(c(0, 1, 3:41, 43:47),nrow=1,ncol=46)
DurModale5sWC2Corr2C<- rbind(DurModale5sWC2Corr2C$t,ref,0)
DurModale5sWC2Corr2C[4,] <-
DurModale5sWC2Corr2C[3,]*DurModale5sWC2Corr2C[2,]
sum(as.integer(DurModale5sWC2Corr2C[4,]))/sum(as.integer(DurModale5sWC2Cor
r2C[2,]))
#media(quella calcolata nella riga sopra) = 35.0, max=47, min=16#
#223, qualified non-manual jobs, hard transition#
DurModale6hWC2Corr2C <-
crosstab(CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2==223,seqistatd(S
eq48m90pAllWC2C)[,6], weight = CampioneN48p90mesi$peso, plot =F)
DurModale6hWC2Corr2C$t
ref <- matrix(c(0:2,4:37,41:46), nrow=1,ncol=43)
DurModale6hWC2Corr2C<- rbind(DurModale6hWC2Corr2C$t,ref,0)
DurModale6hWC2Corr2C[4,] <-
DurModale6hWC2Corr2C[3,]*DurModale6hWC2Corr2C[2,]
sum(as.integer(DurModale6hWC2Corr2C[4,]))/sum(as.integer(DurModale6hWC2Cor
r2C[2,]))
#media(quella calcolata nella riga sopra) = 22.3, max=37, min=5#
#447, qualified non-manual jobs, soft transition#
DurModale6sWC2Corr2C <-
crosstab(CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2==447,seqistatd(S
eq48m90pAllWC2C)[,6], weight = CampioneN48p90mesi$peso, plot =F)
DurModale6sWC2Corr2C$t
ref <- matrix(c(0:2, 4:37, 41:46),nrow=1,ncol=43)
DurModale6sWC2Corr2C<- rbind(DurModale6sWC2Corr2C$t,ref,0)
DurModale6sWC2Corr2C[4,] <-
DurModale6sWC2Corr2C[3,]*DurModale6sWC2Corr2C[2,]
sum(as.integer(DurModale6sWC2Corr2C[4,]))/sum(as.integer(DurModale6sWC2Cor
r2C[2,]))
#media(quella calcolata nella riga sopra) = 30.4, max=46, min=14#
#443, qualified manual jobs, soft transition (the only present)#
```

```
DurModale7sWC2Corr2C <-
crosstab(CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2==443,seqistatd(Seq48m90pAllWC2C)[,7], weight = CampioneN48p90mesi$peso, plot =F)
DurModale7sWC2Corr2C$t
ref <- matrix(c(0:5,7:17,19,21,25,27,28,30:32,35,36,43,44,46),nrow=1,ncol=30)
DurModale7sWC2Corr2C<- rbind(DurModale7sWC2Corr2C$t,ref,0)
DurModale7sWC2Corr2C[4,] <-
DurModale7sWC2Corr2C[3,]*DurModale7sWC2Corr2C[2,]
sum(as.integer(DurModale7sWC2Corr2C[4,]))/sum(as.integer(DurModale7sWC2Corr2C[2,]))
#media(quella calcolata nella riga sopra) = 34.8, max=46, min=19#
#328, non-qualified  jobs, general transition (the only present)#
DurModale8WC2Corr2C <-
crosstab(CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2==328,seqistatd(Seq48m90pAllWC2C)[,8], weight = CampioneN48p90mesi$peso, plot =F)
DurModale8WC2Corr2C$t
ref <- matrix(c(0,10,12,16:18,20:25,27:29,31,33,35,37,39,40,42:45),nrow=1,ncol=25)
DurModale8WC2Corr2C<- rbind(DurModale8WC2Corr2C$t,ref,0)
DurModale8WC2Corr2C[4,] <-
DurModale8WC2Corr2C[3,]*DurModale8WC2Corr2C[2,]
sum(as.integer(DurModale8WC2Corr2C[4,]))/sum(as.integer(DurModale8WC2Corr2C[2,]))
#media(quella calcolata nella riga sopra) = 27.9, max=45, min=12#
#183, inactivity, general transition (the only present)#
DurModale3WC2Corr2C <-
crosstab(CampioneN48p90mesi$dm48m90pPamCut15WC2Ccorr2==183,seqistatd(Seq48m90pAllWC2C)[,3], weight = CampioneN48p90mesi$peso, plot =F)
DurModale3WC2Corr2C$t
ref <- matrix(c(0:26,28,29,31:42,46),nrow=1,ncol=42)
DurModale3WC2Corr2C<- rbind(DurModale3WC2Corr2C$t,ref,0)
DurModale3WC2Corr2C[4,] <-
DurModale3WC2Corr2C[3,]*DurModale3WC2Corr2C[2,]
sum(as.integer(DurModale3WC2Corr2C[4,]))/sum(as.integer(DurModale3WC2Corr2C[2,]))
#media(quella calcolata nella riga sopra) = 32.0, max=46, min=16#

#situazione precedente#
CampioneN48p90mesi$precedentePos <- CampioneN48p90mesi$pos48m90pWC2 - 1

for(i in 1:532) {
```

```
  a <- CampioneN48p90mesi$precedentePos[i]
  CampioneN48p90mesi$precedenteStato[i] <- as.character(seq48m90pWC2[i,a])
}

for(i in 1:532) {
  a <-  as.character(CampioneN48p90mesi$CSPLAJ..[i])
  CampioneN48p90mesi$precedenteStato[i] <-
recode(CampioneN48p90mesi$precedenteStato[i], "'*'=a; 'unemployed or
inactive'='inactive'")
}
CampioneN48p90mesi$precedenteStato <-
recode(CampioneN48p90mesi$precedenteStato, "'part-time paid job (1-36 hours
per week)'='indefined job'; 'full-time paid job (37 hours or more per
week)'='indefined job'; 'unqualified non-manual and manual workers'=8; 'qualified
manual professions'=7; 'qualified non-manual professions'=6; 'intermediate
professions'=5; 'other self-employed'=3;'liberal professions'=2; 'academic
professions and senior management'=1")
CampioneN48p90mesi$precedenteStato <-
recode(CampioneN48p90mesi$precedenteStato, "2=1;3=1")

PrStatPamCorr <- crosstab
(CampioneN48p90mesi$precedenteStato,CampioneN48p90mesi$dm48m90pPamCu
t15WC2Ccorr, weight = CampioneN48p90mesi$peso)

###presenza di sequenze con periodi risky, calcolati sulle sequenze ricodificate con
tipo 3#
#dato che non portano risultati, lo reitroduco di qua come variabile#

#importazione#
risky <- read.table("C:/Users/matteo/Documents/dottorato/analisi/risultati/5-
sequence analysis strategia tre/risky.txt",
                    sep="\t")

risky2 <- matrix (ncol=1,nrow=532,risky)
CampioneN48p90mesi <- cbind(CampioneN48p90mesi,risky2)
CampioneN48p90mesi$risky2 <- as.integer(CampioneN48p90mesi$risky2)

RiskyPamCorr <- crosstab
(CampioneN48p90mesi$risky2,CampioneN48p90mesi$dm48m90pPamCut15WC2Cc
orr, weight = CampioneN48p90mesi$peso, prop.c=T)
app <- c (0,1,3:14,16:19,30,33,32,42)
```

```
riskyTab <- cbind(RiskyPamCorr$prop.col, app)

gruppi <- c (26, 72, 160, 182, 183,223, 264, 292, 328, 373, 409, 423, 443, 447, 493)
riskyPresence <- matrix(ncol=15,nrow=2,0)
riskyPresence[1,] <- gruppi
for(i in 1:15) {
  riskyPresence[2,i] <-round(mean(riskyTab[,i]*riskyTab[,16]),digits=3)
}

write.table(riskyPresence,
"C:/Users/matteo/Documents/dottorato/analisi/risultati/5- sequence analysis
strategia tre/riskyPresence.txt",
          sep="\t")

app <- c("N", "N", "L",  "N",      "N",    "L",    "N",    "L",    "N",    "S",    "S",    "S",    "S",
         "S",    "N")
riskyPresence <- rbind(riskyPresence,app)
riskyPresence[4,] <-c(0, 0, 2,  0,0,       2,       0,       2,       0,       1,       1,       1,       1,
         1,       0)

a <- as.numeric(riskyPresence[2,])
b <- riskyPresence[4,]

#boxplot, 1 sono le sequenze soft, due hard#
#grafico migliore su file excel#
boxplot(a~b)

#provo solo con presenza di quelli che hanno avuto almeno sei mesi ad alto rischio,
incidenza#
CampioneN48p90mesi$riskyPresence <- ifelse(CampioneN48p90mesi$risky2>5,1,0)
RiskyPresPamCorr <- crosstab
(CampioneN48p90mesi$riskyPresence,CampioneN48p90mesi$dm48m90pPamCut1
5WC2Ccorr, weight = CampioneN48p90mesi$peso, prop.c=T)
names(RiskyPresPamCorr)
RiskyPresPamCorr$prop.col
write.table(RiskyPresPamCorr$prop.col,
"C:/Users/matteo/Documents/dottorato/analisi/risultati/5- sequence analysis
strategia tre/riskyPresence2.txt",
          sep="\t")

##nuova variabile stato precedente, fatta su sequenza##
```

```
a <- paste0 ("retro",1:48)
for(j in 1:48) {
  CampioneN48p90mesi[,a[j]] <- 0
}

for(i in 1:532) {
  for(j in 1:48) {
    b <- CampioneN48p90mesi$pos48m90pWC2[i] -j
    CampioneN48p90mesi[i,a[j]] <- ifelse(b>0,as.character(seq48m90pWC2[i,b]),0)
  }}

for(j in 1:48) {
  CampioneN48p90mesi[,a[j]] <- recode(CampioneN48p90mesi[,a[j]],"'*'=NA; 0=NA;
'%'=NA")
}

retro <- seqdef(CampioneN48p90mesi[6559:6606],weights =
CampioneN48p90mesi$peso)
retro <- seqrecode(retro, recodes = list("top-executives and self-
employed"=c("1","2","3")))
retro <- seqrecode(retro, recodes = list("intellectuals and managers"="4"))
retro <- seqrecode(retro, recodes = list("middle employees"="5"))
retro <- seqrecode(retro, recodes = list("Non-manual skilled employees"="6"))
retro <- seqrecode(retro, recodes = list("Manual skilled employees"="7"))
retro <- seqrecode(retro, recodes = list("Non-skilled employees"="8"))
retro <- seqrecode(retro, recodes = list("indefined job"=c("full-time paid job (37
hours or more per week)","part-time paid job (1-36 hours per week)")))
retro <- seqrecode(retro, recodes = list("inactive"=c("unemployed or
inactive","inactive")))

seqIplot(retro, sortv="from.start",  cex.legend=0.35, cpal= c("pink", "pink4",
"orange", "red", "brown", "purple", "green", "yellow"))

for(i in 1:532) {
  CampioneN48p90mesi$retroTop[i] <- max (seqistatd(retro)[i,])
}

CampioneN48p90mesi$precedenteStato2 <- 0
CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
```

```
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,1],"inactive",CampioneN48p90
mesi$precedenteStato2))
CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,2],"indefined
job",CampioneN48p90mesi$precedenteStato2))
CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,3],"Non-skilled
employees",CampioneN48p90mesi$precedenteStato2))
CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,4],"Manual skilled
employees",CampioneN48p90mesi$precedenteStato2))
CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,5],"Non-manual skilled
employees",CampioneN48p90mesi$precedenteStato2))
CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,6],"middle
employees",CampioneN48p90mesi$precedenteStato2))
CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,7],"intellectuals and
managers",CampioneN48p90mesi$precedenteStato2))
CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,8],"top-executives and self-
employed",CampioneN48p90mesi$precedenteStato2))

CampioneN48p90mesi$PSappoggio <- recode(CampioneN48p90mesi$CSPLAJ..,
                        "'top management'='top-executives and self-employed';
                        'liberal professions'='top-executives and self-employed';
                        'other self-employed'='top-executives and self-employed';
                        'academic professions and senior management'='intellectuals
and managers';
                        'intermediate professions'='middle employees';
                        'qualified non-manual professions'='Non-manual skilled
employees';
                        'qualified manual professions'='Manual skilled employees';
```

```
                        'unqualified non-manual and manual workers'='Non-skilled
employees'")

for(i in 1:532) {
  a <-  as.character(CampioneN48p90mesi$PSappoggio[i])
  CampioneN48p90mesi$precedenteStato2[i] <-
recode(CampioneN48p90mesi$precedenteStato2[i], "'0'=a")
}

PrStatPamCorr <- crosstab
(CampioneN48p90mesi$precedenteStato2,CampioneN48p90mesi$dm48m90pPamC
ut15WC2Ccorr, weight = CampioneN48p90mesi$peso)



#nuova variabile classi d'età#
CampioneN48p90mesi$classAgeUn2 <- cut(CampioneN48p90mesi$ageUn, breaks =
c(1, 25, 50, 100),
                        labels = c("15-24 years", "25-49 years", "50+ years"),
                        right = FALSE)
etaPam2Corr2 <- crosstab
(CampioneN48p90mesi$classAgeUn2,CampioneN48p90mesi$dm48m90pPamCut15
WC2Ccorr, weight = CampioneN48p90mesi$peso,plot =F)
prop.table(etaPam2Corr$t, 2)

#sequenze instabili -- complexity index -- cfr "...with Traminer"#
#CampioneN48p90mesi$SeqTransitions <- seqtransn(Seq48m90pAllWC2C)
CampioneN48p90mesi$SeqTransitions <- seqici(Seq48m90pAllWC2C)
mean(CampioneN48p90mesi$SeqTransitions,na.rm=T)



SeqTransitions <- crosstab
(CampioneN48p90mesi$SeqTransitions,CampioneN48p90mesi$dm48m90pPamCut8
WC2Ccorr, weight = CampioneN48p90mesi$peso,plot =F)

appoggio <- matrix(nrow=430,ncol=1,0:429)
appoggio <- cbind(SeqTransitions$t, appoggio)
appoggio2 <- matrix(nrow=430,ncol=8,0)
for (i in 1:8){
  appoggio2[,i] <- appoggio[,9]*appoggio[,i]
}
```

```
sum(appoggio2[,1])/sum(appoggio[,1]) #20, intell. and manager# 191.4904
sum(appoggio2[,2])/sum(appoggio[,2]) #90, non manual skill# 209.7317
sum(appoggio2[,3])/sum(appoggio[,3]) #182, indefined# 213.2203
sum(appoggio2[,4])/sum(appoggio[,4]) #264, long U# 85.49689
sum(appoggio2[,5])/sum(appoggio[,5]) #328, no-skill + manual skill# 200.5102
sum(appoggio2[,6])/sum(appoggio[,6]) #407, inactivity# 176.3674
sum(appoggio2[,7])/sum(appoggio[,7]) #423, top manager# 168.0849
sum(appoggio2[,8])/sum(appoggio[,8]) #465, middle empl.# 153.1545
##

#####
#risky, descrizione dei gruppi finali
prova <- crosstab
(CampioneN48p90mesi$riskyPresence,CampioneN48p90mesi$dm48m90pPamCut8
WC2Ccorr, weight = CampioneN48p90mesi$peso,plot =F)
round(prop.table(prova$t , 2), digits = 3)

#risky, rispetto alla situazione precedente#  QUESTA è QUELLA BUONa
prova <- crosstab
(CampioneN48p90mesi$riskyPresence,CampioneN48p90mesi$precedenteStato2,
weight = CampioneN48p90mesi$peso,plot =F)
round(prop.table(prova$t , 2), digits = 3)

#risky, proporzioni, rispetto alla situazione precedente# BUONA
RiskyPamCorr2 <- crosstab
(CampioneN48p90mesi$risky2,CampioneN48p90mesi$precedenteStato2, weight =
CampioneN48p90mesi$peso, prop.c=T)
app <- c (0,1,3:14,16:19,30,33,32,42)
riskyTab2 <- cbind(RiskyPamCorr2$prop.col, app)

riskyPresence2 <- matrix(ncol=8,nrow=2,0)
riskyPresence2[1,] <- c("inactive","indefined job","intellectuals and
managers","Manual skilled employees","middle employees","Non-manual skilled
employees","Non-skilled employees","top-executives and self-employed")
for(i in 1:8) {
  riskyPresence2[2,i] <-round(mean(riskyTab2[,i]*riskyTab2[,9]),digits=3)
}

#sequenze instabili -- complexity index -- cfr "...with Traminer"# QUESTO è BUONO,
FATTO SU SITUAZIONE INIZIALE
```

```
#CampioneN48p90mesi$SeqTransitions <- seqtransn(Seq48m90pAllWC2C)
CampioneN48p90mesi$SeqTransitions2 <- seqici(Seq48m90pAllWC2C)
mean(CampioneN48p90mesi$SeqTransitions2,na.rm=T)



SeqTransitions2 <- crosstab
(CampioneN48p90mesi$SeqTransitions2,CampioneN48p90mesi$precedenteStato2,
weight = CampioneN48p90mesi$peso,plot =F)

appoggio <- c(  0  ,
          0.0313143310993043,
          0.032545963117781  ,
          0.0332005811744662,
          0.0409538107024778,
          0.0417262639861724,
          0.0425299443578714,
          0.0433668224083675,
          0.0475804289522995,
          0.0523636757094674,
          0.0527024327616643,
          0.0546626361852543,
          0.0568826597381415,
          0.0590098484364051,
          0.0604021082658445,
          0.0636547830677994,
          0.0660527260624579,
          0.0683592691433319,
          0.0703944727536933,
          0.0707063962515077,
          0.0721959619269903,
          0.0727890567646967,
          0.0737923702409381,
          0.0745324951816018,
          0.0752059531658046,
          0.0764542906807587,
          0.0766201420322365,
          0.07755143668804   ,
          0.0785087177897891,
          0.0793353015667504,
          0.0800386083875369,
```

0.0804442288655338,
0.0810980725671664,
0.0817212134530663,
0.0818755793591342,
0.0819269104447098,
0.0824117203913039,
0.0854214807054854,
0.0896951318750335,
0.0940092232611609,
0.0959349674394235,
0.0966746055364126,
0.0973963208843378,
0.0985236567361137,
0.0986657171704327,
0.0997098965410011,
0.102100508505721 ,
0.102669517753921 ,
0.103017882451838 ,
0.104358170794391 ,
0.105935789879588 ,
0.106357278938277 ,
0.107969145564808 ,
0.108023402320993 ,
0.108367363485818 ,
0.109223447293766 ,
0.111932345310194 ,
0.112727272778732 ,
0.112846381950983 ,
0.113574486518999 ,
0.114406677518606 ,
0.115225912008437 ,
0.115571248398913 ,
0.115862147874235 ,
0.116106684937699 ,
0.116235954829499 ,
0.116463488875304 ,
0.117628662964645 ,
0.118205064172605 ,
0.118838876562033 ,
0.119554618435587 ,
0.119877452502432 ,

0.120020684258589 ,
0.120935687790732 ,
0.121682440716929 ,
0.123984113160207 ,
0.124691717488742 ,
0.124820833785111 ,
0.124923421912873 ,
0.125047074158855 ,
0.126018698594221 ,
0.126241915429821 ,
0.126322788159978 ,
0.126863193928315 ,
0.127108665672573 ,
0.127318510762961 ,
0.127790659739946 ,
0.127812134468238 ,
0.128000854079874 ,
0.128704484510381 ,
0.129003444851396 ,
0.12939624773519 ,
0.129645249906053 ,
0.129970247312852 ,
0.130176799503847 ,
0.130542795597364 ,
0.131117468129175 ,
0.131645937790082 ,
0.132041931756448 ,
0.132911789002894 ,
0.133269603050185 ,
0.133498723096299 ,
0.133574377357392 ,
0.13377085690875 ,
0.13408084148321 ,
0.134975469047351 ,
0.135716990578097 ,
0.135981088049001 ,
0.136325566815072 ,
0.136870618610259 ,
0.137365757071428 ,
0.13741277314741 ,
0.137620109167357 ,

0.138208027549563 ,
0.139284073835746 ,
0.140029152973724 ,
0.140413778542323 ,
0.140501282313782 ,
0.140821867067042 ,
0.141414871710306 ,
0.141423238400444 ,
0.141624119421176 ,
0.1426380607044 ,
0.142796482589132 ,
0.143516548847152 ,
0.14469356924461 ,
0.144950610819909 ,
0.145080295966143 ,
0.146184663041609 ,
0.147438069381535 ,
0.147729874541436 ,
0.147891832844899 ,
0.150284467461119 ,
0.152196734474826 ,
0.152667129723056 ,
0.152873676021137 ,
0.15510287337608 ,
0.156510955128246 ,
0.157779279707387 ,
0.15847739079099 ,
0.159180393829912 ,
0.160195252710365 ,
0.16169173832755 ,
0.161717678727348 ,
0.161791129636692 ,
0.16210040396911 ,
0.16267684725291 ,
0.163341666134118 ,
0.163407994373854 ,
0.164139152958992 ,
0.164514427211717 ,
0.164525418686778 ,
0.164695911659922 ,
0.165211842464686 ,

0.165310513479417 ,
0.166034770118328 ,
0.16696403879631 ,
0.167511471074564 ,
0.167692323739334 ,
0.16806355097121 ,
0.168387358268882 ,
0.168398791555083 ,
0.169079561169653 ,
0.170206298955202 ,
0.170246203103945 ,
0.170906408609985 ,
0.170978882202521 ,
0.171067518352758 ,
0.171545322332237 ,
0.171811024054333 ,
0.172167796968898 ,
0.172470859470148 ,
0.172998841255182 ,
0.173094609553654 ,
0.173193730063007 ,
0.173197138865697 ,
0.173209128010652 ,
0.173450138578883 ,
0.173533555487393 ,
0.173590827445744 ,
0.173623780096303 ,
0.174889259703797 ,
0.176568520657761 ,
0.177406764636483 ,
0.177645083036505 ,
0.178499006272218 ,
0.178598169181891 ,
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0.179392462328408 ,
0.179686515247578 ,
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0.184977544550459 ,
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0.187272058506303 ,
0.187286210436249 ,
0.188121700497845 ,
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0.190431941319966 ,
0.190884138914433 ,
0.190927535216129 ,
0.191293750932699 ,
0.191527851412262 ,
0.191699055495829 ,
0.192313712756941 ,
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0.196499807775039 ,
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0.201308241155809 ,
0.201619956450024 ,
0.201988934363787 ,
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0.20359359177743 ,
0.203703359240849 ,
0.204038649607421 ,
0.204297867413302 ,
0.204338359187818 ,
0.204593431761303 ,
0.204677846796293 ,
0.204790579841817 ,
0.204851686637868 ,
0.20748411589587 ,
0.208344792518131 ,
0.208708450472553 ,
0.20905107797119 ,
0.209071611945232 ,
0.209271510869748 ,
0.209427260790414 ,
0.209452306426839 ,
0.21032378281902 ,
0.210326455178019 ,
0.210760169710709 ,
0.210874490872059 ,
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0.211270145904184 ,
0.211556489513643 ,
0.212574082130557 ,
0.212625947986234 ,
0.212739112737642 ,
0.212803707193657 ,
0.213189321935213 ,
0.213898064334214 ,
0.214392178138558 ,
0.215329928042312 ,
0.215549647224546 ,
0.216243146780619 ,

0.216446319682739 ,
0.216758230720562 ,
0.217421560333111 ,
0.218566150332126 ,
0.219484030589522 ,
0.220313194472103 ,
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0.22230329716624 ,
0.222658922144655 ,
0.223986999184701 ,
0.224069738496784 ,
0.22518622959752 ,
0.226191820678035 ,
0.226514744550432 ,
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0.226919588141907 ,
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0.228063950777321 ,
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0.232631133099186 ,
0.234186628217559 ,
0.234760081218543 ,
0.235889712176635 ,
0.236772962200688 ,
0.237066865496351 ,
0.237141672959854 ,
0.237360569943525 ,
0.238474601072096 ,
0.238532344097936 ,
0.239362228413798 ,
0.23983513641141 ,
0.240841436857329 ,
0.240923691495616 ,
0.241264729881431 ,
0.241979789131775 ,
0.242520361279552 ,

0.243203798518027 ,
0.243674007237289 ,
0.244167877426612 ,
0.245186386052706 ,
0.245368544766206 ,
0.245607555083187 ,
0.246822508498388 ,
0.247482416473012 ,
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0.249530900680491 ,
0.249796740005104 ,
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0.261310824630535 ,
0.262039808234359 ,
0.262178990169385 ,
0.262230778604222 ,
0.263065155758019 ,
0.263099068525252 ,
0.26506893922533 ,
0.266681329406577 ,
0.267698624348727 ,
0.267786087000396 ,
0.268033384025183 ,
0.268953433888972 ,
0.270070302004505 ,
0.270858183881181 ,
0.272472743144924 ,
0.27251378742814 ,
0.273104677404179 ,
0.274768912597798 ,
0.2765483754575 ,
0.279263205981087 ,
0.279433946447557 ,
0.283771240692336 ,
0.285592965178263 ,
0.285603983385445 ,

```
0.287922466631307  ,
0.288177411108537  ,
0.290475927814125  ,
0.293535429824663  ,
0.295457593846377  ,
0.29727741902753   ,
0.301815326220352  ,
0.302585394418246  ,
0.303391288213258  ,
0.30793194333805   ,
0.307978687855282  ,
0.309099214075369  ,
0.312325128860782  ,
0.313136593155601  ,
0.326393709487019  ,
0.326895704243741  ,
0.331065905831626  ,
0.337119742984159  ,
0.33901681511498   ,
0.350857929593785  ,
0.35734893230916   ,
0.361202005984348  ,
0.362394900676523  ,
0.363663623825062  ,
0.37076271496039   ,
0.384004496352992  ,
0.422047082834857  ,
0.435379501238022  ,
0.443152487525951  )
```

```
appoggio[1]
#matrix(nrow=388,ncol=1,0:387)
appoggio <- cbind(SeqTransitions2$t, appoggio)
appoggio2 <- matrix(nrow=388,ncol=8,0)
for (i in 1:8){
  appoggio2[,i] <- appoggio[,9]*appoggio[,i]
}
```

```
head(appoggio)
sum(appoggio2[,1])/sum(appoggio[,1]) #20, inactive# 0.1731542
sum(appoggio2[,2])/sum(appoggio[,2]) #90, indefined job# 0.1699399
sum(appoggio2[,3])/sum(appoggio[,3]) #182, intellectuals and managers#
0.1545243
sum(appoggio2[,4])/sum(appoggio[,4]) #264, Manual skilled employees# 0.1340711
sum(appoggio2[,5])/sum(appoggio[,5]) #328, middle employees# 0.150412
sum(appoggio2[,6])/sum(appoggio[,6]) #407, Non-manual skilled employees#
0.1219058
sum(appoggio2[,7])/sum(appoggio[,7]) #423, Non-skilled employees# 0.1894587
sum(appoggio2[,8])/sum(appoggio[,8]) #465, top-executives and self-employed#
0.1446724
##
```

5- Cluster re-analysis

```
#analisi silouette e HC#
dm48m90pWardWCSilouette <- as.clustrange(dm48m90pWardWC2C, diss =
as.dist(dm48m90pWC2C),
                              weights = CampioneN48p90mesi$peso, ncluster = 20)
a <- plot(dm48m90pWardWCSilouette, stat = c("ASWw", "HC"))
######

#k=5#
CampioneN48p90mesi$dm48m90pWardCut5WC2C <-
cutree(dm48m90pWardWC2C, k=5)
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pWardCut5WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#PAM#
#K=5#
dm48m90pPamCut5WC2C <- wcKMedoids(dm48m90pWC2C, k = 5, weights =
CampioneN48p90mesi$peso,
                          initialclust = CampioneN48p90mesi$dm48m90pWardCut5WC2C)
CampioneN48p90mesi$dm48m90pPamCut5WC2C <-
dm48m90pPamCut5WC2C$clustering
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pPamCut5WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))
```

```
#k=6#
CampioneN48p90mesi$dm48m90pWardCut6WC2C <-
cutree(dm48m90pWardWC2C, k=6)
seqlplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pWardCut6WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#PAM#
#K=6#
dm48m90pPamCut6WC2C <- wcKMedoids(dm48m90pWC2C, k = 6, weights =
CampioneN48p90mesi$peso,
                        initialclust = CampioneN48p90mesi$dm48m90pWardCut6WC2C)
CampioneN48p90mesi$dm48m90pPamCut6WC2C <-
dm48m90pPamCut6WC2C$clustering
seqlplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pPamCut6WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#k=7#
CampioneN48p90mesi$dm48m90pWardCut7WC2C <-
cutree(dm48m90pWardWC2C, k=7)
seqlplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pWardCut7WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#PAM#
#K=7#
dm48m90pPamCut7WC2C <- wcKMedoids(dm48m90pWC2C, k = 7, weights =
CampioneN48p90mesi$peso,
                        initialclust = CampioneN48p90mesi$dm48m90pWardCut7WC2C)
CampioneN48p90mesi$dm48m90pPamCut7WC2C <-
dm48m90pPamCut7WC2C$clustering
seqlplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pPamCut7WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#k=8#da qui mancano grafici#
CampioneN48p90mesi$dm48m90pWardCut8WC2C <-
cutree(dm48m90pWardWC2C, k=8)
```

```
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pWardCut8WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#PAM#
#K=8#
dm48m90pPamCut8WC2C <- wcKMedoids(dm48m90pWC2C, k = 8, weights =
CampioneN48p90mesi$peso,
                        initialclust = CampioneN48p90mesi$dm48m90pWardCut8WC2C)
CampioneN48p90mesi$dm48m90pPamCut8WC2C <-
dm48m90pPamCut8WC2C$clustering
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pPamCut8WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#k=9#
CampioneN48p90mesi$dm48m90pWardCut9WC2C <-
cutree(dm48m90pWardWC2C, k=9)
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pWardCut9WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#PAM#
#K=9#
dm48m90pPamCut9WC2C <- wcKMedoids(dm48m90pWC2C, k = 9, weights =
CampioneN48p90mesi$peso,
                        initialclust = CampioneN48p90mesi$dm48m90pWardCut9WC2C)
CampioneN48p90mesi$dm48m90pPamCut9WC2C <-
dm48m90pPamCut9WC2C$clustering
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pPamCut9WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#k=10#
CampioneN48p90mesi$dm48m90pWardCut10WC2C <-
cutree(dm48m90pWardWC2C, k=10)
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pWardCut10WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#PAM#
```

```
#K=10#
dm48m90pPamCut10WC2C <- wcKMedoids(dm48m90pWC2C, k = 10, weights =
CampioneN48p90mesi$peso,
                        initialclust =
CampioneN48p90mesi$dm48m90pWardCut10WC2C)
CampioneN48p90mesi$dm48m90pPamCut10WC2C <-
dm48m90pPamCut10WC2C$clustering
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pPamCut10WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#k=11#
CampioneN48p90mesi$dm48m90pWardCut11WC2C <-
cutree(dm48m90pWardWC2C, k=11)
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pWardCut11WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#PAM#
#K=11#
dm48m90pPamCut11WC2C <- wcKMedoids(dm48m90pWC2C, k = 11, weights =
CampioneN48p90mesi$peso,
                        initialclust =
CampioneN48p90mesi$dm48m90pWardCut11WC2C)
CampioneN48p90mesi$dm48m90pPamCut11WC2C <-
dm48m90pPamCut11WC2C$clustering
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pPamCut11WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#k=12#
CampioneN48p90mesi$dm48m90pWardCut12WC2C <-
cutree(dm48m90pWardWC2C, k=12)
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pWardCut12WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#PAM#
#K=12#
dm48m90pPamCut12WC2C <- wcKMedoids(dm48m90pWC2C, k = 12, weights =
CampioneN48p90mesi$peso,
```

```
                    initialclust =
CampioneN48p90mesi$dm48m90pWardCut12WC2C)
CampioneN48p90mesi$dm48m90pPamCut12WC2C <-
dm48m90pPamCut12WC2C$clustering
seqlplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pPamCut12WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#k=13#
CampioneN48p90mesi$dm48m90pWardCut13WC2C <-
cutree(dm48m90pWardWC2C, k=13)
seqlplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pWardCut13WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#PAM#
#K=13#
dm48m90pPamCut13WC2C <- wcKMedoids(dm48m90pWC2C, k = 13, weights =
CampioneN48p90mesi$peso,
                    initialclust =
CampioneN48p90mesi$dm48m90pWardCut13WC2C)
CampioneN48p90mesi$dm48m90pPamCut13WC2C <-
dm48m90pPamCut13WC2C$clustering
seqlplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pPamCut13WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#k=14#
CampioneN48p90mesi$dm48m90pWardCut14WC2C <-
cutree(dm48m90pWardWC2C, k=14)
seqlplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pWardCut14WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))

#PAM#
#K=14#
dm48m90pPamCut14WC2C <- wcKMedoids(dm48m90pWC2C, k = 14, weights =
CampioneN48p90mesi$peso,
                    initialclust =
CampioneN48p90mesi$dm48m90pWardCut143WC2C)
```

```
CampioneN48p90mesi$dm48m90pPamCut14WC2C <-
dm48m90pPamCut14WC2C$clustering
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pPamCut14WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))


########
#k=15#
CampioneN48p90mesi$dm48m90pWardCut15WC2C <-
cutree(dm48m90pWardWC2C, k=15)
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pWardCut15WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))
seqrplot(Seq48m90pAllWC2C, group =
CampioneN48p90mesi$dm48m90pWardCut15WC2C, dist.matrix =
as.dist(dm48m90pWC2C),cex.legend=0.75, border = NA, stats=F, cpal=
c("green","yellow2",  "pink", "pink4", "orange", "red", "red4", "brown", "purple",
"purple4" , "blue3")) #sequenze rappresentative#

#PAM#
#K=15#
dm48m90pPamCut15WC2C <- wcKMedoids(dm48m90pWC2C, k = 15, weights =
CampioneN48p90mesi$peso,
                          initialclust =
CampioneN48p90mesi$dm48m90pWardCut15WC2C)
CampioneN48p90mesi$dm48m90pPamCut15WC2C <-
dm48m90pPamCut15WC2C$clustering
CampioneN48p90mesi$dm48m90pPamCut15WC2C[67] <- 493 #questa sequenza
viene messa nel cluster 160 (1 long) ma non ha mai lo status 1. Probabilmente viene
messa qui perchè nelle altre c'è tanto lo stato 4 e quindi si assomigliano#
CampioneN48p90mesi$dm48m90pPamCut15WC2C[186] <- 493 #idem come sopra#
CampioneN48p90mesi$dm48m90pPamCut15WC2C[376] <- 493 #idem come sopra#
seqIplot(Seq48m90pAllWC2C, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pPamCut15WC2C , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))
seqrplot(Seq48m90pAllWC2C, group =
CampioneN48p90mesi$dm48m90pPamCut15WC2C, dist.matrix =
as.dist(dm48m90pWC2C),cex.legend=0.75, border = NA, stats=F, cpal=
c("green","yellow2",  "pink", "pink4", "orange", "red", "red4", "brown", "purple",
"purple4" , "blue3")) #sequenze rappresentative#
```

6- Control sample and matching

```
#crezione database
appoggio <-
as.data.frame(cbind(CampioneN48p90mesi$uno,CampioneN48p90mesi$IDPERS))
colnames(appoggio) <- c("uno", "IDPERS")
PerCloni <- merge(PSMtot,appoggio,by="IDPERS", all=T)
PerCloni$uno <- recode(PerCloni$uno, "1=1;else=0")
#definizione base (sorta di mappa per creare le altre variabili)
prova <- subset(PerCloni, uno==1, select=c(IDPERS,SEX.y,BIRTHY.y,Origin))
prova <- as.data.frame(prova)
prova$BIRTHY.y <- as.integer(prova$BIRTHY.y)
prova2 <- subset(PerCloni, uno==0, select=c(IDPERS,SEX.y,BIRTHY.y,Origin))
prova2 <- as.data.frame(prova2)

#base

base1 <- matrix (nrow=14258,ncol=532,0)
base1[1,] <- prova$IDPERS

for (i in 1:532){
  base1[,i] <- CampioneN48p90mesi$yearUn[which(prova$IDPERS==base1[1,i])]
}
base1 <- base1[2:14258,]

for (j in 1:14258){
  base1[j,] <- recode (base1[j,],
"1999='09';2000='00';2001='01';2002='02';2003='03';2004='04';2005='05';2006='06';
2007='07'")
}

#nationality
nationality <- matrix (nrow=14257,ncol=532,0)

for (j in 1:14257){
  for (i in 1:532){
    b <- ifelse (base1[j,i]==9,9,0)
    a <- paste0("NAT_1_",b,base1[j,i])
    c <- prova2$IDPERS[j]
```

```
   nationality[j,i] <- as.character(PerCloni[which(PerCloni$IDPERS==c),a])
  }}
rownames(nationality) <- prova2$IDPERS
colnames(nationality) <- prova$IDPERS

nationality2 <- matrix (nrow=14257,ncol=532,0)

for (i in 1:532){
  nationality2[,i] <- recode (nationality[,i],"'Switzerland'=1; NA=NA; else=2")
}

rownames(nationality2) <- prova2$IDPERS
colnames(nationality2) <- prova$IDPERS

nationality3 <- matrix(ncol=532,nrow=1,CampioneN48p90mesi$natUn2BinMR)

nationality4 <- matrix (nrow=14257,ncol=532,0)
for (j in 1:14257){
  for (i in 1:532){
    nationality4[j,i] <- ifelse(nationality2[j,i]==nationality3[1,i],1,0)
  }}

rownames(nationality4) <- prova2$IDPERS
colnames(nationality4) <- prova$IDPERS

#education
education <- matrix (nrow=14257,ncol=532,0)

for (j in 1:14257){
  for (i in 1:532){
    b <- ifelse (base1[j,i]==9,9,0)
    a <- paste0("EDUCAT",b,base1[j,i])
    c <- prova2$IDPERS[j]

    education[j,i] <- as.character(PerCloni[which(PerCloni$IDPERS==c),a])
  }}
rownames(education) <- prova2$IDPERS
colnames(education) <- prova$IDPERS

education2 <- matrix (nrow=14257,ncol=532,0)
```

```
for (i in 1:532){
  education2[,i] <- recode (education[,i],"'incomplete compulsory school'='no
education or very low';
                    'compulsory school, elementary vocational training'='no education
or very low';
                    'domestic science course, 1 year school of commerce'='low
education';
                    'general training school'='medium level education';
                    'apprenticeship (CFC, EFZ)'='medium level education';
                    'full-time vocational school'='medium level education';
                    'bachelor/maturity'='medium level education';
                    'vocational high school with master certificate, federal
certificate'='medium level education';
                    'technical or vocational school'='high education';
                    'vocational high school ETS, HTL etc.'='high education';
                    'university, academic high school, HEP, PH, HES, FH'='high
education';
                    ")
}

rownames(education2) <- prova2$IDPERS
colnames(education2) <- prova$IDPERS

education3 <- matrix(ncol=532,nrow=1,CampioneN48p90mesi$edUn)

education4 <- matrix (nrow=14257,ncol=532,0)
for (j in 1:14257){
  for (i in 1:532){
    education4[j,i] <- ifelse(education2[j,i]==education3[1,i],1,0)
  }}

rownames(education4) <- prova2$IDPERS
colnames(education4) <- prova$IDPERS

#job

job <- matrix (nrow=14257,ncol=532,0)

for (j in 1:14257){
  for (i in 1:532){
    b <- ifelse (base1[j,i]==9,9,0)
```

```
   a <- paste0("CSPMAJ",b,base1[j,i])
   c <- prova2$IDPERS[j]

   job[j,i] <- as.character(PerCloni[which(PerCloni$IDPERS==c),a])
  }}
rownames(job) <- prova2$IDPERS
colnames(job) <- prova$IDPERS
table(job[,1])
job2 <- matrix (nrow=14257,ncol=532,0)

for (i in 1:532){
  job2[,i] <- recode (job[,i],"'top management'='top-executives and self-employed';
                'liberal professions'='top managemant and self-employed';
                'other self-employed'='top managemant and self-employed';
                'academic professions and senior management'='intellectuals and
managers';
                'intermediate professions' = 'middle employees';
                'qualified non-manual professions' = 'Non-manual skilled employees';
                'qualified manual professions' ='Manual skilled employees';
                'unqualified non-manual and manual workers'='Non-skilled employees';
                NA = 'not aplicable'
                ")
}

rownames(job2) <- prova2$IDPERS
colnames(job2) <- prova$IDPERS

CampioneN48p90mesi$precedenteStatoPerCloni <- recode
(CampioneN48p90mesi$precedenteStato2, "'inactive'='not aplicable';'indefined
job'='not aplicable'")

job3 <- matrix(ncol=532,nrow=1,CampioneN48p90mesi$precedenteStatoPerCloni)

job4 <- matrix (nrow=14257,ncol=532,0)
for (j in 1:14257){
  for (i in 1:532){
    job4[j,i] <- ifelse(job2[j,i]==job3[1,i],1,0)
  }}

rownames(job4) <- prova2$IDPERS
colnames(job4) <- prova$IDPERS
```

```
#residence#
CampioneN48p90mesi$yearUnCANTON <- recode(CampioneN48p90mesi$yearUn,
"1999=6367;
                    2000=6368;
                    2001=6369;
                    2002=6370;
                    2003=6371;
                    2004=6372;
                    2005=6373;
                    2006=6374;
                    2007=6375;
                    2008=6376;
                    2009=6377;
                    2010=6378;
                    2011=6379;
                    2012=NA")

for (i in 1:532){
  a <- CampioneN48p90mesi$yearUnCANTON[i]
  CampioneN48p90mesi$cantonRes[i] <- CampioneN48p90mesi[i,a]}

CampioneN48p90mesi$areaRes <- recode(CampioneN48p90mesi$cantonRes,
                    "1=1;
                    2=3;
                    3=3;
                    4=1;
                    5=1;
                    6=1;
                    7=2;
                    8=2;
                    9=1;
                    10=1;
                    11=2;
                    12=1;
                    13=2;
                    14=3;
                    15=3;
                    16=1;
                    17=3;
                    18=1;
```

```
                    19=1;
                    20=1;
                    21=2;
                    22=3;
                    23=2;
                    24=2;
                    25=4;
                    26=4")

#
for(i in 1:14789) {
  PerCloni$IDmio[i] <- max(PerCloni$IDHOUS99.x[i],
                    PerCloni$IDHOUS00.x[i],
                    PerCloni$IDHOUS01.x[i],
                    PerCloni$IDHOUS02.x[i],
                    PerCloni$IDHOUS03.x[i],
                    PerCloni$IDHOUS04.x[i],
                    PerCloni$IDHOUS05.x[i],
                    PerCloni$IDHOUS06.x[i],
                    PerCloni$IDHOUS07.x[i],
                    PerCloni$IDHOUS08.x[i],
                    PerCloni$IDHOUS09.x[i],
                    PerCloni$IDHOUS10.x[i],
                    PerCloni$IDHOUS11.x[i],na.rm =T)
}

#
PSMcanton <-
(cbind(PSMhou$idhous..,PSMhou$CANTON99,PSMhou$CANTON00,PSMhou$CANT
ON01,PSMhou$CANTON02,PSMhou$CANTON03,PSMhou$CANTON04,PSMhou$CA
NTON05,PSMhou$CANTON06,PSMhou$CANTON07,PSMhou$CANTON08,PSMhou$C
ANTON09,PSMhou$CANTON10,PSMhou$CANTON11))
PSMcanton <- as.data.frame(PSMcanton)
PSMcanton2 <- as.data.frame(matrix(ncol=14,nrow=8868,0))
PSMcanton2$IDmio <- PSMcanton[,1]
PSMcanton2$CANTON99 <- PSMcanton[,2]
PSMcanton2$CANTON00 <- PSMcanton[,3]
PSMcanton2$CANTON01 <- PSMcanton[,4]
PSMcanton2$CANTON02 <- PSMcanton[,5]
PSMcanton2$CANTON03 <- PSMcanton[,6]
PSMcanton2$CANTON04 <- PSMcanton[,7]
```

```
PSMcanton2$CANTON05 <- PSMcanton[,8]
PSMcanton2$CANTON06 <- PSMcanton[,9]
PSMcanton2$CANTON07 <- PSMcanton[,10]
PSMcanton2$CANTON08 <- PSMcanton[,11]
PSMcanton2$CANTON09 <- PSMcanton[,12]
PSMcanton2$CANTON10 <- PSMcanton[,13]
PSMcanton2$CANTON11 <- PSMcanton[,14]
PSMcanton <- PSMcanton2[,15:28]

#
PerCloni <- merge(PerCloni, PSMcanton,by="IDmio",all.x=T)
residence <- matrix (nrow=14257,ncol=532,0)
for (j in 1:14257){
  for (i in 1:532){
    b <- ifelse (base1[j,i]==9,9,0)
    a <- paste0("CANTON",b,base1[j,i])
    c <- prova2$IDPERS[j]

    residence[j,i] <- as.character(PerCloni[which(PerCloni$IDPERS==c),a])
  }}
rownames(residence) <- prova2$IDPERS
colnames(residence) <- prova$IDPERS

residence2 <- matrix (nrow=14257,ncol=532,0)

for (i in 1:532){
  residence2[,i] <- recode (residence[,i],"1=1;
                          2=3;
                          3=3;
                          4=1;
                          5=1;
                          6=1;
                          7=2;
                          8=2;
                          9=1;
                          10=1;
                          11=2;
                          12=1;
                          13=2;
                          14=3;
                          15=3;
```

```
                    16=1;
                    17=3;
                    18=1;
                    19=1;
                    20=1;
                    21=2;
                    22=3;
                    23=2;
                    24=2;
                    25=4;
                    26=4")
}

rownames(residence2) <- prova2$IDPERS
colnames(residence2) <- prova$IDPERS

residence3 <- matrix(ncol=532,nrow=1,CampioneN48p90mesi$areaRes)

residence4 <- matrix (nrow=14257,ncol=532,0)
for (j in 1:14257){
 for (i in 1:532){
  residence4[j,i] <- ifelse(residence2[j,i]==residence3[1,i],1,0)
 }}

rownames(residence4) <- prova2$IDPERS
colnames(residence4) <- prova$IDPERS

#anno nacita

birthY <- matrix (nrow=14257,ncol=532,0)

for (j in 1:14257){
 c <- prova2$IDPERS[j]

 birthY[j,] <- as.character(PerCloni[which(PerCloni$IDPERS==c),"BIRTHY.y"])
}
rownames(birthY) <- prova2$IDPERS
colnames(birthY) <- prova$IDPERS

birthY2 <- birthY
```

```
rownames(birthY2) <- prova2$IDPERS
colnames(birthY2) <- prova$IDPERS

birthY3 <- matrix(ncol=532,nrow=1,CampioneN48p90mesi$BIRTHY.y)

birthY4 <- matrix (nrow=14257,ncol=532,0)
for (j in 1:14257){
  for (i in 1:532){
    d1 <- ifelse(birthY2[j,i]==birthY3[1,i],1,0)
    d1 <- recode (d1, "NA=0")
    d2 <- ifelse(birthY2[j,i]==birthY3[1,i]-1,1,0)
    d2 <- recode (d2, "NA=0")
    d3 <- ifelse(birthY2[j,i]==birthY3[1,i]-2,1,0)
    d3 <- recode (d3, "NA=0")
    d4 <- ifelse(birthY2[j,i]==birthY3[1,i]-3,1,0)
    d4 <- recode (d4, "NA=0")
    d5 <- ifelse(birthY2[j,i]==birthY3[1,i]-4,1,0)
    d5 <- recode (d5, "NA=0")
    d6 <- ifelse(birthY2[j,i]==birthY3[1,i]-5,1,0)
    d6 <- recode (d6, "NA=0")
    d7 <- ifelse(birthY2[j,i]==birthY3[1,i]+1,1,0)
    d7 <- recode (d7, "NA=0")
    d8 <- ifelse(birthY2[j,i]==birthY3[1,i]+2,1,0)
    d8 <- recode (d8, "NA=0")
    d9 <- ifelse(birthY2[j,i]==birthY3[1,i]+3,1,0)
    d9 <- recode (d9, "NA=0")
    d10 <- ifelse(birthY2[j,i]==birthY3[1,i]+4,1,0)
    d10 <- recode (d10, "NA=0")
    d11 <- ifelse(birthY2[j,i]==birthY3[1,i]+5,1,0)
    d11 <- recode (d11, "NA=0")
    birthY4[j,i] <- d1+d2+d3+d4+d5+d6+d7+d8+d9+d10+d11
  }}

rownames(birthY4) <- prova2$IDPERS
colnames(birthY4) <- prova$IDPERS

#sex
SexClon <- matrix (nrow=14257,ncol=532,0)

for (j in 1:14257){
  c <- prova2$IDPERS[j]
```

```
  SexClon[j,] <- as.character(PerCloni[which(PerCloni$IDPERS==c),"SEX.y"])
}
rownames(SexClon) <- prova2$IDPERS
colnames(SexClon) <- prova$IDPERS

SexClon2 <- SexClon

rownames(SexClon2) <- prova2$IDPERS
colnames(SexClon2) <- prova$IDPERS

SexClon3 <- matrix(ncol=532,nrow=1,CampioneN48p90mesi$SEX.y)

SexClon4 <- matrix (nrow=14257,ncol=532,0)
for (j in 1:14257){
  for (i in 1:532){
    SexClon4[j,i] <- ifelse(SexClon2[j,i]==SexClon3[1,i],1,0)
  }}

rownames(SexClon4) <- prova2$IDPERS
colnames(SexClon4) <- prova$IDPERS

#social origin
SocOrigin <- matrix (nrow=14257,ncol=532,0)

for (j in 1:14257){
  c <- prova2$IDPERS[j]

  SocOrigin[j,] <- as.character(PerCloni[which(PerCloni$IDPERS==c),"Origin"])
}
rownames(SocOrigin) <- prova2$IDPERS
colnames(SocOrigin) <- prova$IDPERS

SocOrigin2 <- SocOrigin

rownames(SocOrigin2) <- prova2$IDPERS
colnames(SocOrigin2) <- prova$IDPERS

SocOrigin3 <- matrix(ncol=532,nrow=1,CampioneN48p90mesi$Origin)

SocOrigin4 <- matrix (nrow=14257,ncol=532,0)
```

```
for (j in 1:14257){
  for (i in 1:532){
    SocOrigin4[j,i] <- ifelse(SocOrigin2[j,i]==SocOrigin3[1,i],1,0)
  }}

rownames(SocOrigin4) <- prova2$IDPERS
colnames(SocOrigin4) <- prova$IDPERS

#age

Age <- matrix (nrow=14257,ncol=532,0)

for (j in 1:14257){
  for (i in 1:532){
    b <- ifelse (base1[j,i]==9,1999,base1[j,i]+2000)
    c <- prova2$IDPERS[j]
    Age[j,i] <- b - PerCloni[which(PerCloni$IDPERS==c),"BIRTHY.y"]
  }}
rownames(Age) <- prova2$IDPERS
colnames(Age) <- prova$IDPERS

Age2 <- Age

rownames(Age2) <- prova2$IDPERS
colnames(Age2) <- prova$IDPERS

Age3 <- matrix(ncol=532,nrow=1,CampioneN48p90mesi$ageUn)

Age4 <- matrix (nrow=14257,ncol=532,0)
for (j in 1:14257){
  for (i in 1:532){
    d1 <- ifelse(Age2[j,i]==Age3[1,i],1,0)
    d1 <- recode (d1, "NA=0")
    d2 <- ifelse(Age2[j,i]==Age3[1,i]-1,1,0)
    d2 <- recode (d2, "NA=0")
    d3 <- ifelse(Age2[j,i]==Age3[1,i]-2,1,0)
    d3 <- recode (d3, "NA=0")
    d4 <- ifelse(Age2[j,i]==Age3[1,i]-3,1,0)
    d4 <- recode (d4, "NA=0")
    d5 <- ifelse(Age2[j,i]==Age3[1,i]-4,1,0)
    d5 <- recode (d5, "NA=0")
```

```
   d6 <- ifelse(Age2[j,i]==Age3[1,i]-5,1,0)
   d6 <- recode (d6, "NA=0")
   d7 <- ifelse(Age2[j,i]==Age3[1,i]+1,1,0)
   d7 <- recode (d7, "NA=0")
   d8 <- ifelse(Age2[j,i]==Age3[1,i]+2,1,0)
   d8 <- recode (d8, "NA=0")
   d9 <- ifelse(Age2[j,i]==Age3[1,i]+3,1,0)
   d9 <- recode (d9, "NA=0")
   d10 <- ifelse(Age2[j,i]==Age3[1,i]+4,1,0)
   d10 <- recode (d10, "NA=0")
   d11 <- ifelse(Age2[j,i]==Age3[1,i]+5,1,0)
   d11 <- recode (d11, "NA=0")
   Age4[j,i] <- d1+d2+d3+d4+d5+d6+d7+d8+d9+d10+d11
  }}

rownames(Age4) <- prova2$IDPERS
colnames(Age4) <- prova$IDPERS

#somma

SommaClon <- matrix (nrow=14257,ncol=532,0)

for (j in 1:14257){
  for (i in 1:532){
    a <- (100*Age4[j,i])
    b <- (10*SexClon4[j,i])
    SommaClon[j,i] <- sum(a, b, birthY4[j,i], SocOrigin4[j,i], residence4[j,i], job4[j,i],
education4[j,i], nationality4[j,i], na.rm = T)
  }}

rownames(SommaClon) <- prova2$IDPERS
colnames(SommaClon) <- prova$IDPERS

#116
SommaClon2A <- matrix (nrow=14257,ncol=532,0)

for (j in 1:14257){
  for (i in 1:532){
    SommaClon2A[j,i] <- ifelse(SommaClon[j,i]==116,rownames(SommaClon)[j],0)
  }}
```

```
rownames(SommaClon2A) <- prova2$IDPERS
colnames(SommaClon2A) <- prova$IDPERS

max116V <- matrix(nrow=1, ncol=532, 0)
for (i in 1:532){
  max116V[1,i] <- 14257-table(SommaClon2A[,i])[1]
}
max116 <- max(max116V)


SommaClon116 <- matrix (nrow=532,ncol=max116,0)

for (j in 1:532){
  for (i in 1:max116){
    SommaClon116[j,i] <- sort(SommaClon2A[,j], TRUE)[i]
  }}

rownames(SommaClon116) <- prova$IDPERS
532 - sum(SommaClon116[,1] == 0) #147



#115
SommaClon2B <- matrix (nrow=14257,ncol=532,0)

for (j in 1:14257){
  for (i in 1:532){
    SommaClon2B[j,i] <- ifelse(SommaClon[j,i]==115,rownames(SommaClon)[j],0)
  }}

rownames(SommaClon2B) <- prova2$IDPERS
colnames(SommaClon2B) <- prova$IDPERS

max115V <- matrix(nrow=1, ncol=532, 0)
for (i in 1:532){
  max115V[1,i] <- 14257-table(SommaClon2B[,i])[1]
}
max115 <- max(max115V)

SommaClon115 <- matrix (nrow=532,ncol=max115,0)

for (j in 1:532){
```

```
 for (i in 1:max115){
  SommaClon115[j,i] <- sort(SommaClon2B[,j], TRUE)[i]
 }}

rownames(SommaClon115) <- prova$IDPERS
532 - sum(SommaClon115[,1] == 0) #XXX


#114

SommaClon2C <- matrix (nrow=14257,ncol=532,0)

for (j in 1:14257){
 for (i in 1:532){
  SommaClon2C[j,i] <- ifelse(SommaClon[j,i]==114,rownames(SommaClon)[j],0)
 }}

rownames(SommaClon2C) <- prova2$IDPERS
colnames(SommaClon2C) <- prova$IDPERS

max114V <- matrix(nrow=1, ncol=532, 0)
for (i in 1:532){
 max114V[1,i] <- 14257-table(SommaClon2C[,i])[1]
}
max114 <- max(max114V)

SommaClon114 <- matrix (nrow=532,ncol=max114,0) #XXX

for (j in 1:532){
 for (i in 1:max114){
  SommaClon114[j,i] <- sort(SommaClon2C[,j], TRUE)[i]
 }}

rownames(SommaClon114) <- prova$IDPERS
532 - sum(SommaClon114[,1] == 0) #XXX

#113

SommaClon2D <- matrix (nrow=14257,ncol=532,0)

for (j in 1:14257){
```

```
 for (i in 1:532){
  SommaClon2D[j,i] <- ifelse(SommaClon[j,i]==113,rownames(SommaClon)[j],0)
 }}

rownames(SommaClon2D) <- prova2$IDPERS
colnames(SommaClon2D) <- prova$IDPERS

max113V <- matrix(nrow=1, ncol=532, 0)
for (i in 1:532){
 max113V[1,i] <- 14257-table(SommaClon2D[,i])[1]
}
max113 <- max(max113V)

SommaClon113 <- matrix (nrow=532,ncol=max113,0)

for (j in 237:532){#237==1
 for (i in 1:max113){
  SommaClon113[j,i] <- sort(SommaClon2D[,j], TRUE)[i]
 }}
View(SommaClon113)
rownames(SommaClon113) <- prova$IDPERS
532 - sum(SommaClon113[,1] == 0) #XXX

#112

SommaClon2E <- matrix (nrow=14257,ncol=532,0)

for (j in 1:14257){
 for (i in 1:532){
  SommaClon2E[j,i] <- ifelse(SommaClon[j,i]==112,rownames(SommaClon)[j],0)
 }}

rownames(SommaClon2E) <- prova2$IDPERS
colnames(SommaClon2E) <- prova$IDPERS

max112V <- matrix(nrow=1, ncol=532, 0)
for (i in 1:532){
 max112V[1,i] <- 14257-table(SommaClon2E[,i])[1]
}
max112 <- max(max112V)
```

```
SommaClon112 <- matrix (nrow=532,ncol=max112,0)

for (j in 1:532){
 for (i in 1:max112){
  SommaClon112[j,i] <- sort(SommaClon2E[,j], TRUE)[i]
 }}

rownames(SommaClon112) <- prova$IDPERS
532 - sum(SommaClon112[,1] == 0) #XXX

##
coppieCM <- matrix (nrow=532,ncol=2,0)

#116
coppieCM[,1] <- SommaClon116[,1]
rownames(coppieCM) <- rownames(SommaClon116)
coppieCM[,2] <- ifelse(coppieCM[,1]>0,116,0)
c <- matrix(nrow=532,ncol=1,0)
d <- cbind(SommaClon116,c)


for (j in 2:max116){
 a <- names(which(table(coppieCM[,1])>1))
 a <- if(length(a)<1) 0 else a
 b <- which(table(coppieCM[,1])>1)
 b <- if(length(b)<1) 0 else b
 for (i in 1:length(a)){
  coppieCM[min(which(coppieCM[,1]==a[i])),2] <- 1
 }

 for (i in 1:532){
  coppieCM[i,1] <- ifelse(coppieCM[i,2]==1,d[i,j],coppieCM[i,1])
 }}

coppieCM[,2] <- recode(coppieCM[,2], "1=0")

#115
for (i in 1:532){
 coppieCM[i,1] <- ifelse(coppieCM[i,2]>115,coppieCM[i,1],SommaClon115[i,1])
}
for (i in 1:532){
```

```
  coppieCM[i,2] <- ifelse((coppieCM[i,1]>0 &
coppieCM[i,2]!=116),115,coppieCM[i,2])
}
c <- matrix(nrow=532,ncol=1,0)
d <- cbind(SommaClon115,c)


for (j in 2:max115){
  a <- names(which(table(coppieCM[,1])>1))
  a <- if(length(a)<1) 0 else a
  b <- which(table(coppieCM[,1])>1)
  b <- if(length(b)<1) 0 else b

  for (i in 1:length(a)){
    f <- which(coppieCM[,1]==a[i])
    f <- sort(f)
    names(f) <- NULL
    e <- f[1]
    for (k in 2:length(f)){
      e <- ifelse(coppieCM[f[k],2]>115,e,f[k])
    }
    coppieCM[e,2] <- 1
  }

  for (i in 1:532){
    coppieCM[i,1] <- ifelse(coppieCM[i,2]==1,d[i,j],coppieCM[i,1])
  }}

coppieCM[,2] <- recode(coppieCM[,2], "1=0")

#114

for (i in 1:532){
  coppieCM[i,1] <- ifelse(coppieCM[i,2]>114,coppieCM[i,1],SommaClon114[i,1])
}
for (i in 1:532){
  coppieCM[i,2] <- ifelse((coppieCM[i,1]>0 & coppieCM[i,2]!=116 &
coppieCM[i,2]!=115),114,coppieCM[i,2])
}
c <- matrix(nrow=532,ncol=1,0)
d <- cbind(SommaClon114,c)
```

```
for (j in 2:max114){
  a <- names(which(table(coppieCM[,1])>1))
  a <- if(length(a)<1) 0 else a
  b <- which(table(coppieCM[,1])>1)
  b <- if(length(b)<1) 0 else b
  for (i in 1:length(a)){
    f <- which(coppieCM[,1]==a[i])
    f <- sort(f)
    names(f) <- NULL
    e <- f[1]
    for (k in 2:length(f)){
      e <- ifelse(coppieCM[f[k],2]>114,e,f[k])
    }
    coppieCM[e,2] <- 1
  }

  for (i in 1:532){
    coppieCM[i,1] <- ifelse(coppieCM[i,2]==1,d[i,j],coppieCM[i,1])
  }}

coppieCM[,2] <- recode(coppieCM[,2], "1=0")

#113

for (i in 1:532){
  coppieCM[i,1] <- ifelse(coppieCM[i,2]>113,coppieCM[i,1],SommaClon113[i,1])
}
for (i in 1:532){
  coppieCM[i,2] <- ifelse((coppieCM[i,1]>0 & coppieCM[i,2]!=116 &
coppieCM[i,2]!=115 & coppieCM[i,2]!=114),113,coppieCM[i,2])
}
c <- matrix(nrow=532,ncol=1,0)
d <- cbind(SommaClon113,c)


for (j in 2:max113){
  a <- names(which(table(coppieCM[,1])>1))
  a <- if(length(a)<1) 0 else a
  b <- which(table(coppieCM[,1])>1)
```

```
  b <- if(length(b)<1) 0 else b
  for (i in 1:length(a)){
    f <- which(coppieCM[,1]==a[i])
    f <- sort(f)
    names(f) <- NULL
    e <- f[1]
    for (k in 2:length(f)){
      e <- ifelse(coppieCM[f[k],2]>113,e,f[k])
    }
    coppieCM[e,2] <- 1
  }

  for (i in 1:532){
    coppieCM[i,1] <- ifelse(coppieCM[i,2]==1,d[i,j],coppieCM[i,1])
  }}

coppieCM[,2] <- recode(coppieCM[,2], "1=0")

#112

for (i in 1:532){
  coppieCM[i,1] <- ifelse(coppieCM[i,2]>112,coppieCM[i,1],SommaClon112[i,1])
}
for (i in 1:532){
  coppieCM[i,2] <- ifelse((coppieCM[i,1]>0 & coppieCM[i,2]!=116 &
coppieCM[i,2]!=115 & coppieCM[i,2]!=114 &
coppieCM[i,2]!=113),112,coppieCM[i,2])
}
c <- matrix(nrow=532,ncol=1,0)
d <- cbind(SommaClon112,c)


for (j in 2:max112){
  a <- names(which(table(coppieCM[,1])>1))
  a <- if(length(a)<1) 0 else a
  b <- which(table(coppieCM[,1])>1)
  b <- if(length(b)<1) 0 else b
  for (i in 1:length(a)){
    f <- which(coppieCM[,1]==a[i])
    f <- sort(f)
    names(f) <- NULL
```

```
   e <- f[1]
   for (k in 2:length(f)){
     e <- ifelse(coppieCM[f[k],2]>112,e,f[k])
   }
   coppieCM[e,2] <- 1
  }

  for (i in 1:532){
   coppieCM[i,1] <- ifelse(coppieCM[i,2]==1,d[i,j],coppieCM[i,1])
  }}

coppieCM[,2] <- recode(coppieCM[,2], "1=0")


#riassunto
table(table(coppieCM[,1]))
table(coppieCM[,2])
View(coppieCM)

#SELEZIONE DATABASE CLONI

a <- as.data.frame(matrix (ncol=length(PerCloni), nrow=1, -999999))
colnames(a) <- colnames(PerCloni)
a <- t(a)
cloni1 <- as.data.frame(matrix (nrow=1,ncol=length(PerCloni), "base"))
colnames(cloni1) <- colnames(PerCloni)
cloni1 <- t(cloni1)


for (i in 1:532){
  b <- which(PerCloni$IDPERS==coppieCM[i,1])
  c <- t(PerCloni[b,])
  cloni1 <-  if (coppieCM[i,1]>0) data.frame(cloni1,c) else data.frame(cloni1,a)
}
cloni1 <- t(cloni1)
colnames(cloni1) <- colnames(PerCloni)
rownames(cloni1) <- NULL
cloni1 <- cloni1[-1,]
cloni1 <- as.data.frame(cloni1)

cloni1$twins <- 0
```

```
for (i in 1:532){
  cloni1$twins[i] <- CampioneN48p90mesi$IDPERS[i]
}

cloni1 <- recode(cloni1, "-999999=NA")

View(cloni1)


------------------------

###pulizia da sequenze con unemployment.
#si fa dopo che hai definito le sequenze
#torni indietro e sostituisci quelle con UN con gemelli di riserva
#poi rifai tutto

#definizione nuovi gemelli(manuale)
coppieCM2 <-
c(656101,13705102,5227101,5669101,8778101,3281103,8098102,5340101,885110
3,767101,4510101,3920102,20031102,22426102,7567101)

# campioncino per sostituzione
cloni1B1 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[1])
cloni1B1 <- t(cloni1B1)
cloni1B2 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[2])
cloni1B2 <- t(cloni1B2)
cloni1B3 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[3])
cloni1B3 <- t(cloni1B3)
cloni1B4 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[4])
cloni1B4 <- t(cloni1B4)
cloni1B5 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[5])
cloni1B5 <- t(cloni1B5)
cloni1B6 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[6])
cloni1B6 <- t(cloni1B6)
cloni1B7 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[7])
cloni1B7 <- t(cloni1B7)
cloni1B8 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[8])
cloni1B8 <- t(cloni1B8)
cloni1B9 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[9])
cloni1B9 <- t(cloni1B9)
cloni1B10 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[10])
```

```
cloni1B10 <- t(cloni1B10)
cloni1B11 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[11])
cloni1B11 <- t(cloni1B11)
cloni1B12 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[12])
cloni1B12 <- t(cloni1B12)
cloni1B13 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[13])
cloni1B13 <- t(cloni1B13)
cloni1B14 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[14])
cloni1B14 <- t(cloni1B14)
cloni1B15 <- subset(PerCloni,PerCloni$IDPERS==coppieCM2[15])
cloni1B15 <- t(cloni1B15)
cloni1B <-
data.frame(cloni1B1,cloni1B2,cloni1B3,cloni1B4,cloni1B5,cloni1B6,cloni1B7,cloni1B
8,cloni1B9,cloni1B10,cloni1B11,cloni1B12,cloni1B13,cloni1B14,cloni1B15)
cloni1B <- t(cloni1B)

rownames(cloni1B) <- NULL
cloni1B <- as.data.frame(cloni1B)

#
#RICODIFICO LE VARIABILI MESI PER GRUPPO CLONI#

#metto in pari le variabili (ne hai probabilmente perchè hai fatto tanti tentativi e hai
qualche variabile pattumiera)
cloni1B$perCoprireBuchi1 <- 0
cloni1B$perCoprireBuchi2 <- 0
cloni1B$perCoprireBuchi3 <- 0
cloni1B$perCoprireBuchi4 <- 0
cloni1B$perCoprireBuchi5 <- 0
cloni1B$perCoprireBuchi6 <- 0
cloni1B$perCoprireBuchi7 <- 0
cloni1B$perCoprireBuchi8 <- 0
cloni1B$perCoprireBuchi9 <- 0
cloni1B$perCoprireBuchi10 <- 0
cloni1B$perCoprireBuchi11 <- 0
cloni1B$perCoprireBuchi12 <- 0
cloni1B$perCoprireBuchi13 <- 0
cloni1B$perCoprireBuchi14 <- 0
cloni1B$perCoprireBuchi15 <- 0
cloni1B$perCoprireBuchi16 <- 0
cloni1B$perCoprireBuchi17 <- 0
```

#creazioni variabili tipo di lavoro per mese#

```
cloni1B$typeWMset99<-0
cloni1B$typeWMoct99<-0
cloni1B$typeWMnov99<-0
cloni1B$typeWMdec99<-0
cloni1B$typeWMjan00<-0
cloni1B$typeWMfeb00<-0
cloni1B$typeWMmar00<-0
cloni1B$typeWMapr00<-0
cloni1B$typeWMmay00<-0
cloni1B$typeWMjun00<-0
cloni1B$typeWMjul00<-0
cloni1B$typeWMaug00<-0
cloni1B$typeWMsept00<-0
cloni1B$typeWMoct00<-0
cloni1B$typeWMnov00<-0
cloni1B$typeWMdec00<-0
cloni1B$typeWMjan01<-0
cloni1B$typeWMfeb01<-0
cloni1B$typeWMmar01<-0
cloni1B$typeWMapr01<-0
cloni1B$typeWMmay01<-0
cloni1B$typeWMjun01<-0
cloni1B$typeWMjul01<-0
cloni1B$typeWMaug01<-0
cloni1B$typeWMsept01<-0
cloni1B$typeWMoct01<-0
cloni1B$typeWMnov01<-0
cloni1B$typeWMdec01<-0
cloni1B$typeWMjan02<-0
cloni1B$typeWMfeb02<-0
cloni1B$typeWMmar02<-0
cloni1B$typeWMapr02<-0
cloni1B$typeWMmay02<-0
cloni1B$typeWMjun02<-0
cloni1B$typeWMjul02<-0
cloni1B$typeWMaug02<-0
cloni1B$typeWMsept02<-0
cloni1B$typeWMoct02<-0
```

cloni1B$typeWMnov02<-0
cloni1B$typeWMdec02<-0
cloni1B$typeWMjan03<-0
cloni1B$typeWMfeb03<-0
cloni1B$typeWMmar03<-0
cloni1B$typeWMapr03<-0
cloni1B$typeWMmay03<-0
cloni1B$typeWMjun03<-0
cloni1B$typeWMjul03<-0
cloni1B$typeWMaug03<-0
cloni1B$typeWMsept03<-0
cloni1B$typeWMoct03<-0
cloni1B$typeWMnov03<-0
cloni1B$typeWMdec03<-0
cloni1B$typeWMjan04<-0
cloni1B$typeWMfeb04<-0
cloni1B$typeWMmar04<-0
cloni1B$typeWMapr04<-0
cloni1B$typeWMmay04<-0
cloni1B$typeWMjun04<-0
cloni1B$typeWMjul04<-0
cloni1B$typeWMaug04<-0
cloni1B$typeWMsept04<-0
cloni1B$typeWMoct04<-0
cloni1B$typeWMnov04<-0
cloni1B$typeWMdec04<-0
cloni1B$typeWMjan05<-0
cloni1B$typeWMfeb05<-0
cloni1B$typeWMmar05<-0
cloni1B$typeWMapr05<-0
cloni1B$typeWMmay05<-0
cloni1B$typeWMjun05<-0
cloni1B$typeWMjul05<-0
cloni1B$typeWMaug05<-0
cloni1B$typeWMsept05<-0
cloni1B$typeWMoct05<-0
cloni1B$typeWMnov05<-0
cloni1B$typeWMdec05<-0
cloni1B$typeWMjan06<-0
cloni1B$typeWMfeb06<-0
cloni1B$typeWMmar06<-0

```
cloni1B$typeWMapr06<-0
cloni1B$typeWMmay06<-0
cloni1B$typeWMjun06<-0
cloni1B$typeWMjul06<-0
cloni1B$typeWMaug06<-0
cloni1B$typeWMsept06<-0
cloni1B$typeWMoct06<-0
cloni1B$typeWMnov06<-0
cloni1B$typeWMdec06<-0
cloni1B$typeWMjan07<-0
cloni1B$typeWMfeb07<-0
cloni1B$typeWMmar07<-0
cloni1B$typeWMapr07<-0
cloni1B$typeWMmay07<-0
cloni1B$typeWMjun07<-0
cloni1B$typeWMjul07<-0
cloni1B$typeWMaug07<-0
cloni1B$typeWMsept07<-0
cloni1B$typeWMoct07<-0
cloni1B$typeWMnov07<-0
cloni1B$typeWMdec07<-0
cloni1B$typeWMjan08<-0
cloni1B$typeWMfeb08<-0
cloni1B$typeWMmar08<-0
cloni1B$typeWMapr08<-0
cloni1B$typeWMmay08<-0
cloni1B$typeWMjun08<-0
cloni1B$typeWMjul08<-0
cloni1B$typeWMaug08<-0
cloni1B$typeWMsept08<-0
cloni1B$typeWMoct08<-0
cloni1B$typeWMnov08<-0
cloni1B$typeWMdec08<-0
cloni1B$typeWMjan09<-0
cloni1B$typeWMfeb09<-0
cloni1B$typeWMmar09<-0
cloni1B$typeWMapr09<-0
cloni1B$typeWMmay09<-0
cloni1B$typeWMjun09<-0
cloni1B$typeWMjul09<-0
cloni1B$typeWMaug09<-0
```

```
cloni1B$typeWMsept09<-0
cloni1B$typeWMoct09<-0
cloni1B$typeWMnov09<-0
cloni1B$typeWMdec09<-0
cloni1B$typeWMjan10<-0
cloni1B$typeWMfeb10<-0
cloni1B$typeWMmar10<-0
cloni1B$typeWMapr10<-0
cloni1B$typeWMmay10<-0
cloni1B$typeWMjun10<-0
cloni1B$typeWMjul10<-0
cloni1B$typeWMaug10<-0
cloni1B$typeWMsept10<-0
cloni1B$typeWMoct10<-0
cloni1B$typeWMnov10<-0
cloni1B$typeWMdec10<-0
cloni1B$typeWMjan11<-0
cloni1B$typeWMfeb11<-0
cloni1B$typeWMmar11<-0
cloni1B$typeWMapr11<-0
cloni1B$typeWMmay11<-0
cloni1B$typeWMjun11<-0
cloni1B$typeWMjul11<-0
cloni1B$typeWMaug11<-0
cloni1B$typeWMsept11<-0
cloni1B$typeWMoct11<-0
cloni1B$typeWMnov11<-0
cloni1B$typeWMdec12<-0
cloni1B$typeWMjan12<-0
cloni1B$typeWMfeb12<-0
cloni1B$typeWMmar12<-0

#stendo base #


for(i in 1:15){
  for(j in 1:151){
    cloni1B[i,6069+j] <- as.character(cloni1B[i,5670+j])
  }}

# tipo di lavoro CSP --> 8 tipi (li riduci dopo se mai)#
```

```
cloni1B$WorkDiv1A99<- recode(cloni1B$CSPMAJ99, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1B$WorkDiv1A00<- recode(cloni1B$CSPMAJ00, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1B$WorkDiv1A01<- recode(cloni1B$CSPMAJ01, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1B$WorkDiv1A02<- recode(cloni1B$CSPMAJ02, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1B$WorkDiv1A03<- recode(cloni1B$CSPMAJ03, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1B$WorkDiv1A04<- recode(cloni1B$CSPMAJ04, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1B$WorkDiv1A05<- recode(cloni1B$CSPMAJ05, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1B$WorkDiv1A06<- recode(cloni1B$CSPMAJ06, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
```

```
cloni1B$WorkDiv1A07<- recode(cloni1B$CSPMAJ07, "'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic professions and senior management'=4; 'intermediate professions'=5; 'qualified non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and manual workers'=8")
cloni1B$WorkDiv1A08<- recode(cloni1B$CSPMAJ08, "'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic professions and senior management'=4; 'intermediate professions'=5; 'qualified non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and manual workers'=8")
cloni1B$WorkDiv1A09<- recode(cloni1B$CSPMAJ09, "'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic professions and senior management'=4; 'intermediate professions'=5; 'qualified non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and manual workers'=8")
cloni1B$WorkDiv1A10<- recode(cloni1B$CSPMAJ10, "'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic professions and senior management'=4; 'intermediate professions'=5; 'qualified non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and manual workers'=8")
cloni1B$WorkDiv1A11<- recode(cloni1B$CSPMAJ11, "'top management'=1; 'liberal professions'=2; 'other self-employed'=3; 'academic professions and senior management'=4; 'intermediate professions'=5; 'qualified non-manual professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and manual workers'=8")

###calcolo inizio (chiamato spell)###

###creazione variabili con data intervista###
#isolo mese ( e anno) intervista#
cloni1B$spell99 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1B$PDATE99.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1B$spell00 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1B$PDATE00.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1B$spell01 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1B$PDATE01.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
```

```
cloni1B$spell02 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1B$PDATE02.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1B$spell03 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1B$PDATE03.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1B$spell04 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1B$PDATE04.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1B$spell05 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1B$PDATE05.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1B$spell06 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1B$PDATE06.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1B$spell07 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1B$PDATE07.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1B$spell08 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1B$PDATE08.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1B$spell09 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1B$PDATE09.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1B$spell10 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1B$PDATE10.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1B$spell11 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1B$PDATE11.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)

##definisco e ricostruisco le date delle interviste##

library(car)
cloni1B$spell99 <- recode (cloni1B$spell99, "NA='0'")
cloni1B$spell00 <- recode (cloni1B$spell00, "NA='0'")
cloni1B$spell01 <- recode (cloni1B$spell01, "NA='0'")
cloni1B$spell02 <- recode (cloni1B$spell02, "NA='0'")
cloni1B$spell03 <- recode (cloni1B$spell03, "NA='0'")
cloni1B$spell04 <- recode (cloni1B$spell04, "NA='0'")
cloni1B$spell05 <- recode (cloni1B$spell05, "NA='0'")
```

```
cloni1B$spell06 <- recode (cloni1B$spell06, "NA='0'")
cloni1B$spell07 <- recode (cloni1B$spell07, "NA='0'")
cloni1B$spell08 <- recode (cloni1B$spell08, "NA='0'")
cloni1B$spell09 <- recode (cloni1B$spell09, "NA='0'")
cloni1B$spell10 <- recode (cloni1B$spell10, "NA='0'")
cloni1B$spell11 <- recode (cloni1B$spell11, "NA='0'")

#ripescaggio di quelli che hanno valore valido in % lavoro#

spell99NAconverter0 <- ifelse (cloni1B$spell99=='0' & (cloni1B$SEP99=='full-time
paid job (37 hours or more per week)'|cloni1B$SEP99=='part-time paid job (1-36
hours per
week)'|cloni1B$SEP99=='unemployment'|cloni1B$SEP99=='inactive'|cloni1B$SEP99
=='unemployed or inactive'),'1999-09','0')
spell99NAconverter1 <- ifelse (cloni1B$spell99=='0' & (cloni1B$OCT99=='full-time
paid job (37 hours or more per week)'|cloni1B$OCT99=='part-time paid job (1-36
hours per
week)'|cloni1B$OCT99=='unemployment'|cloni1B$OCT99=='inactive'|cloni1B$OCT9
9=='unemployed or inactive'),'1999-10',spell99NAconverter0)
spell99NAconverter2 <- ifelse (cloni1B$spell99=='0' & (cloni1B$NOV99=='full-time
paid job (37 hours or more per week)'|cloni1B$NOV99=='part-time paid job (1-36
hours per
week)'|cloni1B$NOV99=='unemployment'|cloni1B$NOV99=='inactive'|cloni1B$NO
V99=='unemployed or inactive'),'1999-11',spell99NAconverter1)
spell99NAconverter3 <- ifelse (cloni1B$spell99=='0' & (cloni1B$DEC99=='full-time
paid job (37 hours or more per week)'|cloni1B$DEC99=='part-time paid job (1-36
hours per
week)'|cloni1B$DEC99=='unemployment'|cloni1B$DEC99=='inactive'|cloni1B$DEC9
9=='unemployed or inactive'),'1999-12',spell99NAconverter2)
spell99NAconverter4 <- ifelse (cloni1B$spell99=='0' & (cloni1B$JAN00=='full-time
paid job (37 hours or more per week)'|cloni1B$JAN00=='part-time paid job (1-36
hours per
week)'|cloni1B$JAN00=='unemployment'|cloni1B$JAN00=='inactive'|cloni1B$JAN0
0=='unemployed or inactive'),'2000-01',spell99NAconverter3)
spell99NAconverter5 <- ifelse (cloni1B$spell99=='0' & (cloni1B$FEB00=='full-time
paid job (37 hours or more per week)'|cloni1B$FEB00=='part-time paid job (1-36
hours per
week)'|cloni1B$FEB00=='unemployment'|cloni1B$FEB00=='inactive'|cloni1B$FEB00
=='unemployed or inactive'),'2000-02',spell99NAconverter4)
```

```
i <-0
j<-0
for(i in 1:15) {
  j <- spell99NAconverter5[i]
  cloni1B$spell99[i] <- recode (cloni1B$spell99[i], "'0'=j")
  j<-0 }



spell00NAconverter0 <- ifelse (cloni1B$spell00=='0' & (cloni1B$SEP00=='full-time
paid job (37 hours or more per week)'|cloni1B$SEP00=='part-time paid job (1-36
hours per
week)'|cloni1B$SEP00=='unemployment'|cloni1B$SEP00=='inactive'|cloni1B$SEP00
=='unemployed or inactive'),'2000-09','0')
spell00NAconverter1 <- ifelse (cloni1B$spell00=='0' & (cloni1B$OCT00=='full-time
paid job (37 hours or more per week)'|cloni1B$OCT00=='part-time paid job (1-36
hours per
week)'|cloni1B$OCT00=='unemployment'|cloni1B$OCT00=='inactive'|cloni1B$OCT0
0=='unemployed or inactive'),'2000-10',spell00NAconverter0)
spell00NAconverter2 <- ifelse (cloni1B$spell00=='0' & (cloni1B$NOV00=='full-time
paid job (37 hours or more per week)'|cloni1B$NOV00=='part-time paid job (1-36
hours per
week)'|cloni1B$NOV00=='unemployment'|cloni1B$NOV00=='inactive'|cloni1B$NO
V00=='unemployed or inactive'),'2000-11',spell00NAconverter1)
spell00NAconverter3 <- ifelse (cloni1B$spell00=='0' & (cloni1B$DEC00=='full-time
paid job (37 hours or more per week)'|cloni1B$DEC00=='part-time paid job (1-36
hours per
week)'|cloni1B$DEC00=='unemployment'|cloni1B$DEC00=='inactive'|cloni1B$DEC0
0=='unemployed or inactive'),'2000-12',spell00NAconverter2)
spell00NAconverter4 <- ifelse (cloni1B$spell00=='0' & (cloni1B$JAN01=='full-time
paid job (37 hours or more per week)'|cloni1B$JAN01=='part-time paid job (1-36
hours per
week)'|cloni1B$JAN01=='unemployment'|cloni1B$JAN01=='inactive'|cloni1B$JAN0
1=='unemployed or inactive'),'2001-01',spell00NAconverter3)
spell00NAconverter5 <- ifelse (cloni1B$spell00=='0' & (cloni1B$FEB01=='full-time
paid job (37 hours or more per week)'|cloni1B$FEB01=='part-time paid job (1-36
hours per
week)'|cloni1B$FEB01=='unemployment'|cloni1B$FEB01=='inactive'|cloni1B$FEB01
=='unemployed or inactive'),'2001-02',spell00NAconverter4)
```

```
i <-0
j<-0
for(i in 1:15) {
  j <- spell00NAconverter5[i]
  cloni1B$spell00[i] <- recode (cloni1B$spell00[i], "'0'=j")
  j<-0 }


spell01NAconverter0 <- ifelse (cloni1B$spell01=='0' & (cloni1B$SEP01=='full-time
paid job (37 hours or more per week)'|cloni1B$SEP01=='part-time paid job (1-36
hours per
week)'|cloni1B$SEP01=='unemployment'|cloni1B$SEP01=='inactive'|cloni1B$SEP01
=='unemployed or inactive'),'2001-09','0')
spell01NAconverter1 <- ifelse (cloni1B$spell01=='0' & (cloni1B$OCT01=='full-time
paid job (37 hours or more per week)'|cloni1B$OCT01=='part-time paid job (1-36
hours per
week)'|cloni1B$OCT01=='unemployment'|cloni1B$OCT01=='inactive'|cloni1B$OCT0
1=='unemployed or inactive'),'2001-10',spell01NAconverter0)
spell01NAconverter2 <- ifelse (cloni1B$spell01=='0' & (cloni1B$NOV01=='full-time
paid job (37 hours or more per week)'|cloni1B$NOV01=='part-time paid job (1-36
hours per
week)'|cloni1B$NOV01=='unemployment'|cloni1B$NOV01=='inactive'|cloni1B$NO
V01=='unemployed or inactive'),'2001-11',spell01NAconverter1)
spell01NAconverter3 <- ifelse (cloni1B$spell01=='0' & (cloni1B$DEC01=='full-time
paid job (37 hours or more per week)'|cloni1B$DEC01=='part-time paid job (1-36
hours per
week)'|cloni1B$DEC01=='unemployment'|cloni1B$DEC01=='inactive'|cloni1B$DEC0
1=='unemployed or inactive'),'2001-12',spell01NAconverter2)
spell01NAconverter4 <- ifelse (cloni1B$spell01=='0' & (cloni1B$JAN02=='full-time
paid job (37 hours or more per week)'|cloni1B$JAN02=='part-time paid job (1-36
hours per
week)'|cloni1B$JAN02=='unemployment'|cloni1B$JAN02=='inactive'|cloni1B$JAN0
2=='unemployed or inactive'),'2002-01',spell01NAconverter3)
spell01NAconverter5 <- ifelse (cloni1B$spell01=='0' & (cloni1B$FEB02=='full-time
paid job (37 hours or more per week)'|cloni1B$FEB02=='part-time paid job (1-36
hours per
week)'|cloni1B$FEB02=='unemployment'|cloni1B$FEB02=='inactive'|cloni1B$FEB02
=='unemployed or inactive'),'2002-02',spell01NAconverter4)
```

```
i <-0
j<-0
for(i in 1:15) {
  j <- spell01NAconverter5[i]
  cloni1B$spell01[i] <- recode (cloni1B$spell01[i], "'0'=j")
  j<-0 }


spell02NAconverter0 <- ifelse (cloni1B$spell02=='0' & (cloni1B$SEP02=='full-time
paid job (37 hours or more per week)'|cloni1B$SEP02=='part-time paid job (1-36
hours per
week)'|cloni1B$SEP02=='unemployment'|cloni1B$SEP02=='inactive'|cloni1B$SEP02
=='unemployed or inactive'),'2002-09','0')
spell02NAconverter1 <- ifelse (cloni1B$spell02=='0' & (cloni1B$OCT02=='full-time
paid job (37 hours or more per week)'|cloni1B$OCT02=='part-time paid job (1-36
hours per
week)'|cloni1B$OCT02=='unemployment'|cloni1B$OCT02=='inactive'|cloni1B$OCT0
2=='unemployed or inactive'),'2002-10',spell02NAconverter0)
spell02NAconverter2 <- ifelse (cloni1B$spell02=='0' & (cloni1B$NOV02=='full-time
paid job (37 hours or more per week)'|cloni1B$NOV02=='part-time paid job (1-36
hours per
week)'|cloni1B$NOV02=='unemployment'|cloni1B$NOV02=='inactive'|cloni1B$NO
V02=='unemployed or inactive'),'2002-11',spell02NAconverter1)
spell02NAconverter3 <- ifelse (cloni1B$spell02=='0' & (cloni1B$DEC02=='full-time
paid job (37 hours or more per week)'|cloni1B$DEC02=='part-time paid job (1-36
hours per
week)'|cloni1B$DEC02=='unemployment'|cloni1B$DEC02=='inactive'|cloni1B$DEC0
2=='unemployed or inactive'),'2002-12',spell02NAconverter2)
spell02NAconverter4 <- ifelse (cloni1B$spell02=='0' & (cloni1B$JAN03=='full-time
paid job (37 hours or more per week)'|cloni1B$JAN03=='part-time paid job (1-36
hours per
week)'|cloni1B$JAN03=='unemployment'|cloni1B$JAN03=='inactive'|cloni1B$JAN0
3=='unemployed or inactive'),'2003-01',spell02NAconverter3)
spell02NAconverter5 <- ifelse (cloni1B$spell02=='0' & (cloni1B$FEB03=='full-time
paid job (37 hours or more per week)'|cloni1B$FEB03=='part-time paid job (1-36
hours per
week)'|cloni1B$FEB03=='unemployment'|cloni1B$FEB03=='inactive'|cloni1B$FEB03
=='unemployed or inactive'),'2003-02',spell02NAconverter4)


i <-0
```

```
j<-0
for(i in 1:15) {
  j <- spell02NAconverter5[i]
  cloni1B$spell02[i] <- recode (cloni1B$spell02[i], "'0'=j")
  j<-0 }

spell03NAconverter0 <- ifelse (cloni1B$spell03=='0' & (cloni1B$SEP03=='full-time
paid job (37 hours or more per week)'|cloni1B$SEP03=='part-time paid job (1-36
hours per
week)'|cloni1B$SEP03=='unemployment'|cloni1B$SEP03=='inactive'|cloni1B$SEP03
=='unemployed or inactive'),'2003-09','0')
spell03NAconverter1 <- ifelse (cloni1B$spell03=='0' & (cloni1B$OCT03=='full-time
paid job (37 hours or more per week)'|cloni1B$OCT03=='part-time paid job (1-36
hours per
week)'|cloni1B$OCT03=='unemployment'|cloni1B$OCT03=='inactive'|cloni1B$OCT0
3=='unemployed or inactive'),'2003-10',spell03NAconverter0)
spell03NAconverter2 <- ifelse (cloni1B$spell03=='0' & (cloni1B$NOV03=='full-time
paid job (37 hours or more per week)'|cloni1B$NOV03=='part-time paid job (1-36
hours per
week)'|cloni1B$NOV03=='unemployment'|cloni1B$NOV03=='inactive'|cloni1B$NO
V03=='unemployed or inactive'),'2003-11',spell03NAconverter1)
spell03NAconverter3 <- ifelse (cloni1B$spell03=='0' & (cloni1B$DEC03=='full-time
paid job (37 hours or more per week)'|cloni1B$DEC03=='part-time paid job (1-36
hours per
week)'|cloni1B$DEC03=='unemployment'|cloni1B$DEC03=='inactive'|cloni1B$DEC0
3=='unemployed or inactive'),'2003-12',spell03NAconverter2)
spell03NAconverter4 <- ifelse (cloni1B$spell03=='0' & (cloni1B$JAN04=='full-time
paid job (37 hours or more per week)'|cloni1B$JAN04=='part-time paid job (1-36
hours per
week)'|cloni1B$JAN04=='unemployment'|cloni1B$JAN04=='inactive'|cloni1B$JAN0
4=='unemployed or inactive'),'2004-01',spell03NAconverter3)
spell03NAconverter5 <- ifelse (cloni1B$spell03=='0' & (cloni1B$FEB04=='full-time
paid job (37 hours or more per week)'|cloni1B$FEB04=='part-time paid job (1-36
hours per
week)'|cloni1B$FEB04=='unemployment'|cloni1B$FEB04=='inactive'|cloni1B$FEB04
=='unemployed or inactive'),'2004-02',spell03NAconverter4)



i <-0
j<-0
for(i in 1:15) {
```

```
 j <- spell03NAconverter5[i]
 cloni1B$spell03[i] <- recode (cloni1B$spell03[i], "'0'=j")
 j<-0 }

spell04NAconverter0 <- ifelse (cloni1B$spell04=='0' & (cloni1B$SEP04=='full-time
paid job (37 hours or more per week)'|cloni1B$SEP04=='part-time paid job (1-36
hours per
week)'|cloni1B$SEP04=='unemployment'|cloni1B$SEP04=='inactive'|cloni1B$SEP04
=='unemployed or inactive'),'2004-09','0')
spell04NAconverter1 <- ifelse (cloni1B$spell04=='0' & (cloni1B$OCT04=='full-time
paid job (37 hours or more per week)'|cloni1B$OCT04=='part-time paid job (1-36
hours per
week)'|cloni1B$OCT04=='unemployment'|cloni1B$OCT04=='inactive'|cloni1B$OCT0
4=='unemployed or inactive'),'2004-10',spell04NAconverter0)
spell04NAconverter2 <- ifelse (cloni1B$spell04=='0' & (cloni1B$NOV04=='full-time
paid job (37 hours or more per week)'|cloni1B$NOV04=='part-time paid job (1-36
hours per
week)'|cloni1B$NOV04=='unemployment'|cloni1B$NOV04=='inactive'|cloni1B$NO
V04=='unemployed or inactive'),'2004-11',spell04NAconverter1)
spell04NAconverter3 <- ifelse (cloni1B$spell04=='0' & (cloni1B$DEC04=='full-time
paid job (37 hours or more per week)'|cloni1B$DEC04=='part-time paid job (1-36
hours per
week)'|cloni1B$DEC04=='unemployment'|cloni1B$DEC04=='inactive'|cloni1B$DEC0
4=='unemployed or inactive'),'2004-12',spell04NAconverter2)
spell04NAconverter4 <- ifelse (cloni1B$spell04=='0' & (cloni1B$JAN05=='full-time
paid job (37 hours or more per week)'|cloni1B$JAN05=='part-time paid job (1-36
hours per
week)'|cloni1B$JAN05=='unemployment'|cloni1B$JAN05=='inactive'|cloni1B$JAN0
5=='unemployed or inactive'),'2005-01',spell04NAconverter3)
spell04NAconverter5 <- ifelse (cloni1B$spell04=='0' & (cloni1B$FEB05=='full-time
paid job (37 hours or more per week)'|cloni1B$FEB05=='part-time paid job (1-36
hours per
week)'|cloni1B$FEB05=='unemployment'|cloni1B$FEB05=='inactive'|cloni1B$FEB05
=='unemployed or inactive'),'2005-02',spell04NAconverter4)
spell04NAconverter6 <- ifelse (cloni1B$spell04=='0' & (cloni1B$MAR05=='full-time
paid job (37 hours or more per week)'|cloni1B$MAR05=='part-time paid job (1-36
hours per
week)'|cloni1B$MAR05=='unemployment'|cloni1B$MAR05=='inactive'|cloni1B$MA
R05=='unemployed or inactive'),'2005-03',spell04NAconverter5)
```

```
i <-0
j<-0
for(i in 1:15) {
  j <- spell04NAconverter6[i]
  cloni1B$spell04[i] <- recode (cloni1B$spell04[i], "'0'=j")
  j<-0 }


spell05NAconverter0 <- ifelse (cloni1B$spell05=='0' & (cloni1B$SEP05=='full-time
paid job (37 hours or more per week)'|cloni1B$SEP05=='part-time paid job (1-36
hours per
week)'|cloni1B$SEP05=='unemployment'|cloni1B$SEP05=='inactive'|cloni1B$SEP05
=='unemployed or inactive'),'2005-09','0')
spell05NAconverter1 <- ifelse (cloni1B$spell05=='0' & (cloni1B$OCT05=='full-time
paid job (37 hours or more per week)'|cloni1B$OCT05=='part-time paid job (1-36
hours per
week)'|cloni1B$OCT05=='unemployment'|cloni1B$OCT05=='inactive'|cloni1B$OCT0
5=='unemployed or inactive'),'2005-10',spell05NAconverter0)
spell05NAconverter2 <- ifelse (cloni1B$spell05=='0' & (cloni1B$NOV05=='full-time
paid job (37 hours or more per week)'|cloni1B$NOV05=='part-time paid job (1-36
hours per
week)'|cloni1B$NOV05=='unemployment'|cloni1B$NOV05=='inactive'|cloni1B$NO
V05=='unemployed or inactive'),'2005-11',spell05NAconverter1)
spell05NAconverter3 <- ifelse (cloni1B$spell05=='0' & (cloni1B$DEC05=='full-time
paid job (37 hours or more per week)'|cloni1B$DEC05=='part-time paid job (1-36
hours per
week)'|cloni1B$DEC05=='unemployment'|cloni1B$DEC05=='inactive'|cloni1B$DEC0
5=='unemployed or inactive'),'2005-12',spell05NAconverter2)
spell05NAconverter4 <- ifelse (cloni1B$spell05=='0' & (cloni1B$JAN06=='full-time
paid job (37 hours or more per week)'|cloni1B$JAN06=='part-time paid job (1-36
hours per
week)'|cloni1B$JAN06=='unemployment'|cloni1B$JAN06=='inactive'|cloni1B$JAN0
6=='unemployed or inactive'),'2006-01',spell05NAconverter3)
spell05NAconverter5 <- ifelse (cloni1B$spell05=='0' & (cloni1B$FEB06=='full-time
paid job (37 hours or more per week)'|cloni1B$FEB06=='part-time paid job (1-36
hours per
week)'|cloni1B$FEB06=='unemployment'|cloni1B$FEB06=='inactive'|cloni1B$FEB06
=='unemployed or inactive'),'2006-02',spell05NAconverter4)


i <-0
```

```
j<-0
for(i in 1:15) {
  j <- spell05NAconverter5[i]
  cloni1B$spell05[i] <- recode (cloni1B$spell05[i], "'0'=j")
  j<-0 }

spell06NAconverter0 <- ifelse (cloni1B$spell06=='0' & (cloni1B$SEP06=='full-time
paid job (37 hours or more per week)'|cloni1B$SEP06=='part-time paid job (1-36
hours per
week)'|cloni1B$SEP06=='unemployment'|cloni1B$SEP06=='inactive'|cloni1B$SEP06
=='unemployed or inactive'),'2006-09','0')
spell06NAconverter1 <- ifelse (cloni1B$spell06=='0' & (cloni1B$OCT06=='full-time
paid job (37 hours or more per week)'|cloni1B$OCT06=='part-time paid job (1-36
hours per
week)'|cloni1B$OCT06=='unemployment'|cloni1B$OCT06=='inactive'|cloni1B$OCT0
6=='unemployed or inactive'),'2006-10',spell06NAconverter0)
spell06NAconverter2 <- ifelse (cloni1B$spell06=='0' & (cloni1B$NOV06=='full-time
paid job (37 hours or more per week)'|cloni1B$NOV06=='part-time paid job (1-36
hours per
week)'|cloni1B$NOV06=='unemployment'|cloni1B$NOV06=='inactive'|cloni1B$NO
V06=='unemployed or inactive'),'2006-11',spell06NAconverter1)
spell06NAconverter3 <- ifelse (cloni1B$spell06=='0' & (cloni1B$DEC06=='full-time
paid job (37 hours or more per week)'|cloni1B$DEC06=='part-time paid job (1-36
hours per
week)'|cloni1B$DEC06=='unemployment'|cloni1B$DEC06=='inactive'|cloni1B$DEC0
6=='unemployed or inactive'),'2006-12',spell06NAconverter2)
spell06NAconverter4 <- ifelse (cloni1B$spell06=='0' & (cloni1B$JAN07=='full-time
paid job (37 hours or more per week)'|cloni1B$JAN07=='part-time paid job (1-36
hours per
week)'|cloni1B$JAN07=='unemployment'|cloni1B$JAN07=='inactive'|cloni1B$JAN0
7=='unemployed or inactive'),'2007-01',spell06NAconverter3)
spell06NAconverter5 <- ifelse (cloni1B$spell06=='0' & (cloni1B$FEB07=='full-time
paid job (37 hours or more per week)'|cloni1B$FEB07=='part-time paid job (1-36
hours per
week)'|cloni1B$FEB07=='unemployment'|cloni1B$FEB07=='inactive'|cloni1B$FEB07
=='unemployed or inactive'),'2007-02',spell06NAconverter4)


i <-0
j<-0
for(i in 1:15) {
```

```
  j <- spell06NAconverter5[i]
  cloni1B$spell06[i] <- recode (cloni1B$spell06[i], "'0'=j")
  j<-0 }

spell07NAconverter0 <- ifelse (cloni1B$spell07=='0' & (cloni1B$SEP07=='full-time
paid job (37 hours or more per week)'|cloni1B$SEP07=='part-time paid job (1-36
hours per
week)'|cloni1B$SEP07=='unemployment'|cloni1B$SEP07=='inactive'|cloni1B$SEP07
=='unemployed or inactive'),'2007-09','0')
spell07NAconverter1 <- ifelse (cloni1B$spell07=='0' & (cloni1B$OCT07=='full-time
paid job (37 hours or more per week)'|cloni1B$OCT07=='part-time paid job (1-36
hours per
week)'|cloni1B$OCT07=='unemployment'|cloni1B$OCT07=='inactive'|cloni1B$OCT0
7=='unemployed or inactive'),'2007-10',spell07NAconverter0)
spell07NAconverter2 <- ifelse (cloni1B$spell07=='0' & (cloni1B$NOV07=='full-time
paid job (37 hours or more per week)'|cloni1B$NOV07=='part-time paid job (1-36
hours per
week)'|cloni1B$NOV07=='unemployment'|cloni1B$NOV07=='inactive'|cloni1B$NO
V07=='unemployed or inactive'),'2007-11',spell07NAconverter1)
spell07NAconverter3 <- ifelse (cloni1B$spell07=='0' & (cloni1B$DEC07=='full-time
paid job (37 hours or more per week)'|cloni1B$DEC07=='part-time paid job (1-36
hours per
week)'|cloni1B$DEC07=='unemployment'|cloni1B$DEC07=='inactive'|cloni1B$DEC0
7=='unemployed or inactive'),'2007-12',spell07NAconverter2)
spell07NAconverter4 <- ifelse (cloni1B$spell07=='0' & (cloni1B$JAN08=='full-time
paid job (37 hours or more per week)'|cloni1B$JAN08=='part-time paid job (1-36
hours per
week)'|cloni1B$JAN08=='unemployment'|cloni1B$JAN08=='inactive'|cloni1B$JAN0
8=='unemployed or inactive'),'2008-01',spell07NAconverter3)
spell07NAconverter5 <- ifelse (cloni1B$spell07=='0' & (cloni1B$FEB08=='full-time
paid job (37 hours or more per week)'|cloni1B$FEB08=='part-time paid job (1-36
hours per
week)'|cloni1B$FEB08=='unemployment'|cloni1B$FEB08=='inactive'|cloni1B$FEB08
=='unemployed or inactive'),'2008-02',spell07NAconverter4)


i <-0
j<-0
for(i in 1:15) {
  j <- spell07NAconverter5[i]
  cloni1B$spell07[i] <- recode (cloni1B$spell07[i], "'0'=j")
```

```
  j<-0 }

spell08NAconverter0 <- ifelse (cloni1B$spell08=='0' & (cloni1B$SEP08=='full-time
paid job (37 hours or more per week)'|cloni1B$SEP08=='part-time paid job (1-36
hours per
week)'|cloni1B$SEP08=='unemployment'|cloni1B$SEP08=='inactive'|cloni1B$SEP08
=='unemployed or inactive'),'2008-09','0')
spell08NAconverter1 <- ifelse (cloni1B$spell08=='0' & (cloni1B$OCT08=='full-time
paid job (37 hours or more per week)'|cloni1B$OCT08=='part-time paid job (1-36
hours per
week)'|cloni1B$OCT08=='unemployment'|cloni1B$OCT08=='inactive'|cloni1B$OCT0
8=='unemployed or inactive'),'2008-10',spell08NAconverter0)
spell08NAconverter2 <- ifelse (cloni1B$spell08=='0' & (cloni1B$NOV08=='full-time
paid job (37 hours or more per week)'|cloni1B$NOV08=='part-time paid job (1-36
hours per
week)'|cloni1B$NOV08=='unemployment'|cloni1B$NOV08=='inactive'|cloni1B$NO
V08=='unemployed or inactive'),'2008-11',spell08NAconverter1)
spell08NAconverter3 <- ifelse (cloni1B$spell08=='0' & (cloni1B$DEC08=='full-time
paid job (37 hours or more per week)'|cloni1B$DEC08=='part-time paid job (1-36
hours per
week)'|cloni1B$DEC08=='unemployment'|cloni1B$DEC08=='inactive'|cloni1B$DEC0
8=='unemployed or inactive'),'2008-12',spell08NAconverter2)
spell08NAconverter4 <- ifelse (cloni1B$spell08=='0' & (cloni1B$JAN09=='full-time
paid job (37 hours or more per week)'|cloni1B$JAN09=='part-time paid job (1-36
hours per
week)'|cloni1B$JAN09=='unemployment'|cloni1B$JAN09=='inactive'|cloni1B$JAN0
9=='unemployed or inactive'),'2009-01',spell08NAconverter3)
spell08NAconverter5 <- ifelse (cloni1B$spell08=='0' & (cloni1B$FEB09=='full-time
paid job (37 hours or more per week)'|cloni1B$FEB09=='part-time paid job (1-36
hours per
week)'|cloni1B$FEB09=='unemployment'|cloni1B$FEB09=='inactive'|cloni1B$FEB09
=='unemployed or inactive'),'2009-02',spell08NAconverter4)


i <-0
j<-0
for(i in 1:15) {
  j <- spell08NAconverter5[i]
  cloni1B$spell08[i] <- recode (cloni1B$spell08[i], "'0'=j")
  j<-0 }
```

```
spell09NAconverter0 <- ifelse (cloni1B$spell09=='0' & (cloni1B$SEP09=='full-time
paid job (37 hours or more per week)'|cloni1B$SEP09=='part-time paid job (1-36
hours per
week)'|cloni1B$SEP09=='unemployment'|cloni1B$SEP09=='inactive'|cloni1B$SEP09
=='unemployed or inactive'),'2009-09','0')
spell09NAconverter1 <- ifelse (cloni1B$spell09=='0' & (cloni1B$OCT09=='full-time
paid job (37 hours or more per week)'|cloni1B$OCT09=='part-time paid job (1-36
hours per
week)'|cloni1B$OCT09=='unemployment'|cloni1B$OCT09=='inactive'|cloni1B$OCT0
9=='unemployed or inactive'),'2009-10',spell09NAconverter0)
spell09NAconverter2 <- ifelse (cloni1B$spell09=='0' & (cloni1B$NOV09=='full-time
paid job (37 hours or more per week)'|cloni1B$NOV09=='part-time paid job (1-36
hours per
week)'|cloni1B$NOV09=='unemployment'|cloni1B$NOV09=='inactive'|cloni1B$NO
V09=='unemployed or inactive'),'2009-11',spell09NAconverter1)
spell09NAconverter3 <- ifelse (cloni1B$spell09=='0' & (cloni1B$DEC09=='full-time
paid job (37 hours or more per week)'|cloni1B$DEC09=='part-time paid job (1-36
hours per
week)'|cloni1B$DEC09=='unemployment'|cloni1B$DEC09=='inactive'|cloni1B$DEC0
9=='unemployed or inactive'),'2009-12',spell09NAconverter2)
spell09NAconverter4 <- ifelse (cloni1B$spell09=='0' & (cloni1B$JAN10=='full-time
paid job (37 hours or more per week)'|cloni1B$JAN10=='part-time paid job (1-36
hours per
week)'|cloni1B$JAN10=='unemployment'|cloni1B$JAN10=='inactive'|cloni1B$JAN1
0=='unemployed or inactive'),'2010-01',spell09NAconverter3)
spell09NAconverter5 <- ifelse (cloni1B$spell09=='0' & (cloni1B$FEB10=='full-time
paid job (37 hours or more per week)'|cloni1B$FEB10=='part-time paid job (1-36
hours per
week)'|cloni1B$FEB10=='unemployment'|cloni1B$FEB10=='inactive'|cloni1B$FEB10
=='unemployed or inactive'),'2010-02',spell09NAconverter4)


i <-0
j<-0
for(i in 1:15) {
  j <- spell09NAconverter5[i]
  cloni1B$spell09[i] <- recode (cloni1B$spell09[i], "'0'=j")
  j<-0 }

spell10NAconverter0 <- ifelse (cloni1B$spell10=='0' & (cloni1B$SEP10=='full-time
paid job (37 hours or more per week)'|cloni1B$SEP10=='part-time paid job (1-36
```

```
hours per
week)'|cloni1B$SEP10=='unemployment'|cloni1B$SEP10=='inactive'|cloni1B$SEP10
=='unemployed or inactive'),'2010-09','0')
spell10NAconverter1 <- ifelse (cloni1B$spell10=='0' & (cloni1B$OCT10=='full-time
paid job (37 hours or more per week)'|cloni1B$OCT10=='part-time paid job (1-36
hours per
week)'|cloni1B$OCT10=='unemployment'|cloni1B$OCT10=='inactive'|cloni1B$OCT1
0=='unemployed or inactive'),'2010-10',spell10NAconverter0)
spell10NAconverter2 <- ifelse (cloni1B$spell10=='0' & (cloni1B$NOV10=='full-time
paid job (37 hours or more per week)'|cloni1B$NOV10=='part-time paid job (1-36
hours per
week)'|cloni1B$NOV10=='unemployment'|cloni1B$NOV10=='inactive'|cloni1B$NO
V10=='unemployed or inactive'),'2010-11',spell10NAconverter1)
spell10NAconverter3 <- ifelse (cloni1B$spell10=='0' & (cloni1B$DEC10=='full-time
paid job (37 hours or more per week)'|cloni1B$DEC10=='part-time paid job (1-36
hours per
week)'|cloni1B$DEC10=='unemployment'|cloni1B$DEC10=='inactive'|cloni1B$DEC1
0=='unemployed or inactive'),'2010-12',spell10NAconverter2)
spell10NAconverter4 <- ifelse (cloni1B$spell10=='0' & (cloni1B$JAN11=='full-time
paid job (37 hours or more per week)'|cloni1B$JAN11=='part-time paid job (1-36
hours per
week)'|cloni1B$JAN11=='unemployment'|cloni1B$JAN11=='inactive'|cloni1B$JAN1
1=='unemployed or inactive'),'2011-01',spell10NAconverter3)
spell10NAconverter5 <- ifelse (cloni1B$spell10=='0' & (cloni1B$FEB11=='full-time
paid job (37 hours or more per week)'|cloni1B$FEB11=='part-time paid job (1-36
hours per
week)'|cloni1B$FEB11=='unemployment'|cloni1B$FEB11=='inactive'|cloni1B$FEB11
=='unemployed or inactive'),'2011-02',spell10NAconverter4)


i <-0
j<-0
for(i in 1:15) {
  j <- spell10NAconverter5[i]
  cloni1B$spell10[i] <- recode (cloni1B$spell10[i], "'0'=j")
  j<-0 }

spell11NAconverter0 <- ifelse (cloni1B$spell11=='0' & (cloni1B$SEP11=='full-time
paid job (37 hours or more per week)'|cloni1B$SEP11=='part-time paid job (1-36
hours per
```

```
week)'|cloni1B$SEP11=='unemployment'|cloni1B$SEP11=='inactive'|cloni1B$SEP11
=='unemployed or inactive'),'2011-09','0')
spell11NAconverter1 <- ifelse (cloni1B$spell11=='0' & (cloni1B$OCT11=='full-time
paid job (37 hours or more per week)'|cloni1B$OCT11=='part-time paid job (1-36
hours per
week)'|cloni1B$OCT11=='unemployment'|cloni1B$OCT11=='inactive'|cloni1B$OCT1
1=='unemployed or inactive'),'2011-10',spell11NAconverter0)
spell11NAconverter2 <- ifelse (cloni1B$spell11=='0' & (cloni1B$NOV11=='full-time
paid job (37 hours or more per week)'|cloni1B$NOV11=='part-time paid job (1-36
hours per
week)'|cloni1B$NOV11=='unemployment'|cloni1B$NOV11=='inactive'|cloni1B$NO
V11=='unemployed or inactive'),'2011-11',spell11NAconverter1)
spell11NAconverter3 <- ifelse (cloni1B$spell11=='0' & (cloni1B$DEC11=='full-time
paid job (37 hours or more per week)'|cloni1B$DEC11=='part-time paid job (1-36
hours per
week)'|cloni1B$DEC11=='unemployment'|cloni1B$DEC11=='inactive'|cloni1B$DEC1
1=='unemployed or inactive'),'2011-12',spell11NAconverter2)
spell11NAconverter4 <- ifelse (cloni1B$spell11=='0' & (cloni1B$JAN12=='full-time
paid job (37 hours or more per week)'|cloni1B$JAN12=='part-time paid job (1-36
hours per
week)'|cloni1B$JAN12=='unemployment'|cloni1B$JAN12=='inactive'|cloni1B$JAN1
2=='unemployed or inactive'),'2012-01',spell11NAconverter3)
spell11NAconverter5 <- ifelse (cloni1B$spell11=='0' & (cloni1B$FEB12=='full-time
paid job (37 hours or more per week)'|cloni1B$FEB12=='part-time paid job (1-36
hours per
week)'|cloni1B$FEB12=='unemployment'|cloni1B$FEB12=='inactive'|cloni1B$FEB12
=='unemployed or inactive'),'2012-02',spell11NAconverter4)


i <-0
j<-0
for(i in 1:15) {
  j <- spell11NAconverter5[i]
  cloni1B$spell11[i] <- recode (cloni1B$spell11[i], "'0'=j")
  j<-0 }


#ricodifico in modo sequenziale#

library(car)
cloni1B$spell99 <- recode (cloni1B$spell99 ,"'1999-09'=1;
```

```
                    '1999-10'=2;
                    '1999-11'=3;
                    '1999-12'=4;
                    '2000-01'=5;
                    '2000-02'=6;
                    '2000-03'=7;
                    '2000-04'=8;
                    '2000-05'=9;
                    '2000-06'=10;
                    '2000-07'=11;
                    '2000-08'=12;
                    '2000-09'=13;
                    NA=1")

cloni1B$spell00 <- recode (cloni1B$spell00 ,"'2000-09'=13;
                    '2000-10'=14;
                    '2000-11'=15;
                    '2000-12'=16;
                    '2001-01'=17;
                    '2001-02'=18;
                    '2001-03'=19;
                    '2001-04'=20;
                    '2001-05'=21;
                    '2001-06'=22;
                    '2001-07'=23;
                    '2001-08'=24;
                    '2001-09'=25;
                    NA=13")

cloni1B$spell01 <- recode (cloni1B$spell01 ,"'2001-09'=25;
                    '2001-10'=26;
                    '2001-11'=27;
                    '2001-12'=28;
                    '2002-01'=29;
                    '2002-02'=30;
                    '2002-03'=31;
                    '2002-04'=32;
                    '2002-05'=33;
                    '2002-06'=34;
                    '2002-07'=35;
                    '2002-08'=36;
```

```
                    '2002-09'=37;
                    NA=25")

cloni1B$spell02<- recode (cloni1B$spell02,"'2002-09'=37;
                    '2002-10'=38;
                    '2002-11'=39;
                    '2002-12'=40;
                    '2003-01'=41;
                    '2003-02'=42;
                    '2003-03'=43;
                    '2003-04'=44;
                    '2003-05'=45;
                    '2003-06'=46;
                    '2003-07'=47;
                    '2003-08'=48;
                    '2003-09'=49; NA=37")

cloni1B$spell03<- recode (cloni1B$spell03,"'2003-09'=49;
                    '2003-10'=50;
                    '2003-11'=51;
                    '2003-12'=52;
                    '2004-01'=53;
                    '2004-02'=54;
                    '2004-03'=55;
                    '2004-04'=56;
                    '2004-05'=57;
                    '2004-06'=58;
                    '2004-07'=59;
                    '2004-08'=60;
                    '2004-09'=61; NA=49")

cloni1B$spell04<- recode (cloni1B$spell04,"
                    '2004-09'=61;
                    '2004-10'=62;
                    '2004-11'=63;
                    '2004-12'=64;
                    '2005-01'=65;
                    '2005-02'=66;
                    '2005-03'=67;
                    '2005-04'=68;
                    '2005-05'=69;
```

```
                '2005-06'=70;
                '2005-07'=71;
                '2005-08'=72;
                '2005-09'=73;NA=61")

cloni1B$spell05<- recode (cloni1B$spell05,"'2005-09'=73;
                '2005-10'=74;
                '2005-11'=75;
                '2005-12'=76;
                '2006-01'=77;
                '2006-02'=78;
                '2006-03'=79;
                '2006-04'=80;
                '2006-05'=81;
                '2006-06'=82;
                '2006-07'=83;
                '2006-08'=84;
                '2006-09'=85;NA=73")

cloni1B$spell06 <- recode (cloni1B$spell06 ,"'2006-09'=85;
                 '2006-10'=86;
                 '2006-11'=87;
                 '2006-12'=88;
                 '2007-01'=89;
                 '2007-02'=90;
                 '2007-03'=91;
                 '2007-04'=92;
                 '2007-05'=93;
                 '2007-06'=94;
                 '2007-07'=95;
                 '2007-08'=96;
                 '2007-09'=97;NA=85")

cloni1B$spell07 <- recode (cloni1B$spell07 ,"'2007-09'=97;
                 '2007-10'=98;
                 '2007-11'=99;
                 '2007-12'=100;
                 '2008-01'=101;
                 '2008-02'=102;
                 '2008-03'=103;
                 '2008-04'=104;
```

```
                    '2008-05'=105;
                    '2008-06'=106;
                    '2008-07'=107;
                    '2008-08'=108;
                    '2008-09'=109;NA=97")

cloni1B$spell08<- recode (cloni1B$spell08,"'2008-09'=109;
                    '2008-10'=110;
                    '2008-11'=111;
                    '2008-12'=112;
                    '2009-01'=113;
                    '2009-02'=114;
                    '2009-03'=115;
                    '2009-04'=116;
                    '2009-05'=117;
                    '2009-06'=118;
                    '2009-07'=119;
                    '2009-08'=120;
                    '2009-09'=121;NA=109")

cloni1B$spell09<- recode (cloni1B$spell09,"'2009-09'=121;
                    '2009-10'=122;
                    '2009-11'=123;
                    '2009-12'=124;
                    '2010-01'=125;
                    '2010-02'=126;
                    '2010-03'=127;
                    '2010-04'=128;
                    '2010-05'=129;
                    '2010-06'=130;
                    '2010-07'=131;
                    '2010-08'=132;
                    '2010-09'=133;NA=121")

cloni1B$spell10<- recode (cloni1B$spell10,"'2010-08'=132;
                    '2010-09'=133;
                    '2010-10'=134;
                    '2010-11'=135;
                    '2010-12'=136;
                    '2011-01'=137;
                    '2011-02'=138;
```

```
                '2011-03'=139;
                '2011-04'=140;
                '2011-05'=141;
                '2011-06'=142;
                '2011-07'=143;
                '2011-08'=144;
                '2011-09'=145;NA=133")
cloni1B$spell11<- recode (cloni1B$spell11,"'2011-08'=144;
                '2011-09'=145;
                '2011-10'=146;
                '2011-11'=147;
                '2011-12'=148;
                '2012-01'=149;
                '2012-02'=150;
                '2012-03'=151;
                '2012-04'=152;
                '2012-05'=153;
                '2012-06'=154;
                '2012-07'=155;
                '2012-08'=156;
                '2012-09'=157;NA=145")

### definizione punti di stop##

#costruisco variabile per cmbio di lavoro## la variabile cambia dopo qialche anno, nel primo periodo sono più di una ma nelle altre non c'è mai cambio di lavoro (hai contollato). non c'è 99#
cloni1B$cambioW00 <- recode(cloni1B$P00L36,"'change of job'=1; else=0")
cloni1B$cambioW01 <- recode(cloni1B$P01L36,"'change of job'=1; else=0")
cloni1B$cambioW02 <- recode(cloni1B$P02L36,"'change of job'=1; else=0")
cloni1B$cambioW03 <- recode(cloni1B$P03L36,"'change of job'=1; else=0")
cloni1B$cambioW04 <- recode(cloni1B$P04L91,"'change of job'=1; else=0")
cloni1B$cambioW05 <- recode(cloni1B$P05L91,"'change of job'=1; else=0")
cloni1B$cambioW06 <- recode(cloni1B$P06L91,"'change of job'=1; else=0")
cloni1B$cambioW07 <- recode(cloni1B$P07L91,"'change of job'=1; else=0")
cloni1B$cambioW08 <- recode(cloni1B$P08L91,"'change of job'=1; else=0")
cloni1B$cambioW09 <- recode(cloni1B$P09L91,"'change of job'=1; else=0")
cloni1B$cambioW10 <- recode(cloni1B$P10L91,"'change of job'=1; else=0")
cloni1B$cambioW11 <- recode(cloni1B$P11L91,"'change of job'=1; else=0")
```

```
cloni1B$cambioW00 <-
4+(as.integer(cloni1B$P00L37)*(as.integer(cloni1B$cambioW00)-1))
cloni1B$cambioW01 <-
16+(as.integer(cloni1B$P01L37)*(as.integer(cloni1B$cambioW01)-1))
cloni1B$cambioW02 <-
28+(as.integer(cloni1B$P02L37)*(as.integer(cloni1B$cambioW02)-1))
cloni1B$cambioW03 <-
40+(as.integer(cloni1B$P03L37)*(as.integer(cloni1B$cambioW03)-1))
cloni1B$cambioW04 <-
52+(as.integer(cloni1B$P04L92)*(as.integer(cloni1B$cambioW04)-1))
cloni1B$cambioW05 <-
64+(as.integer(cloni1B$P05L92)*(as.integer(cloni1B$cambioW05)-1))
cloni1B$cambioW06 <-
76+(as.integer(cloni1B$P06L92)*(as.integer(cloni1B$cambioW06)-1))
cloni1B$cambioW07 <-
88+(as.integer(cloni1B$P07L92)*(as.integer(cloni1B$cambioW07)-1))
cloni1B$cambioW08 <-
100+(as.integer(cloni1B$P08L92)*(as.integer(cloni1B$cambioW08)-1))
cloni1B$cambioW09 <-
112+(as.integer(cloni1B$P09L92)*(as.integer(cloni1B$cambioW09)-1))
cloni1B$cambioW10 <-
124+(as.integer(cloni1B$P10L92)*(as.integer(cloni1B$cambioW10)-1))
cloni1B$cambioW11 <-
136+(as.integer(cloni1B$P11L92)*(as.integer(cloni1B$cambioW11)-1))

cloni1B$cambioW00 <- recode(cloni1B$cambioW00,"4=NA")
cloni1B$cambioW01 <- recode(cloni1B$cambioW01,"16=NA")
cloni1B$cambioW02 <- recode(cloni1B$cambioW02,"28=NA")
cloni1B$cambioW03 <- recode(cloni1B$cambioW03,"40=NA")
cloni1B$cambioW04 <- recode(cloni1B$cambioW04,"52=NA")
cloni1B$cambioW05 <- recode(cloni1B$cambioW05,"64=NA")
cloni1B$cambioW06 <- recode(cloni1B$cambioW06,"76=NA")
cloni1B$cambioW07 <- recode(cloni1B$cambioW07,"88=NA")
cloni1B$cambioW08 <- recode(cloni1B$cambioW08,"100=NA")
cloni1B$cambioW09 <- recode(cloni1B$cambioW09,"112=NA")
cloni1B$cambioW10 <- recode(cloni1B$cambioW10,"124=NA")
cloni1B$cambioW11 <- recode(cloni1B$cambioW11,"136=NA")


###definizioni stop in avanti
```

```
#2000 (da 2000 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell99[i]
  b <- 6069 + cloni1B$spell00[i]
  appoggio <- seqdef (cloni1B[,a:b])
  cloni1B$APPunemployment00[i] <-  (cloni1B$spell99[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$APPinactive00[i] <- (cloni1B$spell99[i]-1) + (seqfpos
(appoggio,"inactive")[i])
  cloni1B$APPuneOinactive00[i] <- (cloni1B$spell99[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$stop00[i] <- min
(cloni1B$APPunemployment00[i],cloni1B$APPinactive00[i],cloni1B$APPuneOinactiv
e00[i],cloni1B$cambioW00[i],na.rm = T)
}
cloni1B$dist00 <- round(cloni1B$spell99+((cloni1B$spell00-cloni1B$spell99)/2),
digits = 0)
cloni1B$stop00 <- ifelse (cloni1B$stop00==Inf, cloni1B$dist00,cloni1B$stop00)

#2001 (da 2000 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell00[i]
  b <- 6069 + cloni1B$spell01[i]
  appoggio <- seqdef (cloni1B[,a:b])
  cloni1B$APPunemployment01[i] <-  (cloni1B$spell00[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$APPinactive01[i] <- (cloni1B$spell00[i]-1) + (seqfpos
(appoggio,"inactive")[i])
  cloni1B$APPuneOinactive01[i] <- (cloni1B$spell00[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$stop01[i] <- min
(cloni1B$APPunemployment01[i],cloni1B$APPinactive01[i],cloni1B$APPuneOinactiv
e01[i],cloni1B$cambioW01[i],na.rm = T)
}
```

```
cloni1B$dist01 <- round(cloni1B$spell00+((cloni1B$spell01-cloni1B$spell00)/2),
digits = 0)
cloni1B$stop01 <- ifelse (cloni1B$stop01==Inf, cloni1B$dist01,cloni1B$stop01)

#2002 (da 2000 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell01[i]
  b <- 6069 + cloni1B$spell02[i]
  appoggio <- seqdef (cloni1B[,a:b])
  cloni1B$APPunemployment02[i] <-  (cloni1B$spell01[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$APPinactive02[i] <- (cloni1B$spell01[i]-1) + (seqfpos
(appoggio,"inactive")[i])
  cloni1B$APPuneOinactive02[i] <- (cloni1B$spell01[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$stop02[i] <- min
(cloni1B$APPunemployment02[i],cloni1B$APPinactive02[i],cloni1B$APPuneOinactiv
e02[i],cloni1B$cambioW02[i],na.rm = T)
}
cloni1B$dist02 <- round(cloni1B$spell01+((cloni1B$spell02-cloni1B$spell01)/2),
digits = 0)
cloni1B$stop02 <- ifelse (cloni1B$stop02==Inf, cloni1B$dist02,cloni1B$stop02)

#2003 (da 2000 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell02[i]
  b <- 6069 + cloni1B$spell03[i]
  appoggio <- seqdef (cloni1B[,a:b])
  cloni1B$APPunemployment03[i] <-  (cloni1B$spell02[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$APPinactive03[i] <- (cloni1B$spell02[i]-1) + (seqfpos
(appoggio,"inactive")[i])
  cloni1B$APPuneOinactive03[i] <- (cloni1B$spell02[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
```

```
  cloni1B$stop03[i] <- min
(cloni1B$APPunemployment03[i],cloni1B$APPinactive03[i],cloni1B$APPuneOinactiv
e03[i],cloni1B$cambioW03[i],na.rm = T)
}
cloni1B$dist03 <- round(cloni1B$spell02+((cloni1B$spell03-cloni1B$spell02)/2),
digits = 0)
cloni1B$stop03 <- ifelse (cloni1B$stop03==Inf, cloni1B$dist03,cloni1B$stop03)

#2004 (da 2000 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell03[i]
  b <- 6069 + cloni1B$spell04[i]
  appoggio <- seqdef (cloni1B[,a:b])
  cloni1B$APPunemployment04[i] <-  (cloni1B$spell03[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$APPinactive04[i] <- (cloni1B$spell03[i]-1) + (seqfpos
(appoggio,"inactive")[i])
  cloni1B$APPuneOinactive04[i] <- (cloni1B$spell03[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$stop04[i] <- min
(cloni1B$APPunemployment04[i],cloni1B$APPinactive04[i],cloni1B$APPuneOinactiv
e04[i],cloni1B$cambioW04[i],na.rm = T)
}
cloni1B$dist04 <- round(cloni1B$spell03+((cloni1B$spell04-cloni1B$spell03)/2),
digits = 0)
cloni1B$stop04 <- ifelse (cloni1B$stop04==Inf, cloni1B$dist04,cloni1B$stop04)

#2005 (da 2000 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell04[i]
  b <- 6069 + cloni1B$spell05[i]
  appoggio <- seqdef (cloni1B[,a:b])
  cloni1B$APPunemployment05[i] <-  (cloni1B$spell04[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$APPinactive05[i] <- (cloni1B$spell04[i]-1) + (seqfpos
(appoggio,"inactive")[i])
  cloni1B$APPuneOinactive05[i] <- (cloni1B$spell04[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
```

```
}

for (i in 1:15){
  cloni1B$stop05[i] <- min
(cloni1B$APPunemployment05[i],cloni1B$APPinactive05[i],cloni1B$APPuneOinactiv
e05[i],cloni1B$cambioW05[i],na.rm = T)
}
cloni1B$dist05 <- round(cloni1B$spell04+((cloni1B$spell05-cloni1B$spell04)/2),
digits = 0)
cloni1B$stop05 <- ifelse (cloni1B$stop05==Inf, cloni1B$dist05,cloni1B$stop05)

#2006 (da 2000 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell05[i]
  b <- 6069 + cloni1B$spell06[i]
  appoggio <- seqdef (cloni1B[,a:b])
  cloni1B$APPunemployment06[i] <-  (cloni1B$spell05[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$APPinactive06[i] <- (cloni1B$spell05[i]-1) + (seqfpos
(appoggio,"inactive")[i])
  cloni1B$APPuneOinactive06[i] <- (cloni1B$spell05[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$stop06[i] <- min
(cloni1B$APPunemployment06[i],cloni1B$APPinactive06[i],cloni1B$APPuneOinactiv
e06[i],cloni1B$cambioW06[i],na.rm = T)
}
cloni1B$dist06 <- round(cloni1B$spell05+((cloni1B$spell06-cloni1B$spell05)/2),
digits = 0)
cloni1B$stop06 <- ifelse (cloni1B$stop06==Inf, cloni1B$dist06,cloni1B$stop06)

#2007 (da 2000 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell06[i]
  b <- 6069 + cloni1B$spell07[i]
  appoggio <- seqdef (cloni1B[,a:b])
  cloni1B$APPunemployment07[i] <-  (cloni1B$spell06[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
```

```
  cloni1B$APPinactive07[i] <- (cloni1B$spell06[i]-1) + (seqfpos
(appoggio,"inactive")[i])
  cloni1B$APPuneOinactive07[i] <- (cloni1B$spell06[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$stop07[i] <- min
(cloni1B$APPunemployment07[i],cloni1B$APPinactive07[i],cloni1B$APPuneOinactiv
e07[i],cloni1B$cambioW07[i],na.rm = T)
}
cloni1B$dist07 <- round(cloni1B$spell06+((cloni1B$spell07-cloni1B$spell06)/2),
digits = 0)
cloni1B$stop07 <- ifelse (cloni1B$stop07==Inf, cloni1B$dist07,cloni1B$stop07)

#2008 (da 2000 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell07[i]
  b <- 6069 + cloni1B$spell08[i]
  appoggio <- seqdef (cloni1B[,a:b])
  cloni1B$APPunemployment08[i] <-  (cloni1B$spell07[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$APPinactive08[i] <- (cloni1B$spell07[i]-1) + (seqfpos
(appoggio,"inactive")[i])
  cloni1B$APPuneOinactive08[i] <- (cloni1B$spell07[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$stop08[i] <- min
(cloni1B$APPunemployment08[i],cloni1B$APPinactive08[i],cloni1B$APPuneOinactiv
e08[i],cloni1B$cambioW08[i],na.rm = T)
}
cloni1B$dist08 <- round(cloni1B$spell07+((cloni1B$spell08-cloni1B$spell07)/2),
digits = 0)
cloni1B$stop08 <- ifelse (cloni1B$stop08==Inf, cloni1B$dist08,cloni1B$stop08)

#2009 (da 2000 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell08[i]
  b <- 6069 + cloni1B$spell09[i]
```

```
  appoggio <- seqdef (cloni1B[,a:b])
  cloni1B$APPunemployment09[i] <-  (cloni1B$spell08[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$APPinactive09[i] <- (cloni1B$spell08[i]-1) + (seqfpos
(appoggio,"inactive")[i])
  cloni1B$APPuneOinactive09[i] <- (cloni1B$spell08[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$stop09[i] <- min
(cloni1B$APPunemployment09[i],cloni1B$APPinactive09[i],cloni1B$APPuneOinactiv
e09[i],cloni1B$cambioW09[i],na.rm = T)
}
cloni1B$dist09 <- round(cloni1B$spell08+((cloni1B$spell09-cloni1B$spell08)/2),
digits = 0)
cloni1B$stop09 <- ifelse (cloni1B$stop09==Inf, cloni1B$dist09,cloni1B$stop09)

#2010 (da 2000 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell09[i]
  b <- 6069 + cloni1B$spell10[i]
  appoggio <- seqdef (cloni1B[,a:b])
  cloni1B$APPunemployment10[i] <-  (cloni1B$spell09[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$APPinactive10[i] <- (cloni1B$spell09[i]-1) + (seqfpos
(appoggio,"inactive")[i])
  cloni1B$APPuneOinactive10[i] <- (cloni1B$spell09[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$stop10[i] <- min
(cloni1B$APPunemployment10[i],cloni1B$APPinactive10[i],cloni1B$APPuneOinactiv
e10[i],cloni1B$cambioW10[i],na.rm = T)
}
cloni1B$dist10 <- round(cloni1B$spell09+((cloni1B$spell10-cloni1B$spell09)/2),
digits = 0)
cloni1B$stop10 <- ifelse (cloni1B$stop10==Inf, cloni1B$dist10,cloni1B$stop10)

#2011 (da 2000 a 2012)
```

```
for (i in 1:15){
  a <- 6069 + cloni1B$spell10[i]
  b <- 6069 + cloni1B$spell11[i]
  appoggio <- seqdef (cloni1B[,a:b])
  cloni1B$APPunemployment11[i] <-  (cloni1B$spell10[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$APPinactive11[i] <- (cloni1B$spell10[i]-1) + (seqfpos
(appoggio,"inactive")[i])
  cloni1B$APPuneOinactive11[i] <- (cloni1B$spell10[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$stop11[i] <- min
(cloni1B$APPunemployment11[i],cloni1B$APPinactive11[i],cloni1B$APPuneOinactiv
e11[i],cloni1B$cambioW11[i],na.rm = T)
}
cloni1B$dist11 <- round(cloni1B$spell10+((cloni1B$spell11-cloni1B$spell10)/2),
digits = 0)
cloni1B$stop11 <- ifelse (cloni1B$stop11==Inf, cloni1B$dist11,cloni1B$stop11)

#2012 (da 2000 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell11[i]
  b <- 6220
  appoggio <- seqdef (cloni1B[,a:b])
  cloni1B$APPunemployment12[i] <-  (cloni1B$spell11[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$APPinactive12[i] <- (cloni1B$spell11[i]-1) + (seqfpos
(appoggio,"inactive")[i])
  cloni1B$APPuneOinactive12[i] <- (cloni1B$spell11[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$stop12[i] <- min
(cloni1B$APPunemployment12[i],cloni1B$APPinactive12[i],cloni1B$APPuneOinactiv
e12[i],na.rm = T)
}
cloni1B$stop12 <- ifelse (cloni1B$stop12==Inf, 151,cloni1B$stop12-6)
#in quest utlimo non c'è il workdivision perchè viene dall'intervista 2012 che non c'è
```

```
#ricodifica in avanti#
#1999#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell99[i])
  b <- 6069 + as.numeric(cloni1B$stop00[i])
  c <- ifelse
(((cloni1B$WorkDiv1A99[i]==1)|(cloni1B$WorkDiv1A99[i]==2)|(cloni1B$WorkDiv1A
99[i]==3)|(cloni1B$WorkDiv1A99[i]==4)|(cloni1B$WorkDiv1A99[i]==5)|(cloni1B$Wo
rkDiv1A99[i]==6)|(cloni1B$WorkDiv1A99[i]==7)|(cloni1B$WorkDiv1A99[i]==8)),cloni
1B$WorkDiv1A99[i],cloni1B[i,j])
  for (j in a:b){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2000#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell00[i])
  b <- 6069 + as.numeric(cloni1B$stop01[i])
  c <- ifelse
(((cloni1B$WorkDiv1A00[i]==1)|(cloni1B$WorkDiv1A00[i]==2)|(cloni1B$WorkDiv1A
00[i]==3)|(cloni1B$WorkDiv1A00[i]==4)|(cloni1B$WorkDiv1A00[i]==5)|(cloni1B$Wo
rkDiv1A00[i]==6)|(cloni1B$WorkDiv1A00[i]==7)|(cloni1B$WorkDiv1A00[i]==8)),cloni
1B$WorkDiv1A00[i],cloni1B[i,j])
  for (j in a:b){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2001#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell01[i])
  b <- 6069 + as.numeric(cloni1B$stop02[i])
  c <- ifelse
(((cloni1B$WorkDiv1A01[i]==1)|(cloni1B$WorkDiv1A01[i]==2)|(cloni1B$WorkDiv1A
01[i]==3)|(cloni1B$WorkDiv1A01[i]==4)|(cloni1B$WorkDiv1A01[i]==5)|(cloni1B$Wo
rkDiv1A01[i]==6)|(cloni1B$WorkDiv1A01[i]==7)|(cloni1B$WorkDiv1A01[i]==8)),cloni
1B$WorkDiv1A01[i],cloni1B[i,j])
  for (j in a:b){
```

```
   cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2002#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell02[i])
  b <- 6069 + as.numeric(cloni1B$stop03[i])
  c <- ifelse
(((cloni1B$WorkDiv1A02[i]==1)|(cloni1B$WorkDiv1A02[i]==2)|(cloni1B$WorkDiv1A
02[i]==3)|(cloni1B$WorkDiv1A02[i]==4)|(cloni1B$WorkDiv1A02[i]==5)|(cloni1B$Wo
rkDiv1A02[i]==6)|(cloni1B$WorkDiv1A02[i]==7)|(cloni1B$WorkDiv1A02[i]==8)),cloni
1B$WorkDiv1A02[i],cloni1B[i,j])
  for (j in a:b){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2003#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell03[i])
  b <- 6069 + as.numeric(cloni1B$stop04[i])
  c <- ifelse
(((cloni1B$WorkDiv1A03[i]==1)|(cloni1B$WorkDiv1A03[i]==2)|(cloni1B$WorkDiv1A
03[i]==3)|(cloni1B$WorkDiv1A03[i]==4)|(cloni1B$WorkDiv1A03[i]==5)|(cloni1B$Wo
rkDiv1A03[i]==6)|(cloni1B$WorkDiv1A03[i]==7)|(cloni1B$WorkDiv1A03[i]==8)),cloni
1B$WorkDiv1A03[i],cloni1B[i,j])
  for (j in a:b){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2004#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell04[i])
  b <- 6069 + as.numeric(cloni1B$stop05[i])
  c <- ifelse
(((cloni1B$WorkDiv1A04[i]==1)|(cloni1B$WorkDiv1A04[i]==2)|(cloni1B$WorkDiv1A
04[i]==3)|(cloni1B$WorkDiv1A04[i]==4)|(cloni1B$WorkDiv1A04[i]==5)|(cloni1B$Wo
rkDiv1A04[i]==6)|(cloni1B$WorkDiv1A04[i]==7)|(cloni1B$WorkDiv1A04[i]==8)),cloni
1B$WorkDiv1A04[i],cloni1B[i,j])
```

```
  for (j in a:b){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2005#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell05[i])
  b <- 6069 + as.numeric(cloni1B$stop06[i])
  c <- ifelse
(((cloni1B$WorkDiv1A05[i]==1)|(cloni1B$WorkDiv1A05[i]==2)|(cloni1B$WorkDiv1A
05[i]==3)|(cloni1B$WorkDiv1A05[i]==4)|(cloni1B$WorkDiv1A05[i]==5)|(cloni1B$Wo
rkDiv1A05[i]==6)|(cloni1B$WorkDiv1A05[i]==7)|(cloni1B$WorkDiv1A05[i]==8)),cloni
1B$WorkDiv1A05[i],cloni1B[i,j])
  for (j in a:b){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2006#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell06[i])
  b <- 6069 + as.numeric(cloni1B$stop07[i])
  c <- ifelse
(((cloni1B$WorkDiv1A06[i]==1)|(cloni1B$WorkDiv1A06[i]==2)|(cloni1B$WorkDiv1A
06[i]==3)|(cloni1B$WorkDiv1A06[i]==4)|(cloni1B$WorkDiv1A06[i]==5)|(cloni1B$Wo
rkDiv1A06[i]==6)|(cloni1B$WorkDiv1A06[i]==7)|(cloni1B$WorkDiv1A06[i]==8)),cloni
1B$WorkDiv1A06[i],cloni1B[i,j])
  for (j in a:b){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2007#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell07[i])
  b <- 6069 + as.numeric(cloni1B$stop08[i])
  c <- ifelse
(((cloni1B$WorkDiv1A07[i]==1)|(cloni1B$WorkDiv1A07[i]==2)|(cloni1B$WorkDiv1A
07[i]==3)|(cloni1B$WorkDiv1A07[i]==4)|(cloni1B$WorkDiv1A07[i]==5)|(cloni1B$Wo
```

```
rkDiv1A07[i]==6)|(cloni1B$WorkDiv1A07[i]==7)|(cloni1B$WorkDiv1A07[i]==8)),cloni
1B$WorkDiv1A07[i],cloni1B[i,j])
  for (j in a:b){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2008#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell08[i])
  b <- 6069 + as.numeric(cloni1B$stop09[i])
  c <- ifelse
(((cloni1B$WorkDiv1A08[i]==1)|(cloni1B$WorkDiv1A08[i]==2)|(cloni1B$WorkDiv1A
08[i]==3)|(cloni1B$WorkDiv1A08[i]==4)|(cloni1B$WorkDiv1A08[i]==5)|(cloni1B$Wo
rkDiv1A08[i]==6)|(cloni1B$WorkDiv1A08[i]==7)|(cloni1B$WorkDiv1A08[i]==8)),cloni
1B$WorkDiv1A08[i],cloni1B[i,j])
  for (j in a:b){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2009#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell09[i])
  b <- 6069 + as.numeric(cloni1B$stop10[i])
  c <- ifelse
(((cloni1B$WorkDiv1A09[i]==1)|(cloni1B$WorkDiv1A09[i]==2)|(cloni1B$WorkDiv1A
09[i]==3)|(cloni1B$WorkDiv1A09[i]==4)|(cloni1B$WorkDiv1A09[i]==5)|(cloni1B$Wo
rkDiv1A09[i]==6)|(cloni1B$WorkDiv1A09[i]==7)|(cloni1B$WorkDiv1A09[i]==8)),cloni
1B$WorkDiv1A09[i],cloni1B[i,j])
  for (j in a:b){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2010#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell10[i])
  b <- 6069 + as.numeric(cloni1B$stop11[i])
  c <- ifelse
(((cloni1B$WorkDiv1A10[i]==1)|(cloni1B$WorkDiv1A10[i]==2)|(cloni1B$WorkDiv1A
```

```
10[i]==3)|(cloni1B$WorkDiv1A10[i]==4)|(cloni1B$WorkDiv1A10[i]==5)|(cloni1B$Wo
rkDiv1A10[i]==6)|(cloni1B$WorkDiv1A10[i]==7)|(cloni1B$WorkDiv1A10[i]==8)),cloni
1B$WorkDiv1A10[i],cloni1B[i,j])
  for (j in a:b){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2011#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell11[i])
  b <- 6069 + as.numeric(cloni1B$stop12[i])
  c <- ifelse
(((cloni1B$WorkDiv1A11[i]==1)|(cloni1B$WorkDiv1A11[i]==2)|(cloni1B$WorkDiv1A
11[i]==3)|(cloni1B$WorkDiv1A11[i]==4)|(cloni1B$WorkDiv1A11[i]==5)|(cloni1B$Wo
rkDiv1A11[i]==6)|(cloni1B$WorkDiv1A11[i]==7)|(cloni1B$WorkDiv1A11[i]==8)),cloni
1B$WorkDiv1A11[i],cloni1B[i,j])
  for (j in a:b){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#recupero quelli che non hanno indicato il tipo di lavoro (1)

for (i in 1:15){
  for (j in 1:151){
    a <- 6069 + j
    b <- 5670 + j
    cloni1B[,a] <- recode(cloni1B[,a],"NA=100")
    c <- as.character(cloni1B[i,b])
    cloni1B[i,a] <- ifelse (cloni1B[i,a]==100, c, cloni1B[i,a])
    cloni1B[,a] <- recode(cloni1B[,a],"100=NA")
  }}


##definizione intervalli retrostop

#1999 (da 1999 a 2012)
for (i in 1:15){
  a <- 6070
  b <- 6069 + cloni1B$spell99[i]
```

```
  appoggio <- seqdef (cloni1B[,b:a])
  cloni1B$retroAPPunemployment99[i] <-  (cloni1B$spell99[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$retroAPPinactive99[i] <- (cloni1B$spell99[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1B$retroAPPuneOinactive99[i] <- (cloni1B$spell99[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$retrostop99[i] <- max
(cloni1B$retroAPPunemployment99[i],cloni1B$retroAPPinactive99[i],cloni1B$retroA
PPuneOinactive99[i],cloni1B$cambioW99[i],na.rm = T)
}
cloni1B$retrostop99 <- ifelse (cloni1B$retrostop99== -Inf,1,cloni1B$retrostop99)



#2000 (da 1999 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell99[i]
  b <- 6069 + cloni1B$spell00[i]
  appoggio <- seqdef (cloni1B[,b:a])
  cloni1B$retroAPPunemployment00[i] <-  (cloni1B$spell00[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$retroAPPinactive00[i] <- (cloni1B$spell00[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1B$retroAPPuneOinactive00[i] <- (cloni1B$spell00[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$retrostop00[i] <- max
(cloni1B$retroAPPunemployment00[i],cloni1B$retroAPPinactive00[i],cloni1B$retroA
PPuneOinactive00[i],cloni1B$cambioW00[i],na.rm = T)
}
cloni1B$retrostop00 <- ifelse (cloni1B$retrostop00== -
Inf,cloni1B$dist00,cloni1B$retrostop00)

#2001 (da 1999 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell00[i]
```

```
  b <- 6069 + cloni1B$spell01[i]
  appoggio <- seqdef (cloni1B[,b:a])
  cloni1B$retroAPPunemployment01[i] <-  (cloni1B$spell01[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$retroAPPinactive01[i] <- (cloni1B$spell01[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1B$retroAPPuneOinactive01[i] <- (cloni1B$spell01[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$retrostop01[i] <- max
(cloni1B$retroAPPunemployment01[i],cloni1B$retroAPPinactive01[i],cloni1B$retroA
PPuneOinactive01[i],cloni1B$cambioW01[i],na.rm = T)
}
cloni1B$retrostop01 <- ifelse (cloni1B$retrostop01== -
Inf,cloni1B$dist01,cloni1B$retrostop01)

#2002(da 1999 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell01[i]
  b <- 6069 + cloni1B$spell02[i]
  appoggio <- seqdef (cloni1B[,b:a])
  cloni1B$retroAPPunemployment02[i] <-  (cloni1B$spell02[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$retroAPPinactive02[i] <- (cloni1B$spell02[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1B$retroAPPuneOinactive02[i] <- (cloni1B$spell02[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$retrostop02[i] <- max
(cloni1B$retroAPPunemployment02[i],cloni1B$retroAPPinactive02[i],cloni1B$retroA
PPuneOinactive02[i],cloni1B$cambioW02[i],na.rm = T)
}
cloni1B$retrostop02 <- ifelse (cloni1B$retrostop02== -
Inf,cloni1B$dist02,cloni1B$retrostop02)

#2003(da 1999 a 2012)
for (i in 1:15){
```

```
  a <- 6069 + cloni1B$spell02[i]
  b <- 6069 + cloni1B$spell03[i]
  appoggio <- seqdef (cloni1B[,b:a])
  cloni1B$retroAPPunemployment03[i] <-  (cloni1B$spell03[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$retroAPPinactive03[i] <- (cloni1B$spell03[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1B$retroAPPuneOinactive03[i] <- (cloni1B$spell03[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$retrostop03[i] <- max
(cloni1B$retroAPPunemployment03[i],cloni1B$retroAPPinactive03[i],cloni1B$retroA
PPuneOinactive03[i],cloni1B$cambioW03[i],na.rm = T)
}
cloni1B$retrostop03 <- ifelse (cloni1B$retrostop03== -
Inf,cloni1B$dist03,cloni1B$retrostop03)

#2004(da 1999 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell03[i]
  b <- 6069 + cloni1B$spell04[i]
  appoggio <- seqdef (cloni1B[,b:a])
  cloni1B$retroAPPunemployment04[i] <-  (cloni1B$spell04[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$retroAPPinactive04[i] <- (cloni1B$spell04[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1B$retroAPPuneOinactive04[i] <- (cloni1B$spell04[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$retrostop04[i] <- max
(cloni1B$retroAPPunemployment04[i],cloni1B$retroAPPinactive04[i],cloni1B$retroA
PPuneOinactive04[i],cloni1B$cambioW04[i],na.rm = T)
}
cloni1B$retrostop04 <- ifelse (cloni1B$retrostop04== -
Inf,cloni1B$dist04,cloni1B$retrostop04)

#2005(da 1999 a 2012)
```

```
for (i in 1:15){
  a <- 6069 + cloni1B$spell04[i]
  b <- 6069 + cloni1B$spell05[i]
  appoggio <- seqdef (cloni1B[,b:a])
  cloni1B$retroAPPunemployment05[i] <-  (cloni1B$spell05[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$retroAPPinactive05[i] <- (cloni1B$spell05[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1B$retroAPPuneOinactive05[i] <- (cloni1B$spell05[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$retrostop05[i] <- max
(cloni1B$retroAPPunemployment05[i],cloni1B$retroAPPinactive05[i],cloni1B$retroA
PPuneOinactive05[i],cloni1B$cambioW05[i],na.rm = T)
}
cloni1B$retrostop05 <- ifelse (cloni1B$retrostop05== -
Inf,cloni1B$dist05,cloni1B$retrostop05)

#2006(da 1999 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell05[i]
  b <- 6069 + cloni1B$spell06[i]
  appoggio <- seqdef (cloni1B[,b:a])
  cloni1B$retroAPPunemployment06[i] <-  (cloni1B$spell06[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$retroAPPinactive06[i] <- (cloni1B$spell06[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1B$retroAPPuneOinactive06[i] <- (cloni1B$spell06[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$retrostop06[i] <- max
(cloni1B$retroAPPunemployment06[i],cloni1B$retroAPPinactive06[i],cloni1B$retroA
PPuneOinactive06[i],cloni1B$cambioW06[i],na.rm = T)
}
cloni1B$retrostop06 <- ifelse (cloni1B$retrostop06== -
Inf,cloni1B$dist06,cloni1B$retrostop06)
```

```
#2007(da 1999 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell06[i]
  b <- 6069 + cloni1B$spell07[i]
  appoggio <- seqdef (cloni1B[,b:a])
  cloni1B$retroAPPunemployment07[i] <-  (cloni1B$spell07[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$retroAPPinactive07[i] <- (cloni1B$spell07[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1B$retroAPPuneOinactive07[i] <- (cloni1B$spell07[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$retrostop07[i] <- max
(cloni1B$retroAPPunemployment07[i],cloni1B$retroAPPinactive07[i],cloni1B$retroA
PPuneOinactive07[i],cloni1B$cambioW07[i],na.rm = T)
}
cloni1B$retrostop07 <- ifelse (cloni1B$retrostop07== -
Inf,cloni1B$dist07,cloni1B$retrostop07)

#2008(da 1999 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell07[i]
  b <- 6069 + cloni1B$spell08[i]
  appoggio <- seqdef (cloni1B[,b:a])
  cloni1B$retroAPPunemployment08[i] <-  (cloni1B$spell08[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$retroAPPinactive08[i] <- (cloni1B$spell08[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1B$retroAPPuneOinactive08[i] <- (cloni1B$spell08[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$retrostop08[i] <- max
(cloni1B$retroAPPunemployment08[i],cloni1B$retroAPPinactive08[i],cloni1B$retroA
PPuneOinactive08[i],cloni1B$cambioW08[i],na.rm = T)
}
cloni1B$retrostop08 <- ifelse (cloni1B$retrostop08== -
Inf,cloni1B$dist08,cloni1B$retrostop08)
```

```
#2009(da 1999 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell08[i]
  b <- 6069 + cloni1B$spell09[i]
  appoggio <- seqdef (cloni1B[,b:a])
  cloni1B$retroAPPunemployment09[i] <-  (cloni1B$spell09[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$retroAPPinactive09[i] <- (cloni1B$spell09[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1B$retroAPPuneOinactive09[i] <- (cloni1B$spell09[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$retrostop09[i] <- max
(cloni1B$retroAPPunemployment09[i],cloni1B$retroAPPinactive09[i],cloni1B$retroA
PPuneOinactive09[i],cloni1B$cambioW09[i],na.rm = T)
}
cloni1B$retrostop09 <- ifelse (cloni1B$retrostop09== -
Inf,cloni1B$dist09,cloni1B$retrostop09)

#2010(da 1999 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell09[i]
  b <- 6069 + cloni1B$spell10[i]
  appoggio <- seqdef (cloni1B[,b:a])
  cloni1B$retroAPPunemployment10[i] <-  (cloni1B$spell10[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$retroAPPinactive10[i] <- (cloni1B$spell10[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1B$retroAPPuneOinactive10[i] <- (cloni1B$spell10[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$retrostop10[i] <- max
(cloni1B$retroAPPunemployment10[i],cloni1B$retroAPPinactive10[i],cloni1B$retroA
PPuneOinactive10[i],cloni1B$cambioW10[i],na.rm = T)
}
```

```
cloni1B$retrostop10 <- ifelse (cloni1B$retrostop10== -
Inf,cloni1B$dist10,cloni1B$retrostop10)

#2011(da 1999 a 2012)
for (i in 1:15){
  a <- 6069 + cloni1B$spell10[i]
  b <- 6069 + cloni1B$spell11[i]
  appoggio <- seqdef (cloni1B[,b:a])
  cloni1B$retroAPPunemployment11[i] <-  (cloni1B$spell11[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1B$retroAPPinactive11[i] <- (cloni1B$spell11[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1B$retroAPPuneOinactive11[i] <- (cloni1B$spell11[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:15){
  cloni1B$retrostop11[i] <- max
(cloni1B$retroAPPunemployment11[i],cloni1B$retroAPPinactive11[i],cloni1B$retroA
PPuneOinactive11[i],cloni1B$cambioW11[i],na.rm = T)
}
cloni1B$retrostop11 <- ifelse (cloni1B$retrostop11== -
Inf,cloni1B$dist11,cloni1B$retrostop11)



#2012(da 1999 a 2012) ####non serve#
#for (i in 1:15){
# a <- 6069 + cloni1B$spell11[i]
#b <- 6220
#appoggio <- seqdef (cloni1B[,b:a])
#cloni1B$retroAPPunemployment12[i] <-  (151) - (seqfpos
(appoggio,"unemployment")[i])
#cloni1B$retroAPPinactive12[i] <- (151) - (seqfpos (appoggio,"inactive")[i])
#cloni1B$retroAPPuneOinactive12[i] <- (151) - (seqfpos (appoggio,"unemployed or
inactive")[i])
#}

#for (i in 1:15){
# cloni1B$retrostop12[i] <- min
(cloni1B$retroAPPunemployment12[i],cloni1B$retroAPPinactive12[i],cloni1B$retroA
PPuneOinactive12[i],na.rm = T)
```

```
#}
#cloni1B$retrostop12 <- ifelse (cloni1B$retrostop12== -
Inf,cloni1B$dist12,cloni1B$retrostop12)


######

#ricodifica indietro#
#1999#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell99[i])
  b <- 6069 + as.numeric(cloni1B$retrostop99[i])
  c <- ifelse
(((cloni1B$WorkDiv1A99[i]==1)|(cloni1B$WorkDiv1A99[i]==2)|(cloni1B$WorkDiv1A
99[i]==3)|(cloni1B$WorkDiv1A99[i]==4)|(cloni1B$WorkDiv1A99[i]==5)|(cloni1B$Wo
rkDiv1A99[i]==6)|(cloni1B$WorkDiv1A99[i]==7)|(cloni1B$WorkDiv1A99[i]==8)),cloni
1B$WorkDiv1A99[i],cloni1B[i,j])
  for (j in a:b){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2000#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell00[i])
  b <- 6069 + as.numeric(cloni1B$retrostop00[i])
  c <- ifelse
(((cloni1B$WorkDiv1A00[i]==1)|(cloni1B$WorkDiv1A00[i]==2)|(cloni1B$WorkDiv1A
00[i]==3)|(cloni1B$WorkDiv1A00[i]==4)|(cloni1B$WorkDiv1A00[i]==5)|(cloni1B$Wo
rkDiv1A00[i]==6)|(cloni1B$WorkDiv1A00[i]==7)|(cloni1B$WorkDiv1A00[i]==8)),cloni
1B$WorkDiv1A00[i],cloni1B[i,j])
  for (j in b:a){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2001#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell01[i])
  b <- 6069 + as.numeric(cloni1B$retrostop01[i])
```

```
  c <- ifelse
(((cloni1B$WorkDiv1A01[i]==1)|(cloni1B$WorkDiv1A01[i]==2)|(cloni1B$WorkDiv1A
01[i]==3)|(cloni1B$WorkDiv1A01[i]==4)|(cloni1B$WorkDiv1A01[i]==5)|(cloni1B$Wo
rkDiv1A01[i]==6)|(cloni1B$WorkDiv1A01[i]==7)|(cloni1B$WorkDiv1A01[i]==8)),cloni
1B$WorkDiv1A01[i],cloni1B[i,j])
  for (j in b:a){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2002#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell02[i])
  b <- 6069 + as.numeric(cloni1B$retrostop02[i])
  c <- ifelse
(((cloni1B$WorkDiv1A02[i]==1)|(cloni1B$WorkDiv1A02[i]==2)|(cloni1B$WorkDiv1A
02[i]==3)|(cloni1B$WorkDiv1A02[i]==4)|(cloni1B$WorkDiv1A02[i]==5)|(cloni1B$Wo
rkDiv1A02[i]==6)|(cloni1B$WorkDiv1A02[i]==7)|(cloni1B$WorkDiv1A02[i]==8)),cloni
1B$WorkDiv1A02[i],cloni1B[i,j])
  for (j in b:a){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2003#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell03[i])
  b <- 6069 + as.numeric(cloni1B$retrostop03[i])
  c <- ifelse
(((cloni1B$WorkDiv1A03[i]==1)|(cloni1B$WorkDiv1A03[i]==2)|(cloni1B$WorkDiv1A
03[i]==3)|(cloni1B$WorkDiv1A03[i]==4)|(cloni1B$WorkDiv1A03[i]==5)|(cloni1B$Wo
rkDiv1A03[i]==6)|(cloni1B$WorkDiv1A03[i]==7)|(cloni1B$WorkDiv1A03[i]==8)),cloni
1B$WorkDiv1A03[i],cloni1B[i,j])
  for (j in b:a){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2004#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell04[i])
```

```
  b <- 6069 + as.numeric(cloni1B$retrostop04[i])
  c <- ifelse
(((cloni1B$WorkDiv1A04[i]==1)|(cloni1B$WorkDiv1A04[i]==2)|(cloni1B$WorkDiv1A
04[i]==3)|(cloni1B$WorkDiv1A04[i]==4)|(cloni1B$WorkDiv1A04[i]==5)|(cloni1B$Wo
rkDiv1A04[i]==6)|(cloni1B$WorkDiv1A04[i]==7)|(cloni1B$WorkDiv1A04[i]==8)),cloni
1B$WorkDiv1A04[i],cloni1B[i,j])
  for (j in b:a){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2005#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell05[i])
  b <- 6069 + as.numeric(cloni1B$retrostop05[i])
  c <- ifelse
(((cloni1B$WorkDiv1A05[i]==1)|(cloni1B$WorkDiv1A05[i]==2)|(cloni1B$WorkDiv1A
05[i]==3)|(cloni1B$WorkDiv1A05[i]==4)|(cloni1B$WorkDiv1A05[i]==5)|(cloni1B$Wo
rkDiv1A05[i]==6)|(cloni1B$WorkDiv1A05[i]==7)|(cloni1B$WorkDiv1A05[i]==8)),cloni
1B$WorkDiv1A05[i],cloni1B[i,j])
  for (j in b:a){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2006#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell06[i])
  b <- 6069 + as.numeric(cloni1B$retrostop06[i])
  c <- ifelse
(((cloni1B$WorkDiv1A06[i]==1)|(cloni1B$WorkDiv1A06[i]==2)|(cloni1B$WorkDiv1A
06[i]==3)|(cloni1B$WorkDiv1A06[i]==4)|(cloni1B$WorkDiv1A06[i]==5)|(cloni1B$Wo
rkDiv1A06[i]==6)|(cloni1B$WorkDiv1A06[i]==7)|(cloni1B$WorkDiv1A06[i]==8)),cloni
1B$WorkDiv1A06[i],cloni1B[i,j])
  for (j in b:a){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2007#
for (i in 1:15){
```

```
  a <- 6069 + as.numeric(cloni1B$spell07[i])
  b <- 6069 + as.numeric(cloni1B$retrostop07[i])
  c <- ifelse
(((cloni1B$WorkDiv1A07[i]==1)|(cloni1B$WorkDiv1A07[i]==2)|(cloni1B$WorkDiv1A
07[i]==3)|(cloni1B$WorkDiv1A07[i]==4)|(cloni1B$WorkDiv1A07[i]==5)|(cloni1B$Wo
rkDiv1A07[i]==6)|(cloni1B$WorkDiv1A07[i]==7)|(cloni1B$WorkDiv1A07[i]==8)),cloni
1B$WorkDiv1A07[i],cloni1B[i,j])
  for (j in b:a){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2008#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell08[i])
  b <- 6069 + as.numeric(cloni1B$retrostop08[i])
  c <- ifelse
(((cloni1B$WorkDiv1A08[i]==1)|(cloni1B$WorkDiv1A08[i]==2)|(cloni1B$WorkDiv1A
08[i]==3)|(cloni1B$WorkDiv1A08[i]==4)|(cloni1B$WorkDiv1A08[i]==5)|(cloni1B$Wo
rkDiv1A08[i]==6)|(cloni1B$WorkDiv1A08[i]==7)|(cloni1B$WorkDiv1A08[i]==8)),cloni
1B$WorkDiv1A08[i],cloni1B[i,j])
  for (j in b:a){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2009#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell09[i])
  b <- 6069 + as.numeric(cloni1B$retrostop09[i])
  c <- ifelse
(((cloni1B$WorkDiv1A09[i]==1)|(cloni1B$WorkDiv1A09[i]==2)|(cloni1B$WorkDiv1A
09[i]==3)|(cloni1B$WorkDiv1A09[i]==4)|(cloni1B$WorkDiv1A09[i]==5)|(cloni1B$Wo
rkDiv1A09[i]==6)|(cloni1B$WorkDiv1A09[i]==7)|(cloni1B$WorkDiv1A09[i]==8)),cloni
1B$WorkDiv1A09[i],cloni1B[i,j])
  for (j in b:a){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2010#
```

```
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell10[i])
  b <- 6069 + as.numeric(cloni1B$retrostop10[i])
  c <- ifelse
(((cloni1B$WorkDiv1A10[i]==1)|(cloni1B$WorkDiv1A10[i]==2)|(cloni1B$WorkDiv1A
10[i]==3)|(cloni1B$WorkDiv1A10[i]==4)|(cloni1B$WorkDiv1A10[i]==5)|(cloni1B$Wo
rkDiv1A10[i]==6)|(cloni1B$WorkDiv1A10[i]==7)|(cloni1B$WorkDiv1A10[i]==8)),cloni
1B$WorkDiv1A10[i],cloni1B[i,j])
  for (j in b:a){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#2011#
for (i in 1:15){
  a <- 6069 + as.numeric(cloni1B$spell11[i])
  b <- 6069 + as.numeric(cloni1B$retrostop11[i])
  c <- ifelse
(((cloni1B$WorkDiv1A11[i]==1)|(cloni1B$WorkDiv1A11[i]==2)|(cloni1B$WorkDiv1A
11[i]==3)|(cloni1B$WorkDiv1A11[i]==4)|(cloni1B$WorkDiv1A11[i]==5)|(cloni1B$Wo
rkDiv1A11[i]==6)|(cloni1B$WorkDiv1A11[i]==7)|(cloni1B$WorkDiv1A11[i]==8)),cloni
1B$WorkDiv1A11[i],cloni1B[i,j])
  for (j in b:a){
    cloni1B[i,j] <- ifelse ((cloni1B[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1B[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1B[i,j])
  }}

#recupero quelli che non hanno indicato il tipo di lavoro (2)

for (i in 1:15){
  for (j in 1:151){
    a <- 6069 + j
    b <- 5670 + j
    cloni1B[,a] <- recode(cloni1B[,a],"NA=100")
    c <- as.character(cloni1B[i,b])
    cloni1B[i,a] <- ifelse (cloni1B[i,a]==100, c, cloni1B[i,a])
    cloni1B[,a] <- recode(cloni1B[,a],"100=NA")
  }}

##########SEQUENZE########per controllare che non ci sia UN nei nuovi
```

```
###N 48 mesi 90% ###
##strategia B, tipo lavoro##
#crea sequenza#
library(TraMineR)
library (TraMineRextras)
#allinea su primo mese disoccupazione#
cloni1B$pos <- as.integer(cloni1B$pos)

cloni1B$pos[1] <- CampioneN48p90mesi$pos48m90pWC2[8]
cloni1B$pos[2] <- CampioneN48p90mesi$pos48m90pWC2[95]
cloni1B$pos[3] <- CampioneN48p90mesi$pos48m90pWC2[121]
cloni1B$pos[4] <- CampioneN48p90mesi$pos48m90pWC2[131]
cloni1B$pos[5] <- CampioneN48p90mesi$pos48m90pWC2[141]
cloni1B$pos[6] <- CampioneN48p90mesi$pos48m90pWC2[193]
cloni1B$pos[7] <- CampioneN48p90mesi$pos48m90pWC2[204]
cloni1B$pos[8] <- CampioneN48p90mesi$pos48m90pWC2[242]
cloni1B$pos[9] <- CampioneN48p90mesi$pos48m90pWC2[266]
cloni1B$pos[10] <- CampioneN48p90mesi$pos48m90pWC2[296]
cloni1B$pos[11] <- CampioneN48p90mesi$pos48m90pWC2[305]
cloni1B$pos[12] <- CampioneN48p90mesi$pos48m90pWC2[396]
cloni1B$pos[13] <- CampioneN48p90mesi$pos48m90pWC2[443]
cloni1B$pos[14] <- CampioneN48p90mesi$pos48m90pWC2[515]
cloni1B$pos[15] <- CampioneN48p90mesi$pos48m90pWC2[526]

startSeq <- seqstart(cloni1B[, 6070:6220], data.start=1, new.start=cloni1B$pos,
                             tmax=48)

Seq <- seqdef(startSeq)
cpal(Seq) <- c("yellow2", "red1", "pink", "brown", "red4", "green3",  "orange",
"blue3","pink","pink","pink","pink","pink")

#sequenze#
seqIplot(Seq, sortv="from.start",  cex.legend=0.3, cpal= c("grey","grey", "grey",
"grey",  "grey", "grey", "grey", "grey", "grey", "grey"))

#se non c'è unemployment, non è neanche in lista possibili valori
#nota: se grafici non si mostrano, può essere probelma numero e definizione
colori(cpal)
```

#RICODIFICO LE VARIABILI MESI PER GRUPPO CLONI#

#metto in pari le variabili (ne hai probabilmente perchè hai fatto tanti tentativi e hai qualche variabile pattumiera)

```
cloni1$perCoprireBuchi1 <- 0
cloni1$perCoprireBuchi2 <- 0
cloni1$perCoprireBuchi3 <- 0
cloni1$perCoprireBuchi4 <- 0
cloni1$perCoprireBuchi5 <- 0
cloni1$perCoprireBuchi6 <- 0
cloni1$perCoprireBuchi7 <- 0
cloni1$perCoprireBuchi8 <- 0
cloni1$perCoprireBuchi9 <- 0
cloni1$perCoprireBuchi10 <- 0
cloni1$perCoprireBuchi11 <- 0
cloni1$perCoprireBuchi12 <- 0
cloni1$perCoprireBuchi13 <- 0
cloni1$perCoprireBuchi14 <- 0
cloni1$perCoprireBuchi15 <- 0
cloni1$perCoprireBuchi16 <- 0
cloni1$perCoprireBuchi17 <- 0
```

#creazioni variabili tipo di lavoro per mese#

```
cloni1$typeWMset99<-0
cloni1$typeWMoct99<-0
cloni1$typeWMnov99<-0
cloni1$typeWMdec99<-0
cloni1$typeWMjan00<-0
cloni1$typeWMfeb00<-0
cloni1$typeWMmar00<-0
cloni1$typeWMapr00<-0
cloni1$typeWMmay00<-0
cloni1$typeWMjun00<-0
cloni1$typeWMjul00<-0
cloni1$typeWMaug00<-0
cloni1$typeWMsept00<-0
cloni1$typeWMoct00<-0
cloni1$typeWMnov00<-0
cloni1$typeWMdec00<-0
cloni1$typeWMjan01<-0
```

```
cloni1$typeWMfeb01<-0
cloni1$typeWMmar01<-0
cloni1$typeWMapr01<-0
cloni1$typeWMmay01<-0
cloni1$typeWMjun01<-0
cloni1$typeWMjul01<-0
cloni1$typeWMaug01<-0
cloni1$typeWMsept01<-0
cloni1$typeWMoct01<-0
cloni1$typeWMnov01<-0
cloni1$typeWMdec01<-0
cloni1$typeWMjan02<-0
cloni1$typeWMfeb02<-0
cloni1$typeWMmar02<-0
cloni1$typeWMapr02<-0
cloni1$typeWMmay02<-0
cloni1$typeWMjun02<-0
cloni1$typeWMjul02<-0
cloni1$typeWMaug02<-0
cloni1$typeWMsept02<-0
cloni1$typeWMoct02<-0
cloni1$typeWMnov02<-0
cloni1$typeWMdec02<-0
cloni1$typeWMjan03<-0
cloni1$typeWMfeb03<-0
cloni1$typeWMmar03<-0
cloni1$typeWMapr03<-0
cloni1$typeWMmay03<-0
cloni1$typeWMjun03<-0
cloni1$typeWMjul03<-0
cloni1$typeWMaug03<-0
cloni1$typeWMsept03<-0
cloni1$typeWMoct03<-0
cloni1$typeWMnov03<-0
cloni1$typeWMdec03<-0
cloni1$typeWMjan04<-0
cloni1$typeWMfeb04<-0
cloni1$typeWMmar04<-0
cloni1$typeWMapr04<-0
cloni1$typeWMmay04<-0
cloni1$typeWMjun04<-0
```

cloni1$typeWMjul04<-0
cloni1$typeWMaug04<-0
cloni1$typeWMsept04<-0
cloni1$typeWMoct04<-0
cloni1$typeWMnov04<-0
cloni1$typeWMdec04<-0
cloni1$typeWMjan05<-0
cloni1$typeWMfeb05<-0
cloni1$typeWMmar05<-0
cloni1$typeWMapr05<-0
cloni1$typeWMmay05<-0
cloni1$typeWMjun05<-0
cloni1$typeWMjul05<-0
cloni1$typeWMaug05<-0
cloni1$typeWMsept05<-0
cloni1$typeWMoct05<-0
cloni1$typeWMnov05<-0
cloni1$typeWMdec05<-0
cloni1$typeWMjan06<-0
cloni1$typeWMfeb06<-0
cloni1$typeWMmar06<-0
cloni1$typeWMapr06<-0
cloni1$typeWMmay06<-0
cloni1$typeWMjun06<-0
cloni1$typeWMjul06<-0
cloni1$typeWMaug06<-0
cloni1$typeWMsept06<-0
cloni1$typeWMoct06<-0
cloni1$typeWMnov06<-0
cloni1$typeWMdec06<-0
cloni1$typeWMjan07<-0
cloni1$typeWMfeb07<-0
cloni1$typeWMmar07<-0
cloni1$typeWMapr07<-0
cloni1$typeWMmay07<-0
cloni1$typeWMjun07<-0
cloni1$typeWMjul07<-0
cloni1$typeWMaug07<-0
cloni1$typeWMsept07<-0
cloni1$typeWMoct07<-0
cloni1$typeWMnov07<-0

```
cloni1$typeWMdec07<-0
cloni1$typeWMjan08<-0
cloni1$typeWMfeb08<-0
cloni1$typeWMmar08<-0
cloni1$typeWMapr08<-0
cloni1$typeWMmay08<-0
cloni1$typeWMjun08<-0
cloni1$typeWMjul08<-0
cloni1$typeWMaug08<-0
cloni1$typeWMsept08<-0
cloni1$typeWMoct08<-0
cloni1$typeWMnov08<-0
cloni1$typeWMdec08<-0
cloni1$typeWMjan09<-0
cloni1$typeWMfeb09<-0
cloni1$typeWMmar09<-0
cloni1$typeWMapr09<-0
cloni1$typeWMmay09<-0
cloni1$typeWMjun09<-0
cloni1$typeWMjul09<-0
cloni1$typeWMaug09<-0
cloni1$typeWMsept09<-0
cloni1$typeWMoct09<-0
cloni1$typeWMnov09<-0
cloni1$typeWMdec09<-0
cloni1$typeWMjan10<-0
cloni1$typeWMfeb10<-0
cloni1$typeWMmar10<-0
cloni1$typeWMapr10<-0
cloni1$typeWMmay10<-0
cloni1$typeWMjun10<-0
cloni1$typeWMjul10<-0
cloni1$typeWMaug10<-0
cloni1$typeWMsept10<-0
cloni1$typeWMoct10<-0
cloni1$typeWMnov10<-0
cloni1$typeWMdec10<-0
cloni1$typeWMjan11<-0
cloni1$typeWMfeb11<-0
cloni1$typeWMmar11<-0
cloni1$typeWMapr11<-0
```

```
cloni1$typeWMmay11<-0
cloni1$typeWMjun11<-0
cloni1$typeWMjul11<-0
cloni1$typeWMaug11<-0
cloni1$typeWMsept11<-0
cloni1$typeWMoct11<-0
cloni1$typeWMnov11<-0
cloni1$typeWMdec12<-0
cloni1$typeWMjan12<-0
cloni1$typeWMfeb12<-0
cloni1$typeWMmar12<-0

#stendo base #


for(i in 1:532){
  for(j in 1:151){
    cloni1[i,6069+j] <- as.character(cloni1[i,5670+j])
  }}

# tipo di lavoro CSP --> 8 tipi (li riduci dopo se mai)#

cloni1$WorkDiv1A99<- recode(cloni1$CSPMAJ99, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1$WorkDiv1A00<- recode(cloni1$CSPMAJ00, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1$WorkDiv1A01<- recode(cloni1$CSPMAJ01, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1$WorkDiv1A02<- recode(cloni1$CSPMAJ02, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
```

```
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1$WorkDiv1A03<- recode(cloni1$CSPMAJ03, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1$WorkDiv1A04<- recode(cloni1$CSPMAJ04, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1$WorkDiv1A05<- recode(cloni1$CSPMAJ05, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1$WorkDiv1A06<- recode(cloni1$CSPMAJ06, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1$WorkDiv1A07<- recode(cloni1$CSPMAJ07, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1$WorkDiv1A08<- recode(cloni1$CSPMAJ08, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1$WorkDiv1A09<- recode(cloni1$CSPMAJ09, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1$WorkDiv1A10<- recode(cloni1$CSPMAJ10, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
```

```
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")
cloni1$WorkDiv1A11<- recode(cloni1$CSPMAJ11, "'top management'=1; 'liberal
professions'=2; 'other self-employed'=3; 'academic professions and senior
management'=4; 'intermediate professions'=5; 'qualified non-manual
professions'=6; 'qualified manual professions'=7; 'unqualified non-manual and
manual workers'=8")

###calcolo inizio (chiamato spell)###

###creazione variabili con data intervista###
#isolo mese ( e anno) intervista#
cloni1$spell99 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1$PDATE99.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1$spell00 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1$PDATE00.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1$spell01 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1$PDATE01.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1$spell02 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1$PDATE02.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1$spell03 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1$PDATE03.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1$spell04 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1$PDATE04.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1$spell05 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1$PDATE05.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1$spell06 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1$PDATE06.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1$spell07 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1$PDATE07.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
```

```
cloni1$spell08 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1$PDATE08.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1$spell09 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1$PDATE09.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1$spell10 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1$PDATE10.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)
cloni1$spell11 <-
substr(as.Date(as.POSIXlt(as.numeric(as.character(cloni1$PDATE11.y)), origin =
"1582/10/14"),"%Y/%m/%d/"),1,7)

##definisco e ricostruisco le date delle interviste##

library(car)
cloni1$spell99 <- recode (cloni1$spell99, "NA='0'")
cloni1$spell00 <- recode (cloni1$spell00, "NA='0'")
cloni1$spell01 <- recode (cloni1$spell01, "NA='0'")
cloni1$spell02 <- recode (cloni1$spell02, "NA='0'")
cloni1$spell03 <- recode (cloni1$spell03, "NA='0'")
cloni1$spell04 <- recode (cloni1$spell04, "NA='0'")
cloni1$spell05 <- recode (cloni1$spell05, "NA='0'")
cloni1$spell06 <- recode (cloni1$spell06, "NA='0'")
cloni1$spell07 <- recode (cloni1$spell07, "NA='0'")
cloni1$spell08 <- recode (cloni1$spell08, "NA='0'")
cloni1$spell09 <- recode (cloni1$spell09, "NA='0'")
cloni1$spell10 <- recode (cloni1$spell10, "NA='0'")
cloni1$spell11 <- recode (cloni1$spell11, "NA='0'")

#ripescaggio di quelli che hanno valore valido in % lavoro#

spell99NAconverter0 <- ifelse (cloni1$spell99=='0' & (cloni1$SEP99=='full-time paid
job (37 hours or more per week)'|cloni1$SEP99=='part-time paid job (1-36 hours per
week)'|cloni1$SEP99=='unemployment'|cloni1$SEP99=='inactive'|cloni1$SEP99=='u
nemployed or inactive'),'1999-09','0')
spell99NAconverter1 <- ifelse (cloni1$spell99=='0' & (cloni1$OCT99=='full-time paid
job (37 hours or more per week)'|cloni1$OCT99=='part-time paid job (1-36 hours
per
week)'|cloni1$OCT99=='unemployment'|cloni1$OCT99=='inactive'|cloni1$OCT99==
'unemployed or inactive'),'1999-10',spell99NAconverter0)
```

```
spell99NAconverter2 <- ifelse (cloni1$spell99=='0' & (cloni1$NOV99=='full-time paid job (37 hours or more per week)'|cloni1$NOV99=='part-time paid job (1-36 hours per
week)'|cloni1$NOV99=='unemployment'|cloni1$NOV99=='inactive'|cloni1$NOV99==
='unemployed or inactive'),'1999-11',spell99NAconverter1)
spell99NAconverter3 <- ifelse (cloni1$spell99=='0' & (cloni1$DEC99=='full-time paid job (37 hours or more per week)'|cloni1$DEC99=='part-time paid job (1-36 hours per
week)'|cloni1$DEC99=='unemployment'|cloni1$DEC99=='inactive'|cloni1$DEC99=='
unemployed or inactive'),'1999-12',spell99NAconverter2)
spell99NAconverter4 <- ifelse (cloni1$spell99=='0' & (cloni1$JAN00=='full-time paid job (37 hours or more per week)'|cloni1$JAN00=='part-time paid job (1-36 hours per
week)'|cloni1$JAN00=='unemployment'|cloni1$JAN00=='inactive'|cloni1$JAN00=='
unemployed or inactive'),'2000-01',spell99NAconverter3)
spell99NAconverter5 <- ifelse (cloni1$spell99=='0' & (cloni1$FEB00=='full-time paid job (37 hours or more per week)'|cloni1$FEB00=='part-time paid job (1-36 hours per
week)'|cloni1$FEB00=='unemployment'|cloni1$FEB00=='inactive'|cloni1$FEB00=='
unemployed or inactive'),'2000-02',spell99NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell99NAconverter5[i]
  cloni1$spell99[i] <- recode (cloni1$spell99[i], "'0'=j")
  j<-0 }


spell00NAconverter0 <- ifelse (cloni1$spell00=='0' & (cloni1$SEP00=='full-time paid job (37 hours or more per week)'|cloni1$SEP00=='part-time paid job (1-36 hours per
week)'|cloni1$SEP00=='unemployment'|cloni1$SEP00=='inactive'|cloni1$SEP00=='u
nemployed or inactive'),'2000-09','0')
spell00NAconverter1 <- ifelse (cloni1$spell00=='0' & (cloni1$OCT00=='full-time paid job (37 hours or more per week)'|cloni1$OCT00=='part-time paid job (1-36 hours per
week)'|cloni1$OCT00=='unemployment'|cloni1$OCT00=='inactive'|cloni1$OCT00==
'unemployed or inactive'),'2000-10',spell00NAconverter0)
spell00NAconverter2 <- ifelse (cloni1$spell00=='0' & (cloni1$NOV00=='full-time paid job (37 hours or more per week)'|cloni1$NOV00=='part-time paid job (1-36 hours
```

```
per
week)'|cloni1$NOV00=='unemployment'|cloni1$NOV00=='inactive'|cloni1$NOV00=
='unemployed or inactive'),'2000-11',spell00NAconverter1)
spell00NAconverter3 <- ifelse (cloni1$spell00=='0' & (cloni1$DEC00=='full-time paid
job (37 hours or more per week)'|cloni1$DEC00=='part-time paid job (1-36 hours
per
week)'|cloni1$DEC00=='unemployment'|cloni1$DEC00=='inactive'|cloni1$DEC00=='
unemployed or inactive'),'2000-12',spell00NAconverter2)
spell00NAconverter4 <- ifelse (cloni1$spell00=='0' & (cloni1$JAN01=='full-time paid
job (37 hours or more per week)'|cloni1$JAN01=='part-time paid job (1-36 hours
per
week)'|cloni1$JAN01=='unemployment'|cloni1$JAN01=='inactive'|cloni1$JAN01=='
unemployed or inactive'),'2001-01',spell00NAconverter3)
spell00NAconverter5 <- ifelse (cloni1$spell00=='0' & (cloni1$FEB01=='full-time paid
job (37 hours or more per week)'|cloni1$FEB01=='part-time paid job (1-36 hours per
week)'|cloni1$FEB01=='unemployment'|cloni1$FEB01=='inactive'|cloni1$FEB01=='
unemployed or inactive'),'2001-02',spell00NAconverter4)



i <-0
j<-0
for(i in 1:532) {
  j <- spell00NAconverter5[i]
  cloni1$spell00[i] <- recode (cloni1$spell00[i], "'0'=j")
  j<-0 }



spell01NAconverter0 <- ifelse (cloni1$spell01=='0' & (cloni1$SEP01=='full-time paid
job (37 hours or more per week)'|cloni1$SEP01=='part-time paid job (1-36 hours per
week)'|cloni1$SEP01=='unemployment'|cloni1$SEP01=='inactive'|cloni1$SEP01=='u
nemployed or inactive'),'2001-09','0')
spell01NAconverter1 <- ifelse (cloni1$spell01=='0' & (cloni1$OCT01=='full-time paid
job (37 hours or more per week)'|cloni1$OCT01=='part-time paid job (1-36 hours
per
week)'|cloni1$OCT01=='unemployment'|cloni1$OCT01=='inactive'|cloni1$OCT01==
'unemployed or inactive'),'2001-10',spell01NAconverter0)
spell01NAconverter2 <- ifelse (cloni1$spell01=='0' & (cloni1$NOV01=='full-time paid
job (37 hours or more per week)'|cloni1$NOV01=='part-time paid job (1-36 hours
per
```

```
week)'|cloni1$NOV01=='unemployment'|cloni1$NOV01=='inactive'|cloni1$NOV01==
='unemployed or inactive'),'2001-11',spell01NAconverter1)
spell01NAconverter3 <- ifelse (cloni1$spell01=='0' & (cloni1$DEC01=='full-time paid
job (37 hours or more per week)'|cloni1$DEC01=='part-time paid job (1-36 hours
per
week)'|cloni1$DEC01=='unemployment'|cloni1$DEC01=='inactive'|cloni1$DEC01=='
unemployed or inactive'),'2001-12',spell01NAconverter2)
spell01NAconverter4 <- ifelse (cloni1$spell01=='0' & (cloni1$JAN02=='full-time paid
job (37 hours or more per week)'|cloni1$JAN02=='part-time paid job (1-36 hours
per
week)'|cloni1$JAN02=='unemployment'|cloni1$JAN02=='inactive'|cloni1$JAN02=='
unemployed or inactive'),'2002-01',spell01NAconverter3)
spell01NAconverter5 <- ifelse (cloni1$spell01=='0' & (cloni1$FEB02=='full-time paid
job (37 hours or more per week)'|cloni1$FEB02=='part-time paid job (1-36 hours per
week)'|cloni1$FEB02=='unemployment'|cloni1$FEB02=='inactive'|cloni1$FEB02=='
unemployed or inactive'),'2002-02',spell01NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell01NAconverter5[i]
  cloni1$spell01[i] <- recode (cloni1$spell01[i], "'0'=j")
  j<-0 }


spell02NAconverter0 <- ifelse (cloni1$spell02=='0' & (cloni1$SEP02=='full-time paid
job (37 hours or more per week)'|cloni1$SEP02=='part-time paid job (1-36 hours per
week)'|cloni1$SEP02=='unemployment'|cloni1$SEP02=='inactive'|cloni1$SEP02=='u
nemployed or inactive'),'2002-09','0')
spell02NAconverter1 <- ifelse (cloni1$spell02=='0' & (cloni1$OCT02=='full-time paid
job (37 hours or more per week)'|cloni1$OCT02=='part-time paid job (1-36 hours
per
week)'|cloni1$OCT02=='unemployment'|cloni1$OCT02=='inactive'|cloni1$OCT02==
'unemployed or inactive'),'2002-10',spell02NAconverter0)
spell02NAconverter2 <- ifelse (cloni1$spell02=='0' & (cloni1$NOV02=='full-time paid
job (37 hours or more per week)'|cloni1$NOV02=='part-time paid job (1-36 hours
per
week)'|cloni1$NOV02=='unemployment'|cloni1$NOV02=='inactive'|cloni1$NOV02=
='unemployed or inactive'),'2002-11',spell02NAconverter1)
```

```
spell02NAconverter3 <- ifelse (cloni1$spell02=='0' & (cloni1$DEC02=='full-time paid
job (37 hours or more per week)'|cloni1$DEC02=='part-time paid job (1-36 hours
per
week)'|cloni1$DEC02=='unemployment'|cloni1$DEC02=='inactive'|cloni1$DEC02=='
unemployed or inactive'),'2002-12',spell02NAconverter2)
spell02NAconverter4 <- ifelse (cloni1$spell02=='0' & (cloni1$JAN03=='full-time paid
job (37 hours or more per week)'|cloni1$JAN03=='part-time paid job (1-36 hours
per
week)'|cloni1$JAN03=='unemployment'|cloni1$JAN03=='inactive'|cloni1$JAN03=='
unemployed or inactive'),'2003-01',spell02NAconverter3)
spell02NAconverter5 <- ifelse (cloni1$spell02=='0' & (cloni1$FEB03=='full-time paid
job (37 hours or more per week)'|cloni1$FEB03=='part-time paid job (1-36 hours per
week)'|cloni1$FEB03=='unemployment'|cloni1$FEB03=='inactive'|cloni1$FEB03=='
unemployed or inactive'),'2003-02',spell02NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell02NAconverter5[i]
  cloni1$spell02[i] <- recode (cloni1$spell02[i], "'0'=j")
  j<-0 }

spell03NAconverter0 <- ifelse (cloni1$spell03=='0' & (cloni1$SEP03=='full-time paid
job (37 hours or more per week)'|cloni1$SEP03=='part-time paid job (1-36 hours per
week)'|cloni1$SEP03=='unemployment'|cloni1$SEP03=='inactive'|cloni1$SEP03=='u
nemployed or inactive'),'2003-09','0')
spell03NAconverter1 <- ifelse (cloni1$spell03=='0' & (cloni1$OCT03=='full-time paid
job (37 hours or more per week)'|cloni1$OCT03=='part-time paid job (1-36 hours
per
week)'|cloni1$OCT03=='unemployment'|cloni1$OCT03=='inactive'|cloni1$OCT03==
'unemployed or inactive'),'2003-10',spell03NAconverter0)
spell03NAconverter2 <- ifelse (cloni1$spell03=='0' & (cloni1$NOV03=='full-time paid
job (37 hours or more per week)'|cloni1$NOV03=='part-time paid job (1-36 hours
per
week)'|cloni1$NOV03=='unemployment'|cloni1$NOV03=='inactive'|cloni1$NOV03=
='unemployed or inactive'),'2003-11',spell03NAconverter1)
spell03NAconverter3 <- ifelse (cloni1$spell03=='0' & (cloni1$DEC03=='full-time paid
job (37 hours or more per week)'|cloni1$DEC03=='part-time paid job (1-36 hours
per
```

```
week)'|cloni1$DEC03=='unemployment'|cloni1$DEC03=='inactive'|cloni1$DEC03=='
unemployed or inactive'),'2003-12',spell03NAconverter2)
spell03NAconverter4 <- ifelse (cloni1$spell03=='0' & (cloni1$JAN04=='full-time paid
job (37 hours or more per week)'|cloni1$JAN04=='part-time paid job (1-36 hours
per
week)'|cloni1$JAN04=='unemployment'|cloni1$JAN04=='inactive'|cloni1$JAN04=='
unemployed or inactive'),'2004-01',spell03NAconverter3)
spell03NAconverter5 <- ifelse (cloni1$spell03=='0' & (cloni1$FEB04=='full-time paid
job (37 hours or more per week)'|cloni1$FEB04=='part-time paid job (1-36 hours per
week)'|cloni1$FEB04=='unemployment'|cloni1$FEB04=='inactive'|cloni1$FEB04=='
unemployed or inactive'),'2004-02',spell03NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell03NAconverter5[i]
  cloni1$spell03[i] <- recode (cloni1$spell03[i], "'0'=j")
  j<-0 }

spell04NAconverter0 <- ifelse (cloni1$spell04=='0' & (cloni1$SEP04=='full-time paid
job (37 hours or more per week)'|cloni1$SEP04=='part-time paid job (1-36 hours per
week)'|cloni1$SEP04=='unemployment'|cloni1$SEP04=='inactive'|cloni1$SEP04=='u
nemployed or inactive'),'2004-09','0')
spell04NAconverter1 <- ifelse (cloni1$spell04=='0' & (cloni1$OCT04=='full-time paid
job (37 hours or more per week)'|cloni1$OCT04=='part-time paid job (1-36 hours
per
week)'|cloni1$OCT04=='unemployment'|cloni1$OCT04=='inactive'|cloni1$OCT04==
'unemployed or inactive'),'2004-10',spell04NAconverter0)
spell04NAconverter2 <- ifelse (cloni1$spell04=='0' & (cloni1$NOV04=='full-time paid
job (37 hours or more per week)'|cloni1$NOV04=='part-time paid job (1-36 hours
per
week)'|cloni1$NOV04=='unemployment'|cloni1$NOV04=='inactive'|cloni1$NOV04=
='unemployed or inactive'),'2004-11',spell04NAconverter1)
spell04NAconverter3 <- ifelse (cloni1$spell04=='0' & (cloni1$DEC04=='full-time paid
job (37 hours or more per week)'|cloni1$DEC04=='part-time paid job (1-36 hours
per
week)'|cloni1$DEC04=='unemployment'|cloni1$DEC04=='inactive'|cloni1$DEC04=='
unemployed or inactive'),'2004-12',spell04NAconverter2)
spell04NAconverter4 <- ifelse (cloni1$spell04=='0' & (cloni1$JAN05=='full-time paid
job (37 hours or more per week)'|cloni1$JAN05=='part-time paid job (1-36 hours
```

```
per
week)'|cloni1$JAN05=='unemployment'|cloni1$JAN05=='inactive'|cloni1$JAN05=='
unemployed or inactive'),'2005-01',spell04NAconverter3)
spell04NAconverter5 <- ifelse (cloni1$spell04=='0' & (cloni1$FEB05=='full-time paid
job (37 hours or more per week)'|cloni1$FEB05=='part-time paid job (1-36 hours per
week)'|cloni1$FEB05=='unemployment'|cloni1$FEB05=='inactive'|cloni1$FEB05=='
unemployed or inactive'),'2005-02',spell04NAconverter4)
spell04NAconverter6 <- ifelse (cloni1$spell04=='0' & (cloni1$MAR05=='full-time paid
job (37 hours or more per week)'|cloni1$MAR05=='part-time paid job (1-36 hours
per
week)'|cloni1$MAR05=='unemployment'|cloni1$MAR05=='inactive'|cloni1$MAR05
=='unemployed or inactive'),'2005-03',spell04NAconverter5)


i <-0
j<-0
for(i in 1:532) {
  j <- spell04NAconverter6[i]
  cloni1$spell04[i] <- recode (cloni1$spell04[i], "'0'=j")
  j<-0 }


spell05NAconverter0 <- ifelse (cloni1$spell05=='0' & (cloni1$SEP05=='full-time paid
job (37 hours or more per week)'|cloni1$SEP05=='part-time paid job (1-36 hours per
week)'|cloni1$SEP05=='unemployment'|cloni1$SEP05=='inactive'|cloni1$SEP05=='u
nemployed or inactive'),'2005-09','0')
spell05NAconverter1 <- ifelse (cloni1$spell05=='0' & (cloni1$OCT05=='full-time paid
job (37 hours or more per week)'|cloni1$OCT05=='part-time paid job (1-36 hours
per
week)'|cloni1$OCT05=='unemployment'|cloni1$OCT05=='inactive'|cloni1$OCT05==
'unemployed or inactive'),'2005-10',spell05NAconverter0)
spell05NAconverter2 <- ifelse (cloni1$spell05=='0' & (cloni1$NOV05=='full-time paid
job (37 hours or more per week)'|cloni1$NOV05=='part-time paid job (1-36 hours
per
week)'|cloni1$NOV05=='unemployment'|cloni1$NOV05=='inactive'|cloni1$NOV05=
='unemployed or inactive'),'2005-11',spell05NAconverter1)
spell05NAconverter3 <- ifelse (cloni1$spell05=='0' & (cloni1$DEC05=='full-time paid
job (37 hours or more per week)'|cloni1$DEC05=='part-time paid job (1-36 hours
per
week)'|cloni1$DEC05=='unemployment'|cloni1$DEC05=='inactive'|cloni1$DEC05=='
unemployed or inactive'),'2005-12',spell05NAconverter2)
```

```
spell05NAconverter4 <- ifelse (cloni1$spell05=='0' & (cloni1$JAN06=='full-time paid job (37 hours or more per week)'|cloni1$JAN06=='part-time paid job (1-36 hours per
week)'|cloni1$JAN06=='unemployment'|cloni1$JAN06=='inactive'|cloni1$JAN06==' unemployed or inactive'),'2006-01',spell05NAconverter3)
spell05NAconverter5 <- ifelse (cloni1$spell05=='0' & (cloni1$FEB06=='full-time paid job (37 hours or more per week)'|cloni1$FEB06=='part-time paid job (1-36 hours per week)'|cloni1$FEB06=='unemployment'|cloni1$FEB06=='inactive'|cloni1$FEB06==' unemployed or inactive'),'2006-02',spell05NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell05NAconverter5[i]
  cloni1$spell05[i] <- recode (cloni1$spell05[i], "'0'=j")
  j<-0 }

spell06NAconverter0 <- ifelse (cloni1$spell06=='0' & (cloni1$SEP06=='full-time paid job (37 hours or more per week)'|cloni1$SEP06=='part-time paid job (1-36 hours per week)'|cloni1$SEP06=='unemployment'|cloni1$SEP06=='inactive'|cloni1$SEP06=='u nemployed or inactive'),'2006-09','0')
spell06NAconverter1 <- ifelse (cloni1$spell06=='0' & (cloni1$OCT06=='full-time paid job (37 hours or more per week)'|cloni1$OCT06=='part-time paid job (1-36 hours per
week)'|cloni1$OCT06=='unemployment'|cloni1$OCT06=='inactive'|cloni1$OCT06== 'unemployed or inactive'),'2006-10',spell06NAconverter0)
spell06NAconverter2 <- ifelse (cloni1$spell06=='0' & (cloni1$NOV06=='full-time paid job (37 hours or more per week)'|cloni1$NOV06=='part-time paid job (1-36 hours per
week)'|cloni1$NOV06=='unemployment'|cloni1$NOV06=='inactive'|cloni1$NOV06= ='unemployed or inactive'),'2006-11',spell06NAconverter1)
spell06NAconverter3 <- ifelse (cloni1$spell06=='0' & (cloni1$DEC06=='full-time paid job (37 hours or more per week)'|cloni1$DEC06=='part-time paid job (1-36 hours per
week)'|cloni1$DEC06=='unemployment'|cloni1$DEC06=='inactive'|cloni1$DEC06==' unemployed or inactive'),'2006-12',spell06NAconverter2)
spell06NAconverter4 <- ifelse (cloni1$spell06=='0' & (cloni1$JAN07=='full-time paid job (37 hours or more per week)'|cloni1$JAN07=='part-time paid job (1-36 hours per
```

```
week)'|cloni1$JAN07=='unemployment'|cloni1$JAN07=='inactive'|cloni1$JAN07=='
unemployed or inactive'),'2007-01',spell06NAconverter3)
spell06NAconverter5 <- ifelse (cloni1$spell06=='0' & (cloni1$FEB07=='full-time paid
job (37 hours or more per week)'|cloni1$FEB07=='part-time paid job (1-36 hours per
week)'|cloni1$FEB07=='unemployment'|cloni1$FEB07=='inactive'|cloni1$FEB07=='
unemployed or inactive'),'2007-02',spell06NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell06NAconverter5[i]
  cloni1$spell06[i] <- recode (cloni1$spell06[i], "'0'=j")
  j<-0 }

spell07NAconverter0 <- ifelse (cloni1$spell07=='0' & (cloni1$SEP07=='full-time paid
job (37 hours or more per week)'|cloni1$SEP07=='part-time paid job (1-36 hours per
week)'|cloni1$SEP07=='unemployment'|cloni1$SEP07=='inactive'|cloni1$SEP07=='u
nemployed or inactive'),'2007-09','0')
spell07NAconverter1 <- ifelse (cloni1$spell07=='0' & (cloni1$OCT07=='full-time paid
job (37 hours or more per week)'|cloni1$OCT07=='part-time paid job (1-36 hours
per
week)'|cloni1$OCT07=='unemployment'|cloni1$OCT07=='inactive'|cloni1$OCT07==
'unemployed or inactive'),'2007-10',spell07NAconverter0)
spell07NAconverter2 <- ifelse (cloni1$spell07=='0' & (cloni1$NOV07=='full-time paid
job (37 hours or more per week)'|cloni1$NOV07=='part-time paid job (1-36 hours
per
week)'|cloni1$NOV07=='unemployment'|cloni1$NOV07=='inactive'|cloni1$NOV07=
='unemployed or inactive'),'2007-11',spell07NAconverter1)
spell07NAconverter3 <- ifelse (cloni1$spell07=='0' & (cloni1$DEC07=='full-time paid
job (37 hours or more per week)'|cloni1$DEC07=='part-time paid job (1-36 hours
per
week)'|cloni1$DEC07=='unemployment'|cloni1$DEC07=='inactive'|cloni1$DEC07=='
unemployed or inactive'),'2007-12',spell07NAconverter2)
spell07NAconverter4 <- ifelse (cloni1$spell07=='0' & (cloni1$JAN08=='full-time paid
job (37 hours or more per week)'|cloni1$JAN08=='part-time paid job (1-36 hours
per
week)'|cloni1$JAN08=='unemployment'|cloni1$JAN08=='inactive'|cloni1$JAN08=='
unemployed or inactive'),'2008-01',spell07NAconverter3)
spell07NAconverter5 <- ifelse (cloni1$spell07=='0' & (cloni1$FEB08=='full-time paid
job (37 hours or more per week)'|cloni1$FEB08=='part-time paid job (1-36 hours per
```

```
week)'|cloni1$FEB08=='unemployment'|cloni1$FEB08=='inactive'|cloni1$FEB08=='
unemployed or inactive'),'2008-02',spell07NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell07NAconverter5[i]
  cloni1$spell07[i] <- recode (cloni1$spell07[i], "'0'=j")
  j<-0 }

spell08NAconverter0 <- ifelse (cloni1$spell08=='0' & (cloni1$SEP08=='full-time paid
job (37 hours or more per week)'|cloni1$SEP08=='part-time paid job (1-36 hours per
week)'|cloni1$SEP08=='unemployment'|cloni1$SEP08=='inactive'|cloni1$SEP08=='u
nemployed or inactive'),'2008-09','0')
spell08NAconverter1 <- ifelse (cloni1$spell08=='0' & (cloni1$OCT08=='full-time paid
job (37 hours or more per week)'|cloni1$OCT08=='part-time paid job (1-36 hours
per
week)'|cloni1$OCT08=='unemployment'|cloni1$OCT08=='inactive'|cloni1$OCT08==
'unemployed or inactive'),'2008-10',spell08NAconverter0)
spell08NAconverter2 <- ifelse (cloni1$spell08=='0' & (cloni1$NOV08=='full-time paid
job (37 hours or more per week)'|cloni1$NOV08=='part-time paid job (1-36 hours
per
week)'|cloni1$NOV08=='unemployment'|cloni1$NOV08=='inactive'|cloni1$NOV08=
='unemployed or inactive'),'2008-11',spell08NAconverter1)
spell08NAconverter3 <- ifelse (cloni1$spell08=='0' & (cloni1$DEC08=='full-time paid
job (37 hours or more per week)'|cloni1$DEC08=='part-time paid job (1-36 hours
per
week)'|cloni1$DEC08=='unemployment'|cloni1$DEC08=='inactive'|cloni1$DEC08=='
unemployed or inactive'),'2008-12',spell08NAconverter2)
spell08NAconverter4 <- ifelse (cloni1$spell08=='0' & (cloni1$JAN09=='full-time paid
job (37 hours or more per week)'|cloni1$JAN09=='part-time paid job (1-36 hours
per
week)'|cloni1$JAN09=='unemployment'|cloni1$JAN09=='inactive'|cloni1$JAN09=='
unemployed or inactive'),'2009-01',spell08NAconverter3)
spell08NAconverter5 <- ifelse (cloni1$spell08=='0' & (cloni1$FEB09=='full-time paid
job (37 hours or more per week)'|cloni1$FEB09=='part-time paid job (1-36 hours per
week)'|cloni1$FEB09=='unemployment'|cloni1$FEB09=='inactive'|cloni1$FEB09=='
unemployed or inactive'),'2009-02',spell08NAconverter4)
```

```
i <-0
j<-0
for(i in 1:532) {
  j <- spell08NAconverter5[i]
  cloni1$spell08[i] <- recode (cloni1$spell08[i], "'0'=j")
  j<-0 }

spell09NAconverter0 <- ifelse (cloni1$spell09=='0' & (cloni1$SEP09=='full-time paid
job (37 hours or more per week)'|cloni1$SEP09=='part-time paid job (1-36 hours per
week)'|cloni1$SEP09=='unemployment'|cloni1$SEP09=='inactive'|cloni1$SEP09=='u
nemployed or inactive'),'2009-09','0')
spell09NAconverter1 <- ifelse (cloni1$spell09=='0' & (cloni1$OCT09=='full-time paid
job (37 hours or more per week)'|cloni1$OCT09=='part-time paid job (1-36 hours
per
week)'|cloni1$OCT09=='unemployment'|cloni1$OCT09=='inactive'|cloni1$OCT09==
'unemployed or inactive'),'2009-10',spell09NAconverter0)
spell09NAconverter2 <- ifelse (cloni1$spell09=='0' & (cloni1$NOV09=='full-time paid
job (37 hours or more per week)'|cloni1$NOV09=='part-time paid job (1-36 hours
per
week)'|cloni1$NOV09=='unemployment'|cloni1$NOV09=='inactive'|cloni1$NOV09=
='unemployed or inactive'),'2009-11',spell09NAconverter1)
spell09NAconverter3 <- ifelse (cloni1$spell09=='0' & (cloni1$DEC09=='full-time paid
job (37 hours or more per week)'|cloni1$DEC09=='part-time paid job (1-36 hours
per
week)'|cloni1$DEC09=='unemployment'|cloni1$DEC09=='inactive'|cloni1$DEC09=='
unemployed or inactive'),'2009-12',spell09NAconverter2)
spell09NAconverter4 <- ifelse (cloni1$spell09=='0' & (cloni1$JAN10=='full-time paid
job (37 hours or more per week)'|cloni1$JAN10=='part-time paid job (1-36 hours
per
week)'|cloni1$JAN10=='unemployment'|cloni1$JAN10=='inactive'|cloni1$JAN10=='
unemployed or inactive'),'2010-01',spell09NAconverter3)
spell09NAconverter5 <- ifelse (cloni1$spell09=='0' & (cloni1$FEB10=='full-time paid
job (37 hours or more per week)'|cloni1$FEB10=='part-time paid job (1-36 hours per
week)'|cloni1$FEB10=='unemployment'|cloni1$FEB10=='inactive'|cloni1$FEB10=='
unemployed or inactive'),'2010-02',spell09NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell09NAconverter5[i]
```

```
 cloni1$spell09[i] <- recode (cloni1$spell09[i], "'0'=j")
 j<-0 }

spell10NAconverter0 <- ifelse (cloni1$spell10=='0' & (cloni1$SEP10=='full-time paid
job (37 hours or more per week)'|cloni1$SEP10=='part-time paid job (1-36 hours per
week)'|cloni1$SEP10=='unemployment'|cloni1$SEP10=='inactive'|cloni1$SEP10=='u
nemployed or inactive'),'2010-09','0')
spell10NAconverter1 <- ifelse (cloni1$spell10=='0' & (cloni1$OCT10=='full-time paid
job (37 hours or more per week)'|cloni1$OCT10=='part-time paid job (1-36 hours
per
week)'|cloni1$OCT10=='unemployment'|cloni1$OCT10=='inactive'|cloni1$OCT10==
'unemployed or inactive'),'2010-10',spell10NAconverter0)
spell10NAconverter2 <- ifelse (cloni1$spell10=='0' & (cloni1$NOV10=='full-time paid
job (37 hours or more per week)'|cloni1$NOV10=='part-time paid job (1-36 hours
per
week)'|cloni1$NOV10=='unemployment'|cloni1$NOV10=='inactive'|cloni1$NOV10=
='unemployed or inactive'),'2010-11',spell10NAconverter1)
spell10NAconverter3 <- ifelse (cloni1$spell10=='0' & (cloni1$DEC10=='full-time paid
job (37 hours or more per week)'|cloni1$DEC10=='part-time paid job (1-36 hours
per
week)'|cloni1$DEC10=='unemployment'|cloni1$DEC10=='inactive'|cloni1$DEC10=='
unemployed or inactive'),'2010-12',spell10NAconverter2)
spell10NAconverter4 <- ifelse (cloni1$spell10=='0' & (cloni1$JAN11=='full-time paid
job (37 hours or more per week)'|cloni1$JAN11=='part-time paid job (1-36 hours
per
week)'|cloni1$JAN11=='unemployment'|cloni1$JAN11=='inactive'|cloni1$JAN11=='
unemployed or inactive'),'2011-01',spell10NAconverter3)
spell10NAconverter5 <- ifelse (cloni1$spell10=='0' & (cloni1$FEB11=='full-time paid
job (37 hours or more per week)'|cloni1$FEB11=='part-time paid job (1-36 hours per
week)'|cloni1$FEB11=='unemployment'|cloni1$FEB11=='inactive'|cloni1$FEB11=='
unemployed or inactive'),'2011-02',spell10NAconverter4)


i <-0
j<-0
for(i in 1:532) {
 j <- spell10NAconverter5[i]
 cloni1$spell10[i] <- recode (cloni1$spell10[i], "'0'=j")
 j<-0 }
```

```
spell11NAconverter0 <- ifelse (cloni1$spell11=='0' & (cloni1$SEP11=='full-time paid job (37 hours or more per week)'|cloni1$SEP11=='part-time paid job (1-36 hours per week)'|cloni1$SEP11=='unemployment'|cloni1$SEP11=='inactive'|cloni1$SEP11=='unemployed or inactive'),'2011-09','0')
spell11NAconverter1 <- ifelse (cloni1$spell11=='0' & (cloni1$OCT11=='full-time paid job (37 hours or more per week)'|cloni1$OCT11=='part-time paid job (1-36 hours per
week)'|cloni1$OCT11=='unemployment'|cloni1$OCT11=='inactive'|cloni1$OCT11=='unemployed or inactive'),'2011-10',spell11NAconverter0)
spell11NAconverter2 <- ifelse (cloni1$spell11=='0' & (cloni1$NOV11=='full-time paid job (37 hours or more per week)'|cloni1$NOV11=='part-time paid job (1-36 hours per
week)'|cloni1$NOV11=='unemployment'|cloni1$NOV11=='inactive'|cloni1$NOV11=='unemployed or inactive'),'2011-11',spell11NAconverter1)
spell11NAconverter3 <- ifelse (cloni1$spell11=='0' & (cloni1$DEC11=='full-time paid job (37 hours or more per week)'|cloni1$DEC11=='part-time paid job (1-36 hours per
week)'|cloni1$DEC11=='unemployment'|cloni1$DEC11=='inactive'|cloni1$DEC11=='unemployed or inactive'),'2011-12',spell11NAconverter2)
spell11NAconverter4 <- ifelse (cloni1$spell11=='0' & (cloni1$JAN12=='full-time paid job (37 hours or more per week)'|cloni1$JAN12=='part-time paid job (1-36 hours per
week)'|cloni1$JAN12=='unemployment'|cloni1$JAN12=='inactive'|cloni1$JAN12=='unemployed or inactive'),'2012-01',spell11NAconverter3)
spell11NAconverter5 <- ifelse (cloni1$spell11=='0' & (cloni1$FEB12=='full-time paid job (37 hours or more per week)'|cloni1$FEB12=='part-time paid job (1-36 hours per week)'|cloni1$FEB12=='unemployment'|cloni1$FEB12=='inactive'|cloni1$FEB12=='unemployed or inactive'),'2012-02',spell11NAconverter4)


i <-0
j<-0
for(i in 1:532) {
  j <- spell11NAconverter5[i]
  cloni1$spell11[i] <- recode (cloni1$spell11[i], "'0'=j")
  j<-0 }


#ricodifico in modo sequenziale#

library(car)
```

```
cloni1$spell99 <- recode (cloni1$spell99 ,"'1999-09'=1;
                    '1999-10'=2;
                    '1999-11'=3;
                    '1999-12'=4;
                    '2000-01'=5;
                    '2000-02'=6;
                    '2000-03'=7;
                    '2000-04'=8;
                    '2000-05'=9;
                    '2000-06'=10;
                    '2000-07'=11;
                    '2000-08'=12;
                    '2000-09'=13;
                    NA=1")

cloni1$spell00 <- recode (cloni1$spell00 ,"'2000-09'=13;
                    '2000-10'=14;
                    '2000-11'=15;
                    '2000-12'=16;
                    '2001-01'=17;
                    '2001-02'=18;
                    '2001-03'=19;
                    '2001-04'=20;
                    '2001-05'=21;
                    '2001-06'=22;
                    '2001-07'=23;
                    '2001-08'=24;
                    '2001-09'=25;
                    NA=13")

cloni1$spell01 <- recode (cloni1$spell01 ,"'2001-09'=25;
                    '2001-10'=26;
                    '2001-11'=27;
                    '2001-12'=28;
                    '2002-01'=29;
                    '2002-02'=30;
                    '2002-03'=31;
                    '2002-04'=32;
                    '2002-05'=33;
                    '2002-06'=34;
                    '2002-07'=35;
```

```
                '2002-08'=36;
                '2002-09'=37;
                NA=25")

cloni1$spell02<- recode (cloni1$spell02,"'2002-09'=37;
                '2002-10'=38;
                '2002-11'=39;
                '2002-12'=40;
                '2003-01'=41;
                '2003-02'=42;
                '2003-03'=43;
                '2003-04'=44;
                '2003-05'=45;
                '2003-06'=46;
                '2003-07'=47;
                '2003-08'=48;
                '2003-09'=49; NA=37")

cloni1$spell03<- recode (cloni1$spell03,"'2003-09'=49;
                '2003-10'=50;
                '2003-11'=51;
                '2003-12'=52;
                '2004-01'=53;
                '2004-02'=54;
                '2004-03'=55;
                '2004-04'=56;
                '2004-05'=57;
                '2004-06'=58;
                '2004-07'=59;
                '2004-08'=60;
                '2004-09'=61; NA=49")

cloni1$spell04<- recode (cloni1$spell04,"
                '2004-09'=61;
                '2004-10'=62;
                '2004-11'=63;
                '2004-12'=64;
                '2005-01'=65;
                '2005-02'=66;
                '2005-03'=67;
                '2005-04'=68;
```

```
                '2005-05'=69;
                '2005-06'=70;
                '2005-07'=71;
                '2005-08'=72;
                '2005-09'=73;NA=61")

cloni1$spell05<- recode (cloni1$spell05,"'2005-09'=73;
                '2005-10'=74;
                '2005-11'=75;
                '2005-12'=76;
                '2006-01'=77;
                '2006-02'=78;
                '2006-03'=79;
                '2006-04'=80;
                '2006-05'=81;
                '2006-06'=82;
                '2006-07'=83;
                '2006-08'=84;
                '2006-09'=85;NA=73")

cloni1$spell06 <- recode (cloni1$spell06 ,"'2006-09'=85;
                 '2006-10'=86;
                 '2006-11'=87;
                 '2006-12'=88;
                 '2007-01'=89;
                 '2007-02'=90;
                 '2007-03'=91;
                 '2007-04'=92;
                 '2007-05'=93;
                 '2007-06'=94;
                 '2007-07'=95;
                 '2007-08'=96;
                 '2007-09'=97;NA=85")

cloni1$spell07 <- recode (cloni1$spell07 ,"'2007-09'=97;
                 '2007-10'=98;
                 '2007-11'=99;
                 '2007-12'=100;
                 '2008-01'=101;
                 '2008-02'=102;
                 '2008-03'=103;
```

```
                '2008-04'=104;
                '2008-05'=105;
                '2008-06'=106;
                '2008-07'=107;
                '2008-08'=108;
                '2008-09'=109;NA=97")

cloni1$spell08<- recode (cloni1$spell08,"'2008-09'=109;
                '2008-10'=110;
                '2008-11'=111;
                '2008-12'=112;
                '2009-01'=113;
                '2009-02'=114;
                '2009-03'=115;
                '2009-04'=116;
                '2009-05'=117;
                '2009-06'=118;
                '2009-07'=119;
                '2009-08'=120;
                '2009-09'=121;NA=109")

cloni1$spell09<- recode (cloni1$spell09,"'2009-09'=121;
                '2009-10'=122;
                '2009-11'=123;
                '2009-12'=124;
                '2010-01'=125;
                '2010-02'=126;
                '2010-03'=127;
                '2010-04'=128;
                '2010-05'=129;
                '2010-06'=130;
                '2010-07'=131;
                '2010-08'=132;
                '2010-09'=133;NA=121")

cloni1$spell10<- recode (cloni1$spell10,"'2010-08'=132;
                '2010-09'=133;
                '2010-10'=134;
                '2010-11'=135;
                '2010-12'=136;
                '2011-01'=137;
```

```
                '2011-02'=138;
                '2011-03'=139;
                '2011-04'=140;
                '2011-05'=141;
                '2011-06'=142;
                '2011-07'=143;
                '2011-08'=144;
                '2011-09'=145;NA=133")
cloni1$spell11<- recode (cloni1$spell11,"'2011-08'=144;
                '2011-09'=145;
                '2011-10'=146;
                '2011-11'=147;
                '2011-12'=148;
                '2012-01'=149;
                '2012-02'=150;
                '2012-03'=151;
                '2012-04'=152;
                '2012-05'=153;
                '2012-06'=154;
                '2012-07'=155;
                '2012-08'=156;
                '2012-09'=157;NA=145")

### definizione punti di stop##

#costruisco variabile per cmbio di lavoro## la variabile cambia dopo qialche anno, nel primo periodo sono più di una ma nelle altre non c'è mai cambio di lavoro (hai contollato). non c'è 99#
cloni1$cambioW00 <- recode(cloni1$P00L36,"'change of job'=1; else=0")
cloni1$cambioW01 <- recode(cloni1$P01L36,"'change of job'=1; else=0")
cloni1$cambioW02 <- recode(cloni1$P02L36,"'change of job'=1; else=0")
cloni1$cambioW03 <- recode(cloni1$P03L36,"'change of job'=1; else=0")
cloni1$cambioW04 <- recode(cloni1$P04L91,"'change of job'=1; else=0")
cloni1$cambioW05 <- recode(cloni1$P05L91,"'change of job'=1; else=0")
cloni1$cambioW06 <- recode(cloni1$P06L91,"'change of job'=1; else=0")
cloni1$cambioW07 <- recode(cloni1$P07L91,"'change of job'=1; else=0")
cloni1$cambioW08 <- recode(cloni1$P08L91,"'change of job'=1; else=0")
cloni1$cambioW09 <- recode(cloni1$P09L91,"'change of job'=1; else=0")
cloni1$cambioW10 <- recode(cloni1$P10L91,"'change of job'=1; else=0")
cloni1$cambioW11 <- recode(cloni1$P11L91,"'change of job'=1; else=0")
```

```
cloni1$cambioW00 <-
4+(as.integer(cloni1$P00L37)*(as.integer(cloni1$cambioW00)-1))
cloni1$cambioW01 <-
16+(as.integer(cloni1$P01L37)*(as.integer(cloni1$cambioW01)-1))
cloni1$cambioW02 <-
28+(as.integer(cloni1$P02L37)*(as.integer(cloni1$cambioW02)-1))
cloni1$cambioW03 <-
40+(as.integer(cloni1$P03L37)*(as.integer(cloni1$cambioW03)-1))
cloni1$cambioW04 <-
52+(as.integer(cloni1$P04L92)*(as.integer(cloni1$cambioW04)-1))
cloni1$cambioW05 <-
64+(as.integer(cloni1$P05L92)*(as.integer(cloni1$cambioW05)-1))
cloni1$cambioW06 <-
76+(as.integer(cloni1$P06L92)*(as.integer(cloni1$cambioW06)-1))
cloni1$cambioW07 <-
88+(as.integer(cloni1$P07L92)*(as.integer(cloni1$cambioW07)-1))
cloni1$cambioW08 <-
100+(as.integer(cloni1$P08L92)*(as.integer(cloni1$cambioW08)-1))
cloni1$cambioW09 <-
112+(as.integer(cloni1$P09L92)*(as.integer(cloni1$cambioW09)-1))
cloni1$cambioW10 <-
124+(as.integer(cloni1$P10L92)*(as.integer(cloni1$cambioW10)-1))
cloni1$cambioW11 <-
136+(as.integer(cloni1$P11L92)*(as.integer(cloni1$cambioW11)-1))

cloni1$cambioW00 <- recode(cloni1$cambioW00,"4=NA")
cloni1$cambioW01 <- recode(cloni1$cambioW01,"16=NA")
cloni1$cambioW02 <- recode(cloni1$cambioW02,"28=NA")
cloni1$cambioW03 <- recode(cloni1$cambioW03,"40=NA")
cloni1$cambioW04 <- recode(cloni1$cambioW04,"52=NA")
cloni1$cambioW05 <- recode(cloni1$cambioW05,"64=NA")
cloni1$cambioW06 <- recode(cloni1$cambioW06,"76=NA")
cloni1$cambioW07 <- recode(cloni1$cambioW07,"88=NA")
cloni1$cambioW08 <- recode(cloni1$cambioW08,"100=NA")
cloni1$cambioW09 <- recode(cloni1$cambioW09,"112=NA")
cloni1$cambioW10 <- recode(cloni1$cambioW10,"124=NA")
cloni1$cambioW11 <- recode(cloni1$cambioW11,"136=NA")


###definizioni stop in avanti
```

```
#2000 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell99[i]
  b <- 6069 + cloni1$spell00[i]
  appoggio <- seqdef (cloni1[,a:b])
  cloni1$APPunemployment00[i] <-  (cloni1$spell99[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1$APPinactive00[i] <- (cloni1$spell99[i]-1) + (seqfpos (appoggio,"inactive")[i])
  cloni1$APPuneOinactive00[i] <- (cloni1$spell99[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$stop00[i] <- min
(cloni1$APPunemployment00[i],cloni1$APPinactive00[i],cloni1$APPuneOinactive00[
i],cloni1$cambioW00[i],na.rm = T)
}
cloni1$dist00 <- round(cloni1$spell99+((cloni1$spell00-cloni1$spell99)/2), digits = 0)
cloni1$stop00 <- ifelse (cloni1$stop00==Inf, cloni1$dist00,cloni1$stop00)

#2001 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell00[i]
  b <- 6069 + cloni1$spell01[i]
  appoggio <- seqdef (cloni1[,a:b])
  cloni1$APPunemployment01[i] <-  (cloni1$spell00[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1$APPinactive01[i] <- (cloni1$spell00[i]-1) + (seqfpos (appoggio,"inactive")[i])
  cloni1$APPuneOinactive01[i] <- (cloni1$spell00[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$stop01[i] <- min
(cloni1$APPunemployment01[i],cloni1$APPinactive01[i],cloni1$APPuneOinactive01[
i],cloni1$cambioW01[i],na.rm = T)
}
cloni1$dist01 <- round(cloni1$spell00+((cloni1$spell01-cloni1$spell00)/2), digits = 0)
cloni1$stop01 <- ifelse (cloni1$stop01==Inf, cloni1$dist01,cloni1$stop01)
```

```
#2002 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell01[i]
  b <- 6069 + cloni1$spell02[i]
  appoggio <- seqdef (cloni1[,a:b])
  cloni1$APPunemployment02[i] <-  (cloni1$spell01[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1$APPinactive02[i] <- (cloni1$spell01[i]-1) + (seqfpos (appoggio,"inactive")[i])
  cloni1$APPuneOinactive02[i] <- (cloni1$spell01[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$stop02[i] <- min
(cloni1$APPunemployment02[i],cloni1$APPinactive02[i],cloni1$APPuneOinactive02[
i],cloni1$cambioW02[i],na.rm = T)
}
cloni1$dist02 <- round(cloni1$spell01+((cloni1$spell02-cloni1$spell01)/2), digits = 0)
cloni1$stop02 <- ifelse (cloni1$stop02==Inf, cloni1$dist02,cloni1$stop02)

#2003 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell02[i]
  b <- 6069 + cloni1$spell03[i]
  appoggio <- seqdef (cloni1[,a:b])
  cloni1$APPunemployment03[i] <-  (cloni1$spell02[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1$APPinactive03[i] <- (cloni1$spell02[i]-1) + (seqfpos (appoggio,"inactive")[i])
  cloni1$APPuneOinactive03[i] <- (cloni1$spell02[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$stop03[i] <- min
(cloni1$APPunemployment03[i],cloni1$APPinactive03[i],cloni1$APPuneOinactive03[
i],cloni1$cambioW03[i],na.rm = T)
}
cloni1$dist03 <- round(cloni1$spell02+((cloni1$spell03-cloni1$spell02)/2), digits = 0)
cloni1$stop03 <- ifelse (cloni1$stop03==Inf, cloni1$dist03,cloni1$stop03)

#2004 (da 2000 a 2012)
```

```
for (i in 1:532){
  a <- 6069 + cloni1$spell03[i]
  b <- 6069 + cloni1$spell04[i]
  appoggio <- seqdef (cloni1[,a:b])
  cloni1$APPunemployment04[i] <-  (cloni1$spell03[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1$APPinactive04[i] <- (cloni1$spell03[i]-1) + (seqfpos (appoggio,"inactive")[i])
  cloni1$APPuneOinactive04[i] <- (cloni1$spell03[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$stop04[i] <- min
(cloni1$APPunemployment04[i],cloni1$APPinactive04[i],cloni1$APPuneOinactive04[
i],cloni1$cambioW04[i],na.rm = T)
}
cloni1$dist04 <- round(cloni1$spell03+((cloni1$spell04-cloni1$spell03)/2), digits = 0)
cloni1$stop04 <- ifelse (cloni1$stop04==Inf, cloni1$dist04,cloni1$stop04)

#2005 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell04[i]
  b <- 6069 + cloni1$spell05[i]
  appoggio <- seqdef (cloni1[,a:b])
  cloni1$APPunemployment05[i] <-  (cloni1$spell04[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1$APPinactive05[i] <- (cloni1$spell04[i]-1) + (seqfpos (appoggio,"inactive")[i])
  cloni1$APPuneOinactive05[i] <- (cloni1$spell04[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$stop05[i] <- min
(cloni1$APPunemployment05[i],cloni1$APPinactive05[i],cloni1$APPuneOinactive05[
i],cloni1$cambioW05[i],na.rm = T)
}
cloni1$dist05 <- round(cloni1$spell04+((cloni1$spell05-cloni1$spell04)/2), digits = 0)
cloni1$stop05 <- ifelse (cloni1$stop05==Inf, cloni1$dist05,cloni1$stop05)

#2006 (da 2000 a 2012)
for (i in 1:532){
```

```
  a <- 6069 + cloni1$spell05[i]
  b <- 6069 + cloni1$spell06[i]
  appoggio <- seqdef (cloni1[,a:b])
  cloni1$APPunemployment06[i] <-  (cloni1$spell05[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1$APPinactive06[i] <- (cloni1$spell05[i]-1) + (seqfpos (appoggio,"inactive")[i])
  cloni1$APPuneOinactive06[i] <- (cloni1$spell05[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$stop06[i] <- min
(cloni1$APPunemployment06[i],cloni1$APPinactive06[i],cloni1$APPuneOinactive06[
i],cloni1$cambioW06[i],na.rm = T)
}
cloni1$dist06 <- round(cloni1$spell05+((cloni1$spell06-cloni1$spell05)/2), digits = 0)
cloni1$stop06 <- ifelse (cloni1$stop06==Inf, cloni1$dist06,cloni1$stop06)

#2007 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell06[i]
  b <- 6069 + cloni1$spell07[i]
  appoggio <- seqdef (cloni1[,a:b])
  cloni1$APPunemployment07[i] <-  (cloni1$spell06[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1$APPinactive07[i] <- (cloni1$spell06[i]-1) + (seqfpos (appoggio,"inactive")[i])
  cloni1$APPuneOinactive07[i] <- (cloni1$spell06[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$stop07[i] <- min
(cloni1$APPunemployment07[i],cloni1$APPinactive07[i],cloni1$APPuneOinactive07[
i],cloni1$cambioW07[i],na.rm = T)
}
cloni1$dist07 <- round(cloni1$spell06+((cloni1$spell07-cloni1$spell06)/2), digits = 0)
cloni1$stop07 <- ifelse (cloni1$stop07==Inf, cloni1$dist07,cloni1$stop07)

#2008 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell07[i]
```

```
  b <- 6069 + cloni1$spell08[i]
  appoggio <- seqdef (cloni1[,a:b])
  cloni1$APPunemployment08[i] <-  (cloni1$spell07[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1$APPinactive08[i] <- (cloni1$spell07[i]-1) + (seqfpos (appoggio,"inactive")[i])
  cloni1$APPuneOinactive08[i] <- (cloni1$spell07[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$stop08[i] <- min
(cloni1$APPunemployment08[i],cloni1$APPinactive08[i],cloni1$APPuneOinactive08[
i],cloni1$cambioW08[i],na.rm = T)
}
cloni1$dist08 <- round(cloni1$spell07+((cloni1$spell08-cloni1$spell07)/2), digits = 0)
cloni1$stop08 <- ifelse (cloni1$stop08==Inf, cloni1$dist08,cloni1$stop08)

#2009 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell08[i]
  b <- 6069 + cloni1$spell09[i]
  appoggio <- seqdef (cloni1[,a:b])
  cloni1$APPunemployment09[i] <-  (cloni1$spell08[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1$APPinactive09[i] <- (cloni1$spell08[i]-1) + (seqfpos (appoggio,"inactive")[i])
  cloni1$APPuneOinactive09[i] <- (cloni1$spell08[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$stop09[i] <- min
(cloni1$APPunemployment09[i],cloni1$APPinactive09[i],cloni1$APPuneOinactive09[
i],cloni1$cambioW09[i],na.rm = T)
}
cloni1$dist09 <- round(cloni1$spell08+((cloni1$spell09-cloni1$spell08)/2), digits = 0)
cloni1$stop09 <- ifelse (cloni1$stop09==Inf, cloni1$dist09,cloni1$stop09)

#2010 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell09[i]
  b <- 6069 + cloni1$spell10[i]
```

```
  appoggio <- seqdef (cloni1[,a:b])
  cloni1$APPunemployment10[i] <-  (cloni1$spell09[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1$APPinactive10[i] <- (cloni1$spell09[i]-1) + (seqfpos (appoggio,"inactive")[i])
  cloni1$APPuneOinactive10[i] <- (cloni1$spell09[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$stop10[i] <- min
(cloni1$APPunemployment10[i],cloni1$APPinactive10[i],cloni1$APPuneOinactive10[
i],cloni1$cambioW10[i],na.rm = T)
}
cloni1$dist10 <- round(cloni1$spell09+((cloni1$spell10-cloni1$spell09)/2), digits = 0)
cloni1$stop10 <- ifelse (cloni1$stop10==Inf, cloni1$dist10,cloni1$stop10)

#2011 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell10[i]
  b <- 6069 + cloni1$spell11[i]
  appoggio <- seqdef (cloni1[,a:b])
  cloni1$APPunemployment11[i] <-  (cloni1$spell10[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1$APPinactive11[i] <- (cloni1$spell10[i]-1) + (seqfpos (appoggio,"inactive")[i])
  cloni1$APPuneOinactive11[i] <- (cloni1$spell10[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$stop11[i] <- min
(cloni1$APPunemployment11[i],cloni1$APPinactive11[i],cloni1$APPuneOinactive11[
i],cloni1$cambioW11[i],na.rm = T)
}
cloni1$dist11 <- round(cloni1$spell10+((cloni1$spell11-cloni1$spell10)/2), digits = 0)
cloni1$stop11 <- ifelse (cloni1$stop11==Inf, cloni1$dist11,cloni1$stop11)

#2012 (da 2000 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell11[i]
  b <- 6220
  appoggio <- seqdef (cloni1[,a:b])
```

```
  cloni1$APPunemployment12[i] <-  (cloni1$spell11[i]-1) + (seqfpos
(appoggio,"unemployment")[i])
  cloni1$APPinactive12[i] <- (cloni1$spell11[i]-1) + (seqfpos (appoggio,"inactive")[i])
  cloni1$APPuneOinactive12[i] <- (cloni1$spell11[i]-1) + (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$stop12[i] <- min
(cloni1$APPunemployment12[i],cloni1$APPinactive12[i],cloni1$APPuneOinactive12[
i],na.rm = T)
}
cloni1$stop12 <- ifelse (cloni1$stop12==Inf, 151,cloni1$stop12-6)
#in quest utlimo non c'è il workdivision perchè viene dall'intervista 2012 che non c'è


#ricodifica in avanti#
#1999#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell99[i])
  b <- 6069 + as.numeric(cloni1$stop00[i])
  c <- ifelse
(((cloni1$WorkDiv1A99[i]==1)|(cloni1$WorkDiv1A99[i]==2)|(cloni1$WorkDiv1A99[i]
==3)|(cloni1$WorkDiv1A99[i]==4)|(cloni1$WorkDiv1A99[i]==5)|(cloni1$WorkDiv1A
99[i]==6)|(cloni1$WorkDiv1A99[i]==7)|(cloni1$WorkDiv1A99[i]==8)),cloni1$WorkDi
v1A99[i],cloni1[i,j])
  for (j in a:b){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2000#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell00[i])
  b <- 6069 + as.numeric(cloni1$stop01[i])
  c <- ifelse
(((cloni1$WorkDiv1A00[i]==1)|(cloni1$WorkDiv1A00[i]==2)|(cloni1$WorkDiv1A00[i]
==3)|(cloni1$WorkDiv1A00[i]==4)|(cloni1$WorkDiv1A00[i]==5)|(cloni1$WorkDiv1A
00[i]==6)|(cloni1$WorkDiv1A00[i]==7)|(cloni1$WorkDiv1A00[i]==8)),cloni1$WorkDi
v1A00[i],cloni1[i,j])
  for (j in a:b){
```

```
   cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2001#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell01[i])
  b <- 6069 + as.numeric(cloni1$stop02[i])
  c <- ifelse
(((cloni1$WorkDiv1A01[i]==1)|(cloni1$WorkDiv1A01[i]==2)|(cloni1$WorkDiv1A01[i]
==3)|(cloni1$WorkDiv1A01[i]==4)|(cloni1$WorkDiv1A01[i]==5)|(cloni1$WorkDiv1A
01[i]==6)|(cloni1$WorkDiv1A01[i]==7)|(cloni1$WorkDiv1A01[i]==8)),cloni1$WorkDi
v1A01[i],cloni1[i,j])
  for (j in a:b){
   cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2002#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell02[i])
  b <- 6069 + as.numeric(cloni1$stop03[i])
  c <- ifelse
(((cloni1$WorkDiv1A02[i]==1)|(cloni1$WorkDiv1A02[i]==2)|(cloni1$WorkDiv1A02[i]
==3)|(cloni1$WorkDiv1A02[i]==4)|(cloni1$WorkDiv1A02[i]==5)|(cloni1$WorkDiv1A
02[i]==6)|(cloni1$WorkDiv1A02[i]==7)|(cloni1$WorkDiv1A02[i]==8)),cloni1$WorkDi
v1A02[i],cloni1[i,j])
  for (j in a:b){
   cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2003#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell03[i])
  b <- 6069 + as.numeric(cloni1$stop04[i])
  c <- ifelse
(((cloni1$WorkDiv1A03[i]==1)|(cloni1$WorkDiv1A03[i]==2)|(cloni1$WorkDiv1A03[i]
==3)|(cloni1$WorkDiv1A03[i]==4)|(cloni1$WorkDiv1A03[i]==5)|(cloni1$WorkDiv1A
03[i]==6)|(cloni1$WorkDiv1A03[i]==7)|(cloni1$WorkDiv1A03[i]==8)),cloni1$WorkDi
v1A03[i],cloni1[i,j])
```

```
  for (j in a:b){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2004#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell04[i])
  b <- 6069 + as.numeric(cloni1$stop05[i])
  c <- ifelse
(((cloni1$WorkDiv1A04[i]==1)|(cloni1$WorkDiv1A04[i]==2)|(cloni1$WorkDiv1A04[i]
==3)|(cloni1$WorkDiv1A04[i]==4)|(cloni1$WorkDiv1A04[i]==5)|(cloni1$WorkDiv1A
04[i]==6)|(cloni1$WorkDiv1A04[i]==7)|(cloni1$WorkDiv1A04[i]==8)),cloni1$WorkDi
v1A04[i],cloni1[i,j])
  for (j in a:b){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2005#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell05[i])
  b <- 6069 + as.numeric(cloni1$stop06[i])
  c <- ifelse
(((cloni1$WorkDiv1A05[i]==1)|(cloni1$WorkDiv1A05[i]==2)|(cloni1$WorkDiv1A05[i]
==3)|(cloni1$WorkDiv1A05[i]==4)|(cloni1$WorkDiv1A05[i]==5)|(cloni1$WorkDiv1A
05[i]==6)|(cloni1$WorkDiv1A05[i]==7)|(cloni1$WorkDiv1A05[i]==8)),cloni1$WorkDi
v1A05[i],cloni1[i,j])
  for (j in a:b){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2006#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell06[i])
  b <- 6069 + as.numeric(cloni1$stop07[i])
  c <- ifelse
(((cloni1$WorkDiv1A06[i]==1)|(cloni1$WorkDiv1A06[i]==2)|(cloni1$WorkDiv1A06[i]
==3)|(cloni1$WorkDiv1A06[i]==4)|(cloni1$WorkDiv1A06[i]==5)|(cloni1$WorkDiv1A
```

```
06[i]==6)|(cloni1$WorkDiv1A06[i]==7)|(cloni1$WorkDiv1A06[i]==8)),cloni1$WorkDi
v1A06[i],cloni1[i,j])
  for (j in a:b){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2007#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell07[i])
  b <- 6069 + as.numeric(cloni1$stop08[i])
  c <- ifelse
(((cloni1$WorkDiv1A07[i]==1)|(cloni1$WorkDiv1A07[i]==2)|(cloni1$WorkDiv1A07[i]
==3)|(cloni1$WorkDiv1A07[i]==4)|(cloni1$WorkDiv1A07[i]==5)|(cloni1$WorkDiv1A
07[i]==6)|(cloni1$WorkDiv1A07[i]==7)|(cloni1$WorkDiv1A07[i]==8)),cloni1$WorkDi
v1A07[i],cloni1[i,j])
  for (j in a:b){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2008#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell08[i])
  b <- 6069 + as.numeric(cloni1$stop09[i])
  c <- ifelse
(((cloni1$WorkDiv1A08[i]==1)|(cloni1$WorkDiv1A08[i]==2)|(cloni1$WorkDiv1A08[i]
==3)|(cloni1$WorkDiv1A08[i]==4)|(cloni1$WorkDiv1A08[i]==5)|(cloni1$WorkDiv1A
08[i]==6)|(cloni1$WorkDiv1A08[i]==7)|(cloni1$WorkDiv1A08[i]==8)),cloni1$WorkDi
v1A08[i],cloni1[i,j])
  for (j in a:b){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2009#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell09[i])
  b <- 6069 + as.numeric(cloni1$stop10[i])
  c <- ifelse
(((cloni1$WorkDiv1A09[i]==1)|(cloni1$WorkDiv1A09[i]==2)|(cloni1$WorkDiv1A09[i]
```

```
==3)|(cloni1$WorkDiv1A09[i]==4)|(cloni1$WorkDiv1A09[i]==5)|(cloni1$WorkDiv1A
09[i]==6)|(cloni1$WorkDiv1A09[i]==7)|(cloni1$WorkDiv1A09[i]==8)),cloni1$WorkDi
v1A09[i],cloni1[i,j])
  for (j in a:b){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2010#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell10[i])
  b <- 6069 + as.numeric(cloni1$stop11[i])
  c <- ifelse
(((cloni1$WorkDiv1A10[i]==1)|(cloni1$WorkDiv1A10[i]==2)|(cloni1$WorkDiv1A10[i]
==3)|(cloni1$WorkDiv1A10[i]==4)|(cloni1$WorkDiv1A10[i]==5)|(cloni1$WorkDiv1A
10[i]==6)|(cloni1$WorkDiv1A10[i]==7)|(cloni1$WorkDiv1A10[i]==8)),cloni1$WorkDi
v1A10[i],cloni1[i,j])
  for (j in a:b){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2011#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell11[i])
  b <- 6069 + as.numeric(cloni1$stop12[i])
  c <- ifelse
(((cloni1$WorkDiv1A11[i]==1)|(cloni1$WorkDiv1A11[i]==2)|(cloni1$WorkDiv1A11[i]
==3)|(cloni1$WorkDiv1A11[i]==4)|(cloni1$WorkDiv1A11[i]==5)|(cloni1$WorkDiv1A
11[i]==6)|(cloni1$WorkDiv1A11[i]==7)|(cloni1$WorkDiv1A11[i]==8)),cloni1$WorkDi
v1A11[i],cloni1[i,j])
  for (j in a:b){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#recupero quelli che non hanno indicato il tipo di lavoro (1)

for (i in 1:532){
  for (j in 1:151){
    a <- 6069 + j
```

```
   b <- 5670 + j
   cloni1[,a] <- recode(cloni1[,a],"NA=100")
   c <- as.character(cloni1[i,b])
   cloni1[i,a] <- ifelse (cloni1[i,a]==100, c, cloni1[i,a])
   cloni1[,a] <- recode(cloni1[,a],"100=NA")
  }}


##definizione intervalli retrostop

#1999 (da 1999 a 2012)
for (i in 1:532){
  a <- 6070
  b <- 6069 + cloni1$spell99[i]
  appoggio <- seqdef (cloni1[,b:a])
  cloni1$retroAPPunemployment99[i] <-  (cloni1$spell99[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1$retroAPPinactive99[i] <- (cloni1$spell99[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1$retroAPPuneOinactive99[i] <- (cloni1$spell99[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$retrostop99[i] <- max
(cloni1$retroAPPunemployment99[i],cloni1$retroAPPinactive99[i],cloni1$retroAPPu
neOinactive99[i],cloni1$cambioW99[i],na.rm = T)
}
cloni1$retrostop99 <- ifelse (cloni1$retrostop99== -Inf,1,cloni1$retrostop99)


#2000 (da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell99[i]
  b <- 6069 + cloni1$spell00[i]
  appoggio <- seqdef (cloni1[,b:a])
  cloni1$retroAPPunemployment00[i] <-  (cloni1$spell00[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1$retroAPPinactive00[i] <- (cloni1$spell00[i]+1) - (seqfpos
(appoggio,"inactive")[i])
```

```
  cloni1$retroAPPuneOinactive00[i] <- (cloni1$spell00[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$retrostop00[i] <- max
(cloni1$retroAPPunemployment00[i],cloni1$retroAPPinactive00[i],cloni1$retroAPPu
neOinactive00[i],cloni1$cambioW00[i],na.rm = T)
}
cloni1$retrostop00 <- ifelse (cloni1$retrostop00== -
Inf,cloni1$dist00,cloni1$retrostop00)

#2001 (da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell00[i]
  b <- 6069 + cloni1$spell01[i]
  appoggio <- seqdef (cloni1[,b:a])
  cloni1$retroAPPunemployment01[i] <-  (cloni1$spell01[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1$retroAPPinactive01[i] <- (cloni1$spell01[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1$retroAPPuneOinactive01[i] <- (cloni1$spell01[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$retrostop01[i] <- max
(cloni1$retroAPPunemployment01[i],cloni1$retroAPPinactive01[i],cloni1$retroAPPu
neOinactive01[i],cloni1$cambioW01[i],na.rm = T)
}
cloni1$retrostop01 <- ifelse (cloni1$retrostop01== -
Inf,cloni1$dist01,cloni1$retrostop01)

#2002(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell01[i]
  b <- 6069 + cloni1$spell02[i]
  appoggio <- seqdef (cloni1[,b:a])
  cloni1$retroAPPunemployment02[i] <-  (cloni1$spell02[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
```

```
  cloni1$retroAPPinactive02[i] <- (cloni1$spell02[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1$retroAPPuneOinactive02[i] <- (cloni1$spell02[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$retrostop02[i] <- max
(cloni1$retroAPPunemployment02[i],cloni1$retroAPPinactive02[i],cloni1$retroAPPu
neOinactive02[i],cloni1$cambioW02[i],na.rm = T)
}
cloni1$retrostop02 <- ifelse (cloni1$retrostop02== -
Inf,cloni1$dist02,cloni1$retrostop02)

#2003(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell02[i]
  b <- 6069 + cloni1$spell03[i]
  appoggio <- seqdef (cloni1[,b:a])
  cloni1$retroAPPunemployment03[i] <-  (cloni1$spell03[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1$retroAPPinactive03[i] <- (cloni1$spell03[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1$retroAPPuneOinactive03[i] <- (cloni1$spell03[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$retrostop03[i] <- max
(cloni1$retroAPPunemployment03[i],cloni1$retroAPPinactive03[i],cloni1$retroAPPu
neOinactive03[i],cloni1$cambioW03[i],na.rm = T)
}
cloni1$retrostop03 <- ifelse (cloni1$retrostop03== -
Inf,cloni1$dist03,cloni1$retrostop03)

#2004(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell03[i]
  b <- 6069 + cloni1$spell04[i]
  appoggio <- seqdef (cloni1[,b:a])
```

```
  cloni1$retroAPPunemployment04[i] <-  (cloni1$spell04[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1$retroAPPinactive04[i] <- (cloni1$spell04[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1$retroAPPuneOinactive04[i] <- (cloni1$spell04[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$retrostop04[i] <- max
(cloni1$retroAPPunemployment04[i],cloni1$retroAPPinactive04[i],cloni1$retroAPPu
neOinactive04[i],cloni1$cambioW04[i],na.rm = T)
}
cloni1$retrostop04 <- ifelse (cloni1$retrostop04== -
Inf,cloni1$dist04,cloni1$retrostop04)

#2005(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell04[i]
  b <- 6069 + cloni1$spell05[i]
  appoggio <- seqdef (cloni1[,b:a])
  cloni1$retroAPPunemployment05[i] <-  (cloni1$spell05[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1$retroAPPinactive05[i] <- (cloni1$spell05[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1$retroAPPuneOinactive05[i] <- (cloni1$spell05[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$retrostop05[i] <- max
(cloni1$retroAPPunemployment05[i],cloni1$retroAPPinactive05[i],cloni1$retroAPPu
neOinactive05[i],cloni1$cambioW05[i],na.rm = T)
}
cloni1$retrostop05 <- ifelse (cloni1$retrostop05== -
Inf,cloni1$dist05,cloni1$retrostop05)

#2006(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell05[i]
  b <- 6069 + cloni1$spell06[i]
```

```
  appoggio <- seqdef (cloni1[,b:a])
  cloni1$retroAPPunemployment06[i] <-  (cloni1$spell06[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1$retroAPPinactive06[i] <- (cloni1$spell06[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1$retroAPPuneOinactive06[i] <- (cloni1$spell06[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$retrostop06[i] <- max
(cloni1$retroAPPunemployment06[i],cloni1$retroAPPinactive06[i],cloni1$retroAPPu
neOinactive06[i],cloni1$cambioW06[i],na.rm = T)
}
cloni1$retrostop06 <- ifelse (cloni1$retrostop06== -
Inf,cloni1$dist06,cloni1$retrostop06)

#2007(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell06[i]
  b <- 6069 + cloni1$spell07[i]
  appoggio <- seqdef (cloni1[,b:a])
  cloni1$retroAPPunemployment07[i] <-  (cloni1$spell07[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1$retroAPPinactive07[i] <- (cloni1$spell07[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1$retroAPPuneOinactive07[i] <- (cloni1$spell07[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$retrostop07[i] <- max
(cloni1$retroAPPunemployment07[i],cloni1$retroAPPinactive07[i],cloni1$retroAPPu
neOinactive07[i],cloni1$cambioW07[i],na.rm = T)
}
cloni1$retrostop07 <- ifelse (cloni1$retrostop07== -
Inf,cloni1$dist07,cloni1$retrostop07)

#2008(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell07[i]
```

```
  b <- 6069 + cloni1$spell08[i]
  appoggio <- seqdef (cloni1[,b:a])
  cloni1$retroAPPunemployment08[i] <-  (cloni1$spell08[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1$retroAPPinactive08[i] <- (cloni1$spell08[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1$retroAPPuneOinactive08[i] <- (cloni1$spell08[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$retrostop08[i] <- max
(cloni1$retroAPPunemployment08[i],cloni1$retroAPPinactive08[i],cloni1$retroAPPu
neOinactive08[i],cloni1$cambioW08[i],na.rm = T)
}
cloni1$retrostop08 <- ifelse (cloni1$retrostop08== -
Inf,cloni1$dist08,cloni1$retrostop08)

#2009(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell08[i]
  b <- 6069 + cloni1$spell09[i]
  appoggio <- seqdef (cloni1[,b:a])
  cloni1$retroAPPunemployment09[i] <-  (cloni1$spell09[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1$retroAPPinactive09[i] <- (cloni1$spell09[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1$retroAPPuneOinactive09[i] <- (cloni1$spell09[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$retrostop09[i] <- max
(cloni1$retroAPPunemployment09[i],cloni1$retroAPPinactive09[i],cloni1$retroAPPu
neOinactive09[i],cloni1$cambioW09[i],na.rm = T)
}
cloni1$retrostop09 <- ifelse (cloni1$retrostop09== -
Inf,cloni1$dist09,cloni1$retrostop09)

#2010(da 1999 a 2012)
for (i in 1:532){
```

```
  a <- 6069 + cloni1$spell09[i]
  b <- 6069 + cloni1$spell10[i]
  appoggio <- seqdef (cloni1[,b:a])
  cloni1$retroAPPunemployment10[i] <-  (cloni1$spell10[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1$retroAPPinactive10[i] <- (cloni1$spell10[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1$retroAPPuneOinactive10[i] <- (cloni1$spell10[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$retrostop10[i] <- max
(cloni1$retroAPPunemployment10[i],cloni1$retroAPPinactive10[i],cloni1$retroAPPu
neOinactive10[i],cloni1$cambioW10[i],na.rm = T)
}
cloni1$retrostop10 <- ifelse (cloni1$retrostop10== -
Inf,cloni1$dist10,cloni1$retrostop10)

#2011(da 1999 a 2012)
for (i in 1:532){
  a <- 6069 + cloni1$spell10[i]
  b <- 6069 + cloni1$spell11[i]
  appoggio <- seqdef (cloni1[,b:a])
  cloni1$retroAPPunemployment11[i] <-  (cloni1$spell11[i]+1) - (seqfpos
(appoggio,"unemployment")[i])
  cloni1$retroAPPinactive11[i] <- (cloni1$spell11[i]+1) - (seqfpos
(appoggio,"inactive")[i])
  cloni1$retroAPPuneOinactive11[i] <- (cloni1$spell11[i]+1) - (seqfpos
(appoggio,"unemployed or inactive")[i])
}

for (i in 1:532){
  cloni1$retrostop11[i] <- max
(cloni1$retroAPPunemployment11[i],cloni1$retroAPPinactive11[i],cloni1$retroAPPu
neOinactive11[i],cloni1$cambioW11[i],na.rm = T)
}
cloni1$retrostop11 <- ifelse (cloni1$retrostop11== -
Inf,cloni1$dist11,cloni1$retrostop11)
```

```
#2012(da 1999 a 2012) ####non serve#
#for (i in 1:532){
# a <- 6069 + cloni1$spell11[i]
#b <- 6220
#appoggio <- seqdef (cloni1[,b:a])
#cloni1$retroAPPunemployment12[i] <-  (151) - (seqfpos
(appoggio,"unemployment")[i])
#cloni1$retroAPPinactive12[i] <- (151) - (seqfpos (appoggio,"inactive")[i])
#cloni1$retroAPPuneOinactive12[i] <- (151) - (seqfpos (appoggio,"unemployed or
inactive")[i])
#}

#for (i in 1:532){
# cloni1$retrostop12[i] <- min
(cloni1$retroAPPunemployment12[i],cloni1$retroAPPinactive12[i],cloni1$retroAPPu
neOinactive12[i],na.rm = T)
#}
#cloni1$retrostop12 <- ifelse (cloni1$retrostop12== -
Inf,cloni1$dist12,cloni1$retrostop12)


######

#ricodifica indietro#
#1999#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell99[i])
  b <- 6069 + as.numeric(cloni1$retrostop99[i])
  c <- ifelse
(((cloni1$WorkDiv1A99[i]==1)|(cloni1$WorkDiv1A99[i]==2)|(cloni1$WorkDiv1A99[i]
==3)|(cloni1$WorkDiv1A99[i]==4)|(cloni1$WorkDiv1A99[i]==5)|(cloni1$WorkDiv1A
99[i]==6)|(cloni1$WorkDiv1A99[i]==7)|(cloni1$WorkDiv1A99[i]==8)),cloni1$WorkDi
v1A99[i],cloni1[i,j])
  for (j in a:b){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2000#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell00[i])
```

```
  b <- 6069 + as.numeric(cloni1$retrostop00[i])
  c <- ifelse
(((cloni1$WorkDiv1A00[i]==1)|(cloni1$WorkDiv1A00[i]==2)|(cloni1$WorkDiv1A00[i]
==3)|(cloni1$WorkDiv1A00[i]==4)|(cloni1$WorkDiv1A00[i]==5)|(cloni1$WorkDiv1A
00[i]==6)|(cloni1$WorkDiv1A00[i]==7)|(cloni1$WorkDiv1A00[i]==8)),cloni1$WorkDi
v1A00[i],cloni1[i,j])
  for (j in b:a){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2001#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell01[i])
  b <- 6069 + as.numeric(cloni1$retrostop01[i])
  c <- ifelse
(((cloni1$WorkDiv1A01[i]==1)|(cloni1$WorkDiv1A01[i]==2)|(cloni1$WorkDiv1A01[i]
==3)|(cloni1$WorkDiv1A01[i]==4)|(cloni1$WorkDiv1A01[i]==5)|(cloni1$WorkDiv1A
01[i]==6)|(cloni1$WorkDiv1A01[i]==7)|(cloni1$WorkDiv1A01[i]==8)),cloni1$WorkDi
v1A01[i],cloni1[i,j])
  for (j in b:a){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2002#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell02[i])
  b <- 6069 + as.numeric(cloni1$retrostop02[i])
  c <- ifelse
(((cloni1$WorkDiv1A02[i]==1)|(cloni1$WorkDiv1A02[i]==2)|(cloni1$WorkDiv1A02[i]
==3)|(cloni1$WorkDiv1A02[i]==4)|(cloni1$WorkDiv1A02[i]==5)|(cloni1$WorkDiv1A
02[i]==6)|(cloni1$WorkDiv1A02[i]==7)|(cloni1$WorkDiv1A02[i]==8)),cloni1$WorkDi
v1A02[i],cloni1[i,j])
  for (j in b:a){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2003#
for (i in 1:532){
```

```
  a <- 6069 + as.numeric(cloni1$spell03[i])
  b <- 6069 + as.numeric(cloni1$retrostop03[i])
  c <- ifelse
(((cloni1$WorkDiv1A03[i]==1)|(cloni1$WorkDiv1A03[i]==2)|(cloni1$WorkDiv1A03[i]
==3)|(cloni1$WorkDiv1A03[i]==4)|(cloni1$WorkDiv1A03[i]==5)|(cloni1$WorkDiv1A
03[i]==6)|(cloni1$WorkDiv1A03[i]==7)|(cloni1$WorkDiv1A03[i]==8)),cloni1$WorkDi
v1A03[i],cloni1[i,j])
  for (j in b:a){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2004#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell04[i])
  b <- 6069 + as.numeric(cloni1$retrostop04[i])
  c <- ifelse
(((cloni1$WorkDiv1A04[i]==1)|(cloni1$WorkDiv1A04[i]==2)|(cloni1$WorkDiv1A04[i]
==3)|(cloni1$WorkDiv1A04[i]==4)|(cloni1$WorkDiv1A04[i]==5)|(cloni1$WorkDiv1A
04[i]==6)|(cloni1$WorkDiv1A04[i]==7)|(cloni1$WorkDiv1A04[i]==8)),cloni1$WorkDi
v1A04[i],cloni1[i,j])
  for (j in b:a){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2005#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell05[i])
  b <- 6069 + as.numeric(cloni1$retrostop05[i])
  c <- ifelse
(((cloni1$WorkDiv1A05[i]==1)|(cloni1$WorkDiv1A05[i]==2)|(cloni1$WorkDiv1A05[i]
==3)|(cloni1$WorkDiv1A05[i]==4)|(cloni1$WorkDiv1A05[i]==5)|(cloni1$WorkDiv1A
05[i]==6)|(cloni1$WorkDiv1A05[i]==7)|(cloni1$WorkDiv1A05[i]==8)),cloni1$WorkDi
v1A05[i],cloni1[i,j])
  for (j in b:a){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2006#
```

```
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell06[i])
  b <- 6069 + as.numeric(cloni1$retrostop06[i])
  c <- ifelse
(((cloni1$WorkDiv1A06[i]==1)|(cloni1$WorkDiv1A06[i]==2)|(cloni1$WorkDiv1A06[i]
==3)|(cloni1$WorkDiv1A06[i]==4)|(cloni1$WorkDiv1A06[i]==5)|(cloni1$WorkDiv1A
06[i]==6)|(cloni1$WorkDiv1A06[i]==7)|(cloni1$WorkDiv1A06[i]==8)),cloni1$WorkDi
v1A06[i],cloni1[i,j])
  for (j in b:a){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2007#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell07[i])
  b <- 6069 + as.numeric(cloni1$retrostop07[i])
  c <- ifelse
(((cloni1$WorkDiv1A07[i]==1)|(cloni1$WorkDiv1A07[i]==2)|(cloni1$WorkDiv1A07[i]
==3)|(cloni1$WorkDiv1A07[i]==4)|(cloni1$WorkDiv1A07[i]==5)|(cloni1$WorkDiv1A
07[i]==6)|(cloni1$WorkDiv1A07[i]==7)|(cloni1$WorkDiv1A07[i]==8)),cloni1$WorkDi
v1A07[i],cloni1[i,j])
  for (j in b:a){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2008#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell08[i])
  b <- 6069 + as.numeric(cloni1$retrostop08[i])
  c <- ifelse
(((cloni1$WorkDiv1A08[i]==1)|(cloni1$WorkDiv1A08[i]==2)|(cloni1$WorkDiv1A08[i]
==3)|(cloni1$WorkDiv1A08[i]==4)|(cloni1$WorkDiv1A08[i]==5)|(cloni1$WorkDiv1A
08[i]==6)|(cloni1$WorkDiv1A08[i]==7)|(cloni1$WorkDiv1A08[i]==8)),cloni1$WorkDi
v1A08[i],cloni1[i,j])
  for (j in b:a){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}
```

```
#2009#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell09[i])
  b <- 6069 + as.numeric(cloni1$retrostop09[i])
  c <- ifelse
(((cloni1$WorkDiv1A09[i]==1)|(cloni1$WorkDiv1A09[i]==2)|(cloni1$WorkDiv1A09[i]
==3)|(cloni1$WorkDiv1A09[i]==4)|(cloni1$WorkDiv1A09[i]==5)|(cloni1$WorkDiv1A
09[i]==6)|(cloni1$WorkDiv1A09[i]==7)|(cloni1$WorkDiv1A09[i]==8)),cloni1$WorkDi
v1A09[i],cloni1[i,j])
  for (j in b:a){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2010#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell10[i])
  b <- 6069 + as.numeric(cloni1$retrostop10[i])
  c <- ifelse
(((cloni1$WorkDiv1A10[i]==1)|(cloni1$WorkDiv1A10[i]==2)|(cloni1$WorkDiv1A10[i]
==3)|(cloni1$WorkDiv1A10[i]==4)|(cloni1$WorkDiv1A10[i]==5)|(cloni1$WorkDiv1A
10[i]==6)|(cloni1$WorkDiv1A10[i]==7)|(cloni1$WorkDiv1A10[i]==8)),cloni1$WorkDi
v1A10[i],cloni1[i,j])
  for (j in b:a){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}

#2011#
for (i in 1:532){
  a <- 6069 + as.numeric(cloni1$spell11[i])
  b <- 6069 + as.numeric(cloni1$retrostop11[i])
  c <- ifelse
(((cloni1$WorkDiv1A11[i]==1)|(cloni1$WorkDiv1A11[i]==2)|(cloni1$WorkDiv1A11[i]
==3)|(cloni1$WorkDiv1A11[i]==4)|(cloni1$WorkDiv1A11[i]==5)|(cloni1$WorkDiv1A
11[i]==6)|(cloni1$WorkDiv1A11[i]==7)|(cloni1$WorkDiv1A11[i]==8)),cloni1$WorkDi
v1A11[i],cloni1[i,j])
  for (j in b:a){
    cloni1[i,j] <- ifelse ((cloni1[i,j]=="full-time paid job (37 hours or more per
week)"|cloni1[i,j]=="part-time paid job (1-36 hours per week)"), c,cloni1[i,j])
  }}
```

```
#recupero quelli che non hanno indicato il tipo di lavoro (2)

for (i in 1:532){
  for (j in 1:151){
    a <- 6069 + j
    b <- 5670 + j
    cloni1[,a] <- recode(cloni1[,a],"NA=100")
    c <- as.character(cloni1[i,b])
    cloni1[i,a] <- ifelse (cloni1[i,a]==100, c, cloni1[i,a])
    cloni1[,a] <- recode(cloni1[,a],"100=NA")
  }}

#faccio pesi#
cloni1$peso <- CampioneN48p90mesi$peso


--------


###Dato che i pesi sono fatti sui casi su cui hai valori, mantenendo le proporzioni
con il
###campione e la popolazione di controllo, corregge anche le distorzioni portate dal
drop-off
### logica sperimetale, correzione (simile a) weighting propensity scores#


##creazioni variabili##

#creazione appartenenza cantone. CFR nuova creazione per souci#
cloni1C$yearUn <- CampioneN48p90mesi$yearUn
cloni1C$yearUnPerPesi <- CampioneN48p90mesi$yearUnPerPesi
cloni1C$yearUnPerPesi <- cloni1C$yearUnPerPesi-328

for (i in 1:532){
  a <- cloni1C$yearUnPerPesi[i]
  cloni1C$CANTON[i] <- as.character(cloni1C[i,a])}


for (i in 1:532){
  a <- cloni1C$yearUnPerPesi[i]
```

```
  cloni1C$CANTON2[i] <- as.character(cloni1C[i,a+1])}


for (i in 1:532){
  a <- cloni1C$yearUnPerPesi[i]
  cloni1C$CANTON3[i] <- as.character(cloni1C[i,a+2])}


for (i in 1:532){
  a <- cloni1C$yearUnPerPesi[i]
  cloni1C$CANTON4[i] <- as.character(cloni1C[i,a+3])}


cantonMatrix <- matrix(nrow=532,ncol=4,0)

for (i in 1:532){
  cantonMatrix[i,1] <- as.integer(cloni1C$CANTON[i])
  cantonMatrix[i,2] <- as.integer(cloni1C$CANTON2[i])
  cantonMatrix[i,3] <- as.integer(cloni1C$CANTON3[i])
  cantonMatrix[i,4] <- as.integer(cloni1C$CANTON4[i])
}

cantonMatrix <- recode(cantonMatrix, "NA=0")

for (i in 1:532){
  cloni1C$CANTONmax[i] <- as.numeric(names(which.max(table(cantonMatrix[i,]))))
}

for (i in 1:532){
  cloni1C$CANTONmax[i] <-
ifelse(cloni1C$CANTONmax[i]==0,cloni1C$CANTON[i],cloni1C$CANTONmax[i])
}

cloni1C$CANTONmax <- recode(cloni1C$CANTONmax,"NA=0")

for (i in 1:532){
  cloni1C$CANTONmax[i] <-
ifelse(cloni1C$CANTONmax[i]==0,cloni1C$CANTON2[i],cloni1C$CANTONmax[i])
}

cloni1C$CANTONmax <- recode(cloni1C$CANTONmax,"NA=0")
```

```
for (i in 1:532){
  cloni1C$CANTONmax[i] <-
ifelse(cloni1C$CANTONmax[i]==0,cloni1C$CANTON3[i],cloni1C$CANTONmax[i])
}

cloni1C$CANTONmax <- recode(cloni1C$CANTONmax,"NA=0")


for (i in 1:532){
  cloni1C$CANTONmax[i] <-
ifelse(cloni1C$CANTONmax[i]==0,cloni1C$CANTON4[i],cloni1C$CANTONmax[i])
}

cloni1C$CANTONmax <- recode(cloni1C$CANTONmax,"NA=0")

cloni1C$CANTONmax <- as.numeric(cloni1C$CANTONmax)

# creazione classi età#
cloni1C$ageUn <- as.integer(as.character(cloni1$yearUn))-
as.integer(as.character(cloni1C$BIRTHY.x))
cloni1C$classEtaPerPesi <- recode (cloni1C$ageUn,
"10=NA;11=NA;12=NA;13=NA;14=NA;c(15,16,17,18,19)='<19';
c(20,21,22,23,24)='20-24';c(25,26,27,28,29)='25-29';c(30,31,32,33,34)='30-
34';c(35,36,37,38,39)='35-39';c(40,41,42,43,44)='40-44';c(45,46,47,48,49)='45-
49';c(50,51,52,53,54)='50-54';c(55,56,57,58,59)='55-59';c(60,61,62,63,64)='60-
64';c(65,66,67,68,69)='65-69';c(70,71,72,73,74)='70-74';c(75,76,77,78,79)='>74'")

#creazione variabile stato civile#

which(names(cloni1C)=="CIVSTA99")
which(names(cloni1C)=="CIVSTA00")
which(names(cloni1C)=="CIVSTA01")
which(names(cloni1C)=="CIVSTA02")
which(names(cloni1C)=="CIVSTA03")
which(names(cloni1C)=="CIVSTA04")
which(names(cloni1C)=="CIVSTA05")
which(names(cloni1C)=="CIVSTA06")
which(names(cloni1C)=="CIVSTA07")
which(names(cloni1C)=="CIVSTA08")
which(names(cloni1C)=="CIVSTA09")
```

```
which(names(cloni1C)=="CIVSTA10")
which(names(cloni1C)=="CIVSTA11")

cloni1C$yearUnPerPesiCivsta <- recode(cloni1C$yearUn, "1999=11;
                              2000=436;
                              2001=841;
                              2002=1262;
                              2003=1695;
                              2004=2134;
                              2005=2567;
                              2006=3002;
                              2007=3433;
                              2008=3864;
                              2009=4291;
                              2010=4717;
                              2011=5190;
                              2012=NA")

#recupero i NA#
for (i in 1:532){
  a <- cloni1C$yearUnPerPesiCivsta[i]
  cloni1C$CIVSTA[i] <- as.character(cloni1C[i,a])}

cloni1C$CIVSTA <- recode(cloni1C$CIVSTA,"NA=0")

for (i in 1:532){
  cloni1C$CIVSTA[i] <-
ifelse(cloni1C$CIVSTA[i]==0,as.character(cloni1C$CIVSTA11[i]),cloni1C$CIVSTA[i])
}
cloni1C$CIVSTA <- recode(cloni1C$CIVSTA,"NA=0")

for (i in 1:532){
  cloni1C$CIVSTA[i] <-
ifelse(cloni1C$CIVSTA[i]==0,as.character(cloni1C$CIVSTA10[i]),cloni1C$CIVSTA[i])
}
cloni1C$CIVSTA <- recode(cloni1C$CIVSTA,"NA=0")

for (i in 1:532){
  cloni1C$CIVSTA[i] <-
ifelse(cloni1C$CIVSTA[i]==0,as.character(cloni1C$CIVSTA09[i]),cloni1C$CIVSTA[i])
}
```

```
cloni1C$CIVSTA <- recode(cloni1C$CIVSTA,"NA=0")

for (i in 1:532){
  cloni1C$CIVSTA[i] <-
ifelse(cloni1C$CIVSTA[i]==0,as.character(cloni1C$CIVSTA08[i]),cloni1C$CIVSTA[i])
}
cloni1C$CIVSTA <- recode(cloni1C$CIVSTA,"NA=0")

for (i in 1:532){
  cloni1C$CIVSTA[i] <-
ifelse(cloni1C$CIVSTA[i]==0,as.character(cloni1C$CIVSTA07[i]),cloni1C$CIVSTA[i])
}
cloni1C$CIVSTA <- recode(cloni1C$CIVSTA,"NA=0")

for (i in 1:532){
  cloni1C$CIVSTA[i] <-
ifelse(cloni1C$CIVSTA[i]==0,as.character(cloni1C$CIVSTA06[i]),cloni1C$CIVSTA[i])
}
cloni1C$CIVSTA <- recode(cloni1C$CIVSTA,"NA=0")

for (i in 1:532){
  cloni1C$CIVSTA[i] <-
ifelse(cloni1C$CIVSTA[i]==0,as.character(cloni1C$CIVSTA05[i]),cloni1C$CIVSTA[i])
}
cloni1C$CIVSTA <- recode(cloni1C$CIVSTA,"NA=0")


for (i in 1:532){
  cloni1C$CIVSTA[i] <-
ifelse(cloni1C$CIVSTA[i]==0,as.character(cloni1C$CIVSTA04[i]),cloni1C$CIVSTA[i])
}
cloni1C$CIVSTA <- recode(cloni1C$CIVSTA,"NA=0")

for (i in 1:532){
  cloni1C$CIVSTA[i] <-
ifelse(cloni1C$CIVSTA[i]==0,as.character(cloni1C$CIVSTA03[i]),cloni1C$CIVSTA[i])
}
cloni1C$CIVSTA <- recode(cloni1C$CIVSTA,"NA=0")

for (i in 1:532){
```

```
  cloni1C$CIVSTA[i] <-
ifelse(cloni1C$CIVSTA[i]==0,as.character(cloni1C$CIVSTA02[i]),cloni1C$CIVSTA[i])
}
cloni1C$CIVSTA <- recode(cloni1C$CIVSTA,"NA=0")

for (i in 1:532){
  cloni1C$CIVSTA[i] <-
ifelse(cloni1C$CIVSTA[i]==0,as.character(cloni1C$CIVSTA01[i]),cloni1C$CIVSTA[i])
}
cloni1C$CIVSTA <- recode(cloni1C$CIVSTA,"NA=0")

for (i in 1:532){
  cloni1C$CIVSTA[i] <-
ifelse(cloni1C$CIVSTA[i]==0,as.character(cloni1C$CIVSTA00[i]),cloni1C$CIVSTA[i])
}
cloni1C$CIVSTA <- recode(cloni1C$CIVSTA,"NA=0")

for (i in 1:532){
  cloni1C$CIVSTA[i] <-
ifelse(cloni1C$CIVSTA[i]==0,as.character(cloni1C$CIVSTA99[i]),cloni1C$CIVSTA[i])
}


#nationality
cloni1C$yearUn2 <- recode(cloni1C$yearUn, "1999=18;
                          2000=443;
                          2001=848;
                          2002=1269;
                          2003=1704;
                          2004=2141;
                          2005=2574;
                          2006=3009;
                          2007=3440;
                          2008=3871;
                          2009=4299;
                          2010=4725;
                          2011=5198;
                          2012=NA")
i <- 327
for (i in 1:532){
  a <- cloni1C$yearUn2[i]
```

```
  cloni1C$natUn[i] <- as.character(cloni1C[i,a])}

#ricofica binaria della nazionalità (1=CH, 2= altri). Altre divisioni portano a gruppi troppo piccoli#
cloni1C$natUn2Bin <- recode(cloni1C$natUn,
                    "'Benin'=2;
                    'Brasil'=2;
                    'Liechtenstein'=2;
                    'Macedonia (Ex-Republic of Yugoslavia)'=2;
                    'Pakistan'=2;
                    'United Kingdom and territories'=2;
                    'Italy'=2;
                        'Germany'=2;
                        'Cape Verde'=2;
                        'Croatia'=2;
                        'Cuba'=2;
                        'Austria'=2;
                        'Ukraine'=2;
                        'Libanon'=2;
                        'Canada'=2;
                        'Portugual'=2;
                        'Yugoslavia'=2;
                        'Sri Lanka'=2;
                        'Belgium'=2;
                        'France and territories'=2;
                        'Spain and territories'=2;
                        'Slovakia'=2;
                        'Netherlands and territories'=2;
                        'Bosnia-Herzegovina'=2;
                        'Czeck Republic'=2;
                        'India'=2;
                        'Turkey'=2;
                        'Serbia-Montenegro'=2;
                        'Albania'=2;
                        'Switzerland'=1")

#sex#
cloni1C$SEX.y2 <- recode(cloni1C$SEX.y,"-999999=NA")
#creazioni pesi individuali, guarda file excel per calcolo dei pesi#
#metto NA=1 perchè non incidono quando incorcio con quella variabile, perchè tanto è mancante, e non mi distorcono le altre#
```

```
table(cloni1C$CANTONmax)
cloni1C$pesoAree <- recode (cloni1C$CANTONmax, "c(8,23,24)=1.18859863880633;
c(4,7,11,13,18)=0.500805786113816; c(1,5,6)=3.34671108393413;
26=1.2720481965553; c(2,3,9,10,16,17,20)=1.8880579375356;
c(12,14,15,19,22,25)=0.917388487759965; 21=1.14867907647919")
cloni1C$pesoAree <- as.numeric(cloni1C$pesoAree, length =15)
cloni1C$pesoAree <- recode (cloni1C$pesoAree, "0=1")

table(cloni1C$pesoSex)
cloni1C$pesoSex <- as.numeric(cloni1C$SEX.y2)
cloni1C$pesoSex <- recode (cloni1C$pesoSex, "1=1.19103263922014;
2=0.868665060536155")
cloni1C$pesoSex <- as.numeric(cloni1C$pesoSex, length =15)
cloni1C$pesoSex <- recode(cloni1C$pesoSex, "NA=1")

table(cloni1C$classEtaPerPesi)
cloni1C$pesoClassEta <- recode (cloni1C$classEtaPerPesi,
"'<19'=0.88188216497616; '20-24'=0.66609128011846;'25-
29'=0.76617348936167;'30-34'=0.642447384806478;'35-
39'=0.73859246212009;'40-44'=0.81036843806151;'45-49'=0.68387702818028;'50-
54'=0.96539160720074;'55-59'=1.24279747982358;'60-64'=1.82919407439444;'65-
69'=3.96268839525747;'70-74'=1;'>74'=33.370565472122")
cloni1C$pesoClassEta <- as.numeric(cloni1C$pesoClassEta, length =15)
cloni1C$pesoClassEta <- recode(cloni1C$pesoClassEta, "NA=1")

table(cloni1C$natUn2Bin)
cloni1C$pesoNat <- recode (cloni1C$natUn2Bin,
"1=0.916516160294254;2=1.54438420474788")
cloni1C$pesoNat <- as.numeric(cloni1C$pesoNat, length =15)
cloni1C$pesoNat <- recode(cloni1C$pesoNat, "NA=1")

table(cloni1C$CIVSTA)
cloni1C$pesoCivSta <- recode(cloni1C$CIVSTA, "'married'=0.840748591882132;
NA=1; else=1.18870831597782")
cloni1C$pesoCivSta <- as.numeric(cloni1C$pesoCivSta, length =15)
cloni1C$pesoCivSta <- recode(cloni1C$pesoCivSta, "NA=1")

#creazione peso totale#

for (i in 1:532){
```

```
  cloni1C$peso[i] <-
cloni1C$pesoAree[i]*cloni1C$pesoSex[i]*cloni1C$pesoClassEta[i]*cloni1C$pesoNat[i
]*cloni1C$pesoCivSta[i]
}

#portiamo a 1 il minimo#

minpeso <- min(cloni1C$peso, rm.na=T)#0.2153602#

  #teniamo a 1 quelli che sono tutti vuoti (parte 1)#
cloni1C$peso <- recode(cloni1C$peso,"1=-1")
     #si può fare perché (hai controllato) gli 1 sono solo quelli tutti vuoti#


cloni1C$peso <- cloni1C$peso/minpeso

  #teniamo a 1 quelli che sono tutti vuoti (parte 2)#
for (i in 1:532){
cloni1C$peso[i] <- ifelse(cloni1C$peso[i]<0,1,cloni1C$peso[i])
}
summary(cloni1C$peso)
plot(cloni1C$peso)


--------

##########SEQUENZE########

###N 48 mesi 90% ###
##strategia B, tipo lavoro##
#crea sequenza#
library(TraMineR)
library (TraMineRextras)
seq48m90pWC2 <-  seqdef(cloni1[,6070:6220], weights = cloni1$peso)
#allinea su primo mese disoccupazione#
cloni1$pos48m90pWC2 <- CampioneN48p90mesi$pos48m90pWC2
startSeq48m90pAllWC2CLONI <- seqstart(cloni1[, 6070:6220], data.start=1,
new.start=cloni1$pos48m90pWC2,
                              tmax=48)
```

```
Seq48m90pAllWC2CLONI <- seqdef(startSeq48m90pAllWC2CLONI, weights =
cloni1$peso)
cpal(Seq48m90pAllWC2CLONI) <- c("yellow2", "red1", "pink", "brown", "red4",
"green3",  "orange",  "blue3","pink","pink","pink","pink","pink")
Seq48m90pAllWC2CLONI <- seqrecode(Seq48m90pAllWC2CLONI,recodes =
list(inactive = c("unemployed or inactive", "inactive")))
Seq48m90pAllWC2BCLONI <- seqrecode(Seq48m90pAllWC2CLONI,recodes =
list("indefined job"  = c("full-time paid job (37 hours or more per week)", "part-time
paid job (1-36 hours per week)")))
Seq48m90pAllWC2BCLONI <- seqrecode(Seq48m90pAllWC2BCLONI,recodes =
list("1-2-3"  = c("1", "2", "3")))

#sequenze#
seqIplot(Seq48m90pAllWC2BCLONI, sortv="from.start",  cex.legend=0.3, cpal=
c("green","yellow2", "darksalmon", "coral",  "red", "brown1", "brown3", "brown4",
"blue3"))

### matching ###
#matrice distanze (dist=constant)#
dm48m90pWC2BCLONI <- seqdist(Seq48m90pAllWC2BCLONI, method = "OM",
sm="CONSTANT", full.matrix=F,with.missing=TRUE)

###clustering###
#clustering Ward#

dm48m90pWardWC2BCLONI <-  hclust(as.dist(dm48m90pWC2BCLONI), method =
"ward", members = cloni1$peso)

#analisi silouette e HC#
dm48m90pWardWCSilouetteCLONI <- as.clustrange(dm48m90pWardWC2BCLONI,
diss = as.dist(dm48m90pWC2BCLONI),
                                  weights = cloni1$peso, ncluster = 20)
plot(dm48m90pWardWCSilouetteCLONI, stat = c("ASWw", "HC"))

#k=10#
cloni1$dm48m90pWardCut10WC2C <- cutree(dm48m90pWardWC2BCLONI, k=10)
seqIplot(Seq48m90pAllWC2BCLONI, sortv="from.start",  cex.legend=0.75, group=
cloni1$dm48m90pWardCut10WC2C , cpal= c("green","yellow2", "darksalmon",
"coral",  "red", "brown1", "brown3", "brown4", "blue3"))

#PAM#
```

```
#K=10#
dm48m90pPamCut10WC2BCLONI <- wcKMedoids(dm48m90pWC2BCLONI, k = 10,
weights = cloni1$peso,
                                initialclust = cloni1$dm48m90pWardCut10WC2C)
cloni1$dm48m90pPamCut10WC2BCLONI <-
dm48m90pPamCut10WC2BCLONI$clustering
seqIplot(Seq48m90pAllWC2BCLONI, sortv="from.start",  cex.legend=0.4, group=
cloni1$dm48m90pPamCut10WC2BCLONI , cpal= c("pink", "green","yellow2",
"coral", "brown1", "red", "brown4", "grey12", "blue3"))

#correzione cluster (recupero qualche caso da troncati)

cloni1$perCorrezioneCluster <- 0
a <- which(cloni1$dm48m90pPamCut10WC2BCLONI==181)
for (i in a){
  b1 <- as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,1])
  b4 <- as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,4])
  b5 <- as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,5])
  b6 <- as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,6])
  b7 <- as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,7])
  b8 <- as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,8])
  b <- b1 + b4 + b5 + b6 + b7 + b8
  cloni1$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,1])==max(b1,b4,b5,b6,b7,b8
,na.rm = T),1,0)
  cloni1$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,4])==max(b1,b4,b5,b6,b7,b8
,na.rm = T),4,cloni1$perCorrezioneCluster[i])
  cloni1$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,5])==max(b1,b4,b5,b6,b7,b8
,na.rm = T),5,cloni1$perCorrezioneCluster[i])
  cloni1$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,6])==max(b1,b4,b5,b6,b7,b8
,na.rm = T),6,cloni1$perCorrezioneCluster[i])
  cloni1$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,7])==max(b1,b4,b5,b6,b7,b8
,na.rm = T),7,cloni1$perCorrezioneCluster[i])
  cloni1$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,8])==max(b1,b4,b5,b6,b7,b8
,na.rm = T),8,cloni1$perCorrezioneCluster[i])
```

```
  cloni1$perCorrezioneCluster[i] <- ifelse(b>11, cloni1$perCorrezioneCluster[i], 0)
}
table(cloni1$perCorrezioneCluster)

cloni1$dm48m90pPamCut10WC2BCLONIcorr <-
cloni1$dm48m90pPamCut10WC2BCLONI

a <- which(cloni1$perCorrezioneCluster==1)
for (i in a){
  cloni1$dm48m90pPamCut10WC2BCLONIcorr[i] <- 423
}

a <- which(cloni1$perCorrezioneCluster==4)
for (i in a){
  cloni1$dm48m90pPamCut10WC2BCLONIcorr[i] <- 145
}

a <- which(cloni1$perCorrezioneCluster==5)
for (i in a){
  cloni1$dm48m90pPamCut10WC2BCLONIcorr[i] <- 532
}

a <- which(cloni1$perCorrezioneCluster==6)
for (i in a){
  cloni1$dm48m90pPamCut10WC2BCLONIcorr[i] <- 217
}

a <- which(cloni1$perCorrezioneCluster==7)
for (i in a){
  cloni1$dm48m90pPamCut10WC2BCLONIcorr[i] <- 252
}

a <- which(cloni1$perCorrezioneCluster==8)
for (i in a){
  cloni1$dm48m90pPamCut10WC2BCLONIcorr[i] <- 343
}


table(cloni1$dm48m90pPamCut10WC2BCLONIcorr,cloni1$dm48m90pPamCut10WC
2BCLONI)
```

```
#correzione cluster2 (recupero qualche caso da gruppo misto)

cloni1$perCorrezioneCluster2 <- 0
a <- which(cloni1$dm48m90pPamCut10WC2BCLONI==477)
for (i in a){
  b1 <- as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,1])
  b4 <- as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,4])
  b5 <- as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,5])
  b6 <- as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,6])
  b7 <- as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,7])
  b8 <- as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,8])
  b <- b1 + b4 + b5 + b6 + b7 + b8
  cloni1$perCorrezioneCluster2[i] <-
ifelse(as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,1])==max(b1,b4,b5,b6,b7,b8
,na.rm = T),1,0)
  cloni1$perCorrezioneCluster2[i] <-
ifelse(as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,4])==max(b1,b4,b5,b6,b7,b8
,na.rm = T),4,cloni1$perCorrezioneCluster2[i])
  cloni1$perCorrezioneCluster2[i] <-
ifelse(as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,5])==max(b1,b4,b5,b6,b7,b8
,na.rm = T),5,cloni1$perCorrezioneCluster2[i])
  cloni1$perCorrezioneCluster2[i] <-
ifelse(as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,6])==max(b1,b4,b5,b6,b7,b8
,na.rm = T),6,cloni1$perCorrezioneCluster2[i])
  cloni1$perCorrezioneCluster2[i] <-
ifelse(as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,7])==max(b1,b4,b5,b6,b7,b8
,na.rm = T),7,cloni1$perCorrezioneCluster2[i])
  cloni1$perCorrezioneCluster2[i] <-
ifelse(as.integer(seqistatd(Seq48m90pAllWC2BCLONI)[i,8])==max(b1,b4,b5,b6,b7,b8
,na.rm = T),8,cloni1$perCorrezioneCluster2[i])

  cloni1$perCorrezioneCluster2[i] <- ifelse(b>11, cloni1$perCorrezioneCluster2[i], 0)
}
table(cloni1$perCorrezioneCluster2)

cloni1$dm48m90pPamCut10WC2BCLONIcorr2 <-
cloni1$dm48m90pPamCut10WC2BCLONIcorr

a <- which(cloni1$perCorrezioneCluster2==1)
for (i in a){
  cloni1$dm48m90pPamCut10WC2BCLONIcorr2[i] <- 423
```

```
}

a <- which(cloni1$perCorrezioneCluster2==4)
for (i in a){
  cloni1$dm48m90pPamCut10WC2BCLONIcorr2[i] <- 145
}

a <- which(cloni1$perCorrezioneCluster2==5)
for (i in a){
  cloni1$dm48m90pPamCut10WC2BCLONIcorr2[i] <- 532
}

a <- which(cloni1$perCorrezioneCluster2==6)
for (i in a){
  cloni1$dm48m90pPamCut10WC2BCLONIcorr2[i] <- 217
}

a <- which(cloni1$perCorrezioneCluster2==7)
for (i in a){
  cloni1$dm48m90pPamCut10WC2BCLONIcorr2[i] <- 252
}

a <- which(cloni1$perCorrezioneCluster2==8)
for (i in a){
  cloni1$dm48m90pPamCut10WC2BCLONIcorr2[i] <- 343
}


table(cloni1$dm48m90pPamCut10WC2BCLONIcorr2,cloni1$dm48m90pPamCut10W
C2BCLONI)


-------


##########SEQUENZE########

###N 48 mesi 90% ###
##strategia B, tipo lavoro##
#crea sequenza#
library(TraMineR)
```

```
library (TraMineRextras)

#cloni1C$peso <- recode(cloni1C$peso,"NA=1")

#allinea su primo mese disoccupazione#
cloni1C$pos48m90pWC2 <- CampioneN48p90mesi$pos48m90pWC2
startSeqCloni1C <- seqstart(cloni1C[, 6070:6220], data.start=1,
new.start=cloni1C$pos48m90pWC2,
                    tmax=48)

SeqAllCloni1C <- seqdef(startSeqCloni1C, weights = cloni1C$peso)
cpal(SeqAllCloni1C) <- c("yellow2", "red1", "pink", "brown", "red4", "green3",
"orange",  "blue3","pink","pink","pink","pink")

SeqAllCloni1C <- seqrecode(SeqAllCloni1C,recodes = list(inactive = c("unemployed or
inactive", "inactive")))
SeqAllCloni1C <- seqrecode(SeqAllCloni1C,recodes = list("indefined job"  = c("full-
time paid job (37 hours or more per week)", "part-time paid job (1-36 hours per
week)")))
SeqAllCloni1C <- seqrecode(SeqAllCloni1C,recodes = list("1-2-3"  = c("1", "2", "3")))

#sequenze#
seqIplot(SeqAllCloni1C, sortv="from.start",  cex.legend=0.3, cpal= c("yellow2",
"red1", "pink", "brown", "red4", "green3",  "orange",  "blue3"))



-----

#k=8#
cloni1C$dm48m90pWardCut8WC2B2 <- cutree(dm48m90pWardWC2BCLONI, k=8)

#PAM#
#K=8#
dm48m90pPamCut8WC2BCLONI <- wcKMedoids(dm48m90pWC2BCLONI, k = 8,
weights = cloni1C$peso,
                              initialclust = cloni1C$dm48m90pWardCut8WC2B2)
cloni1$dm48m90pPamCut8WC2BCLONI <-
dm48m90pPamCut8WC2BCLONI$clustering
seqIplot(SeqAllCloni1C, sortv="from.start",  cex.legend=0.4, group=
cloni1$dm48m90pPamCut8WC2BCLONI==47 , cpal= c("pink", "green","yellow2",
"coral", "pink4", "orange",  "red",  "brown", "purple"))
```

```
table(cloni1$dm48m90pPamCut8WC2BCLONI)



#k=13#
cloni1C$dm48m90pWardCut13WC2B2 <- cutree(dm48m90pWardWC2BCLONI,
k=13)

#PAM#
#K=13#
dm48m90pPamCut13WC2BCLONI <- wcKMedoids(dm48m90pWC2BCLONI, k = 13,
weights = cloni1C$peso,
                        initialclust = cloni1C$dm48m90pWardCut13WC2B2)
cloni1$dm48m90pPamCut13WC2BCLONI <-
dm48m90pPamCut13WC2BCLONI$clustering
seqIplot(SeqAllCloni1C, sortv="from.start",  cex.legend=0.4, group=
cloni1$dm48m90pPamCut13WC2BCLONI==473 , cpal= c("pink", "green","yellow2",
"coral", "pink4", "orange",  "red",  "brown", "purple"))


table(cloni1$dm48m90pPamCut13WC2BCLONI)



#k=10#
cloni1C$dm48m90pWardCut10WC2B2 <- cutree(dm48m90pWardWC2BCLONI,
k=10)

#PAM#
#K=10#
dm48m90pPamCut10WC2BCLONI <- wcKMedoids(dm48m90pWC2BCLONI, k = 10,
weights = cloni1C$peso,
                        initialclust = cloni1C$dm48m90pWardCut10WC2B2)
cloni1$dm48m90pPamCut10WC2BCLONI <-
dm48m90pPamCut10WC2BCLONI$clustering
seqIplot(SeqAllCloni1C, sortv="from.start",  cex.legend=0.4, group=
cloni1$dm48m90pPamCut10WC2BCLONI==55 , cpal= c("pink", "green","yellow2",
"coral", "pink4", "orange",  "red",  "brown", "purple"))
```

```
table(cloni1$dm48m90pPamCut10WC2BCLONI)


#k=9#
cloni1C$dm48m90pWardCut9WC2B2 <- cutree(dm48m90pWardWC2BCLONI, k=9)

#PAM#
#K=9#
dm48m90pPamCut9WC2BCLONI <- wcKMedoids(dm48m90pWC2BCLONI, k = 9,
weights = cloni1C$peso,
                              initialclust = cloni1C$dm48m90pWardCut9WC2B2)
cloni1$dm48m90pPamCut9WC2BCLONI <-
dm48m90pPamCut9WC2BCLONI$clustering
seqIplot(SeqAllCloni1C, sortv="from.start",  cex.legend=0.4, group=
cloni1$dm48m90pPamCut9WC2BCLONI==532 , cpal= c("pink", "green","yellow2",
"coral", "pink4", "orange",  "red",  "brown", "purple"))


table(cloni1$dm48m90pPamCut9WC2BCLONI)


#k=11#
cloni1C$dm48m90pWardCut11WC2B2 <- cutree(dm48m90pWardWC2BCLONI,
k=11)

#PAM#
#K=11#
dm48m90pPamCut11WC2BCLONI <- wcKMedoids(dm48m90pWC2BCLONI, k = 11,
weights = cloni1C$peso,
                               initialclust = cloni1C$dm48m90pWardCut11WC2B2)
cloni1$dm48m90pPamCut11WC2BCLONI <-
dm48m90pPamCut11WC2BCLONI$clustering
seqIplot(SeqAllCloni1C, sortv="from.start",  cex.legend=0.4, group=
cloni1$dm48m90pPamCut11WC2BCLONI==532 , cpal= c("pink", "green","yellow2",
"coral", "pink4", "orange",  "red",  "brown", "purple"))


table(cloni1$dm48m90pPamCut11WC2BCLONI)
```

7- Weights for control sample

```
#creo NEWcloni$yearUnPerPesi in base agli accoppiamenti#
NEWcloni$yearUnPerPesi <- NA
NEWcloni$yearUn <- NA
NEWcoppieCM2bis <-  subset (NEWcoppieCM2, NEWcoppieCM2[,1]>0)

for (i in 1:length(NEWcoppieCM2bis)){
  a <- which(rownames(NEWcoppieCM2bis)[i]== CampioneN48p90mesi$IDPERS)
  b <- which(NEWcoppieCM2bis[i,1]== NEWcloni$IDPERS)
  NEWcloni$yearUn[b] <- CampioneN48p90mesi$yearUn[a]
}

#aggiungo CANTON
library(foreign)
PSMhou <- read.spss("C:/Users/matteo/Documents/dottorato/dati/file originali
longitudinale/database longitudinale houseehold
(originale).sav",to.data.frame=TRUE)
PSMhou$IDHOUS <- PSMhou$idhous..
for (i in length(NEWcloni[,1])){
  NEWcloni$IDHOUS[i] <- NEWcloni$IDHOUS99.x[i]
  NEWcloni$IDHOUS[i] <-
ifelse(is.na(NEWcloni$IDHOUS[i])==T,NEWcloni$IDHOUS00.x[i],NEWcloni$IDHOUS[i]
)
  NEWcloni$IDHOUS[i] <-
ifelse(is.na(NEWcloni$IDHOUS[i])==T,NEWcloni$IDHOUS01.x[i],NEWcloni$IDHOUS[i]
)
  NEWcloni$IDHOUS[i] <-
ifelse(is.na(NEWcloni$IDHOUS[i])==T,NEWcloni$IDHOUS02.x[i],NEWcloni$IDHOUS[i]
)
  NEWcloni$IDHOUS[i] <-
ifelse(is.na(NEWcloni$IDHOUS[i])==T,NEWcloni$IDHOUS03.x[i],NEWcloni$IDHOUS[i]
)
  NEWcloni$IDHOUS[i] <-
ifelse(is.na(NEWcloni$IDHOUS[i])==T,NEWcloni$IDHOUS04.x[i],NEWcloni$IDHOUS[i]
)
  NEWcloni$IDHOUS[i] <-
ifelse(is.na(NEWcloni$IDHOUS[i])==T,NEWcloni$IDHOUS05.x[i],NEWcloni$IDHOUS[i]
)
```

```
  NEWcloni$IDHOUS[i] <-
ifelse(is.na(NEWcloni$IDHOUS[i])==T,NEWcloni$IDHOUS06.x[i],NEWcloni$IDHOUS[i]
)
  NEWcloni$IDHOUS[i] <-
ifelse(is.na(NEWcloni$IDHOUS[i])==T,NEWcloni$IDHOUS07.x[i],NEWcloni$IDHOUS[i]
)
  NEWcloni$IDHOUS[i] <-
ifelse(is.na(NEWcloni$IDHOUS[i])==T,NEWcloni$IDHOUS08.x[i],NEWcloni$IDHOUS[i]
)
  NEWcloni$IDHOUS[i] <-
ifelse(is.na(NEWcloni$IDHOUS[i])==T,NEWcloni$IDHOUS09.x[i],NEWcloni$IDHOUS[i]
)
  NEWcloni$IDHOUS[i] <-
ifelse(is.na(NEWcloni$IDHOUS[i])==T,NEWcloni$IDHOUS10.x[i],NEWcloni$IDHOUS[i]
)
  NEWcloni$IDHOUS[i] <-
ifelse(is.na(NEWcloni$IDHOUS[i])==T,NEWcloni$IDHOUS11.x[i],NEWcloni$IDHOUS[i]
)
}

NEWcloni2 <- merge(NEWcloni, PSMhou,by="IDHOUS", all.x=T)

#operazioni preparatorie
library(car)
NEWcloni2$yearUnPerPesi <- recode(NEWcloni2$yearUn, "1999=6381;
                          2000=6549;
                          2001=6734;
                          2002=6917;
                          2003=7100;
                          2004=7284;
                          2005=7482;
                          2006=7681;
                          2007=7875;
                          2008=8069;
                          2009=8263;
                          2010=8464;
                          2011=8664;
                          2012=NA")

#creazione appartenenza cantone. CFR nuova creazione per souci#
```

```
for (i in 1:length(NEWcloni2[,1])){
  a <- NEWcloni2$yearUnPerPesi2[i]
  NEWcloni2$CANTON[i] <- as.character(NEWcloni2[i,a])}


for (i in 1:length(NEWcloni2[,1])){
  NEWcloni2$yearUnPerPesi2 <- recode(NEWcloni2$yearUn+1, "1999=6381;
                             2000=6549;
                             2001=6734;
                             2002=6917;
                             2003=7100;
                             2004=7284;
                             2005=7482;
                             2006=7681;
                             2007=7875;
                             2008=8069;
                             2009=8263;
                             2010=8464;
                             2011=8664;
                               2012=NA;
                               2013=NA")
  a <- NEWcloni2$yearUnPerPesi2[i]
  b <- as.character(NEWcloni2[i,a])
  NEWcloni2$CANTON[i] <-
ifelse(is.na(NEWcloni2$CANTON[i]==T),b,NEWcloni2$CANTON[i])}

for (i in 1:length(NEWcloni2[,1])){
  NEWcloni2$yearUnPerPesi2 <- recode(NEWcloni2$yearUn+2, "1999=6381;
                             2000=6549;
                             2001=6734;
                             2002=6917;
                             2003=7100;
                             2004=7284;
                             2005=7482;
                             2006=7681;
                             2007=7875;
                             2008=8069;
                             2009=8263;
                             2010=8464;
                             2011=8664;
                               2012=NA;
```

```
                          2013=NA;
                          2014=NA")
  a <- NEWcloni2$yearUnPerPesi2[i]
  b <- as.character(NEWcloni2[i,a])
  NEWcloni2$CANTON[i] <-
ifelse(is.na(NEWcloni2$CANTON[i]==T),b,NEWcloni2$CANTON[i])}

for (i in 1:length(NEWcloni2[,1])){
  NEWcloni2$yearUnPerPesi2 <- recode(NEWcloni2$yearUn+3, "1999=6381;
                          2000=6549;
                          2001=6734;
                          2002=6917;
                          2003=7100;
                          2004=7284;
                          2005=7482;
                          2006=7681;
                          2007=7875;
                          2008=8069;
                          2009=8263;
                          2010=8464;
                          2011=8664;
                            2012=NA;
                            2013=NA;
                            2014=NA;
                            2015=NA")
a <- NEWcloni2$yearUnPerPesi2[i]
b <- as.character(NEWcloni2[i,a])
NEWcloni2$CANTON[i] <-
ifelse(is.na(NEWcloni2$CANTON[i]==T),b,NEWcloni2$CANTON[i])}

# creazione classi età#
NEWcloni2$ageUn <- NEWcloni2$yearUn - NEWcloni2$BIRTHY.y
table(NEWcloni2$ageUn)
NEWcloni2$classEtaPerPesi <- recode (NEWcloni2$ageUn, "10:19='<19';
c(20,21,22,23,24)='20-24';c(25,26,27,28,29)='25-29';c(30,31,32,33,34)='30-
34';c(35,36,37,38,39)='35-39';c(40,41,42,43,44)='40-44';c(45,46,47,48,49)='45-
49';c(50,51,52,53,54)='50-54';c(55,56,57,58,59)='55-59';c(60,61,62,63,64)='60-
64';c(65,66,67,68,69)='65-69';c(70,71,72,73,74)='70-74';c(75,76,77,78,79)='>74'")

#nationality
```

```
NEWcloni2$yearUnNAT <-
ifelse(NEWcloni2$yearUn==1999,as.character(99),paste0("0",as.character(NEWcloni
2$yearUn-2000)))

for (i in 1:length(NEWcloni2[,1])){
  a <- paste0("NAT_1_",NEWcloni2$yearUnNAT[i])
  NEWcloni2$nationality1[i] <- as.character(NEWcloni2[i,a])
}

NEWcloni2$nationality1 <- as.character(NEWcloni2$nationality1)
NEWcloni2$nationality1 <- ifelse(is.na(NEWcloni2$nationality1)==T, NA,
ifelse(NEWcloni2$nationality1 == 'Switzerland','Suisse', 'Etranger'))

library(car)
NEWcloni2$appoggioAree <- recode (NEWcloni2$CANTON, "c('GE  Geneva','VD
Vaud','VS  Valais')  ='Region lemanique';
                                  c('BE  Berne','FR  Fribourg','NE  Neuchatel','JU  Jura','SO
Solothurn') = 'Espace Mittelland';
                                  c('AG  Argovia','BS  Basle-Town', 'BL  Basle-Country') =
'Suisse du Nord-Ouest';
                                  c('ZH  Zurich') = 'Zurich';
                                  c('AI','AR','GL  Glarus','GR  Grisons','SG  St. Gall','SH
Schaffhausen','TG Thurgovia') = 'Suisse orientale';
                                  c('LU  Lucerne', 'NW  Nidwalden','OW  Obwalden','SZ
Schwyz','UR  Uri','ZG  Zug') = 'Suisse centrale';
                                  'TI  Ticino' = 'Tessin'")
NEWcloni2$SEX.y
NEWcloni2$natUn2Bin <- NEWcloni2$nationality1
NEWcloni2$appoggioClassEta <- recode (NEWcloni2$ageUn, "10:24='15-24
ans';25:49='25-49 ans';50:100='50 ans et plus'")

#creazione tabella per calcoli pesi
a <- table(NEWcloni2$appoggioAree,
        NEWcloni2$SEX.y,
        NEWcloni2$natUn2Bin,
        NEWcloni2$appoggioClassEta)
View(a)
#questi calcoli sono fatti su excel#

#importo tabella pesi#
library(foreign)
```

```
TabPerPesiC <-
read.spss("C:/Users/matteo/Documents/dottorato/analisi/risultati/9tris - nuovi
pesi/nuovi pesi per controllo/NUOVO per R controllo.sav",to.data.frame=TRUE)
View(TabPerPesiC)

#preparazioni variabili

TabPerPesiC[,1] <- as.character(TabPerPesiC[,1])
TabPerPesiC[,2] <- as.character(TabPerPesiC[,2])
TabPerPesiC[,3] <- as.character(TabPerPesiC[,3])
TabPerPesiC[,4] <- as.character(TabPerPesiC[,4])

for (i in 1:length(TabPerPesiC[,1])){
  TabPerPesiC[i,1] <- gsub(" ", "", as.character(TabPerPesiC[i,1]), fixed = TRUE)
  TabPerPesiC[i,2] <- gsub(" ", "", as.character(TabPerPesiC[i,2]), fixed = TRUE)
  TabPerPesiC[i,3] <- gsub(" ", "", as.character(TabPerPesiC[i,3]), fixed = TRUE)
  TabPerPesiC[i,4] <- gsub(" ", "", as.character(TabPerPesiC[i,4]), fixed = TRUE)
}

NEWcloni2$appoggioAree2 <- as.character(NEWcloni2$appoggioAree)
NEWcloni2$appoggioClassEta2 <- as.character(NEWcloni2$appoggioClassEta)

for (i in 1:length(NEWcloni2$appoggioAree2)){
  NEWcloni2$appoggioAree2[i] <- gsub(" ", "",
as.character(NEWcloni2$appoggioAree2[i]), fixed = TRUE)
  NEWcloni2$appoggioClassEta2[i] <- gsub(" ", "",
as.character(NEWcloni2$appoggioClassEta2[i]), fixed = TRUE)
}

library(car)
NEWcloni2$natUn2Bin2 <- NEWcloni2$natUn2Bin

NEWcloni2$SEX.y2 <- recode(NEWcloni2$SEX.y, "'woman'='Femme';
'man'='Homme'")

#attribuzione pesi
NEWcloni2$NEWpeso[i] <- NA

for (i in 1:length(NEWcloni2$NEWpeso)){
  for (j in 1:length(TabPerPesiC[,1])){
```

```
   NEWcloni2$NEWpeso[i] <-
ifelse(((as.character(NEWcloni2$appoggioAree2[i])==as.character(TabPerPesiC[j,1])|
is.na(NEWcloni2$appoggioAree2[i])==T)
                          &
(as.character(NEWcloni2$SEX.y2[i])==as.character(TabPerPesiC[j,2])
|is.na(NEWcloni2$SEX.y[i])==T)
                          &
(as.character(NEWcloni2$natUn2Bin2[i])==as.character(TabPerPesiC[j,3])
|is.na(NEWcloni2$natUn2Bin2[i])==T)
                          &
(as.character(NEWcloni2$appoggioClassEta2[i])==as.character(TabPerPesiC[j,4])|is.n
a(NEWcloni2$appoggioClassEta2[i])==T)),
                          TabPerPesiC[j,14], NEWcloni2$NEWpeso[i])
  }}

#correzione per numerosià
NEWcloni2$NEWpeso2 <-
(NEWcloni2$NEWpeso*length(NEWcloni2$NEWpeso))/sum(NEWcloni2$NEWpeso)
```

8- Correction

```
##education##
CampioneN48p90mesi$edUnVECCHIA <- CampioneN48p90mesi$edUn
library(car)
CampioneN48p90mesi$yearUn2E <- recode(CampioneN48p90mesi$yearUn,
                          "1999=13;
                          2000=438;
                          2001=843;
                          2002=1264;
                          2003=1697;
                          2004=2136;
                          2005=2569;
                          2006=3004;
                          2007=3435;
                          2008=3866;
                          2009=4293;
                          2010=4719;
                          2011=5192;
                          2012=NA")



for (i in 1:532){
  a <- CampioneN48p90mesi$yearUn2E[i]
  CampioneN48p90mesi$edUn[i] <- CampioneN48p90mesi[i,a]}

CampioneN48p90mesi$edUn <- as.integer(CampioneN48p90mesi$edUn)

CampioneN48p90mesi$edUn <- recode(CampioneN48p90mesi$edUn,
                          "1='low education';
                          2='low education';
                          3='low education';
                          4='medium level education';
                          5='medium level education';
                          6='medium level education';
                          7='medium level education';
                          8='medium level education';
                          9='medium level education';
```

```
                    10='high education';
                    11='high education';"
)
CampioneN48p90mesi$edUn <- as.factor(CampioneN48p90mesi$edUn)
CampioneN48p90mesi$edUn <- relevel (CampioneN48p90mesi$edUn, "medium
level education")
CampioneN48p90mesi$edUn <- relevel (CampioneN48p90mesi$edUn, "high
education")

CampioneN48p90mesi$edUnMR <- as.factor(CampioneN48p90mesi$edUn)
CampioneN48p90mesi$edUnMR <- relevel(CampioneN48p90mesi$edUnMR, ref =
"medium level education")



#appoggio education
table(CampioneN48p90mesi$edUn)
levels(CampioneN48p90mesi[i,a])

names(CampioneN48p90mesi[a])
which(names(CampioneN48p90mesi)=="EDUCAT99")
which(names(CampioneN48p90mesi)=="EDUCAT00")
which(names(CampioneN48p90mesi)=="EDUCAT01")
which(names(CampioneN48p90mesi)=="EDUCAT02")
which(names(CampioneN48p90mesi)=="EDUCAT03")
which(names(CampioneN48p90mesi)=="EDUCAT04")
which(names(CampioneN48p90mesi)=="EDUCAT05")
which(names(CampioneN48p90mesi)=="EDUCAT06")
which(names(CampioneN48p90mesi)=="EDUCAT07")
which(names(CampioneN48p90mesi)=="EDUCAT08")
which(names(CampioneN48p90mesi)=="EDUCAT09")
which(names(CampioneN48p90mesi)=="EDUCAT10")
which(names(CampioneN48p90mesi)=="EDUCAT11")

##social origin##
#salvo vecchia variabile#
CampioneN48p90mesi$OriginVECCHIA <- CampioneN48p90mesi$Origin
#procedura#
CampioneN48p90mesi$FaOrigin <- recode(CampioneN48p90mesi$CSPFAJ,
                        "'top management' =3;
                        'liberal professions' =3;
```

```
                    'other self-employed' =2;
                    'academic professions and senior management' =3;
                    'intermediate professions' =2;
                    'qualified non-manual professions' =2;
                    'qualified manual professions' =2;
                    'unqualified non-manual and manual workers' =1;
                    NA=4")
CampioneN48p90mesi$FaOrigin <- as.integer(CampioneN48p90mesi$FaOrigin)
CampioneN48p90mesi$FaOrigin <- recode(CampioneN48p90mesi$FaOrigin, "4=10")


CampioneN48p90mesi$MoOrigin <- recode(CampioneN48p90mesi$CSPMOJ,
                    "'top management' =3;
                    'liberal professions' =3;
                    'other self-employed' =2;
                    'academic professions and senior management' =3;
                    'intermediate professions' =2;
                    'qualified non-manual professions' =2;
                    'qualified manual professions' =2;
                    'unqualified non-manual and manual workers' =1;
                    NA=4")

CampioneN48p90mesi$MoOrigin <- as.integer(CampioneN48p90mesi$MoOrigin)
CampioneN48p90mesi$MoOrigin <- recode(CampioneN48p90mesi$MoOrigin,
"4=10")


CampioneN48p90mesi$Origin <- CampioneN48p90mesi$FaOrigin +
CampioneN48p90mesi$MoOrigin
table (CampioneN48p90mesi$Origin)
# chi ha solo uno dei due genitori definiti faccio come se ha entrambi con lo stesso
livello#
CampioneN48p90mesi$Origin <-recode(CampioneN48p90mesi$Origin,
                    "11=2;
                    12=4;
                    13=6;
                    20=NA")
#faccio in solo tre livelli#
CampioneN48p90mesi$Origin <-recode(CampioneN48p90mesi$Origin,
                    "2='low';
                    3='low';
```

```
                        4='medium';
                        5='high';
                        6='high'")


##
table(CampioneN48p90mesi$Origin,CampioneN48p90mesi$OriginVECCHIA)


##education campione controllo##
NEWcloni2$edUnVECCHIA <- NEWcloni2$edUn
library(car)

#cloni#
NEWcloni2$yearUn2E <- recode(NEWcloni2$yearUn, "1999=13;
                        2000=438;
                        2001=843;
                        2002=1264;
                        2003=1697;
                        2004=2136;
                        2005=2569;
                        2006=3004;
                        2007=3435;
                        2008=3866;
                        2009=4293;
                        2010=4719;
                        2011=5192;
                        2012=NA")

for (i in 1:length(NEWcloni2[,1])){
  a <- NEWcloni2$yearUn2E[i]
  NEWcloni2$edUn[i] <- NEWcloni2[i,a]}

NEWcloni2$edUn <- recode(NEWcloni2$edUn,
                    "1='low education';
                        2='low education';
                        3='low education';
                        4='medium level education';
                        5='medium level education';
                        6='medium level education';
                        7='medium level education';
```

```
                    8='medium level education';
                    9='medium level education';
                    10='high education';
                    11='high education';")



NEWcloni2$edUnMR <- as.factor(NEWcloni2$edUn)
NEWcloni2$edUnMR <- relevel(NEWcloni2$edUnMR, ref = "medium level
education")

#appoggio education
table(NEWcloni2$edUnMR)
levels(NEWcloni2[,438])
table(NEWcloni2[,438])

names(NEWcloni2[a])
which(names(NEWcloni2)=="EDUCAT99")
which(names(NEWcloni2)=="EDUCAT00")
which(names(NEWcloni2)=="EDUCAT01")
which(names(NEWcloni2)=="EDUCAT02")
which(names(NEWcloni2)=="EDUCAT03")
which(names(NEWcloni2)=="EDUCAT04")
which(names(NEWcloni2)=="EDUCAT05")
which(names(NEWcloni2)=="EDUCAT06")
which(names(NEWcloni2)=="EDUCAT07")
which(names(NEWcloni2)=="EDUCAT08")
which(names(NEWcloni2)=="EDUCAT09")
which(names(NEWcloni2)=="EDUCAT10")
which(names(NEWcloni2)=="EDUCAT11")

##social origin##
#procedura#
NEWcloni2$FaOrigin <- recode(NEWcloni2$CSPFAJ,
                    "'top management' =3;
                    'liberal professions' =3;
                    'other self-employed' =2;
                    'academic professions and senior management' =3;
                    'intermediate professions' =2;
                    'qualified non-manual professions' =2;
                    'qualified manual professions' =2;
```

```
                    'unqualified non-manual and manual workers' =1;
                    NA=4")
NEWcloni2$FaOrigin <- as.integer(NEWcloni2$FaOrigin)
NEWcloni2$FaOrigin <- recode(NEWcloni2$FaOrigin, "4=10")


NEWcloni2$MoOrigin <- recode(NEWcloni2$CSPMOJ,
                    "'top management' =3;
                    'liberal professions' =3;
                    'other self-employed' =2;
                    'academic professions and senior management' =3;
                    'intermediate professions' =2;
                    'qualified non-manual professions' =2;
                    'qualified manual professions' =2;
                    'unqualified non-manual and manual workers' =1;
                    NA=4")

NEWcloni2$MoOrigin <- as.integer(NEWcloni2$MoOrigin)
NEWcloni2$MoOrigin <- recode(NEWcloni2$MoOrigin, "4=10")


NEWcloni2$Origin <- NEWcloni2$FaOrigin + NEWcloni2$MoOrigin
table (NEWcloni2$Origin)
# chi ha solo uno dei due genitori definiti faccio come se ha entrambi con lo stesso
livello#
NEWcloni2$Origin <-recode(NEWcloni2$Origin,
                    "11=2;
                    12=4;
                    13=6;
                    20=NA")
#faccio in solo tre livelli#
NEWcloni2$Origin <-recode(NEWcloni2$Origin,
                    "2='low';
                    3='low';
                    4='medium';
                    5='high';
                    6='high'")


##
table(NEWcloni2$Origin)
```

###SEQUENCE AND CLUSTERING SUL CAMPIONE PRINCIPALE###

##strategia B, tipo lavoro##

#crea sequenza#

```
library(TraMineR)

library (TraMineRextras)

seq48m90pWC2 <-  seqdef(CampioneN48p90mesi[,6070:6220], weights =
CampioneN48p90mesi$NEWpeso2)
```

#allinea su primo mese disoccupazione#

```
CampioneN48p90mesi$pos48m90pWC2 <-
seqfpos(seq48m90pWC2,"unemployment")

startSeq48m90pAllWC2 <- seqstart(CampioneN48p90mesi[, 6070:6220],
data.start=1, new.start=CampioneN48p90mesi$pos48m90pWC2,
                        tmax=48)


Seq48m90pAllWC2 <- seqdef(startSeq48m90pAllWC2, weights =
CampioneN48p90mesi$NEWpeso2)

cpal(Seq48m90pAllWC2) <- c("yellow2", "red1", "pink", "brown", "red4", "green3",
"orange",  "blue3","pink","pink","pink","pink","pink")

Seq48m90pAllWC2 <- seqrecode(Seq48m90pAllWC2,recodes = list("inactive" =
c("unemployed or inactive", "inactive")))
```

#sequenze#

```
seqIplot(Seq48m90pAllWC2, sortv="from.start",  cex.legend=0.35, cpal=
c("yellow2", "red1", "pink", "brown", "red4", "green3",  "orange",  "blue3"))
```

#unisco part-time e full-time in lavoro indifferenziato#

```
Seq48m90pAllWC2B <- seqrecode(Seq48m90pAllWC2,recodes = list("indefined job" = c("full-time paid job (37 hours or more per week)", "part-time paid job (1-36 hours per week)")))

seqIplot(Seq48m90pAllWC2B, sortv="from.start",  cex.legend=0.3, cpal= c("green","yellow2",  "pink", "pink2", "pink4", "red", "red2", "red4", "purple", "purple2" , "blue3"))


Seq48m90pAllWC2B2 <- seqrecode(Seq48m90pAllWC2B,recodes = list("1"=c(1, 2)))


seqIplot(Seq48m90pAllWC2B2, sortv="from.start",  cex.legend=0.3, cpal= c("green","yellow2",  "pink", "pink4", "red", "red2", "red4", "purple", "purple2" , "blue3"))

alphabet(Seq48m90pAllWC2B2) <- c("top-jobs","undefined job","inactive","self-employed","intellectuals and managers","middle employees","Non-manual skilled","Manual skilled","Non-skilled","unemployed")


seqIplot(Seq48m90pAllWC2B2, sortv="from.start",  cex.legend=0.3, cpal= c("pink", "green","yellow2", "coral", "pink4", "orange",  "red",  "brown", "purple", "blue"))




### matching ###

#matrice distanze (dist=constant)#

dm48m90pWC2B2 <- seqdist(Seq48m90pAllWC2B2, method = "OM", sm="CONSTANT", full.matrix=F,with.missing=TRUE)


###clustering###

#clustering Ward#
```

```
dm48m90pWardWC2B2 <-  hclust(as.dist(dm48m90pWC2B2), method = "ward",
members = CampioneN48p90mesi$NEWpeso2)


#analisi silouette e HC#

library(WeightedCluster)

dm48m90pWardWCSilouetteB2 <- as.clustrange(dm48m90pWardWC2B2, diss =
as.dist(dm48m90pWC2B2),

                                  weights = CampioneN48p90mesi$NEWpeso2, ncluster = 25)

plot(dm48m90pWardWCSilouetteB2, stat = c("ASWw", "HC"), lwd=3, cex=0.5,
col=c("red","blue"))

# la soluzione migliore tecnicamente è 10


#k=10#

CampioneN48p90mesi$dm48m90pWardCut10WC2B2 <-
cutree(dm48m90pWardWC2B2, k=10)

seqIplot(Seq48m90pAllWC2B2, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pWardCut10WC2B2 , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))


#PAM#

#K=10#

dm48m90pPamCut10WC2B2 <- wcKMedoids(dm48m90pWC2B2, k = 10, weights =
CampioneN48p90mesi$NEWpeso2,

                           initialclust =
CampioneN48p90mesi$dm48m90pWardCut10WC2B2)

CampioneN48p90mesi$dm48m90pPamCut10WC2B2 <-
dm48m90pPamCut10WC2B2$clustering

seqIplot(Seq48m90pAllWC2B2, sortv="from.start",  cex.legend=0.75, group=
CampioneN48p90mesi$dm48m90pPamCut10WC2B2 , cpal= c("pink",
"green","yellow2", "pink4", "orange", "red",  "brown", "purple",  "blue3"))
```

```
##CORREZIONE# 10 casi#


CampioneN48p90mesi$dm48m90pPamCut10WC2B2corr <-
CampioneN48p90mesi$dm48m90pPamCut10WC2B2

for (i in Gr2){

  CampioneN48p90mesi$dm48m90pPamCut10WC2B2corr[Gr2] <- 264

}


##CORREZIONE2# 10 casi#PER CARATTERISTICHE TECNICHE DEI GRUPPI


CampioneN48p90mesi$dm48m90pPamCut10WC2B2corr2 <-
CampioneN48p90mesi$dm48m90pPamCut10WC2B2

for (i in Gr2){

  CampioneN48p90mesi$dm48m90pPamCut10WC2B2corr2[Gr2] <- 0

} #



###SEQUENCE AND CLUSTERING SUL CAMPIONE CONTROLLO###


#crea sequenza#

library(TraMineR)

library (TraMineRextras)


seq48m90CLONI <-  seqdef(NEWcloni2[,6070:6220], weights =
NEWcloni2$NEWpeso2)

alphabet(seq48m90CLONI)
```

```
##allinea su primo mese disoccupazione#

#definisco NEWcloni2$pos48m90pWC2 in base a corrispettivo nel campione principale

NEWcloni2$pos48m90pWC2 <- NA

for (i in 1: length(NEWcloni2$pos48m90pWC2)){

  a <- as.numeric(which(NEWcoppieCM2[,1]==NEWcloni2$IDPERS[i]))[1]

  b <- rownames(NEWcoppieCM2)[a]

  c <- as.numeric(which(CampioneN48p90mesi$IDPERS==b))

  NEWcloni2$pos48m90pWC2[i] <- CampioneN48p90mesi$pos48m90pWC2[c]

}


startSeqNEWcloni2 <- seqstart(NEWcloni2[, 6070:6220], data.start=1, new.start=NEWcloni2$pos48m90pWC2,

                              tmax=48)


SeqAllNEWcloni2 <- seqdef(startSeqNEWcloni2, weights = NEWcloni2$NEWpeso2)

cpal(SeqAllNEWcloni2) <- c("yellow2", "red1", "pink", "brown", "red4", "green3", "orange",  "blue3","pink","pink","pink","pink","pink")


SeqAllNEWcloni2 <- seqrecode(SeqAllNEWcloni2,recodes = list("inactive" = c("unemployed or inactive", "inactive")))

SeqAllNEWcloni2 <- seqrecode(SeqAllNEWcloni2,recodes = list("indefined job"  = c("full-time paid job (37 hours or more per week)", "part-time paid job (1-36 hours per week)")))

SeqAllNEWcloni2 <- seqrecode(SeqAllNEWcloni2,recodes = list("1-2"  = c("1", "2")))

alphabet(SeqAllNEWcloni2) <- c("top-jobs","undefined job","inactive","self-employed","intellectuals and managers","middle employees","Non-manual skilled employees","Manual skilled","Non-skilled","unemployed")
```

```
#sequenze#

seqIplot(SeqAllNEWcloni2, sortv="from.start",  cex.legend=0.3, cpal= c("pink",
"green","yellow2", "coral", "pink4", "orange",  "red",  "brown", "purple", "blue"))


### matching ###

#matrice distanze (dist=constant)#

dm48m90pWC2BCLONI <- seqdist(SeqAllNEWcloni2, method = "OM",
sm="CONSTANT", full.matrix=F,with.missing=TRUE)


###clustering###

#clustering Ward#


dm48m90pWardWC2BCLONI <-  hclust(as.dist(dm48m90pWC2BCLONI), method =
"ward", members = NEWcloni2$peso2)


#analisi silouette e HC#

dm48m90pWardWCSilouetteCLONI <- as.clustrange(dm48m90pWardWC2BCLONI,
diss = as.dist(dm48m90pWC2BCLONI),
                                    weights = NEWcloni2$NEWpeso2, ncluster = 25)

plot(dm48m90pWardWCSilouetteCLONI, stat = c("ASWw", "HC"), lwd=3, cex=0.5,
col=c("red","blue"))



#k=9#

NEWcloni2$dm48m90pWardCut9WC2B2 <- cutree(dm48m90pWardWC2BCLONI,
k=9)


#PAM#
```

```
#K=9#

dm48m90pPamCut9WC2BCLONI <- wcKMedoids(dm48m90pWC2BCLONI, k = 9,
weights = NEWcloni2$NEWpeso2,

                        initialclust = NEWcloni2$dm48m90pWardCut9WC2B2)

NEWcloni2$dm48m90pPamCut9WC2BCLONI <-
dm48m90pPamCut9WC2BCLONI$clustering

table(NEWcloni2$dm48m90pPamCut9WC2BCLONI)


seqIplot(SeqAllNEWcloni2, sortv="from.start",  cex.legend=0.4, group=
NEWcloni2$dm48m90pPamCut9WC2BCLONI==494 , cpal= c("pink",
"green","yellow2", "coral", "pink4", "orange",  "red",  "brown", "purple", "blue"))


#correzione cluster (recupero qualche caso da troncati e faccio gruppi self,top e
manual)


NEWcloni2$perCorrezioneCluster <- 0

a <- which(NEWcloni2$dm48m90pPamCut9WC2BCLONI==197)

for (i in a){

  b1 <- as.integer(seqistatd(SeqAllNEWcloni2)[i,1]) #top

  b3 <- as.integer(seqistatd(SeqAllNEWcloni2)[i,3]) #inactive

  b4 <- as.integer(seqistatd(SeqAllNEWcloni2)[i,4]) #self

  b5 <- as.integer(seqistatd(SeqAllNEWcloni2)[i,5]) #intellectual

  b6 <- as.integer(seqistatd(SeqAllNEWcloni2)[i,6]) #middle

  b7 <- as.integer(seqistatd(SeqAllNEWcloni2)[i,7]) #non-manual

  b8 <- as.integer(seqistatd(SeqAllNEWcloni2)[i,8]) #manual

  b9 <- as.integer(seqistatd(SeqAllNEWcloni2)[i,9]) #non-skilled

  b10 <- as.integer(seqistatd(SeqAllNEWcloni2)[i,10]) #unemployment

  b <- b1 + b3 + b4 + b5 + b6 + b7 + b8 + b9 + b10
```

```
  NEWcloni2$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(SeqAllNEWcloni2)[i,1])==max(b1,b3,b4,b5,b6,b7,b8,b9,b1
0,na.rm = T),1,0)

  NEWcloni2$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(SeqAllNEWcloni2)[i,3])==max(b1,b3,b4,b5,b6,b7,b8,b9,b1
0,na.rm = T),3,NEWcloni2$perCorrezioneCluster[i])

  NEWcloni2$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(SeqAllNEWcloni2)[i,4])==max(b1,b3,b4,b5,b6,b7,b8,b9,b1
0,na.rm = T),4,NEWcloni2$perCorrezioneCluster[i])

  NEWcloni2$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(SeqAllNEWcloni2)[i,5])==max(b1,b3,b4,b5,b6,b7,b8,b9,b1
0,na.rm = T),5,NEWcloni2$perCorrezioneCluster[i])

  NEWcloni2$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(SeqAllNEWcloni2)[i,6])==max(b1,b3,b4,b5,b6,b7,b8,b9,b1
0,na.rm = T),6,NEWcloni2$perCorrezioneCluster[i])

  NEWcloni2$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(SeqAllNEWcloni2)[i,7])==max(b1,b3,b4,b5,b6,b7,b8,b9,b1
0,na.rm = T),7,NEWcloni2$perCorrezioneCluster[i])

  NEWcloni2$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(SeqAllNEWcloni2)[i,8])==max(b1,b3,b4,b5,b6,b7,b8,b9,b1
0,na.rm = T),8,NEWcloni2$perCorrezioneCluster[i])

  NEWcloni2$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(SeqAllNEWcloni2)[i,9])==max(b1,b3,b4,b5,b6,b7,b8,b9,b1
0,na.rm = T),9,NEWcloni2$perCorrezioneCluster[i])

  NEWcloni2$perCorrezioneCluster[i] <-
ifelse(as.integer(seqistatd(SeqAllNEWcloni2)[i,10])==max(b1,b3,b4,b5,b6,b7,b8,b9,b
10,na.rm = T),10,NEWcloni2$perCorrezioneCluster[i])



  NEWcloni2$perCorrezioneCluster[i] <- ifelse(b>11,
NEWcloni2$perCorrezioneCluster[i], 0)

}
```

```
table(NEWcloni2$perCorrezioneCluster)

NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr <-
NEWcloni2$dm48m90pPamCut9WC2BCLONI

a <- which(NEWcloni2$perCorrezioneCluster==1) # top-jobs
for (i in a){
  NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr[i] <- 1001
}

a <- which(NEWcloni2$perCorrezioneCluster==3) # inactive
for (i in a){
  NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr[i] <- 494
}

a <- which(NEWcloni2$perCorrezioneCluster==4) # self
for (i in a){
  NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr[i] <- 67
}

a <- which(NEWcloni2$perCorrezioneCluster==5) # intellectuals
for (i in a){
  NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr[i] <- 161
}

a <- which(NEWcloni2$perCorrezioneCluster==6) # middle
for (i in a){
```

```
  NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr[i] <- 2
}

a <- which(NEWcloni2$perCorrezioneCluster==7) # Non-manual
for (i in a){
  NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr[i] <- 388
}

a <- which(NEWcloni2$perCorrezioneCluster==8) #  Manual
for (i in a){
  NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr[i] <- 1002
}

a <- which(NEWcloni2$perCorrezioneCluster==9) # Non-skilled
for (i in a){
  NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr[i] <- 183
}

a <- which(NEWcloni2$perCorrezioneCluster==10) # unemployed
for (i in a){
  NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr[i] <- 1003
}

table(NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr,NEWcloni2$dm48m90pPam
Cut9WC2BCLONI)
```

```
seqIplot(SeqAllNEWcloni2, sortv="from.start",  cex.legend=0.4, group=
NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr==1003 , cpal= c("pink",
"green","yellow2", "coral", "pink4", "orange",  "red",  "brown", "purple", "blue"))



##preparazione variabili#


#sex#

CampioneN48p90mesi$SEXmr <- relevel(CampioneN48p90mesi$SEX.y, ref = "man")

NEWcloni2$SEXmr <- relevel(NEWcloni2$SEX.y, ref = "man")


#age#

CampioneN48p90mesi$classAgeUn2MR <-
relevel(CampioneN48p90mesi$classAgeUn2, ref = "25-49 years")

NEWcloni2$classEta <- recode(NEWcloni2$classEtaPerPesi, "'<19'='15-24 years';'20-
24'='15-24 years';'25-29'='25-49 years';'30-34'='25-49 years';'35-39'='25-49
years';'40-44'='25-49 years';'45-49'='25-49 years';'50-54'='50+ years';'55-59'='50+
years';'55-59'='50+ years';'60-64'='50+ years';'65-69'='50+ years';'>74'='50+ years'")

NEWcloni2$classEta <- as.factor(NEWcloni2$classEta)

NEWcloni2$classAgeUn2MR <- relevel(NEWcloni2$classEta, ref = "25-49 years")


#nationality#

CampioneN48p90mesi$natUn2BinMR <-
as.factor(CampioneN48p90mesi$natUn2Bin)

CampioneN48p90mesi$natUn2BinMR <-
relevel(CampioneN48p90mesi$natUn2BinMR, ref = "1")

NEWcloni2$natUn2BinMR <- as.factor(NEWcloni2$natUn2Bin)

NEWcloni2$natUn2BinMR <- relevel(NEWcloni2$natUn2BinMR, ref = "Suisse")
```

```
#social origin# SALTATO TANTO VA CORRETTA DOPO
#campione#

CampioneN48p90mesi$FaOrigin <- recode(CampioneN48p90mesi$CSPFAJ,
                        "'top management' =3;
                        'liberal professions' =3;
                        'other self-employed' =2;
                        'academic professions and senior management' =3;
                        'intermediate professions' =2;
                        'qualified non-manual professions' =2;
                        'qualified manual professions' =2;
                        'unqualified non-manual and manual workers' =1;
                        NA=4")
CampioneN48p90mesi$FaOrigin <- as.integer(CampioneN48p90mesi$FaOrigin)
CampioneN48p90mesi$FaOrigin <- recode(CampioneN48p90mesi$FaOrigin, "4=10")


CampioneN48p90mesi$MoOrigin <- recode(CampioneN48p90mesi$CSPMOJ,
                        "'top management' =3;
                        'liberal professions' =3;
                        'other self-employed' =2;
                        'academic professions and senior management' =3;
                        'intermediate professions' =2;
                        'qualified non-manual professions' =2;
                        'qualified manual professions' =2;
                        'unqualified non-manual and manual workers' =1;
                        NA=4")
```

```
CampioneN48p90mesi$MoOrigin <- as.integer(CampioneN48p90mesi$MoOrigin)

CampioneN48p90mesi$MoOrigin <- recode(CampioneN48p90mesi$MoOrigin,
"4=10")



CampioneN48p90mesi$Origin <- CampioneN48p90mesi$FaOrigin +
CampioneN48p90mesi$MoOrigin

table (CampioneN48p90mesi$Origin)

# chi ha solo uno dei due genitori definiti faccio come se ha entrambi con lo stesso
livello#

CampioneN48p90mesi$Origin <-recode(CampioneN48p90mesi$Origin,
                    "11=2;
                    12=4;
                    13=6;
                    20=NA")
#faccio in solo tre livelli#

CampioneN48p90mesi$Origin <-recode(CampioneN48p90mesi$Origin,
                    "2='low';
                    3='low';
                    4='medium';
                    5='high';
                    6='high'")



#cloni#


NEWcloni2$FaOrigin <- recode(NEWcloni2$CSPFAJ,
```

```
                "'top management' =3;
                'liberal professions' =3;
                'other self-employed' =2;
                'academic professions and senior management' =3;
                'intermediate professions' =2;
                'qualified non-manual professions' =2;
                'qualified manual professions' =2;
                'unqualified non-manual and manual workers' =1;
                NA=4")
NEWcloni2$FaOrigin <- as.integer(NEWcloni2$FaOrigin)
NEWcloni2$FaOrigin <- recode(NEWcloni2$FaOrigin, "4=10")


NEWcloni2$MoOrigin <- recode(NEWcloni2$CSPMOJ,
                "'top management' =3;
                'liberal professions' =3;
                'other self-employed' =2;
                'academic professions and senior management' =3;
                'intermediate professions' =2;
                'qualified non-manual professions' =2;
                'qualified manual professions' =2;
                'unqualified non-manual and manual workers' =1;
                NA=4")

NEWcloni2$MoOrigin <- as.integer(NEWcloni2$MoOrigin)
NEWcloni2$MoOrigin <- recode(NEWcloni2$MoOrigin, "4=10")
```

```
NEWcloni2$Origin <- NEWcloni2$FaOrigin + NEWcloni2$MoOrigin

table (NEWcloni2$Origin)

# chi ha solo uno dei due genitori definiti faccio come se ha entrambi con lo stesso livello#

NEWcloni2$Origin <-recode(NEWcloni2$Origin,

                "11=2;

                12=4;

                13=6;

                20=NA")

#faccio in solo tre livelli#

NEWcloni2$Origin <-recode(NEWcloni2$Origin,

                "2='low';

                3='low';

                4='medium';

                5='high';

                6='high'")


#

CampioneN48p90mesi$OriginMR <- relevel(CampioneN48p90mesi$OriginMR, ref = "medium")

NEWcloni2$OriginMR <- as.factor(NEWcloni2$Origin)

NEWcloni2$OriginMR <- relevel(NEWcloni2$OriginMR, ref = "medium")


#education#   SALTATO TANTO VA CORRETTA DOPO

CampioneN48p90mesi$edUnMR <- as.factor(CampioneN48p90mesi$edUn)

CampioneN48p90mesi$edUnMR <- relevel(CampioneN48p90mesi$edUnMR, ref = "medium level education")
```

```
#cloni#
NEWcloni2$yearUn2E <- recode(NEWcloni2$yearUn, "1999=15;
                        2000=440;
                        2001=845;
                        2002=1266;
                        2003=1699;
                        2004=2138;
                        2005=2571;
                        2006=3006;
                        2007=3437;
                        2008=3868;
                        2009=4296;
                        2010=4722;
                        2011=5195;
                        2012=NA")

for (i in 1:length(NEWcloni2$yearUn2E)){
  a <- NEWcloni2$yearUn2E[i]
  NEWcloni2$edUn[i] <- NEWcloni2[i,a]}

NEWcloni2$edUn <- recode(NEWcloni2$edUn,
                        "18='no education or very low';
                        1='no education or very low';
                        2='no education or very low';
                        3='low education';
                        4='low education';
```

```
                5='low education';
                10='low education';
                11='low education';
                6='medium level education';
                7='medium level education';
                8='medium level education';
                9='high education';
                10='high education';
                11='high education';
                12='high education';
                13='high education';
                14='high education';
                15='high education';
                16='high education';
                17=NA;
                19=NA"
)

eduPamCorr <- crosstab (NEWcloni2$edUn,NEWcloni2$dm48m90pPamCut6WCcorr,
weight = NEWcloni2$peso)
prop.table(eduPamCorr$t, 2)

NEWcloni2$edUnMR <- as.factor(NEWcloni2$edUn)
NEWcloni2$edUnMR <- relevel(NEWcloni2$edUnMR, ref = "medium level
education")

#precedente stato
```

```
#nel campione#

a <- paste0 ("retro",1:48)
for(j in 1:48) {
  CampioneN48p90mesi[,a[j]] <- 0
}

for(i in 1:length(CampioneN48p90mesi[,1])) {
  for(j in 1:48) {
    b <- CampioneN48p90mesi$pos48m90pWC2[i] -j
    CampioneN48p90mesi[i,a[j]] <- ifelse(b>0,as.character(seq48m90pWC2[i,b]),0)
  }}

for(j in 1:48) {
  CampioneN48p90mesi[,a[j]] <- recode(CampioneN48p90mesi[,a[j]],"'*'=NA; 0=NA;
'%'=NA")
}

retro <- seqdef(CampioneN48p90mesi[6559:6606],weights =
CampioneN48p90mesi$peso)

for(i in 1:length(CampioneN48p90mesi[,1])) {
  CampioneN48p90mesi$retroTop[i] <- max (seqistatd(retro)[i,])
}

CampioneN48p90mesi$precedenteStato2 <- 0
CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
```

```
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,1],"top-
executives",CampioneN48p90mesi$precedenteStato2))

CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,2],"top-
executives",CampioneN48p90mesi$precedenteStato2))

CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,3],"self-
employed",CampioneN48p90mesi$precedenteStato2))

CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,4],"intellectuals and
managers",CampioneN48p90mesi$precedenteStato2))

CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,5],"middle
employees",CampioneN48p90mesi$precedenteStato2))

CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,6],"manual skilled
employees",CampioneN48p90mesi$precedenteStato2))

CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,7],"Non-manual skilled
employees",CampioneN48p90mesi$precedenteStato2))

CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,8],"non-skilled
employees",CampioneN48p90mesi$precedenteStato2))

CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,9],"indefined
job",CampioneN48p90mesi$precedenteStato2))
```

```
CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,10],"inactive",CampioneN48p9
0mesi$precedenteStato2))

CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,11],"indefined
job",CampioneN48p90mesi$precedenteStato2))

CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,12],"inactive",CampioneN48p9
0mesi$precedenteStato2))

CampioneN48p90mesi$precedenteStato2 <- ifelse
(CampioneN48p90mesi$retroTop==0,0,ifelse
(CampioneN48p90mesi$retroTop==seqistatd(retro)[,13],"unemployment",Campion
eN48p90mesi$precedenteStato2))


CampioneN48p90mesi$PSappoggio <- recode(CampioneN48p90mesi$CSPLAJ..,
                        "'top management'='top-executives';
                        'liberal professions'='top-executives';
                        'other self-employed'='self-employed';
                        'academic professions and senior management'='intellectuals
and managers';
                        'intermediate professions'='middle employees';
                        'qualified non-manual professions'='Non-manual skilled
employees';
                        'qualified manual professions'='manual skilled employees';
                        'unqualified non-manual and manual workers'='non-skilled
employees'")


for(i in 1:length(CampioneN48p90mesi[,1])) {
```

```
  a <-  as.character(CampioneN48p90mesi$PSappoggio[i])
  CampioneN48p90mesi$precedenteStato2[i] <-
recode(CampioneN48p90mesi$precedenteStato2[i], "'0'=a")
}

CampioneN48p90mesi$precedenteStato3 <-
recode(CampioneN48p90mesi$precedenteStato2,
                                  "'inactive' = -2;
                                  'indefined job' = -1;
                                  'intellectuals and managers' = 2;
                                  'manual skilled employees' = 7;
                                  'middle employees' = 4;
                                  'Non-manual skilled employees' = 6;
                                  'non-skilled employees' = 8;
                                  'self-employed' = 5;
                                  'top-executives' = 1")

table(CampioneN48p90mesi$precedenteStato3)

CampioneN48p90mesi$precedenteStato3MR <-
as.factor(CampioneN48p90mesi$precedenteStato3)
CampioneN48p90mesi$precedenteStato3MR <-
relevel(CampioneN48p90mesi$precedenteStato3MR, ref = "8")

#in cloni
a <- paste0 ("retro",1:48)
for(j in 1:48) {
  NEWcloni2[,a[j]] <- 0
```

```
}

for(i in 1:length(NEWcloni2[,1])) {
  for(j in 1:48) {
    b <- NEWcloni2$pos48m90pWC2[i] -j
    NEWcloni2[i,a[j]] <- ifelse(b>0,as.character(seq48m90CLONI[i,b]),0)
  }}
table(NEWcloni2$retro48)
for(j in 1:48) {
  NEWcloni2[,a[j]] <- recode(NEWcloni2[,a[j]],"'*'=NA; 0=NA; '%'=NA")
}

retro <- seqdef(NEWcloni2[8881:8928],weights = NEWcloni2$peso)

for(i in 1:length(NEWcloni2[,1])) {
  NEWcloni2$retroTop[i] <- max (seqistatd(retro)[i,])
}

NEWcloni2$precedenteStato2 <- 0
NEWcloni2$precedenteStato2 <- ifelse (NEWcloni2$retroTop==0,0,ifelse
(NEWcloni2$retroTop==seqistatd(retro)[,1],"top-
executives",NEWcloni2$precedenteStato2))
NEWcloni2$precedenteStato2 <- ifelse (NEWcloni2$retroTop==0,0,ifelse
(NEWcloni2$retroTop==seqistatd(retro)[,2],"top-
executives",NEWcloni2$precedenteStato2))
NEWcloni2$precedenteStato2 <- ifelse (NEWcloni2$retroTop==0,0,ifelse
(NEWcloni2$retroTop==seqistatd(retro)[,3],"self-
employed",NEWcloni2$precedenteStato2))
```

```
NEWcloni2$precedenteStato2 <- ifelse (NEWcloni2$retroTop==0,0,ifelse
(NEWcloni2$retroTop==seqistatd(retro)[,4],"intellectuals and
managers",NEWcloni2$precedenteStato2))

NEWcloni2$precedenteStato2 <- ifelse (NEWcloni2$retroTop==0,0,ifelse
(NEWcloni2$retroTop==seqistatd(retro)[,5],"middle
employees",NEWcloni2$precedenteStato2))

NEWcloni2$precedenteStato2 <- ifelse (NEWcloni2$retroTop==0,0,ifelse
(NEWcloni2$retroTop==seqistatd(retro)[,6],"manual skilled
employees",NEWcloni2$precedenteStato2))

NEWcloni2$precedenteStato2 <- ifelse (NEWcloni2$retroTop==0,0,ifelse
(NEWcloni2$retroTop==seqistatd(retro)[,7],"Non-manual skilled
employees",NEWcloni2$precedenteStato2))

NEWcloni2$precedenteStato2 <- ifelse (NEWcloni2$retroTop==0,0,ifelse
(NEWcloni2$retroTop==seqistatd(retro)[,8],"non-skilled
employees",NEWcloni2$precedenteStato2))

NEWcloni2$precedenteStato2 <- ifelse (NEWcloni2$retroTop==0,0,ifelse
(NEWcloni2$retroTop==seqistatd(retro)[,9],"indefined
job",NEWcloni2$precedenteStato2))

NEWcloni2$precedenteStato2 <- ifelse (NEWcloni2$retroTop==0,0,ifelse
(NEWcloni2$retroTop==seqistatd(retro)[,10],"inactive",NEWcloni2$precedenteStato
2))

NEWcloni2$precedenteStato2 <- ifelse (NEWcloni2$retroTop==0,0,ifelse
(NEWcloni2$retroTop==seqistatd(retro)[,11],"indefined
job",NEWcloni2$precedenteStato2))

NEWcloni2$precedenteStato2 <- ifelse (NEWcloni2$retroTop==0,0,ifelse
(NEWcloni2$retroTop==seqistatd(retro)[,12],"inactive",NEWcloni2$precedenteStato
2))

NEWcloni2$precedenteStato2 <- ifelse (NEWcloni2$retroTop==0,0,ifelse
(NEWcloni2$retroTop==seqistatd(retro)[,13],"unemployment",NEWcloni2$precede
nteStato2))


NEWcloni2$PSappoggio <- recode(NEWcloni2$CSPLAJ..,

                "'top management'='top-executives';
```

```
                    'liberal professions'='top-executives';
                    'other self-employed'='self-employed';
                    'academic professions and senior management'='intellectuals and
managers';
                    'intermediate professions'='middle employees';
                    'qualified non-manual professions'='Non-manual skilled
employees';
                    'qualified manual professions'='manual skilled employees';
                    'unqualified non-manual and manual workers'='non-skilled
employees'")

for(i in 1:length(NEWcloni2[,1])) {
  a <-  as.character(NEWcloni2$PSappoggio[i])
  NEWcloni2$precedenteStato2[i] <- recode(NEWcloni2$precedenteStato2[i],
"'0'=a")
}

NEWcloni2$precedenteStato3 <- recode(NEWcloni2$precedenteStato2,
                        "'inactive' = -2;
                        'indefined job' = -1;
                        'intellectuals and managers' = 2;
                        'manual skilled employees' = 7;
                        'middle employees' = 4;
                        'Non-manual skilled employees' = 6;
                        'non-skilled employees' = 8;
                        'self-employed' = 5;
                        'top-executives' = 1")
table(NEWcloni2$precedenteStato3)
```

```
NEWcloni2$precedenteStato3MR <-
recode(NEWcloni2$precedenteStato3,"'unemployment'=NA")


NEWcloni2$precedenteStato3MR <- as.factor(NEWcloni2$precedenteStato3MR)

NEWcloni2$precedenteStato3MR <- relevel(NEWcloni2$precedenteStato3MR, ref =
"-2")


table(NEWcloni2$precedenteStato3MR)


#job transitions#

#in campione#

CampioneN48p90mesi$forTranitionsPRIMA <-
recode(CampioneN48p90mesi$precedenteStato3, "-2=0;-1=0")

CampioneN48p90mesi$forTranitionsDOPO  <-
recode(CampioneN48p90mesi$dm48m90pPamCut10WC2B2corr,
                                    "87=0;

250=5;

254=8;

264=0;

373=2;

441=1;

443=7;

455=0;

460=6;

465=4")


table(CampioneN48p90mesi$forTranitionsPRIMA)

table(CampioneN48p90mesi$forTranitionsDOPO)
```

```
CampioneN48p90mesi$Tranitions <-
(CampioneN48p90mesi$forTranitionsPRIMA*10) +
CampioneN48p90mesi$forTranitionsDOPO

CampioneN48p90mesi$Tranitions2 <- recode (CampioneN48p90mesi$Tranitions,
"0:8=NA;c(10,20,30,40,50,60,70,80)=NA;c(11,22,33,44,55,66,77,88,65,56)='stability';


12:18='downgrading';23:28='downgrading';34:38='downgrading';45:48='downgradin
g';57:58='downgrading';67:68='downgrading';78='downgrading';


21='upgrading';31:32='upgrading';41:43='upgrading';51:54='upgrading';61:64='upgr
ading';71:76='upgrading';81:87='upgrading'")


table(CampioneN48p90mesi$Tranitions2)



#in cloni#

NEWcloni2$forTranitionsPRIMA <-  recode(NEWcloni2$precedenteStato3MR, "-
2=0;-1=0")

NEWcloni2$forTranitionsPRIMA <-
as.integer(as.character(NEWcloni2$forTranitionsPRIMA))

NEWcloni2$forTranitionsDOPO  <-
recode(NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr,
                        "2=4;
                         9=0;
                        55=0;
                        67=5;
                        161=2;
                        183=8;
                        197=0;
```

388=6;

494=0;

1001=1;

1002=7;

1003=0")

table(NEWcloni2$forTranitionsPRIMA)

table(NEWcloni2$forTranitionsDOPO)

NEWcloni2$Tranitions <- (NEWcloni2$forTranitionsPRIMA*10) + NEWcloni2$forTranitionsDOPO

NEWcloni2$Tranitions2 <- recode (NEWcloni2$Tranitions, "0:8=NA;c(10,20,30,40,50,60,70,80)=NA;c(11,22,33,44,55,66,77,88,65,56)='stability';

12:18='downgrading';23:28='downgrading';45:48='downgrading';57:58='downgrading';67:68='downgrading';78='downgrading';

21='upgrading';41:43='upgrading';51:54='upgrading';61:64='upgrading';71:76='upgrading';81:87='upgrading'")

table(NEWcloni2$Tranitions2)

#Job, unemployment, inactivity transition#

CampioneN48p90mesi$WIU <- recode(CampioneN48p90mesi$dm48m90pPamCut10WC2B2corr,

"87='inactivity';

264='unemployment';

else='job'")

table(CampioneN48p90mesi$WIU)

```
CampioneN48p90mesi$WIU <- as.factor(CampioneN48p90mesi$WIU)
CampioneN48p90mesi$WIU <- relevel (CampioneN48p90mesi$WIU, ref = "job")

NEWcloni2$WIU  <- recode(NEWcloni2$dm48m90pPamCut9WC2BCLONIcorr,
                         "494='inactivity';
                          1003='unemployment';
                          else='job'")
table(NEWcloni2$WIU)
NEWcloni2$WIU <- as.factor(NEWcloni2$WIU)
NEWcloni2$WIU <- relevel (NEWcloni2$WIU, ref = "job")

#campione#
CampioneN48p90mesi$campioneApp <- 1
NEWcloni2$campioneApp <- 0
```

9- Inferential analyses

```
###TRANSIZIONE work-inactive-unemployment#

#campione

CampioneN48p90mesi$WIUmr <- relevel (CampioneN48p90mesi$WIU, ref = "job")

NEWcloni2$WIUmr <- relevel (NEWcloni2$WIU, ref = "job")

CampioneN48p90mesi$precedenteStato3MR <- relevel
(CampioneN48p90mesi$precedenteStato3MR, "4")

NEWcloni2$precedenteStato3MR <- relevel (NEWcloni2$precedenteStato3MR, "4")


WORKinaUN <- multinom (CampioneN48p90mesi$WIUmr ~
CampioneN48p90mesi$SEXmr + CampioneN48p90mesi$classAgeUn2MR +
CampioneN48p90mesi$natUn2BinMR + CampioneN48p90mesi$OriginMR +
CampioneN48p90mesi$edUnMR + CampioneN48p90mesi$precedenteStato3MR,
weights=CampioneN48p90mesi$NEWpeso, data=CampioneN48p90mesi)

intervalliWIU <- confint (WORKinaUN)

summary(WORKinaUN)


#p-values per multinom - controllo#

z <- summary(WORKinaUN)$coefficients/summary(WORKinaUN)$standard.errors

# 2-tailed Wald z tests to test significance of coefficients

p <- (1 - pnorm(abs(z), 0, 1)) * 2

p


#controllo

WORKinaUN2 <- multinom (NEWcloni2$WIUmr ~ NEWcloni2$SEXmr +
NEWcloni2$classAgeUn2MR + NEWcloni2$natUn2BinMR + NEWcloni2$Origin +
NEWcloni2$edUnMR + NEWcloni2$precedenteStato3MR,
weights=NEWcloni2$NEWpeso, data=NEWcloni2)
```

```
intervalliWIU2 <- confint (WORKinaUN2)
summary(WORKinaUN2)

#p-values per multinom - controllo#
z <- summary(WORKinaUN2)$coefficients/summary(WORKinaUN2)$standard.errors
# 2-tailed Wald z tests to test significance of coefficients
p <- (1 - pnorm(abs(z), 0, 1)) * 2
p



##significatività con metodo bayesiano.#
#campione#
ForBay <- summary(WORKinaUN)
summary(ForBay)
BayProbIna <- matrix(nrow=1, ncol=16)

for (i in 2:17){
  BayProbIna[i-1]<- pnorm(0 , mean = ForBay$coefficients[(i*2)-1], sd =
ForBay$standard.errors[(i*2)-1])
}
BayProbUn <- matrix(nrow=1, ncol=16)
for (i in 2:17){
  BayProbUn[i-1]<- pnorm(0 , mean = ForBay$coefficients[(i*2)], sd =
ForBay$standard.errors[(i*2)])
}
```

```
NColonne <- c("woman","15-
24","50+","foreign","OriginHigh","OriginLow","EducationHigh","EducationLow","-
2","-1","8","7","6","5","2","1")

colnames(BayProbIna) <- NColonne

colnames(BayProbUn) <- NColonne


#controllo#


ForBay2 <- summary(WORKinaUN2)

summary(ForBay2)

BayProbIna2 <- matrix(nrow=1, ncol=16)

for (i in 2:17){

  BayProbIna2[i-1]<- pnorm(0 , mean = ForBay2$coefficients[(i*2)-1], sd =
ForBay2$standard.errors[(i*2)-1])

}

BayProbUn2 <- matrix(nrow=1, ncol=16)

for (i in 2:17){

  BayProbUn2[i-1]<- pnorm(0 , mean = ForBay2$coefficients[(i*2)], sd =
ForBay2$standard.errors[(i*2)])

}


NColonne <- c("woman","15-
24","50+","foreign","OriginHigh","OriginLow","EducationHigh","EducationLow","-
1","8","-2","1","2","5","6","7")

colnames(BayProbIna2) <- NColonne

colnames(BayProbUn2) <- NColonne
```

```
#### COMPLEXITY index ####

NEWcloni2$precedenteStato3MR <- relevel (NEWcloni2$precedenteStato3MR,"4")

CampioneN48p90mesi$precedenteStato3MR <- relevel
(CampioneN48p90mesi$precedenteStato3MR,"4")


Index1 <- glm (NEWcloni2$SeqTransitions ~ NEWcloni2$SEXmr +
NEWcloni2$classAgeUn2MR + NEWcloni2$natUn2BinMR + NEWcloni2$Origin +
NEWcloni2$edUnMR + NEWcloni2$precedenteStato3MR, data= NEWcloni2,
weights=NEWcloni2$NEWpeso)

Index2 <- glm (CampioneN48p90mesi$SeqTransitions ~
CampioneN48p90mesi$SEXmr + CampioneN48p90mesi$classAgeUn2MR +
CampioneN48p90mesi$natUn2BinMR + CampioneN48p90mesi$Origin +
CampioneN48p90mesi$edUnMR + CampioneN48p90mesi$precedenteStato3MR,
data= CampioneN48p90mesi, weights=CampioneN48p90mesi$NEWpeso)


intervalliIndex1 <- confint (Index1)

intervalliIndex2 <- confint (Index2)


summary(Index1)

summary(Index2)


#campione#

ForBay <- summary(Index2)

InstaCamp <- matrix(nrow=1, ncol=16)


for (i in 2:17){

  InstaCamp[i-1]<- pnorm(0 , mean = ForBay$coefficients[i], sd =
ForBay$coefficients[17+i])
```

```
}

NColonne <- c("woman","15-
24","50+","foreign","OriginHigh","OriginLow","EducationHigh","EducationLow","-
2","-1","8","7","6","5","2","1")

colnames(InstaCamp) <- NColonne

#controllo#

ForBay <- summary(Index1)

InstaContr <- matrix(nrow=1, ncol=16)

for (i in 2:17){

  InstaContr[i-1]<- pnorm(0 , mean = ForBay$coefficients[i], sd =
ForBay$coefficients[17+i])

}

NColonne <- c("woman","15-
24","50+","foreign","OriginHigh","OriginLow","EducationHigh","EducationLow","-
2","-1","1","2","5","6","7","8")

colnames(InstaContr) <- NColonne

#DOWNGRADING#

#UpStableDown con multinomiale

library(nnet)

NEWcloni2$Tranitions2 <- relevel(NEWcloni2$Tranitions2, "stability")

CampioneN48p90mesi$Tranitions2 <- relevel(CampioneN48p90mesi$Tranitions2,
"stability")
```

```
UPstableDOWN1B <- multinom (NEWcloni2$Tranitions2 ~ NEWcloni2$SEXmr +
NEWcloni2$classAgeUn2MR + NEWcloni2$natUn2BinMR + NEWcloni2$Origin +
NEWcloni2$edUnMR + NEWcloni2$precedenteStato3MR, data= NEWcloni2,
Hess=TRUE, method="logistic", weights=NEWcloni2$NEWpeso)

UPstableDOWN2B <- multinom (CampioneN48p90mesi$Tranitions2 ~
CampioneN48p90mesi$SEXmr + CampioneN48p90mesi$classAgeUn2MR +
CampioneN48p90mesi$natUn2BinMR + CampioneN48p90mesi$Origin +
CampioneN48p90mesi$edUnMR + CampioneN48p90mesi$precedenteStato3MR,
data= CampioneN48p90mesi, Hess=TRUE, method="logistic",
weights=CampioneN48p90mesi$NEWpeso)


summary(UPstableDOWN1B)

summary(UPstableDOWN2B)


#p-values per multinom - controllo#

z <-
summary(UPstableDOWN1B)$coefficients/summary(UPstableDOWN1B)$standard.e
rrors

# 2-tailed Wald z tests to test significance of coefficients

p <- (1 - pnorm(abs(z), 0, 1)) * 2

p


##significatività con metodo bayesiano.#

#controllo#

ForBay2 <- summary(UPstableDOWN1B)

summary(ForBay2)

BayProbUP2 <- matrix(nrow=1, ncol=16)

for (i in 2:17){
```

```
  BayProbUP2[i-1]<- pnorm(0 , mean = ForBay2$coefficients[(i*2)-1], sd =
ForBay2$standard.errors[(i*2)-1])

}

BayProbDOWN2 <- matrix(nrow=1, ncol=16)

for (i in 2:17){

  BayProbDOWN2[i-1]<- pnorm(0 , mean = ForBay2$coefficients[(i*2)], sd =
ForBay2$standard.errors[(i*2)])

}


NColonne <- c("woman","15-
24","50+","foreign","OriginHigh","OriginLow","EducationHigh","EducationLow","-
1","8","-2","1","2","5","6","7")

colnames(BayProbUP2) <- NColonne

colnames(BayProbDOWN2) <- NColonne


#p-values per multinom - campione#

z <-
summary(UPstableDOWN2B)$coefficients/summary(UPstableDOWN2B)$standard.e
rrors

# 2-tailed Wald z tests to test significance of coefficients

p <- (1 - pnorm(abs(z), 0, 1)) * 2

p


##significatività con metodo bayesiano.#

#campione#


ForBay2 <- summary(UPstableDOWN2B)

summary(ForBay2)
```

```
BayProbUP2 <- matrix(nrow=1, ncol=16)

for (i in 2:17){

  BayProbUP2[i-1]<- pnorm(0 , mean = ForBay2$coefficients[(i*2)-1], sd =
ForBay2$standard.errors[(i*2)-1])

}

BayProbDOWN2 <- matrix(nrow=1, ncol=16)

for (i in 2:17){

  BayProbDOWN2[i-1]<- pnorm(0 , mean = ForBay2$coefficients[(i*2)], sd =
ForBay2$standard.errors[(i*2)])

}


NColonne <- c("woman","15-
24","50+","foreign","OriginHigh","OriginLow","EducationHigh","EducationLow","-
2","-1","8","7","6","5","2","1")

colnames(BayProbUP2) <- NColonne

colnames(BayProbDOWN2) <- NColonne


------

##DOWN##


###controllo###


#crezione database per risultati#

MargEffDown <- matrix(0,ncol=1,nrow=22)

MargEffDown <- as.data.frame(MargEffDown)

row.names(MargEffDown) <- c(levels (NEWcloni2$SEXmr),levels
(NEWcloni2$classAgeUn2MR),"Swiss", "non-swiss",levels (NEWcloni2$Origin),levels
(NEWcloni2$edUnMR),levels (NEWcloni2$precedenteStato3MR))
```

```
#references#
MargEffDown[1,1] <- "REF"
MargEffDown[3,1] <- "REF"
MargEffDown[6,1] <- "REF"
MargEffDown[8,1] <- "REF"
MargEffDown[11,1] <- "REF"
MargEffDown[14,1] <- "REF"

#sex
a <- predict(UPstableDOWN1B, newdata = NEWcloni2, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,NEWcloni2$SEXmr)
bmale <- subset (b, NEWcloni2$SEXmr=="man")
cmale <- mean(bmale[,3], na.rm=T) - mean(bmale[,1], na.rm=T)
bfemale <- subset (b, NEWcloni2$SEXmr=="woman")
cfemale <- mean(bfemale[,3], na.rm=T) - mean(bfemale[,1], na.rm=T)
c <- cfemale - cmale
MargEffDown[2,1] <- c

#age
a <- predict(UPstableDOWN1B, newdata = NEWcloni2, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,NEWcloni2$classAgeUn2MR)

b25 <- subset (b, NEWcloni2$classAgeUn2MR=="25-49 years")
c25 <- mean(b25[,3], na.rm=T) - mean(b25[,1], na.rm=T)
```

```
b15 <- subset (b, NEWcloni2$classAgeUn2MR=="15-24 years")
c15 <- mean(b15[,3], na.rm=T) - mean(b15[,1], na.rm=T)

b50 <- subset (b, NEWcloni2$classAgeUn2MR=="50+ years")
c50 <- mean(b50[,3], na.rm=T) - mean(b50[,1], na.rm=T)

MargEffDown[4,1] <- c15- c25
MargEffDown[5,1] <- c50 - c25

#nationality#
a <- predict(UPstableDOWN1B, newdata = NEWcloni2, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,NEWcloni2$natUn2BinMR)
bCH <- subset (b, NEWcloni2$natUn2BinMR=="Suisse")
cCH <- mean(bCH[,3], na.rm=T) - mean(bCH[,1], na.rm=T)
bET <- subset (b, NEWcloni2$natUn2BinMR=="Etranger")
cET <- mean(bET[,3], na.rm=T) - mean(bET[,1], na.rm=T)
c <- cET - cCH
MargEffDown[7,1] <- c

#Origin#
a <- predict(UPstableDOWN1B, newdata = NEWcloni2, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,NEWcloni2$Origin)

bM <- subset (b, NEWcloni2$Origin=="medium")
```

```
cM <- mean(bM[,3], na.rm=T) - mean(bM[,1], na.rm=T)

bL <- subset (b, NEWcloni2$Origin=="low")
cL <- mean(bL[,3], na.rm=T) - mean(bL[,1], na.rm=T)

bH <- subset (b, NEWcloni2$Origin=="high")
cH <- mean(bH[,3], na.rm=T) - mean(bH[,1], na.rm=T)

MargEffDown[10,1] <- cL - cM
MargEffDown[9,1] <- cH - cM

#edu#
a <- predict(UPstableDOWN1B, newdata = NEWcloni2, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,NEWcloni2$edUnMR)

bME <- subset (b, NEWcloni2$edUnMR=="medium level education")
cME <- mean(bME[,3], na.rm=T) - mean(bME[,1], na.rm=T)

bHE <- subset (b, NEWcloni2$edUnMR=="high education")
cHE <- mean(bHE[,3], na.rm=T) - mean(bHE[,1], na.rm=T)

bLE <- subset (b, NEWcloni2$edUnMR=="low education")
cLE <- mean(bLE[,3], na.rm=T) - mean(bLE[,1], na.rm=T)

MargEffDown[12,1] <- cHE - cME
MargEffDown[13,1] <- cLE - cME
```

```
#precedentestato#
a <- predict(UPstableDOWN1B, newdata = NEWcloni2, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,NEWcloni2$precedenteStato3MR)

b4 <- subset (b, NEWcloni2$precedenteStato3MR=="4")
c4 <- mean(b4[,3], na.rm=T) - mean(b4[,1], na.rm=T)

bm2 <- subset (b, NEWcloni2$precedenteStato3MR=="-2")
cm2 <- mean(bm2[,3], na.rm=T) - mean(bm2[,1], na.rm=T)

bm1 <- subset (b, NEWcloni2$precedenteStato3MR=="-1")
cm1 <- mean(bm1[,3], na.rm=T) - mean(bm1[,1], na.rm=T)

b1 <- subset (b, NEWcloni2$precedenteStato3MR=="1")
c1 <- mean(b1[,3], na.rm=T) - mean(b1[,1], na.rm=T)

b2 <- subset (b, NEWcloni2$precedenteStato3MR=="2")
c2 <- mean(b2[,3], na.rm=T) - mean(b2[,1], na.rm=T)

b5 <- subset (b, NEWcloni2$precedenteStato3MR=="5")
c5 <- mean(b5[,3], na.rm=T) - mean(b5[,1], na.rm=T)

b6 <- subset (b, NEWcloni2$precedenteStato3MR=="6")
c6 <- mean(b6[,3], na.rm=T) - mean(b6[,1], na.rm=T)
```

```
b7 <- subset (b, NEWcloni2$precedenteStato3MR=="7")
c7 <- mean(b7[,3], na.rm=T) - mean(b7[,1], na.rm=T)

b8 <- subset (b, NEWcloni2$precedenteStato3MR=="8")
c8 <- mean(b8[,3], na.rm=T) - mean(b8[,1], na.rm=T)

MargEffDown[15,1] <- cm2 - c4
MargEffDown[16,1] <- cm1 - c4
MargEffDown[17,1] <- c1 - c4
MargEffDown[18,1] <- c2 - c4
MargEffDown[19,1] <- c5 - c4
MargEffDown[20,1] <- c6 - c4
MargEffDown[21,1] <- c7 - c4
MargEffDown[22,1] <- c8 - c4



###campione####



#crezione database per risultati#
MargEffDownCamp <- matrix(0,ncol=1,nrow=22)
MargEffDownCamp <- as.data.frame(MargEffDownCamp)
row.names(MargEffDownCamp) <- c(levels (CampioneN48p90mesi$SEXmr),levels
(CampioneN48p90mesi$classAgeUn2MR),"Swiss", "non-swiss",levels
(CampioneN48p90mesi$Origin),levels (CampioneN48p90mesi$edUnMR),levels
(CampioneN48p90mesi$precedenteStato3MR))
```

```
#references#
MargEffDownCamp[1,1] <- "REF"
MargEffDownCamp[3,1] <- "REF"
MargEffDownCamp[6,1] <- "REF"
MargEffDownCamp[8,1] <- "REF"
MargEffDownCamp[11,1] <- "REF"
MargEffDownCamp[14,1] <- "REF"

#sex
a <- predict(UPstableDOWN2B, newdata = CampioneN48p90mesi, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,CampioneN48p90mesi$SEXmr)
bmale <- subset (b, CampioneN48p90mesi$SEXmr=="man")
cmale <- mean(bmale[,3], na.rm=T) - mean(bmale[,1], na.rm=T)
bfemale <- subset (b, CampioneN48p90mesi$SEXmr=="woman")
cfemale <- mean(bfemale[,3], na.rm=T) - mean(bfemale[,1], na.rm=T)
c <- cfemale - cmale
MargEffDownCamp[2,1] <- c

#age
a <- predict(UPstableDOWN2B, newdata = CampioneN48p90mesi, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,CampioneN48p90mesi$classAgeUn2MR)

b25 <- subset (b, CampioneN48p90mesi$classAgeUn2MR=="25-49 years")
c25 <- mean(b25[,3], na.rm=T) - mean(b25[,1], na.rm=T)
```

```
b15 <- subset (b, CampioneN48p90mesi$classAgeUn2MR=="15-24 years")
c15 <- mean(b15[,3], na.rm=T) - mean(b15[,1], na.rm=T)

b50 <- subset (b, CampioneN48p90mesi$classAgeUn2MR=="50+ years")
c50 <- mean(b50[,3], na.rm=T) - mean(b50[,1], na.rm=T)

MargEffDownCamp[4,1] <- c15- c25
MargEffDownCamp[5,1] <- c50 - c25

#nationality#
a <- predict(UPstableDOWN2B, newdata = CampioneN48p90mesi, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,CampioneN48p90mesi$natUn2BinMR)
bCH <- subset (b, CampioneN48p90mesi$natUn2BinMR=="1")
cCH <- mean(bCH[,3], na.rm=T) - mean(bCH[,1], na.rm=T)
bET <- subset (b, CampioneN48p90mesi$natUn2BinMR=="2")
cET <- mean(bET[,3], na.rm=T) - mean(bET[,1], na.rm=T)
c <- cET - cCH
MargEffDownCamp[7,1] <- c

#Origin#
a <- predict(UPstableDOWN2B, newdata = CampioneN48p90mesi, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,CampioneN48p90mesi$Origin)

bM <- subset (b, CampioneN48p90mesi$Origin=="medium")
cM <- mean(bM[,3], na.rm=T) - mean(bM[,1], na.rm=T)
```

```
bL <- subset (b, CampioneN48p90mesi$Origin=="low")
cL <- mean(bL[,3], na.rm=T) - mean(bL[,1], na.rm=T)

bH <- subset (b, CampioneN48p90mesi$Origin=="high")
cH <- mean(bH[,3], na.rm=T) - mean(bH[,1], na.rm=T)

MargEffDownCamp[10,1] <- cL - cM
MargEffDownCamp[9,1] <- cH - cM

#edu#
a <- predict(UPstableDOWN2B, newdata = CampioneN48p90mesi, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,CampioneN48p90mesi$edUnMR)

bME <- subset (b, CampioneN48p90mesi$edUnMR=="medium level education")
cME <- mean(bME[,3], na.rm=T) - mean(bME[,1], na.rm=T)

bHE <- subset (b, CampioneN48p90mesi$edUnMR=="high education")
cHE <- mean(bHE[,3], na.rm=T) - mean(bHE[,1], na.rm=T)

bLE <- subset (b, CampioneN48p90mesi$edUnMR=="low education")
cLE <- mean(bLE[,3], na.rm=T) - mean(bLE[,1], na.rm=T)

MargEffDownCamp[12,1] <- cHE - cME
MargEffDownCamp[13,1] <- cLE - cME
```

```
#precedentestato#
a <- predict(UPstableDOWN2B, newdata = CampioneN48p90mesi, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,CampioneN48p90mesi$precedenteStato3MR)

b4 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="4")
c4 <- mean(b4[,3], na.rm=T) - mean(b4[,1], na.rm=T)

bm2 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="-2")
cm2 <- mean(bm2[,3], na.rm=T) - mean(bm2[,1], na.rm=T)

bm1 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="-1")
cm1 <- mean(bm1[,3], na.rm=T) - mean(bm1[,1], na.rm=T)

b1 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="1")
c1 <- mean(b1[,3], na.rm=T) - mean(b1[,1], na.rm=T)

b2 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="2")
c2 <- mean(b2[,3], na.rm=T) - mean(b2[,1], na.rm=T)

b5 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="5")
c5 <- mean(b5[,3], na.rm=T) - mean(b5[,1], na.rm=T)

b6 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="6")
c6 <- mean(b6[,3], na.rm=T) - mean(b6[,1], na.rm=T)

b7 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="7")
```

```
c7 <- mean(b7[,3], na.rm=T) - mean(b7[,1], na.rm=T)

b8 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="8")
c8 <- mean(b8[,3], na.rm=T) - mean(b8[,1], na.rm=T)

MargEffDownCamp[15,1] <- cm2 - c4
MargEffDownCamp[16,1] <- cm1 - c4
MargEffDownCamp[17,1] <- c1 - c4
MargEffDownCamp[18,1] <- c2 - c4
MargEffDownCamp[19,1] <- c5 - c4
MargEffDownCamp[20,1] <- c6 - c4
MargEffDownCamp[21,1] <- c7 - c4
MargEffDownCamp[22,1] <- c8 - c4



##UNEMPLOYMENT##

###controllo###

#crezione database per risultati#
MargEffUN <- matrix(0,ncol=1,nrow=22)
MargEffUN <- as.data.frame(MargEffUN)
row.names(MargEffUN) <- c(levels (NEWcloni2$SEXmr),levels
(NEWcloni2$classAgeUn2MR),"Swiss", "non-swiss",levels (NEWcloni2$Origin),levels
(NEWcloni2$edUnMR),levels (NEWcloni2$precedenteStato3MR))
```

```
#references#
MargEffUN[1,1] <- "REF"
MargEffUN[3,1] <- "REF"
MargEffUN[6,1] <- "REF"
MargEffUN[8,1] <- "REF"
MargEffUN[11,1] <- "REF"
MargEffUN[14,1] <- "REF"

#sex
a <- predict(WORKinaUN2, newdata = NEWcloni2, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,NEWcloni2$SEXmr)
bmale <- subset (b, NEWcloni2$SEXmr=="man")
cmale <- mean(bmale[,3], na.rm=T) - mean(bmale[,1], na.rm=T)
bfemale <- subset (b, NEWcloni2$SEXmr=="woman")
cfemale <- mean(bfemale[,3], na.rm=T) - mean(bfemale[,1], na.rm=T)
c <- cfemale - cmale
MargEffUN[2,1] <- c

#age
a <- predict(WORKinaUN2, newdata = NEWcloni2, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,NEWcloni2$classAgeUn2MR)

b25 <- subset (b, NEWcloni2$classAgeUn2MR=="25-49 years")
c25 <- mean(b25[,3], na.rm=T) - mean(b25[,1], na.rm=T)
```

```
b15 <- subset (b, NEWcloni2$classAgeUn2MR=="15-24 years")
c15 <- mean(b15[,3], na.rm=T) - mean(b15[,1], na.rm=T)

b50 <- subset (b, NEWcloni2$classAgeUn2MR=="50+ years")
c50 <- mean(b50[,3], na.rm=T) - mean(b50[,1], na.rm=T)

MargEffUN[4,1] <- c15- c25
MargEffUN[5,1] <- c50 - c25

#nationality#
a <- predict(WORKinaUN2, newdata = NEWcloni2, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,NEWcloni2$natUn2BinMR)
bCH <- subset (b, NEWcloni2$natUn2BinMR=="Suisse")
cCH <- mean(bCH[,3], na.rm=T) - mean(bCH[,1], na.rm=T)
bET <- subset (b, NEWcloni2$natUn2BinMR=="Etranger")
cET <- mean(bET[,3], na.rm=T) - mean(bET[,1], na.rm=T)
c <- cET - cCH
MargEffUN[7,1] <- c

#Origin#
a <- predict(WORKinaUN2, newdata = NEWcloni2, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,NEWcloni2$Origin)

bM <- subset (b, NEWcloni2$Origin=="medium")
cM <- mean(bM[,3], na.rm=T) - mean(bM[,1], na.rm=T)
```

```
bL <- subset (b, NEWcloni2$Origin=="low")
cL <- mean(bL[,3], na.rm=T) - mean(bL[,1], na.rm=T)

bH <- subset (b, NEWcloni2$Origin=="high")
cH <- mean(bH[,3], na.rm=T) - mean(bH[,1], na.rm=T)

MargEffUN[10,1] <- cL - cM
MargEffUN[9,1] <- cH - cM

#edu#
a <- predict(WORKinaUN2, newdata = NEWcloni2, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,NEWcloni2$edUnMR)

bME <- subset (b, NEWcloni2$edUnMR=="medium level education")
cME <- mean(bME[,3], na.rm=T) - mean(bME[,1], na.rm=T)

bHE <- subset (b, NEWcloni2$edUnMR=="high education")
cHE <- mean(bHE[,3], na.rm=T) - mean(bHE[,1], na.rm=T)

bLE <- subset (b, NEWcloni2$edUnMR=="low education")
cLE <- mean(bLE[,3], na.rm=T) - mean(bLE[,1], na.rm=T)

MargEffUN[12,1] <- cHE - cME
MargEffUN[13,1] <- cLE - cME
```

```
#precedentestato#
a <- predict(WORKinaUN2, newdata = NEWcloni2, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,NEWcloni2$precedenteStato3MR)

b4 <- subset (b, NEWcloni2$precedenteStato3MR=="4")
c4 <- mean(b4[,3], na.rm=T) - mean(b4[,1], na.rm=T)

bm2 <- subset (b, NEWcloni2$precedenteStato3MR=="-2")
cm2 <- mean(bm2[,3], na.rm=T) - mean(bm2[,1], na.rm=T)

bm1 <- subset (b, NEWcloni2$precedenteStato3MR=="-1")
cm1 <- mean(bm1[,3], na.rm=T) - mean(bm1[,1], na.rm=T)

b1 <- subset (b, NEWcloni2$precedenteStato3MR=="1")
c1 <- mean(b1[,3], na.rm=T) - mean(b1[,1], na.rm=T)

b2 <- subset (b, NEWcloni2$precedenteStato3MR=="2")
c2 <- mean(b2[,3], na.rm=T) - mean(b2[,1], na.rm=T)

b5 <- subset (b, NEWcloni2$precedenteStato3MR=="5")
c5 <- mean(b5[,3], na.rm=T) - mean(b5[,1], na.rm=T)

b6 <- subset (b, NEWcloni2$precedenteStato3MR=="6")
c6 <- mean(b6[,3], na.rm=T) - mean(b6[,1], na.rm=T)

b7 <- subset (b, NEWcloni2$precedenteStato3MR=="7")
```

```
c7 <- mean(b7[,3], na.rm=T) - mean(b7[,1], na.rm=T)

b8 <- subset (b, NEWcloni2$precedenteStato3MR=="8")
c8 <- mean(b8[,3], na.rm=T) - mean(b8[,1], na.rm=T)

MargEffUN[15,1] <- cm2 - c4
MargEffUN[16,1] <- cm1 - c4
MargEffUN[17,1] <- c1 - c4
MargEffUN[18,1] <- c2 - c4
MargEffUN[19,1] <- c5 - c4
MargEffUN[20,1] <- c6 - c4
MargEffUN[21,1] <- c7 - c4
MargEffUN[22,1] <- c8 - c4



###campione####



#crezione database per risultati#
MargEffUNCamp<- matrix(0,ncol=1,nrow=22)
MargEffUNCamp<- as.data.frame(MargEffUNCamp)
row.names(MargEffUNCamp) <- c(levels (CampioneN48p90mesi$SEXmr),levels
(CampioneN48p90mesi$classAgeUn2MR),"Swiss", "non-swiss",levels
(CampioneN48p90mesi$Origin),levels (CampioneN48p90mesi$edUnMR),levels
(CampioneN48p90mesi$precedenteStato3MR))

#references#
```

```
MargEffUNCamp[1,1] <- "REF"
MargEffUNCamp[3,1] <- "REF"
MargEffUNCamp[6,1] <- "REF"
MargEffUNCamp[8,1] <- "REF"
MargEffUNCamp[11,1] <- "REF"
MargEffUNCamp[14,1] <- "REF"

#sex
a <- predict(WORKinaUN, newdata = CampioneN48p90mesi, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,CampioneN48p90mesi$SEXmr)
bmale <- subset (b, CampioneN48p90mesi$SEXmr=="man")
cmale <- mean(bmale[,3], na.rm=T) - mean(bmale[,1], na.rm=T)
bfemale <- subset (b, CampioneN48p90mesi$SEXmr=="woman")
cfemale <- mean(bfemale[,3], na.rm=T) - mean(bfemale[,1], na.rm=T)
c <- cfemale - cmale
MargEffUNCamp[2,1] <- c

#age
a <- predict(WORKinaUN, newdata = CampioneN48p90mesi, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,CampioneN48p90mesi$classAgeUn2MR)

b25 <- subset (b, CampioneN48p90mesi$classAgeUn2MR=="25-49 years")
c25 <- mean(b25[,3], na.rm=T) - mean(b25[,1], na.rm=T)

b15 <- subset (b, CampioneN48p90mesi$classAgeUn2MR=="15-24 years")
```

```
c15 <- mean(b15[,3], na.rm=T) - mean(b15[,1], na.rm=T)

b50 <- subset (b, CampioneN48p90mesi$classAgeUn2MR=="50+ years")
c50 <- mean(b50[,3], na.rm=T) - mean(b50[,1], na.rm=T)

MargEffUNCamp[4,1] <- c15- c25
MargEffUNCamp[5,1] <- c50 - c25

#nationality#
a <- predict(WORKinaUN, newdata = CampioneN48p90mesi, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,CampioneN48p90mesi$natUn2BinMR)
bCH <- subset (b, CampioneN48p90mesi$natUn2BinMR=="1")
cCH <- mean(bCH[,3], na.rm=T) - mean(bCH[,1], na.rm=T)
bET <- subset (b, CampioneN48p90mesi$natUn2BinMR=="2")
cET <- mean(bET[,3], na.rm=T) - mean(bET[,1], na.rm=T)
c <- cET - cCH
MargEffUNCamp[7,1] <- c

#Origin#
a <- predict(WORKinaUN, newdata = CampioneN48p90mesi, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,CampioneN48p90mesi$Origin)

bM <- subset (b, CampioneN48p90mesi$Origin=="medium")
cM <- mean(bM[,3], na.rm=T) - mean(bM[,1], na.rm=T)
```

```
bL <- subset (b, CampioneN48p90mesi$Origin=="low")
cL <- mean(bL[,3], na.rm=T) - mean(bL[,1], na.rm=T)

bH <- subset (b, CampioneN48p90mesi$Origin=="high")
cH <- mean(bH[,3], na.rm=T) - mean(bH[,1], na.rm=T)

MargEffUNCamp[10,1] <- cL - cM
MargEffUNCamp[9,1] <- cH - cM

#edu#
a <- predict(WORKinaUN, newdata = CampioneN48p90mesi, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,CampioneN48p90mesi$edUnMR)

bME <- subset (b, CampioneN48p90mesi$edUnMR=="medium level education")
cME <- mean(bME[,3], na.rm=T) - mean(bME[,1], na.rm=T)

bHE <- subset (b, CampioneN48p90mesi$edUnMR=="high education")
cHE <- mean(bHE[,3], na.rm=T) - mean(bHE[,1], na.rm=T)

bLE <- subset (b, CampioneN48p90mesi$edUnMR=="low education")
cLE <- mean(bLE[,3], na.rm=T) - mean(bLE[,1], na.rm=T)

MargEffUNCamp[12,1] <- cHE - cME
MargEffUNCamp[13,1] <- cLE - cME

#precedentestato#
```

```
a <- predict(WORKinaUN, newdata = CampioneN48p90mesi, "probs", se.fit=T)
a <- as.data.frame(a)
b <- cbind (a,CampioneN48p90mesi$precedenteStato3MR)

b4 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="4")
c4 <- mean(b4[,3], na.rm=T) - mean(b4[,1], na.rm=T)

bm2 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="-2")
cm2 <- mean(bm2[,3], na.rm=T) - mean(bm2[,1], na.rm=T)

bm1 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="-1")
cm1 <- mean(bm1[,3], na.rm=T) - mean(bm1[,1], na.rm=T)

b1 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="1")
c1 <- mean(b1[,3], na.rm=T) - mean(b1[,1], na.rm=T)

b2 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="2")
c2 <- mean(b2[,3], na.rm=T) - mean(b2[,1], na.rm=T)

b5 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="5")
c5 <- mean(b5[,3], na.rm=T) - mean(b5[,1], na.rm=T)

b6 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="6")
c6 <- mean(b6[,3], na.rm=T) - mean(b6[,1], na.rm=T)

b7 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="7")
c7 <- mean(b7[,3], na.rm=T) - mean(b7[,1], na.rm=T)
```

```
b8 <- subset (b, CampioneN48p90mesi$precedenteStato3MR=="8")
c8 <- mean(b8[,3], na.rm=T) - mean(b8[,1], na.rm=T)

MargEffUNCamp[15,1] <- cm2 - c4
MargEffUNCamp[16,1] <- cm1 - c4
MargEffUNCamp[17,1] <- c1 - c4
MargEffUNCamp[18,1] <- c2 - c4
MargEffUNCamp[19,1] <- c5 - c4
MargEffUNCamp[20,1] <- c6 - c4
MargEffUNCamp[21,1] <- c7 - c4
MargEffUNCamp[22,1] <- c8 - c4
```

Chapter 3

1- Data preparation

```
#importazione#

library(foreign)

PerClustersCantoni <- read.spss("C:/Users/matteo/Documents/dottorato/articolo divisione territoriale/analisi territoriale.sav",to.data.frame=TRUE)

names(PerClustersCantoni)


#nuova variabile Solde relatif de pendulaires (%)#


PerClustersCantoni$Solde_relatif_pendulaires <-

c(-12.6, -11.6, -16.3, 4.1, -21.0, 50.7, -16.9, 11.9, -12.7,

  2.2, -12.4, -2.7, 1.1, -12.8, -11.4,-0.5,-10.7,-11.2,-17.4,

  -18.0, 0.1, -11.0, -0.9, -8.0, 34.9, 12.1)



#trasformazione#


PerClustersCantoni$A_D_R_C_2006.1 <-
ifelse(PerClustersCantoni$A_D_R_C_2006==1,1,0)

PerClustersCantoni$A_D_R_C_2006.2 <-
ifelse(PerClustersCantoni$A_D_R_C_2006==2,1,0)

PerClustersCantoni$A_D_R_C_2006.3 <-
ifelse(PerClustersCantoni$A_D_R_C_2006==3,1,0)


PerClustersCantoni$P_S_S_F_S_2003.1 <-
ifelse(PerClustersCantoni$P_S_S_F_S_2003==111,1,0)
```

```
PerClustersCantoni$P_S_S_F_S_2003.1 <-
ifelse(PerClustersCantoni$P_S_S_F_S_2003==110,1,0)

PerClustersCantoni$P_S_S_F_S_2003.1 <-
ifelse(PerClustersCantoni$P_S_S_F_S_2003==100,1,0)

PerClustersCantoni$P_S_S_F_S_2003.2 <-
ifelse(PerClustersCantoni$P_S_S_F_S_2003==222,1,0)

PerClustersCantoni$P_S_S_F_S_2003.3 <-
ifelse(PerClustersCantoni$P_S_S_F_S_2003==333,1,0)

PerClustersCantoni$P_S_S_F_S_2003.3 <-
ifelse(PerClustersCantoni$P_S_S_F_S_2003==330,1,0)

PerClustersCantoni$P_S_S_F_S_2003.4 <-
ifelse(PerClustersCantoni$P_S_S_F_S_2003==444,1,0)
```

2- Cluster analysis

```
####fase 1 -tutte le variaili####

appoggioCantoni <-
cbind(PerClustersCantoni[2:12],PerClustersCantoni[17],PerClustersCantoni[19],PerCl
ustersCantoni[20:22],PerClustersCantoni[23:26])

DistanceCanton <- dist(appoggioCantoni, method = "euclidean")


library(cluster)

library(WeightedCluster)


ClustersCantons <- hclust(DistanceCanton,method = "complete", members = NULL)

CantonsSilouette <- as.clustrange(ClustersCantons, diss = as.dist(DistanceCanton),
ncluster = 12)

plot(CantonsSilouette, stat = c("ASWw", "HC"), lwd=3, cex=0.5, col=c("red","blue"))


fanny4Canton <- fanny(DistanceCanton, k=4, diss=TRUE,  maxit = 500)


PerClustersCantoni$fannyCanton4.1 <- fanny4Canton$membership[,1]

PerClustersCantoni$fannyCanton4.2 <- fanny4Canton$membership[,2]

PerClustersCantoni$fannyCanton4.3 <- fanny4Canton$membership[,3]

PerClustersCantoni$fannyCanton4.4 <- fanny4Canton$membership[,4]


for (i in 1:length(PerClustersCantoni$canton)){

PerClustersCantoni$fannyCanton4[i] <-
max(PerClustersCantoni$fannyCanton4.1[i],PerClustersCantoni$fannyCanton4.2[i],P
erClustersCantoni$fannyCanton4.3[i],PerClustersCantoni$fannyCanton4.4[i])

}
```

```
for (i in 1:length(PerClustersCantoni$canton)){

  PerClustersCantoni$fannyCanton4[i] <-
ifelse(PerClustersCantoni$fannyCanton4[i]==PerClustersCantoni$fannyCanton4.1[i],
1,ifelse(PerClustersCantoni$fannyCanton4[i]==PerClustersCantoni$fannyCanton4.2[i
],2,ifelse(PerClustersCantoni$fannyCanton4[i]==PerClustersCantoni$fannyCanton4.3
[i],3,ifelse(PerClustersCantoni$fannyCanton4[i]==PerClustersCantoni$fannyCanton4.
4[i],4,0))))

}



fanny3Canton <- fanny(DistanceCanton, k=3, diss=TRUE,  maxit = 500)


PerClustersCantoni$fannyCanton3.1 <- fanny3Canton$membership[,1]

PerClustersCantoni$fannyCanton3.2 <- fanny3Canton$membership[,2]

PerClustersCantoni$fannyCanton3.3 <- fanny3Canton$membership[,3]


for (i in 1:length(PerClustersCantoni$canton)){

  PerClustersCantoni$fannyCanton3[i] <-
max(PerClustersCantoni$fannyCanton3.1[i],PerClustersCantoni$fannyCanton3.2[i],P
erClustersCantoni$fannyCanton3.3[i])

}


for (i in 1:length(PerClustersCantoni$canton)){

  PerClustersCantoni$fannyCanton3[i] <-
ifelse(PerClustersCantoni$fannyCanton3[i]==PerClustersCantoni$fannyCanton3.1[i],
1,ifelse(PerClustersCantoni$fannyCanton3[i]==PerClustersCantoni$fannyCanton3.2[i
],2,ifelse(PerClustersCantoni$fannyCanton3[i]==PerClustersCantoni$fannyCanton3.3
[i],3,0)))

}
```

```
#gruppi#


table(PerClustersCantoni$fannyCanton4,PerClustersCantoni$canton)


####fase 2 - variaili selezionate####

names(PerClustersCantoni)

appoggioCantoni2 <-
cbind(PerClustersCantoni[2],PerClustersCantoni[3],PerClustersCantoni[6],PerCluster
sCantoni[7],PerClustersCantoni[10],PerClustersCantoni[11],PerClustersCantoni[12],P
erClustersCantoni[17],PerClustersCantoni[19])

DistanceCanton2 <- dist(appoggioCantoni2, method = "euclidean")


ClustersCantons2 <- hclust(DistanceCanton2,method = "complete", members =
NULL)

CantonsSilouette2 <- as.clustrange(ClustersCantons2, diss =
as.dist(DistanceCanton2), ncluster = 12)

plot(CantonsSilouette2, stat = c("ASWw", "HC"), lwd=3, cex=0.5, col=c("red","blue"))


fanny4Canton2 <- fanny(DistanceCanton2, k=4, diss=TRUE,  maxit = 500)


PerClustersCantoni$fannyCanton4.1bis <- fanny4Canton2$membership[,1]

PerClustersCantoni$fannyCanton4.2bis <- fanny4Canton2$membership[,2]

PerClustersCantoni$fannyCanton4.3bis <- fanny4Canton2$membership[,3]

PerClustersCantoni$fannyCanton4.4bis <- fanny4Canton2$membership[,4]


for (i in 1:length(PerClustersCantoni$canton)){
```

```
  PerClustersCantoni$fannyCanton4bis[i] <-
max(PerClustersCantoni$fannyCanton4.1bis[i],PerClustersCantoni$fannyCanton4.2b
is[i],PerClustersCantoni$fannyCanton4.3bis[i],PerClustersCantoni$fannyCanton4.4bi
s[i])
}

for (i in 1:length(PerClustersCantoni$canton)){
  PerClustersCantoni$fannyCanton4bis[i] <-
ifelse(PerClustersCantoni$fannyCanton4bis[i]==PerClustersCantoni$fannyCanton4.1
bis[i],1,ifelse(PerClustersCantoni$fannyCanton4bis[i]==PerClustersCantoni$fannyCa
nton4.2bis[i],2,ifelse(PerClustersCantoni$fannyCanton4bis[i]==PerClustersCantoni$f
annyCanton4.3bis[i],3,ifelse(PerClustersCantoni$fannyCanton4bis[i]==PerClustersCa
ntoni$fannyCanton4.4bis[i],4,0))))
}

fanny3Canton2 <- fanny(DistanceCanton2, k=3, diss=TRUE,  maxit = 500)

PerClustersCantoni$fannyCanton3.1bis <- fanny3Canton2$membership[,1]
PerClustersCantoni$fannyCanton3.2bis <- fanny3Canton2$membership[,2]
PerClustersCantoni$fannyCanton3.3bis <- fanny3Canton2$membership[,3]

for (i in 1:length(PerClustersCantoni$canton)){
  PerClustersCantoni$fannyCanton3bis[i] <-
max(PerClustersCantoni$fannyCanton3.1bis[i],PerClustersCantoni$fannyCanton3.2b
is[i],PerClustersCantoni$fannyCanton3.3bis[i])
}

for (i in 1:length(PerClustersCantoni$canton)){
  PerClustersCantoni$fannyCanton3bis[i] <-
ifelse(PerClustersCantoni$fannyCanton3bis[i]==PerClustersCantoni$fannyCanton3.1
```

```
bis[i],1,ifelse(PerClustersCantoni$fannyCanton3bis[i]==PerClustersCantoni$fannyCanton3.2bis[i],2,ifelse(PerClustersCantoni$fannyCanton3bis[i]==PerClustersCantoni$fannyCanton3.3bis[i],3,0)))
}

#gruppi#

table(PerClustersCantoni$fannyCanton4bis,PerClustersCantoni$canton)
table(PerClustersCantoni$fannyCanton4bis,PerClustersCantoni$fannyCanton4)

table(PerClustersCantoni$fannyCanton3bis,PerClustersCantoni$canton)
table(PerClustersCantoni$fannyCanton3bis,PerClustersCantoni$fannyCanton3)



####fase 2 BIS- variaili selezionate####
names(PerClustersCantoni)
appoggioCantoni2 <-
cbind(PerClustersCantoni[2],PerClustersCantoni[3],PerClustersCantoni[6],PerClustersCantoni[7],PerClustersCantoni[10],PerClustersCantoni[11],PerClustersCantoni[12],PerClustersCantoni[17],PerClustersCantoni[19])
DistanceCanton2 <- dist(appoggioCantoni2, method = "euclidean")

ClustersCantons2 <- hclust(DistanceCanton2,method = "complete", members = NULL)
CantonsSilouette2 <- as.clustrange(ClustersCantons2, diss = as.dist(DistanceCanton2), ncluster = 12)
plot(CantonsSilouette2, stat = c("ASWw", "HC"), lwd=3, cex=0.5, col=c("red","blue"))

##clustering Ward#
```

```
ClustersCantons2bisWARD <-  hclust(as.dist(DistanceCanton2), method = "ward")
PerClustersCantoni$wardClusters4 <- cutree(ClustersCantons2bisWARD, k=4)
#confronto#
table(PerClustersCantoni$canton,PerClustersCantoni$wardClusters4)
table(PerClustersCantoni$fannyCanton4,PerClustersCantoni$wardClusters4)
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$wardClusters4)
table(PerClustersCantoni$fannyCanton4bis,PerClustersCantoni$wardClusters4)
table(PerClustersCantoni$fannyCanton3bis,PerClustersCantoni$wardClusters4)


#clustering PAM#
ClustersCantons2bisPAM <- wcKMedoids(DistanceCanton2, k = 4, initialclust =
ClustersCantons2bis)
PerClustersCantoni$PAMclusters4 <- ClustersCantons2bisPAM$clustering

table(PerClustersCantoni$canton,PerClustersCantoni$PAMclusters4)
table(PerClustersCantoni$fannyCanton4,PerClustersCantoni$PAMclusters4)
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$PAMclusters4)
table(PerClustersCantoni$fannyCanton4bis,PerClustersCantoni$PAMclusters4)
table(PerClustersCantoni$fannyCanton3bis,PerClustersCantoni$wardClusters4)
```

3- Groups characteristics

```
library(car)
##% PME in gruppi#
#divisione dati#
tabella <- table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$PME_2008)
colnames(tabella)

for (i in 1:nrow(tabella)){
 for (j in 1:ncol(tabella)){
 tabella[i,j] <- as.numeric(colnames(tabella)[j])*tabella[i,j]
 }}

tabella <- recode(tabella, "0=NA")

#medie e altri valori
summary(tabella[1,])
summary(tabella[2,])
summary(tabella[3,])

##High_tech_entepreses_2008#
#divisione dati#
tabella <-
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$High_tech_entepreses
_2008)
colnames(tabella)
```

```
for (i in 1:nrow(tabella)){
  for (j in 1:ncol(tabella)){
    tabella[i,j] <- as.numeric(colnames(tabella)[j])*tabella[i,j]
  }}

tabella <- recode(tabella, "0=NA")

#medie e altri valori
summary(tabella[1,])
var(tabella[1,],na.rm =T)
summary(tabella[2,])
var(tabella[2,],na.rm =T)
summary(tabella[3,])
var(tabella[3,],na.rm =T)

##Indice_global_de_la_charge_fiscale_2006#
#divisione dati#
tabella <-
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$Indice_global_de_la_charge_fiscale_2006)
colnames(tabella)

for (i in 1:nrow(tabella)){
  for (j in 1:ncol(tabella)){
    tabella[i,j] <- as.numeric(colnames(tabella)[j])*tabella[i,j]
  }}
```

```
tabella <- recode(tabella, "0=NA")

#medie e altri valori
summary(tabella[1,])
var(tabella[1,],na.rm =T)
summary(tabella[2,])
var(tabella[2,],na.rm =T)
summary(tabella[3,])
var(tabella[3,],na.rm =T)

##Young_unemployment_2010#
#divisione dati#
tabella <-
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$Young_unemployment
_2010)
colnames(tabella)

for (i in 1:nrow(tabella)){
  for (j in 1:ncol(tabella)){
    tabella[i,j] <- as.numeric(colnames(tabella)[j])*tabella[i,j]
  }}

tabella <- recode(tabella, "0=NA")

#medie e altri valori
summary(tabella[1,])
var(tabella[1,],na.rm =T)
```

```
summary(tabella[2,])

var(tabella[2,],na.rm =T)

summary(tabella[3,])

var(tabella[3,],na.rm =T)


##Longtime_unemployment_2010#

#divisione dati#

tabella <-
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$Longtime_unemploym
ent_2010)

colnames(tabella)


for (i in 1:nrow(tabella)){

  for (j in 1:ncol(tabella)){

    tabella[i,j] <- as.numeric(colnames(tabella)[j])*tabella[i,j]

  }}


tabella <- recode(tabella, "0=NA")


#medie e altri valori

summary(tabella[1,])

var(tabella[1,],na.rm =T)

summary(tabella[2,])

var(tabella[2,],na.rm =T)

summary(tabella[3,])

var(tabella[3,],na.rm =T)
```

```
##PIB_for_inhabitant_2012#

#divisione dati#

tabella <-
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$PIB_for_inhabitant_20
12)

colnames(tabella)


for (i in 1:nrow(tabella)){

 for (j in 1:ncol(tabella)){

   tabella[i,j] <- as.numeric(colnames(tabella)[j])*tabella[i,j]

 }}


tabella <- recode(tabella, "0=NA")


#medie e altri valori

summary(tabella[1,])

var(tabella[1,],na.rm =T)

summary(tabella[2,])

var(tabella[2,],na.rm =T)

summary(tabella[3,])

var(tabella[3,],na.rm =T)


##variance_PIB_for_inhabitant_20092011#

#divisione dati#

tabella <-
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$variance_PIB_for_inha
bitant_20092011)

colnames(tabella)
```

```
for (i in 1:nrow(tabella)){
  for (j in 1:ncol(tabella)){
    tabella[i,j] <- as.numeric(colnames(tabella)[j])*tabella[i,j]
  }}

tabella <- recode(tabella, "0=NA")

#medie e altri valori
summary(tabella[1,])
var(tabella[1,],na.rm =T)
summary(tabella[2,])
var(tabella[2,],na.rm =T)
summary(tabella[3,])
var(tabella[3,],na.rm =T)

##femmes_occupé_sur_les_emplois_totaux#
#divisione dati#
tabella <-
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$femmes_occupé_sur_les_emplois_totaux)
colnames(tabella)

for (i in 1:nrow(tabella)){
  for (j in 1:ncol(tabella)){
    tabella[i,j] <- as.numeric(colnames(tabella)[j])*tabella[i,j]
  }}
```

```
tabella <- recode(tabella, "0=NA")

#medie e altri valori
summary(tabella[1,])
var(tabella[1,],na.rm =T)
summary(tabella[2,])
var(tabella[2,],na.rm =T)
summary(tabella[3,])
var(tabella[3,],na.rm =T)

##Unemployment_2014#
#divisione dati#
tabella <-
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$Unemployment_2014)
colnames(tabella)

for (i in 1:nrow(tabella)){
  for (j in 1:ncol(tabella)){
    tabella[i,j] <- as.numeric(colnames(tabella)[j])*tabella[i,j]
  }}

tabella <- recode(tabella, "0=NA")

#medie e altri valori
summary(tabella[1,])
var(tabella[1,],na.rm =T)
```

```
summary(tabella[2,])
var(tabella[2,],na.rm =T)
summary(tabella[3,])
var(tabella[3,],na.rm =T)

##Crossborder_workers_2014#
#divisione dati#
tabella <-
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$Crossborder_workers_
2014)
colnames(tabella)

for (i in 1:nrow(tabella)){
  for (j in 1:ncol(tabella)){
    tabella[i,j] <- as.numeric(colnames(tabella)[j])*tabella[i,j]
  }}

tabella <- recode(tabella, "0=NA")

#medie e altri valori
summary(tabella[1,])
var(tabella[1,],na.rm =T)
summary(tabella[2,])
var(tabella[2,],na.rm =T)
summary(tabella[3,])
var(tabella[3,],na.rm =T)
```

```
##Gini_Index_2006#
#divisione dati#
tabella <-
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$Gini_Index_2006)
colnames(tabella)

for (i in 1:nrow(tabella)){
  for (j in 1:ncol(tabella)){
    tabella[i,j] <- as.numeric(colnames(tabella)[j])*tabella[i,j]
  }}

tabella <- recode(tabella, "0=NA")

#medie e altri valori
summary(tabella[1,])
var(tabella[1,],na.rm =T)
summary(tabella[2,])
var(tabella[2,],na.rm =T)
summary(tabella[3,])
var(tabella[3,],na.rm =T)

##A_D_R_C_2006#
#divisione dati#
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$A_D_R_C_2006)

##A_D_R_C_2005# NON IN CLUSTERING
#divisione dati#
```

```
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$A_D_R_C_2005)

##A_D_R_C_2006bis# NON IN CLUSTERING
#divisione dati#
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$A_D_R_C_2006_bis)


##P_E_C_B_2009#
#divisione dati#
tabella <-
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$P_E_C_B_2009)
colnames(tabella)

for (i in 1:nrow(tabella)){
  for (j in 1:ncol(tabella)){
    tabella[i,j] <- as.numeric(colnames(tabella)[j])*tabella[i,j]
  }}

tabella <- recode(tabella, "0=NA")

#medie e altri valori
summary(tabella[1,])
var(tabella[1,],na.rm =T)
summary(tabella[2,])
var(tabella[2,],na.rm =T)
summary(tabella[3,])
var(tabella[3,],na.rm =T)
```

```
##P_S_S_F_S_2003#

#divisione dati#

table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$P_S_S_F_S_2003)



##Solde_relatif_pendulaires#

#divisione dati#

tabella <-
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$Solde_relatif_pendulai
res)

colnames(tabella)


for (i in 1:nrow(tabella)){

  for (j in 1:ncol(tabella)){

    tabella[i,j] <- as.numeric(colnames(tabella)[j])*tabella[i,j]

  }}


tabella <- recode(tabella, "0=NA")


#medie e altri valori

summary(tabella[1,])

var(tabella[1,],na.rm =T)

summary(tabella[2,])

var(tabella[2,],na.rm =T)

summary(tabella[3,])

var(tabella[3,],na.rm =T)
```

##Tipo_del_bacino_dimpiego# NON USATO IN CLUSTERING

#divisione dati#

```
table(PerClustersCantoni$fannyCanton3,PerClustersCantoni$Tipo_del_bacino_dimpiego)
```

4- Correlations

```
# ricodifica 4 in 3 --> unisco 4.3 e 4.4

PerClustersCantoni$fannyCanton4.1bis

PerClustersCantoni$fannyCanton4.2bis

PerClustersCantoni$fannyCanton4.3bis

PerClustersCantoni$fannyCanton4.4bis



PerClustersCantoni$fannyCanton4.34bis <- PerClustersCantoni$fannyCanton4.3bis +
PerClustersCantoni$fannyCanton4.4bis


#correlation#

tabella <- matrix(0,nrow=20,ncol=3)

#4.1#

tabella[1,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$PME_2008,method
= c("pearson"))

tabella[2,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$High_tech_entepres
es_2008,method = c("pearson"))

tabella[3,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$Indice_global_de_la
_charge_fiscale_2006,method = c("pearson"))

tabella[4,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$Young_unemploym
ent_2010,method = c("pearson"))
```

```
tabella[5,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$Longtime_unemployment_2010,method = c("pearson"))

tabella[6,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$PIB_for_inhabitant_2012,method = c("pearson"))

tabella[7,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$variance_PIB_for_inhabitant_20092011,method = c("pearson"))

tabella[8,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$femmes_occupé_sur_les_emplois_totaux,method = c("pearson"))

tabella[9,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$Unemployment_2014,method = c("pearson"))

tabella[10,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$Crossborder_workers_2014,method = c("pearson"))

tabella[11,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$Gini_Index_2006,method = c("pearson"))

tabella[12,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$P_E_C_B_2009,method = c("pearson"))

tabella[13,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$Solde_relatif_pendulaires,method = c("pearson"))

tabella[14,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$A_D_R_C_2006.1,method = c("pearson"))

tabella[15,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$A_D_R_C_2006.2,method = c("pearson"))
```

```
tabella[16,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$A_D_R_C_2006.3,m
ethod = c("pearson"))

tabella[17,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$P_S_S_F_S_2003.1,
method = c("pearson"))

tabella[18,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$P_S_S_F_S_2003.2,
method = c("pearson"))

tabella[19,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$P_S_S_F_S_2003.3,
method = c("pearson"))

tabella[20,1] <-
cor(PerClustersCantoni$fannyCanton4.1bis,PerClustersCantoni$P_S_S_F_S_2003.4,
method = c("pearson"))


#4.2#

tabella[1,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$PME_2008,method
= c("pearson"))

tabella[2,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$High_tech_entepres
es_2008,method = c("pearson"))

tabella[3,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$Indice_global_de_la
_charge_fiscale_2006,method = c("pearson"))

tabella[4,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$Young_unemploym
ent_2010,method = c("pearson"))

tabella[5,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$Longtime_unemploy
ment_2010,method = c("pearson"))
```

```
tabella[6,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$PIB_for_inhabitant_
2012,method = c("pearson"))

tabella[7,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$variance_PIB_for_in
habitant_20092011,method = c("pearson"))

tabella[8,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$femmes_occupé_su
r_les_emplois_totaux,method = c("pearson"))

tabella[9,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$Unemployment_201
4,method = c("pearson"))

tabella[10,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$Crossborder_worker
s_2014,method = c("pearson"))

tabella[11,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$Gini_Index_2006,m
ethod = c("pearson"))

tabella[12,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$P_E_C_B_2009,met
hod = c("pearson"))

tabella[13,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$Solde_relatif_pendu
laires,method = c("pearson"))

tabella[14,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$A_D_R_C_2006.1,m
ethod = c("pearson"))

tabella[15,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$A_D_R_C_2006.2,m
ethod = c("pearson"))

tabella[16,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$A_D_R_C_2006.3,m
ethod = c("pearson"))
```

```
tabella[17,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$P_S_S_F_S_2003.1,
method = c("pearson"))

tabella[18,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$P_S_S_F_S_2003.2,
method = c("pearson"))

tabella[19,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$P_S_S_F_S_2003.3,
method = c("pearson"))

tabella[20,2] <-
cor(PerClustersCantoni$fannyCanton4.2bis,PerClustersCantoni$P_S_S_F_S_2003.4,
method = c("pearson"))


#4.3e4#

tabella[1,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$PME_2008,method
= c("pearson"))

tabella[2,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$High_tech_entepre
ses_2008,method = c("pearson"))

tabella[3,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$Indice_global_de_l
a_charge_fiscale_2006,method = c("pearson"))

tabella[4,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$Young_unemploy
ment_2010,method = c("pearson"))

tabella[5,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$Longtime_unempl
oyment_2010,method = c("pearson"))

tabella[6,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$PIB_for_inhabitant
_2012,method = c("pearson"))
```

```
tabella[7,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$variance_PIB_for_inhabitant_20092011,method = c("pearson"))

tabella[8,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$femmes_occupé_sur_les_emplois_totaux,method = c("pearson"))

tabella[9,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$Unemployment_2014,method = c("pearson"))

tabella[10,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$Crossborder_workers_2014,method = c("pearson"))

tabella[11,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$Gini_Index_2006,
method = c("pearson"))

tabella[12,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$P_E_C_B_2009,method = c("pearson"))

tabella[13,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$Solde_relatif_pendulaires,method = c("pearson"))

tabella[14,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$A_D_R_C_2006.1,
method = c("pearson"))

tabella[15,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$A_D_R_C_2006.2,
method = c("pearson"))

tabella[16,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$A_D_R_C_2006.3,
method = c("pearson"))

tabella[17,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$P_S_S_F_S_2003.1,
method = c("pearson"))
```

```
tabella[18,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$P_S_S_F_S_2003.2,
method = c("pearson"))

tabella[19,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$P_S_S_F_S_2003.3,
method = c("pearson"))

tabella[20,3] <-
cor(PerClustersCantoni$fannyCanton4.34bis,PerClustersCantoni$P_S_S_F_S_2003.4,
method = c("pearson"))


#tabelle tipologie


names(PerClustersCantoni)

PerClustersCantoni$A_D_R_C_2006
```

5- Other analyses

```
CorrTraGruppi <- matrix("-",ncol=4,nrow=4)

rownames(CorrTraGruppi) <- c(1,2,3,4)

colnames(CorrTraGruppi) <- c(1,2,3,4)


CorrTraGruppi[1,2] <-
cor(PerClustersCantoni$fannyCanton4.1,PerClustersCantoni$fannyCanton4.2,metho
d = c("pearson"))

CorrTraGruppi[1,3] <-
cor(PerClustersCantoni$fannyCanton4.1,PerClustersCantoni$fannyCanton4.3,metho
d = c("pearson"))

CorrTraGruppi[1,4] <-
cor(PerClustersCantoni$fannyCanton4.1,PerClustersCantoni$fannyCanton4.4,metho
d = c("pearson"))

CorrTraGruppi[2,3] <-
cor(PerClustersCantoni$fannyCanton4.2,PerClustersCantoni$fannyCanton4.3,metho
d = c("pearson"))

CorrTraGruppi[2,4] <-
cor(PerClustersCantoni$fannyCanton4.2,PerClustersCantoni$fannyCanton4.4,metho
d = c("pearson"))

CorrTraGruppi[3,4] <-
cor(PerClustersCantoni$fannyCanton4.3,PerClustersCantoni$fannyCanton4.4,metho
d = c("pearson"))
```

6- Workers flows

```
library(TraMineR)


#sequenze residenza

a <- which(names(psmIIItot)=="cantonY1999")
```

```
b <- which(names(psmIIItot)=="cantonY2012")
seqres <-  seqdef(psmIIItot [,a:b])

#trovare prima volta ogni stato
psmIIItot$posAG <- seqfpos(seqres,"AG Argovia")
psmIIItot$posBE <- seqfpos(seqres,"BE Berne")
psmIIItot$posBL <- seqfpos(seqres,"BL Basle-Country")
psmIIItot$posNE <- seqfpos(seqres,"NE Neuchatel")
psmIIItot$posSG <- seqfpos(seqres,"SG St. Gall")
psmIIItot$posSH <- seqfpos(seqres,"SH Schaffhaussen")
psmIIItot$posTI <- seqfpos(seqres,"TI Ticino")
psmIIItot$posVD <- seqfpos(seqres,"VD Vaud")
psmIIItot$posAI <- seqfpos(seqres,"AI Appenzell Inner-Rhodes")
psmIIItot$posAR <- seqfpos(seqres,"AR Appenzell Outer-Rhodes")
psmIIItot$posFR <- seqfpos(seqres,"FR Fribourg")
psmIIItot$posGL <- seqfpos(seqres,"GL Glarus")
psmIIItot$posGR <- seqfpos(seqres,"GR Grisons")
psmIIItot$posJU <- seqfpos(seqres,"JU Jura")
psmIIItot$posLU <- seqfpos(seqres,"LU Lucerne")
psmIIItot$posNW <- seqfpos(seqres,"NW Nidwalden")
psmIIItot$posOW <- seqfpos(seqres,"OW Obwalden")
psmIIItot$posSO <- seqfpos(seqres,"SO Solothurn")
psmIIItot$posSZ <- seqfpos(seqres,"SZ Schwyz")
psmIIItot$posTG <- seqfpos(seqres,"TG Thurgovia")
psmIIItot$posUR <- seqfpos(seqres,"UR Uri")
psmIIItot$posVS <- seqfpos(seqres,"VS Valais")
psmIIItot$posBS <- seqfpos(seqres,"BS Basle-Town")
```

```
psmIIItot$posGE <- seqfpos(seqres,"GE Geneva")
psmIIItot$posZG <- seqfpos(seqres,"ZG Zug")
psmIIItot$posZH <- seqfpos(seqres,"ZH Zurich")
psmIIItot$posAB <- seqfpos(seqres,"abroad")
#vanno convertiti in numeric#
#sequenze attivit?
a <- which(names(psmIIItot)=="ComplISCO4y1999")
b <- which(names(psmIIItot)=="ComplISCO4y2012")
seqact <-  seqdef(psmIIItot [,a:b])

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$AG[i] <-
    ifelse(is.na(psmIIItot$posAG[i])==T,NA,
           ifelse(

as.character(seqact[i,psmIIItot$posAG[i]])=="*"|as.character(seqact[i,psmIIItot$pos
AG[i]])=="%"|
             as.character(seqact[i,psmIIItot$posAG[i]])=="0"|
             as.character(seqact[i,(psmIIItot$posAG[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posAG[i]-1)])=="%",
           NA,
           ifelse(as.character(seqact[i,psmIIItot$posAG[i]])!=
                    as.character(seqact[i,(psmIIItot$posAG[i]-1)]),
                  as.character(seqres[i,(psmIIItot$posAG[i]-1)]),NA)
    ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$BE[i] <-
```

```
   ifelse(is.na(psmIIItot$posBE[i])==T,NA,
          ifelse(

as.character(seqact[i,psmIIItot$posBE[i]])=="*"|as.character(seqact[i,psmIIItot$pos
BE[i]])=="%"|
             as.character(seqact[i,psmIIItot$posBE[i]])=="0"|
             as.character(seqact[i,(psmIIItot$posBE[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posBE[i]-1)])=="%",
           NA,
          ifelse(as.character(seqact[i,psmIIItot$posBE[i]])!=
                   as.character(seqact[i,(psmIIItot$posBE[i]-1)]),
                 as.character(seqres[i,(psmIIItot$posBE[i]-1)]),NA)
   ))}


for (i in 1:length(psmIIItot[,1])){
  psmIIItot$BL[i] <-
   ifelse(is.na(psmIIItot$posBL[i])==T,NA,
          ifelse(

as.character(seqact[i,psmIIItot$posBL[i]])=="*"|as.character(seqact[i,psmIIItot$posB
L[i]])=="%"|
             as.character(seqact[i,psmIIItot$posBL[i]])=="0"|
             as.character(seqact[i,(psmIIItot$posBL[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posBL[i]-1)])=="%",
           NA,
          ifelse(as.character(seqact[i,psmIIItot$posBL[i]])!=
                   as.character(seqact[i,(psmIIItot$posBL[i]-1)]),
                 as.character(seqres[i,(psmIIItot$posBL[i]-1)]),NA)
```

```
   ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$NE[i] <-
    ifelse(is.na(psmIIItot$posNE[i])==T,NA,
           ifelse(

as.character(seqact[i,psmIIItot$posNE[i]])=="*"|as.character(seqact[i,psmIIItot$pos
NE[i]])=="%"|
              as.character(seqact[i,psmIIItot$posNE[i]])=="0"|
              as.character(seqact[i,(psmIIItot$posNE[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posNE[i]-1)])=="%",
            NA,
           ifelse(as.character(seqact[i,psmIIItot$posNE[i]])!=
                  as.character(seqact[i,(psmIIItot$posNE[i]-1)]),
                as.character(seqres[i,(psmIIItot$posNE[i]-1)]),NA)
    ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$SG[i] <-
    ifelse(is.na(psmIIItot$posSG[i])==T,NA,
           ifelse(

as.character(seqact[i,psmIIItot$posSG[i]])=="*"|as.character(seqact[i,psmIIItot$pos
SG[i]])=="%"|
              as.character(seqact[i,psmIIItot$posSG[i]])=="0"|
              as.character(seqact[i,(psmIIItot$posSG[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posSG[i]-1)])=="%",
```

```
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posSG[i]])!=
                 as.character(seqact[i,(psmIIItot$posSG[i]-1)]),
               as.character(seqres[i,(psmIIItot$posSG[i]-1)]),NA)
   ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$SH[i] <-
    ifelse(is.na(psmIIItot$posSH[i])==T,NA,
        ifelse(

as.character(seqact[i,psmIIItot$posSH[i]])=="*"|as.character(seqact[i,psmIIItot$pos
SH[i]])=="%"|
             as.character(seqact[i,psmIIItot$posSH[i]])=="0"|
             as.character(seqact[i,(psmIIItot$posSH[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posSH[i]-1)])=="%",
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posSH[i]])!=
                 as.character(seqact[i,(psmIIItot$posSH[i]-1)]),
               as.character(seqres[i,(psmIIItot$posSH[i]-1)]),NA)
   ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$TI[i] <-
    ifelse(is.na(psmIIItot$posTI[i])==T,NA,
        ifelse(
```

```
as.character(seqact[i,psmIIItot$posTI[i]])=="*"|as.character(seqact[i,psmIIItot$posTI
[i]])=="%"|
            as.character(seqact[i,psmIIItot$posTI[i]])=="0"|
            as.character(seqact[i,(psmIIItot$posTI[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posTI[i]-1)])=="%",
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posTI[i]])!=
                as.character(seqact[i,(psmIIItot$posTI[i]-1)]),
              as.character(seqres[i,(psmIIItot$posTI[i]-1)]),NA)
   ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$VD[i] <-
   ifelse(is.na(psmIIItot$posVD[i])==T,NA,
        ifelse(

as.character(seqact[i,psmIIItot$posVD[i]])=="*"|as.character(seqact[i,psmIIItot$pos
VD[i]])=="%"|
            as.character(seqact[i,psmIIItot$posVD[i]])=="0"|
            as.character(seqact[i,(psmIIItot$posVD[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posVD[i]-1)])=="%",
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posVD[i]])!=
                as.character(seqact[i,(psmIIItot$posVD[i]-1)]),
              as.character(seqres[i,(psmIIItot$posVD[i]-1)]),NA)
   ))}
```

```
for (i in 1:length(psmIIItot[,1])){
  psmIIItot$AI[i] <-
    ifelse(is.na(psmIIItot$posAI[i])==T,NA,
           ifelse(

as.character(seqact[i,psmIIItot$posAI[i]])=="*"|as.character(seqact[i,psmIIItot$posAI[i]])=="%"|
             as.character(seqact[i,psmIIItot$posAI[i]])=="0"|
             as.character(seqact[i,(psmIIItot$posAI[i]-1)])=="*"|as.character(seqact[i,(psmIIItot$posAI[i]-1)])=="%",
           NA,
           ifelse(as.character(seqact[i,psmIIItot$posAI[i]])!=
                  as.character(seqact[i,(psmIIItot$posAI[i]-1)]),
                as.character(seqres[i,(psmIIItot$posAI[i]-1)]),NA)
    ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$AR[i] <-
    ifelse(is.na(psmIIItot$posAR[i])==T,NA,
           ifelse(

as.character(seqact[i,psmIIItot$posAR[i]])=="*"|as.character(seqact[i,psmIIItot$posAR[i]])=="%"|
             as.character(seqact[i,psmIIItot$posAR[i]])=="0"|
             as.character(seqact[i,(psmIIItot$posAR[i]-1)])=="*"|as.character(seqact[i,(psmIIItot$posAR[i]-1)])=="%",
           NA,
           ifelse(as.character(seqact[i,psmIIItot$posAR[i]])!=
```

```
                as.character(seqact[i,(psmIIItot$posAR[i]-1)]),
              as.character(seqres[i,(psmIIItot$posAR[i]-1)]),NA)
  ))}

for (i in 1:length(psmIIItot[,1])){
 psmIIItot$FR[i] <-
  ifelse(is.na(psmIIItot$posFR[i])==T,NA,
       ifelse(

as.character(seqact[i,psmIIItot$posFR[i]])=="*"|as.character(seqact[i,psmIIItot$posFR[i]])=="%"|
           as.character(seqact[i,psmIIItot$posFR[i]])=="0"|
           as.character(seqact[i,(psmIIItot$posFR[i]-1)])=="*"|as.character(seqact[i,(psmIIItot$posFR[i]-1)])=="%",
         NA,
       ifelse(as.character(seqact[i,psmIIItot$posFR[i]])!=
              as.character(seqact[i,(psmIIItot$posFR[i]-1)]),
            as.character(seqres[i,(psmIIItot$posFR[i]-1)]),NA)
  ))}

for (i in 1:length(psmIIItot[,1])){
 psmIIItot$GL[i] <-
  ifelse(is.na(psmIIItot$posGL[i])==T,NA,
       ifelse(

as.character(seqact[i,psmIIItot$posGL[i]])=="*"|as.character(seqact[i,psmIIItot$posGL[i]])=="%"|
           as.character(seqact[i,psmIIItot$posGL[i]])=="0"|
```

```
            as.character(seqact[i,(psmIIItot$posGL[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posGL[i]-1)])=="%",
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posGL[i]])!=
              as.character(seqact[i,(psmIIItot$posGL[i]-1)]),
             as.character(seqres[i,(psmIIItot$posGL[i]-1)]),NA)
   ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$GR[i] <-
   ifelse(is.na(psmIIItot$posGR[i])==T,NA,
        ifelse(

as.character(seqact[i,psmIIItot$posGR[i]])=="*"|as.character(seqact[i,psmIIItot$pos
GR[i]])=="%"|
            as.character(seqact[i,psmIIItot$posGR[i]])=="0"|
            as.character(seqact[i,(psmIIItot$posGR[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posGR[i]-1)])=="%",
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posGR[i]])!=
              as.character(seqact[i,(psmIIItot$posGR[i]-1)]),
             as.character(seqres[i,(psmIIItot$posGR[i]-1)]),NA)
   ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$JU[i] <-
   ifelse(is.na(psmIIItot$posJU[i])==T,NA,
        ifelse(
```

```
as.character(seqact[i,psmIIItot$posJU[i]])=="*"|as.character(seqact[i,psmIIItot$posJU[i]])=="%"|
            as.character(seqact[i,psmIIItot$posJU[i]])=="0"|
            as.character(seqact[i,(psmIIItot$posJU[i]-1)])=="*"|as.character(seqact[i,(psmIIItot$posJU[i]-1)])=="%",
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posJU[i]])!=
                as.character(seqact[i,(psmIIItot$posJU[i]-1)]),
              as.character(seqres[i,(psmIIItot$posJU[i]-1)]),NA)
   ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$LU[i] <-
   ifelse(is.na(psmIIItot$posLU[i])==T,NA,
        ifelse(

as.character(seqact[i,psmIIItot$posLU[i]])=="*"|as.character(seqact[i,psmIIItot$posLU[i]])=="%"|
            as.character(seqact[i,psmIIItot$posLU[i]])=="0"|
            as.character(seqact[i,(psmIIItot$posLU[i]-1)])=="*"|as.character(seqact[i,(psmIIItot$posLU[i]-1)])=="%",
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posLU[i]])!=
                as.character(seqact[i,(psmIIItot$posLU[i]-1)]),
              as.character(seqres[i,(psmIIItot$posLU[i]-1)]),NA)
   ))}
```

```
for (i in 1:length(psmIIItot[,1])){
  psmIIItot$NW[i] <-
    ifelse(is.na(psmIIItot$posNW[i])==T,NA,
           ifelse(

as.character(seqact[i,psmIIItot$posNW[i]])=="*"|as.character(seqact[i,psmIIItot$posNW[i]])=="%"|
             as.character(seqact[i,psmIIItot$posNW[i]])=="0"|
             as.character(seqact[i,(psmIIItot$posNW[i]-1)])=="*"|as.character(seqact[i,(psmIIItot$posNW[i]-1)])=="%",
           NA,
           ifelse(as.character(seqact[i,psmIIItot$posNW[i]])!=
                    as.character(seqact[i,(psmIIItot$posNW[i]-1)]),
                  as.character(seqres[i,(psmIIItot$posNW[i]-1)]),NA)
    ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$OW[i] <-
    ifelse(is.na(psmIIItot$posOW[i])==T,NA,
           ifelse(

as.character(seqact[i,psmIIItot$posOW[i]])=="*"|as.character(seqact[i,psmIIItot$posOW[i]])=="%"|
             as.character(seqact[i,psmIIItot$posOW[i]])=="0"|
             as.character(seqact[i,(psmIIItot$posOW[i]-1)])=="*"|as.character(seqact[i,(psmIIItot$posOW[i]-1)])=="%",
           NA,
           ifelse(as.character(seqact[i,psmIIItot$posOW[i]])!=
```

```
                as.character(seqact[i,(psmIIItot$posOW[i]-1)]),
              as.character(seqres[i,(psmIIItot$posOW[i]-1)]),NA)
  ))}

for (i in 1:length(psmIIItot[,1])){
 psmIIItot$SO[i] <-
  ifelse(is.na(psmIIItot$posSO[i])==T,NA,
       ifelse(

as.character(seqact[i,psmIIItot$posSO[i]])=="*"|as.character(seqact[i,psmIIItot$pos
SO[i]])=="%"|
           as.character(seqact[i,psmIIItot$posSO[i]])=="0"|
           as.character(seqact[i,(psmIIItot$posSO[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posSO[i]-1)])=="%",
         NA,
       ifelse(as.character(seqact[i,psmIIItot$posSO[i]])!=
              as.character(seqact[i,(psmIIItot$posSO[i]-1)]),
            as.character(seqres[i,(psmIIItot$posSO[i]-1)]),NA)
  ))}

for (i in 1:length(psmIIItot[,1])){
 psmIIItot$SZ[i] <-
  ifelse(is.na(psmIIItot$posSZ[i])==T,NA,
       ifelse(

as.character(seqact[i,psmIIItot$posSZ[i]])=="*"|as.character(seqact[i,psmIIItot$posS
Z[i]])=="%"|
           as.character(seqact[i,psmIIItot$posSZ[i]])=="0"|
```

```
            as.character(seqact[i,(psmIIItot$posSZ[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posSZ[i]-1)])=="%",
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posSZ[i]])!=
               as.character(seqact[i,(psmIIItot$posSZ[i]-1)]),
             as.character(seqres[i,(psmIIItot$posSZ[i]-1)]),NA)
   ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$TG[i] <-
    ifelse(is.na(psmIIItot$posTG[i])==T,NA,
        ifelse(

as.character(seqact[i,psmIIItot$posTG[i]])=="*"|as.character(seqact[i,psmIIItot$pos
TG[i]])=="%"|
            as.character(seqact[i,psmIIItot$posTG[i]])=="0"|
            as.character(seqact[i,(psmIIItot$posTG[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posTG[i]-1)])=="%",
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posTG[i]])!=
               as.character(seqact[i,(psmIIItot$posTG[i]-1)]),
             as.character(seqres[i,(psmIIItot$posTG[i]-1)]),NA)
   ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$UR[i] <-
    ifelse(is.na(psmIIItot$posUR[i])==T,NA,
        ifelse(
```

```
as.character(seqact[i,psmIIItot$posUR[i]])=="*"|as.character(seqact[i,psmIIItot$pos
UR[i]])=="%"|
            as.character(seqact[i,psmIIItot$posUR[i]])=="0"|
            as.character(seqact[i,(psmIIItot$posUR[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posUR[i]-1)])=="%",
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posUR[i]])!=
                as.character(seqact[i,(psmIIItot$posUR[i]-1)]),
              as.character(seqres[i,(psmIIItot$posUR[i]-1)]),NA)
   ))}


for (i in 1:length(psmIIItot[,1])){
  psmIIItot$VS[i] <-
    ifelse(is.na(psmIIItot$posVS[i])==T,NA,
        ifelse(

as.character(seqact[i,psmIIItot$posVS[i]])=="*"|as.character(seqact[i,psmIIItot$pos
VS[i]])=="%"|
            as.character(seqact[i,psmIIItot$posVS[i]])=="0"|
            as.character(seqact[i,(psmIIItot$posVS[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posVS[i]-1)])=="%",
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posVS[i]])!=
                as.character(seqact[i,(psmIIItot$posVS[i]-1)]),
              as.character(seqres[i,(psmIIItot$posVS[i]-1)]),NA)
   ))}
```

```
for (i in 1:length(psmIIItot[,1])){
  psmIIItot$BS[i] <-
    ifelse(is.na(psmIIItot$posBS[i])==T,NA,
           ifelse(

as.character(seqact[i,psmIIItot$posBS[i]])=="*"|as.character(seqact[i,psmIIItot$pos
BS[i]])=="%"|
              as.character(seqact[i,psmIIItot$posBS[i]])=="0"|
              as.character(seqact[i,(psmIIItot$posBS[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posBS[i]-1)])=="%",
            NA,
           ifelse(as.character(seqact[i,psmIIItot$posBS[i]])!=
                  as.character(seqact[i,(psmIIItot$posBS[i]-1)]),
                as.character(seqres[i,(psmIIItot$posBS[i]-1)]),NA)
    ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$GE[i] <-
    ifelse(is.na(psmIIItot$posGE[i])==T,NA,
           ifelse(

as.character(seqact[i,psmIIItot$posGE[i]])=="*"|as.character(seqact[i,psmIIItot$pos
GE[i]])=="%"|
              as.character(seqact[i,psmIIItot$posGE[i]])=="0"|
              as.character(seqact[i,(psmIIItot$posGE[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posGE[i]-1)])=="%",
            NA,
           ifelse(as.character(seqact[i,psmIIItot$posGE[i]])!=
```

```
                as.character(seqact[i,(psmIIItot$posGE[i]-1)]),
              as.character(seqres[i,(psmIIItot$posGE[i]-1)]),NA)
  ))}

for (i in 1:length(psmIIItot[,1])){
 psmIIItot$ZG[i] <-
  ifelse(is.na(psmIIItot$posZG[i])==T,NA,
       ifelse(

as.character(seqact[i,psmIIItot$posZG[i]])=="*"|as.character(seqact[i,psmIIItot$pos
ZG[i]])=="%"|
           as.character(seqact[i,psmIIItot$posZG[i]])=="0"|
           as.character(seqact[i,(psmIIItot$posZG[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posZG[i]-1)])=="%",
         NA,
       ifelse(as.character(seqact[i,psmIIItot$posZG[i]])!=
                as.character(seqact[i,(psmIIItot$posZG[i]-1)]),
              as.character(seqres[i,(psmIIItot$posZG[i]-1)]),NA)
  ))}

for (i in 1:length(psmIIItot[,1])){
 psmIIItot$ZH[i] <-
  ifelse(is.na(psmIIItot$posZH[i])==T,NA,
       ifelse(

as.character(seqact[i,psmIIItot$posZH[i]])=="*"|as.character(seqact[i,psmIIItot$pos
ZH[i]])=="%"|
           as.character(seqact[i,psmIIItot$posZH[i]])=="0"|
```

```
            as.character(seqact[i,(psmIIItot$posZH[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posZH[i]-1)])=="%",
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posZH[i]])!=
               as.character(seqact[i,(psmIIItot$posZH[i]-1)]),
             as.character(seqres[i,(psmIIItot$posZH[i]-1)]),NA)
   ))}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$AB[i] <-
    ifelse(is.na(psmIIItot$posAB[i])==T,NA,
        ifelse(

as.character(seqact[i,psmIIItot$posAB[i]])=="*"|as.character(seqact[i,psmIIItot$pos
AB[i]])=="%"|
            as.character(seqact[i,psmIIItot$posAB[i]])=="0"|
            as.character(seqact[i,(psmIIItot$posAB[i]-
1)])=="*"|as.character(seqact[i,(psmIIItot$posAB[i]-1)])=="%",
          NA,
        ifelse(as.character(seqact[i,psmIIItot$posAB[i]])!=
               as.character(seqact[i,(psmIIItot$posAB[i]-1)]),
             as.character(seqres[i,(psmIIItot$posAB[i]-1)]),NA)
   ))}



#ricodifica e scarto i missing
library(car)
```

```
psmIIItot$AG2 <- recode (psmIIItot$AG,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
```

```
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$BE2 <- recode (psmIIItot$BE,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
```

```
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$BL2 <- recode (psmIIItot$BL,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
```

```
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$NE2 <- recode (psmIIItot$NE,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
```

```
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$SG2 <- recode (psmIIItot$SG,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
```

```
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$SH2 <- recode (psmIIItot$SH,
                "'%'=NA;
```

'*'=NA;

'AG Argovia'=1;

'BE Berne'=1;

'BL Basle-Country'=1;

'NE Neuchatel'=1;

'SG St. Gall'=1;

'SH Schaffhaussen'=1;

'TI Ticino'=1;

'VD Vaud'=1;

'AI Appenzell Inner-Rhodes'=2;

'AR Appenzell Outer-Rhodes'=2;

'FR Fribourg'=2;

'GL Glarus'=2;

'GR Grisons'=2;

'JU Jura'=2;

'LU Lucerne'=2;

'NW Nidwalden'=2;

'OW Obwalden'=2;

'SO Solothurn'=2;

'SZ Schwyz'=2;

'TG Thurgovia'=2;

'UR Uri'=2;

'VS Valais'=2;

'BS Basle-Town'=3;

'GE Geneva'=3;

'ZG Zug'=3;

'ZH Zurich'=3;

```
                'abroad'=0"
)

psmIIItot$TI2 <- recode (psmIIItot$TI,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
```

```
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$VD2 <- recode (psmIIItot$VD,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
```

```
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$AI2 <- recode (psmIIItot$AI,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
```

```
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$AR2 <- recode (psmIIItot$AR,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
```

```
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$FR2 <- recode (psmIIItot$FR,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
```

```
'BE Berne'=1;
'BL Basle-Country'=1;
'NE Neuchatel'=1;
'SG St. Gall'=1;
'SH Schaffhaussen'=1;
'TI Ticino'=1;
'VD Vaud'=1;
'AI Appenzell Inner-Rhodes'=2;
'AR Appenzell Outer-Rhodes'=2;
'FR Fribourg'=2;
'GL Glarus'=2;
'GR Grisons'=2;
'JU Jura'=2;
'LU Lucerne'=2;
'NW Nidwalden'=2;
'OW Obwalden'=2;
'SO Solothurn'=2;
'SZ Schwyz'=2;
'TG Thurgovia'=2;
'UR Uri'=2;
'VS Valais'=2;
'BS Basle-Town'=3;
'GE Geneva'=3;
'ZG Zug'=3;
'ZH Zurich'=3;
'abroad'=0"
)
```

```
psmIIItot$GL2 <- recode (psmIIItot$GL,
                    "'%'=NA;
                    '*'=NA;
                    'AG Argovia'=1;
                    'BE Berne'=1;
                    'BL Basle-Country'=1;
                    'NE Neuchatel'=1;
                    'SG St. Gall'=1;
                    'SH Schaffhaussen'=1;
                    'TI Ticino'=1;
                    'VD Vaud'=1;
                    'AI Appenzell Inner-Rhodes'=2;
                    'AR Appenzell Outer-Rhodes'=2;
                    'FR Fribourg'=2;
                    'GL Glarus'=2;
                    'GR Grisons'=2;
                    'JU Jura'=2;
                    'LU Lucerne'=2;
                    'NW Nidwalden'=2;
                    'OW Obwalden'=2;
                    'SO Solothurn'=2;
                    'SZ Schwyz'=2;
                    'TG Thurgovia'=2;
                    'UR Uri'=2;
                    'VS Valais'=2;
```

```
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$GR2 <- recode (psmIIItot$GR,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
```

```
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$JU2 <- recode (psmIIItot$JU,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
```

```
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$LU2 <- recode (psmIIItot$LU,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
```

```
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$NW2 <- recode (psmIIItot$NW,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
```

```
'BL Basle-Country'=1;
'NE Neuchatel'=1;
'SG St. Gall'=1;
'SH Schaffhaussen'=1;
'TI Ticino'=1;
'VD Vaud'=1;
'AI Appenzell Inner-Rhodes'=2;
'AR Appenzell Outer-Rhodes'=2;
'FR Fribourg'=2;
'GL Glarus'=2;
'GR Grisons'=2;
'JU Jura'=2;
'LU Lucerne'=2;
'NW Nidwalden'=2;
'OW Obwalden'=2;
'SO Solothurn'=2;
'SZ Schwyz'=2;
'TG Thurgovia'=2;
'UR Uri'=2;
'VS Valais'=2;
'BS Basle-Town'=3;
'GE Geneva'=3;
'ZG Zug'=3;
'ZH Zurich'=3;
'abroad'=0"
)
```

```
psmIIItot$OW2 <- recode (psmIIItot$OW,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
```

```
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$SO2 <- recode (psmIIItot$SO,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
```

```
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$SZ2 <- recode (psmIIItot$SZ,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
```

```
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$TG2 <- recode (psmIIItot$TG,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
```

```
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$UR2 <- recode (psmIIItot$UR,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
```

```
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$VS2 <- recode (psmIIItot$VS,
                "'%'=NA;
```

'*'=NA;

'AG Argovia'=1;

'BE Berne'=1;

'BL Basle-Country'=1;

'NE Neuchatel'=1;

'SG St. Gall'=1;

'SH Schaffhaussen'=1;

'TI Ticino'=1;

'VD Vaud'=1;

'AI Appenzell Inner-Rhodes'=2;

'AR Appenzell Outer-Rhodes'=2;

'FR Fribourg'=2;

'GL Glarus'=2;

'GR Grisons'=2;

'JU Jura'=2;

'LU Lucerne'=2;

'NW Nidwalden'=2;

'OW Obwalden'=2;

'SO Solothurn'=2;

'SZ Schwyz'=2;

'TG Thurgovia'=2;

'UR Uri'=2;

'VS Valais'=2;

'BS Basle-Town'=3;

'GE Geneva'=3;

'ZG Zug'=3;

'ZH Zurich'=3;

```
                'abroad'=0"
)

psmIIItot$BS2 <- recode (psmIIItot$BS,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
```

```
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$GE2 <- recode (psmIIItot$GE,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
```

```
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$ZG2 <- recode (psmIIItot$ZG,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
```

```
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$ZH2 <- recode (psmIIItot$ZH,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=1;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
```

```
                'TI Ticino'=1;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=2;
                'AR Appenzell Outer-Rhodes'=2;
                'FR Fribourg'=2;
                'GL Glarus'=2;
                'GR Grisons'=2;
                'JU Jura'=2;
                'LU Lucerne'=2;
                'NW Nidwalden'=2;
                'OW Obwalden'=2;
                'SO Solothurn'=2;
                'SZ Schwyz'=2;
                'TG Thurgovia'=2;
                'UR Uri'=2;
                'VS Valais'=2;
                'BS Basle-Town'=3;
                'GE Geneva'=3;
                'ZG Zug'=3;
                'ZH Zurich'=3;
                'abroad'=0"
)

psmIIItot$AB2 <- recode (psmIIItot$AB,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=1;
```

'BE Berne'=1;

'BL Basle-Country'=1;

'NE Neuchatel'=1;

'SG St. Gall'=1;

'SH Schaffhaussen'=1;

'TI Ticino'=1;

'VD Vaud'=1;

'AI Appenzell Inner-Rhodes'=2;

'AR Appenzell Outer-Rhodes'=2;

'FR Fribourg'=2;

'GL Glarus'=2;

'GR Grisons'=2;

'JU Jura'=2;

'LU Lucerne'=2;

'NW Nidwalden'=2;

'OW Obwalden'=2;

'SO Solothurn'=2;

'SZ Schwyz'=2;

'TG Thurgovia'=2;

'UR Uri'=2;

'VS Valais'=2;

'BS Basle-Town'=3;

'GE Geneva'=3;

'ZG Zug'=3;

'ZH Zurich'=3;

'abroad'=0"

)

```
#binari (per poi aggiungere pesi)
psmIIItot$AGunoTOuno <- ifelse(psmIIItot$AG2==1,1,NA)
psmIIItot$AGdueTOuno <- ifelse(psmIIItot$AG2==2,1,NA)
psmIIItot$AGtreTOuno <- ifelse(psmIIItot$AG2==3,1,NA)
psmIIItot$AGzeroTOuno <- ifelse(psmIIItot$AG2==0,1,NA)

psmIIItot$BEunoTOuno <- ifelse(psmIIItot$BE2==1,1,NA)
psmIIItot$BEdueTOuno <- ifelse(psmIIItot$BE2==2,1,NA)
psmIIItot$BEtreTOuno <- ifelse(psmIIItot$BE2==3,1,NA)
psmIIItot$BEzeroTOuno <- ifelse(psmIIItot$BE2==0,1,NA)

psmIIItot$BLunoTOuno <- ifelse(psmIIItot$BL2==1,1,NA)
psmIIItot$BLdueTOuno <- ifelse(psmIIItot$BL2==2,1,NA)
psmIIItot$BLtreTOuno <- ifelse(psmIIItot$BL2==3,1,NA)
psmIIItot$BLzeroTOuno <- ifelse(psmIIItot$BL2==0,1,NA)

psmIIItot$NEunoTOuno <- ifelse(psmIIItot$NE2==1,1,NA)
psmIIItot$NEdueTOuno <- ifelse(psmIIItot$NE2==2,1,NA)
psmIIItot$NEtreTOuno <- ifelse(psmIIItot$NE2==3,1,NA)
psmIIItot$NEzeroTOuno <- ifelse(psmIIItot$NE2==0,1,NA)

psmIIItot$SGunoTOuno <- ifelse(psmIIItot$SG2==1,1,NA)
psmIIItot$SGdueTOuno <- ifelse(psmIIItot$SG2==2,1,NA)
psmIIItot$SGtreTOuno <- ifelse(psmIIItot$SG2==3,1,NA)
psmIIItot$SGzeroTOuno <- ifelse(psmIIItot$SG2==0,1,NA)
```

```
psmIIItot$SHunoTOuno <- ifelse(psmIIItot$SH2==1,1,NA)
psmIIItot$SHdueTOuno <- ifelse(psmIIItot$SH2==2,1,NA)
psmIIItot$SHtreTOuno <- ifelse(psmIIItot$SH2==3,1,NA)
psmIIItot$SHzeroTOuno <- ifelse(psmIIItot$SH2==0,1,NA)

psmIIItot$TIunoTOuno <- ifelse(psmIIItot$TI2==1,1,NA)
psmIIItot$TIdueTOuno <- ifelse(psmIIItot$TI2==2,1,NA)
psmIIItot$TItreTOuno <- ifelse(psmIIItot$TI2==3,1,NA)
psmIIItot$TIzeroTOuno <- ifelse(psmIIItot$TI2==0,1,NA)

psmIIItot$VDunoTOuno <- ifelse(psmIIItot$VD2==1,1,NA)
psmIIItot$VDdueTOuno <- ifelse(psmIIItot$VD2==2,1,NA)
psmIIItot$VDtreTOuno <- ifelse(psmIIItot$VD2==3,1,NA)
psmIIItot$VDzeroTOuno <- ifelse(psmIIItot$VD2==0,1,NA)

#
psmIIItot$AIunoTOdue <- ifelse(psmIIItot$AI2==1,1,NA)
psmIIItot$AIdueTOdue <- ifelse(psmIIItot$AI2==2,1,NA)
psmIIItot$AItreTOdue <- ifelse(psmIIItot$AI2==3,1,NA)
psmIIItot$AIzeroTOdue <- ifelse(psmIIItot$AI2==0,1,NA)

psmIIItot$ARunoTOdue <- ifelse(psmIIItot$AR2==1,1,NA)
psmIIItot$ARdueTOdue <- ifelse(psmIIItot$AR2==2,1,NA)
psmIIItot$ARtreTOdue <- ifelse(psmIIItot$AR2==3,1,NA)
psmIIItot$ARzeroTOdue <- ifelse(psmIIItot$AR2==0,1,NA)

psmIIItot$FRunoTOdue <- ifelse(psmIIItot$FR2==1,1,NA)
```

```
psmIIItot$FRdueTOdue <- ifelse(psmIIItot$FR2==2,1,NA)
psmIIItot$FRtreTOdue <- ifelse(psmIIItot$FR2==3,1,NA)
psmIIItot$FRzeroTOdue <- ifelse(psmIIItot$FR2==0,1,NA)

psmIIItot$GLunoTOdue <- ifelse(psmIIItot$GL2==1,1,NA)
psmIIItot$GLdueTOdue <- ifelse(psmIIItot$GL2==2,1,NA)
psmIIItot$GLtreTOdue <- ifelse(psmIIItot$GL2==3,1,NA)
psmIIItot$GLzeroTOdue <- ifelse(psmIIItot$GL2==0,1,NA)

psmIIItot$GRunoTOdue <- ifelse(psmIIItot$GR2==1,1,NA)
psmIIItot$GRdueTOdue <- ifelse(psmIIItot$GR2==2,1,NA)
psmIIItot$GRtreTOdue <- ifelse(psmIIItot$GR2==3,1,NA)
psmIIItot$GRzeroTOdue <- ifelse(psmIIItot$GR2==0,1,NA)

psmIIItot$JUunoTOdue <- ifelse(psmIIItot$JU2==1,1,NA)
psmIIItot$JUdueTOdue <- ifelse(psmIIItot$JU2==2,1,NA)
psmIIItot$JUtreTOdue <- ifelse(psmIIItot$JU2==3,1,NA)
psmIIItot$JUzeroTOdue <- ifelse(psmIIItot$JU2==0,1,NA)

psmIIItot$LUunoTOdue <- ifelse(psmIIItot$LU2==1,1,NA)
psmIIItot$LUdueTOdue <- ifelse(psmIIItot$LU2==2,1,NA)
psmIIItot$LUtreTOdue <- ifelse(psmIIItot$LU2==3,1,NA)
psmIIItot$LUzeroTOdue <- ifelse(psmIIItot$LU2==0,1,NA)

psmIIItot$NWunoTOdue <- ifelse(psmIIItot$NW2==1,1,NA)
psmIIItot$NWdueTOdue <- ifelse(psmIIItot$NW2==2,1,NA)
psmIIItot$NWtreTOdue <- ifelse(psmIIItot$NW2==3,1,NA)
```

```
psmIIItot$NWzeroTOdue <- ifelse(psmIIItot$NW2==0,1,NA)

psmIIItot$OWunoTOdue <- ifelse(psmIIItot$OW2==1,1,NA)
psmIIItot$OWdueTOdue <- ifelse(psmIIItot$OW2==2,1,NA)
psmIIItot$OWtreTOdue <- ifelse(psmIIItot$OW2==3,1,NA)
psmIIItot$OWzeroTOdue <- ifelse(psmIIItot$OW2==0,1,NA)

psmIIItot$SOunoTOdue <- ifelse(psmIIItot$SO2==1,1,NA)
psmIIItot$SOdueTOdue <- ifelse(psmIIItot$SO2==2,1,NA)
psmIIItot$SOtreTOdue <- ifelse(psmIIItot$SO2==3,1,NA)
psmIIItot$SOzeroTOdue <- ifelse(psmIIItot$SO2==0,1,NA)

psmIIItot$SZunoTOdue <- ifelse(psmIIItot$SZ2==1,1,NA)
psmIIItot$SZdueTOdue <- ifelse(psmIIItot$SZ2==2,1,NA)
psmIIItot$SZtreTOdue <- ifelse(psmIIItot$SZ2==3,1,NA)
psmIIItot$SZzeroTOdue <- ifelse(psmIIItot$SZ2==0,1,NA)

psmIIItot$TGunoTOdue <- ifelse(psmIIItot$TG2==1,1,NA)
psmIIItot$TGdueTOdue <- ifelse(psmIIItot$TG2==2,1,NA)
psmIIItot$TGtreTOdue <- ifelse(psmIIItot$TG2==3,1,NA)
psmIIItot$TGzeroTOdue <- ifelse(psmIIItot$TG2==0,1,NA)

psmIIItot$URunoTOdue <- ifelse(psmIIItot$UR2==1,1,NA)
psmIIItot$URdueTOdue <- ifelse(psmIIItot$UR2==2,1,NA)
psmIIItot$URtreTOdue <- ifelse(psmIIItot$UR2==3,1,NA)
psmIIItot$URzeroTOdue <- ifelse(psmIIItot$UR2==0,1,NA)
```

```
psmIIItot$VSunoTOdue <- ifelse(psmIIItot$VS2==1,1,NA)
psmIIItot$VSdueTOdue <- ifelse(psmIIItot$VS2==2,1,NA)
psmIIItot$VStreTOdue <- ifelse(psmIIItot$VS2==3,1,NA)
psmIIItot$VSzeroTOdue <- ifelse(psmIIItot$VS2==0,1,NA)

#
psmIIItot$GEunoTOtre <- ifelse(psmIIItot$GE2==1,1,NA)
psmIIItot$GEdueTOtre <- ifelse(psmIIItot$GE2==2,1,NA)
psmIIItot$GEtreTOtre <- ifelse(psmIIItot$GE2==3,1,NA)
psmIIItot$GEzeroTOtre <- ifelse(psmIIItot$GE2==0,1,NA)

psmIIItot$ZHunoTOtre <- ifelse(psmIIItot$ZH2==1,1,NA)
psmIIItot$ZHdueTOtre <- ifelse(psmIIItot$ZH2==2,1,NA)
psmIIItot$ZHtreTOtre <- ifelse(psmIIItot$ZH2==3,1,NA)
psmIIItot$ZHzeroTOtre <- ifelse(psmIIItot$ZH2==0,1,NA)

psmIIItot$ZGunoTOtre <- ifelse(psmIIItot$ZG2==1,1,NA)
psmIIItot$ZGdueTOtre <- ifelse(psmIIItot$ZG2==2,1,NA)
psmIIItot$ZGtreTOtre <- ifelse(psmIIItot$ZG2==3,1,NA)
psmIIItot$ZGzeroTOtre <- ifelse(psmIIItot$ZG2==0,1,NA)

psmIIItot$BSunoTOtre <- ifelse(psmIIItot$BS2==1,1,NA)
psmIIItot$BSdueTOtre <- ifelse(psmIIItot$BS2==2,1,NA)
psmIIItot$BStreTOtre <- ifelse(psmIIItot$BS2==3,1,NA)
psmIIItot$BSzeroTOtre <- ifelse(psmIIItot$BS2==0,1,NA)

#
```

```
psmIIItot$ABunoTOzero <- ifelse(psmIIItot$AB2==1,1,NA)
psmIIItot$ABdueTOzero <- ifelse(psmIIItot$AB2==2,1,NA)
psmIIItot$ABtreTOzero <- ifelse(psmIIItot$AB2==3,1,NA)
psmIIItot$ABzeroTOzero <- ifelse(psmIIItot$AB2==0,1,NA)

####pesi standardizzato#
psmIIItot$pesoStand <-
psmIIItot$WP13T3S*(length(psmIIItot$WP13T3S)/sum(psmIIItot$WP13T3S))

####binari pesati

psmIIItot$AGunoTOunoP <- psmIIItot$AGunoTOuno*psmIIItot$pesoStand*0.82
psmIIItot$AGdueTOunoP <- psmIIItot$AGdueTOuno*psmIIItot$pesoStand*0.82
psmIIItot$AGtreTOunoP <- psmIIItot$AGtreTOuno*psmIIItot$pesoStand*0.82
psmIIItot$AGzeroTOunoP <- psmIIItot$AGzeroTOuno*psmIIItot$pesoStand*0.82

psmIIItot$BEunoTOunoP <- psmIIItot$BEunoTOuno*psmIIItot$pesoStand*0.98
psmIIItot$BEdueTOunoP <- psmIIItot$BEdueTOuno*psmIIItot$pesoStand*0.98
psmIIItot$BEtreTOunoP <- psmIIItot$BEtreTOuno*psmIIItot$pesoStand*0.98
psmIIItot$BEzeroTOunoP <- psmIIItot$BEzeroTOuno*psmIIItot$pesoStand*0.98

psmIIItot$BLunoTOunoP <- psmIIItot$BLunoTOuno*psmIIItot$pesoStand*0.82
psmIIItot$BLdueTOunoP <- psmIIItot$BLdueTOuno*psmIIItot$pesoStand*0.82
psmIIItot$BLtreTOunoP <- psmIIItot$BLtreTOuno*psmIIItot$pesoStand*0.82
psmIIItot$BLzeroTOunoP <- psmIIItot$BLzeroTOuno*psmIIItot$pesoStand*0.82
```

```
psmIIItot$NEunoTOunoP <- psmIIItot$NEunoTOuno*psmIIItot$pesoStand*0.98
psmIIItot$NEdueTOunoP <- psmIIItot$NEdueTOuno*psmIIItot$pesoStand*0.98
psmIIItot$NEtreTOunoP <- psmIIItot$NEtreTOuno*psmIIItot$pesoStand*0.98
psmIIItot$NEzeroTOunoP <- psmIIItot$NEzeroTOuno*psmIIItot$pesoStand*0.98

psmIIItot$SGunoTOunoP <- psmIIItot$SGunoTOuno*psmIIItot$pesoStand*1.00
psmIIItot$SGdueTOunoP <- psmIIItot$SGdueTOuno*psmIIItot$pesoStand*1.00
psmIIItot$SGtreTOunoP <- psmIIItot$SGtreTOuno*psmIIItot$pesoStand*1.00
psmIIItot$SGzeroTOunoP <- psmIIItot$SGzeroTOuno*psmIIItot$pesoStand*1.00

psmIIItot$SHunoTOunoP <- psmIIItot$SHunoTOuno*psmIIItot$pesoStand*1.00
psmIIItot$SHdueTOunoP <- psmIIItot$SHdueTOuno*psmIIItot$pesoStand*1.00
psmIIItot$SHtreTOunoP <- psmIIItot$SHtreTOuno*psmIIItot$pesoStand*1.00
psmIIItot$SHzeroTOunoP <- psmIIItot$SHzeroTOuno*psmIIItot$pesoStand*1.00

psmIIItot$TIunoTOunoP <- psmIIItot$TIunoTOuno*psmIIItot$pesoStand*1.47
psmIIItot$TIdueTOunoP <- psmIIItot$TIdueTOuno*psmIIItot$pesoStand*1.47
psmIIItot$TItreTOunoP <- psmIIItot$TItreTOuno*psmIIItot$pesoStand*1.47
psmIIItot$TIzeroTOunoP <- psmIIItot$TIzeroTOuno*psmIIItot$pesoStand*1.47

psmIIItot$VDunoTOunoP <- psmIIItot$VDunoTOuno*psmIIItot$pesoStand*0.92
psmIIItot$VDdueTOunoP <- psmIIItot$VDdueTOuno*psmIIItot$pesoStand*0.92
psmIIItot$VDtreTOunoP <- psmIIItot$VDtreTOuno*psmIIItot$pesoStand*0.92
psmIIItot$VDzeroTOunoP <- psmIIItot$VDzeroTOuno*psmIIItot$pesoStand*0.92

#
```

```
psmIIItot$AIunoTOdueP <- psmIIItot$AIunoTOdue*psmIIItot$pesoStand*1.00
psmIIItot$AIdueTOdueP <- psmIIItot$AIdueTOdue*psmIIItot$pesoStand*1.00
psmIIItot$AItreTOdueP <- psmIIItot$AItreTOdue*psmIIItot$pesoStand*1.00
psmIIItot$AIzeroTOdueP <- psmIIItot$AIzeroTOdue*psmIIItot$pesoStand*1.00

psmIIItot$ARunoTOdueP <- psmIIItot$ARunoTOdue*psmIIItot$pesoStand*1.00
psmIIItot$ARdueTOdueP <- psmIIItot$ARdueTOdue*psmIIItot$pesoStand*1.00
psmIIItot$ARtreTOdueP <- psmIIItot$ARtreTOdue*psmIIItot$pesoStand*1.00
psmIIItot$ARzeroTOdueP <- psmIIItot$ARzeroTOdue*psmIIItot$pesoStand*1.00

psmIIItot$FRunoTOdueP <- psmIIItot$FRunoTOdue*psmIIItot$pesoStand*0.98
psmIIItot$FRdueTOdueP <- psmIIItot$FRdueTOdue*psmIIItot$pesoStand*0.98
psmIIItot$FRtreTOdueP <- psmIIItot$FRtreTOdue*psmIIItot$pesoStand*0.98
psmIIItot$FRzeroTOdueP <- psmIIItot$FRzeroTOdue*psmIIItot$pesoStand*0.98

psmIIItot$GLunoTOdueP <- psmIIItot$GLunoTOdue*psmIIItot$pesoStand*1.00
psmIIItot$GLdueTOdueP <- psmIIItot$GLdueTOdue*psmIIItot$pesoStand*1.00
psmIIItot$GLtreTOdueP <- psmIIItot$GLtreTOdue*psmIIItot$pesoStand*1.00
psmIIItot$GLzeroTOdueP <- psmIIItot$GLzeroTOdue*psmIIItot$pesoStand*1.00

psmIIItot$GRunoTOdueP <- psmIIItot$GRunoTOdue*psmIIItot$pesoStand*1.00
psmIIItot$GRdueTOdueP <- psmIIItot$GRdueTOdue*psmIIItot$pesoStand*1.00
psmIIItot$GRtreTOdueP <- psmIIItot$GRtreTOdue*psmIIItot$pesoStand*1.00
psmIIItot$GRzeroTOdueP <- psmIIItot$GRzeroTOdue*psmIIItot$pesoStand*1.00

psmIIItot$JUunoTOdueP <- psmIIItot$JUunoTOdue*psmIIItot$pesoStand*0.98
psmIIItot$JUdueTOdueP <- psmIIItot$JUdueTOdue*psmIIItot$pesoStand*0.98
```

```
psmIIItot$JUtreTOdueP <- psmIIItot$JUtreTOdue*psmIIItot$pesoStand*0.98
psmIIItot$JUzeroTOdueP <- psmIIItot$JUzeroTOdue*psmIIItot$pesoStand*0.98

psmIIItot$LUunoTOdueP <- psmIIItot$LUunoTOdue*psmIIItot$pesoStand*1.04
psmIIItot$LUdueTOdueP <- psmIIItot$LUdueTOdue*psmIIItot$pesoStand*1.04
psmIIItot$LUtreTOdueP <- psmIIItot$LUtreTOdue*psmIIItot$pesoStand*1.04
psmIIItot$LUzeroTOdueP <- psmIIItot$LUzeroTOdue*psmIIItot$pesoStand*1.04

psmIIItot$NWunoTOdueP <- psmIIItot$NWunoTOdue*psmIIItot$pesoStand*1.04
psmIIItot$NWdueTOdueP <- psmIIItot$NWdueTOdue*psmIIItot$pesoStand*1.04
psmIIItot$NWtreTOdueP <- psmIIItot$NWtreTOdue*psmIIItot$pesoStand*1.04
psmIIItot$NWzeroTOdueP <- psmIIItot$NWzeroTOdue*psmIIItot$pesoStand*1.04

psmIIItot$OWunoTOdueP <- psmIIItot$OWunoTOdue*psmIIItot$pesoStand*1.04
psmIIItot$OWdueTOdueP <- psmIIItot$OWdueTOdue*psmIIItot$pesoStand*1.04
psmIIItot$OWtreTOdueP <- psmIIItot$OWtreTOdue*psmIIItot$pesoStand*1.04
psmIIItot$OWzeroTOdueP <- psmIIItot$OWzeroTOdue*psmIIItot$pesoStand*1.04

psmIIItot$SOunoTOdueP <- psmIIItot$SOunoTOdue*psmIIItot$pesoStand*0.98
psmIIItot$SOdueTOdueP <- psmIIItot$SOdueTOdue*psmIIItot$pesoStand*0.98
psmIIItot$SOtreTOdueP <- psmIIItot$SOtreTOdue*psmIIItot$pesoStand*0.98
psmIIItot$SOzeroTOdueP <- psmIIItot$SOzeroTOdue*psmIIItot$pesoStand*0.98

psmIIItot$SZunoTOdueP <- psmIIItot$SZunoTOdue*psmIIItot$pesoStand*1.04
psmIIItot$SZdueTOdueP <- psmIIItot$SZdueTOdue*psmIIItot$pesoStand*1.04
psmIIItot$SZtreTOdueP <- psmIIItot$SZtreTOdue*psmIIItot$pesoStand*1.04
psmIIItot$SZzeroTOdueP <- psmIIItot$SZzeroTOdue*psmIIItot$pesoStand*1.04
```

```
psmIIItot$TGunoTOdueP <- psmIIItot$TGunoTOdue*psmIIItot$pesoStand*1.00
psmIIItot$TGdueTOdueP <- psmIIItot$TGdueTOdue*psmIIItot$pesoStand*1.00
psmIIItot$TGtreTOdueP <- psmIIItot$TGtreTOdue*psmIIItot$pesoStand*1.00
psmIIItot$TGzeroTOdueP <- psmIIItot$TGzeroTOdue*psmIIItot$pesoStand*1.00

psmIIItot$URunoTOdueP <- psmIIItot$URunoTOdue*psmIIItot$pesoStand*1.04
psmIIItot$URdueTOdueP <- psmIIItot$URdueTOdue*psmIIItot$pesoStand*1.04
psmIIItot$URtreTOdueP <- psmIIItot$URtreTOdue*psmIIItot$pesoStand*1.04
psmIIItot$URzeroTOdueP <- psmIIItot$URzeroTOdue*psmIIItot$pesoStand*1.04

psmIIItot$VSunoTOdueP <- psmIIItot$VSunoTOdue*psmIIItot$pesoStand*0.92
psmIIItot$VSdueTOdueP <- psmIIItot$VSdueTOdue*psmIIItot$pesoStand*0.92
psmIIItot$VStreTOdueP <- psmIIItot$VStreTOdue*psmIIItot$pesoStand*0.92
psmIIItot$VSzeroTOdueP <- psmIIItot$VSzeroTOdue*psmIIItot$pesoStand*0.92

#
psmIIItot$GEunoTOtreP <- psmIIItot$GEunoTOtre*psmIIItot$pesoStand*0.92
psmIIItot$GEdueTOtreP <- psmIIItot$GEdueTOtre*psmIIItot$pesoStand*0.92
psmIIItot$GEtreTOtreP <- psmIIItot$GEtreTOtre*psmIIItot$pesoStand*0.92
psmIIItot$GEzeroTOtreP <- psmIIItot$GEzeroTOtre*psmIIItot$pesoStand*0.92

psmIIItot$ZHunoTOtreP <- psmIIItot$ZHunoTOtre*psmIIItot$pesoStand*1.23
psmIIItot$ZHdueTOtreP <- psmIIItot$ZHdueTOtre*psmIIItot$pesoStand*1.23
psmIIItot$ZHtreTOtreP <- psmIIItot$ZHtreTOtre*psmIIItot$pesoStand*1.23
psmIIItot$ZHzeroTOtreP <- psmIIItot$ZHzeroTOtre*psmIIItot$pesoStand*1.23
```

```
psmIIItot$ZGunoTOtreP <- psmIIItot$ZGunoTOtre*psmIIItot$pesoStand*1.04
psmIIItot$ZGdueTOtreP <- psmIIItot$ZGdueTOtre*psmIIItot$pesoStand*1.04
psmIIItot$ZGtreTOtreP <- psmIIItot$ZGtreTOtre*psmIIItot$pesoStand*1.04
psmIIItot$ZGzeroTOtreP <- psmIIItot$ZGzeroTOtre*psmIIItot$pesoStand*1.04

psmIIItot$BSunoTOtreP <- psmIIItot$BSunoTOtre*psmIIItot$pesoStand*0.82
psmIIItot$BSdueTOtreP <- psmIIItot$BSdueTOtre*psmIIItot$pesoStand*0.82
psmIIItot$BStreTOtreP <- psmIIItot$BStreTOtre*psmIIItot$pesoStand*0.82
psmIIItot$BSzeroTOtreP <- psmIIItot$BSzeroTOtre*psmIIItot$pesoStand*0.82

#
psmIIItot$ABunoTOzeroP <- psmIIItot$ABunoTOzero*psmIIItot$pesoStand*1
psmIIItot$ABdueTOzeroP <- psmIIItot$ABdueTOzero*psmIIItot$pesoStand*1
psmIIItot$ABtreTOzeroP <- psmIIItot$ABtreTOzero*psmIIItot$pesoStand*1
psmIIItot$ABzeroTOzeroP <- psmIIItot$ABzeroTOzero*psmIIItot$pesoStand*1

################################

#cella per cella
UNOtoUNO <-
  sum(psmIIItot$AGunoTOunoP, na.rm=T)+
  sum(psmIIItot$BEunoTOunoP, na.rm=T)+
  sum(psmIIItot$BLunoTOunoP, na.rm=T)+
  sum(psmIIItot$NEunoTOunoP, na.rm=T)+
  sum(psmIIItot$SGunoTOunoP, na.rm=T)+
  sum(psmIIItot$SHunoTOunoP, na.rm=T)+
  sum(psmIIItot$TIunoTOunoP, na.rm=T)+
```

```
  sum(psmIIItot$VDunoTOunoP, na.rm=T)

DUEtoUNO <-
  sum(psmIIItot$AGdueTOunoP, na.rm=T)+
  sum(psmIIItot$BEdueTOunoP, na.rm=T)+
  sum(psmIIItot$BLdueTOunoP, na.rm=T)+
  sum(psmIIItot$NEdueTOunoP, na.rm=T)+
  sum(psmIIItot$SGdueTOunoP, na.rm=T)+
  sum(psmIIItot$SHdueTOunoP, na.rm=T)+
  sum(psmIIItot$TIdueTOunoP, na.rm=T)+
  sum(psmIIItot$VDdueTOunoP, na.rm=T)

TREtoUNO <-
  sum(psmIIItot$AGtreTOunoP, na.rm=T)+
  sum(psmIIItot$BEtreTOunoP, na.rm=T)+
  sum(psmIIItot$BLtreTOunoP, na.rm=T)+
  sum(psmIIItot$NEtreTOunoP, na.rm=T)+
  sum(psmIIItot$SGtreTOunoP, na.rm=T)+
  sum(psmIIItot$SHtreTOunoP, na.rm=T)+
  sum(psmIIItot$TItreTOunoP, na.rm=T)+
  sum(psmIIItot$VDtreTOunoP, na.rm=T)

ZEROtoUNO <-
  sum(psmIIItot$AGzeroTOunoP, na.rm=T)+
  sum(psmIIItot$BEzeroTOunoP, na.rm=T)+
  sum(psmIIItot$BLzeroTOunoP, na.rm=T)+
  sum(psmIIItot$NEzeroTOunoP, na.rm=T)+
```

```
  sum(psmIIItot$SGzeroTOunoP, na.rm=T)+
  sum(psmIIItot$SHzeroTOunoP, na.rm=T)+
  sum(psmIIItot$TIzeroTOunoP, na.rm=T)+
  sum(psmIIItot$VDzeroTOunoP, na.rm=T)

#
UNOtoDUE <-
  sum(psmIIItot$AIunoTOdueP, na.rm=T)+
  sum(psmIIItot$ARunoTOdueP, na.rm=T)+
  sum(psmIIItot$FRunoTOdueP, na.rm=T)+
  sum(psmIIItot$GLunoTOdueP, na.rm=T)+
  sum(psmIIItot$GRunoTOdueP, na.rm=T)+
  sum(psmIIItot$JUunoTOdueP, na.rm=T)+
  sum(psmIIItot$LUunoTOdueP, na.rm=T)+
  sum(psmIIItot$NWunoTOdueP, na.rm=T)+
  sum(psmIIItot$OWunoTOdueP, na.rm=T)+
  sum(psmIIItot$SOunoTOdueP, na.rm=T)+
  sum(psmIIItot$SZunoTOdueP, na.rm=T)+
  sum(psmIIItot$TGunoTOdueP, na.rm=T)+
  sum(psmIIItot$URunoTOdueP, na.rm=T)+
  sum(psmIIItot$VSunoTOdueP, na.rm=T)

DUEtoDUE <-
  sum(psmIIItot$AIdueTOdueP, na.rm=T)+
  sum(psmIIItot$ARdueTOdueP, na.rm=T)+
  sum(psmIIItot$FRdueTOdueP, na.rm=T)+
  sum(psmIIItot$GLdueTOdueP, na.rm=T)+
```

```
  sum(psmIIItot$GRdueTOdueP, na.rm=T)+
  sum(psmIIItot$JUdueTOdueP, na.rm=T)+
  sum(psmIIItot$LUdueTOdueP, na.rm=T)+
  sum(psmIIItot$NWdueTOdueP, na.rm=T)+
  sum(psmIIItot$OWdueTOdueP, na.rm=T)+
  sum(psmIIItot$SOdueTOdueP, na.rm=T)+
  sum(psmIIItot$SZdueTOdueP, na.rm=T)+
  sum(psmIIItot$TGdueTOdueP, na.rm=T)+
  sum(psmIIItot$URdueTOdueP, na.rm=T)+
  sum(psmIIItot$VSdueTOdueP, na.rm=T)

TREtoDUE <-
  sum(psmIIItot$AItreTOdueP, na.rm=T)+
  sum(psmIIItot$ARtreTOdueP, na.rm=T)+
  sum(psmIIItot$FRtreTOdueP, na.rm=T)+
  sum(psmIIItot$GLtreTOdueP, na.rm=T)+
  sum(psmIIItot$GRtreTOdueP, na.rm=T)+
  sum(psmIIItot$JUtreTOdueP, na.rm=T)+
  sum(psmIIItot$LUtreTOdueP, na.rm=T)+
  sum(psmIIItot$NWtreTOdueP, na.rm=T)+
  sum(psmIIItot$OWtreTOdueP, na.rm=T)+
  sum(psmIIItot$SOtreTOdueP, na.rm=T)+
  sum(psmIIItot$SZtreTOdueP, na.rm=T)+
  sum(psmIIItot$TGtreTOdueP, na.rm=T)+
  sum(psmIIItot$URtreTOdueP, na.rm=T)+
  sum(psmIIItot$VStreTOdueP, na.rm=T)
```

```
ZEROtoDUE <-
  sum(psmIIItot$AIzeroTOdueP, na.rm=T)+
  sum(psmIIItot$ARzeroTOdueP, na.rm=T)+
  sum(psmIIItot$FRzeroTOdueP, na.rm=T)+
  sum(psmIIItot$GLzeroTOdueP, na.rm=T)+
  sum(psmIIItot$GRzeroTOdueP, na.rm=T)+
  sum(psmIIItot$JUzeroTOdueP, na.rm=T)+
  sum(psmIIItot$LUzeroTOdueP, na.rm=T)+
  sum(psmIIItot$NWzeroTOdueP, na.rm=T)+
  sum(psmIIItot$OWzeroTOdueP, na.rm=T)+
  sum(psmIIItot$SOzeroTOdueP, na.rm=T)+
  sum(psmIIItot$SZzeroTOdueP, na.rm=T)+
  sum(psmIIItot$TGzeroTOdueP, na.rm=T)+
  sum(psmIIItot$URzeroTOdueP, na.rm=T)+
  sum(psmIIItot$VSzeroTOdueP, na.rm=T)

#
UNOtoTRE <-
  sum(psmIIItot$BSunoTOtreP, na.rm=T)+
  sum(psmIIItot$GEunoTOtreP, na.rm=T)+
  sum(psmIIItot$ZGunoTOtreP, na.rm=T)+
  sum(psmIIItot$ZHunoTOtreP, na.rm=T)

DUEtoTRE <-
  sum(psmIIItot$BSdueTOtreP, na.rm=T)+
  sum(psmIIItot$GEdueTOtreP, na.rm=T)+
  sum(psmIIItot$ZGdueTOtreP, na.rm=T)+
```

```
  sum(psmIIItot$ZHdueTOtreP, na.rm=T)

TREtoTRE <-
  sum(psmIIItot$BStreTOtreP, na.rm=T)+
  sum(psmIIItot$GEtreTOtreP, na.rm=T)+
  sum(psmIIItot$ZGtreTOtreP, na.rm=T)+
  sum(psmIIItot$ZHtreTOtreP, na.rm=T)

ZEROtoTRE <-
  sum(psmIIItot$BSzeroTOtreP, na.rm=T)+
  sum(psmIIItot$GEzeroTOtreP, na.rm=T)+
  sum(psmIIItot$ZGzeroTOtreP, na.rm=T)+
  sum(psmIIItot$ZHzeroTOtreP, na.rm=T)

#
UNOtoZERO <-
  sum(psmIIItot$ABunoTOzeroP, na.rm=T)

DUEtoZERO <-
  sum(psmIIItot$ABdueTOzeroP, na.rm=T)

TREtoZERO <-
  sum(psmIIItot$ABtreTOzeroP, na.rm=T)

ZEROtoZERO <-
  sum(psmIIItot$ABzeroTOzeroP, na.rm=T)
```

```
#marginali
toUNO <- DUEtoUNO + TREtoUNO + ZEROtoUNO
toDUE <- UNOtoDUE + TREtoDUE + ZEROtoDUE
toTRE <- UNOtoTRE + DUEtoTRE + ZEROtoTRE

fromUNO <- UNOtoDUE + UNOtoTRE
fromDUE <- DUEtoUNO + DUEtoTRE
fromTRE <- TREtoUNO + TREtoDUE

#particolari
changing <- toUNO + toDUE + toTRE

--------

levels(psmIIItot$SEX13)

##SEX MAN

#man cluster 1
UNOtoUNOman <-
  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$AGunoTOunoP>0)])+
  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$BEunoTOunoP>0)])+
  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$BLunoTOunoP>0)])+
  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$NEunoTOunoP>0)])+
```

```
  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOman <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOman <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$AGtreTOunoP>0)])+
```

```
 sum(psmIIItot$BEtreTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$BEtreTOunoP>0)])+

 sum(psmIIItot$BLtreTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$BLtreTOunoP>0)])+

 sum(psmIIItot$NEtreTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$NEtreTOunoP>0)])+

 sum(psmIIItot$SGtreTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$SGtreTOunoP>0)])+

 sum(psmIIItot$SHtreTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$SHtreTOunoP>0)])+

 sum(psmIIItot$TItreTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$TItreTOunoP>0)])+

 sum(psmIIItot$VDtreTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOman <-

 sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$AGzeroTOunoP>0)])+

 sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$BEzeroTOunoP>0)])+

 sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$BLzeroTOunoP>0)])+

 sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$NEzeroTOunoP>0)])+

 sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$SGzeroTOunoP>0)])+

 sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$SHzeroTOunoP>0)])+

 sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$TIzeroTOunoP>0)])+
```

```
  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$SEX13=="man" &
psmIIItot$VDzeroTOunoP>0)])


#man cluster 2

UNOtoDUEman <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$URunoTOdueP>0)])+
```

```
  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEman <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$URdueTOdueP>0)])+
```

```
  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEman <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$URtreTOdueP>0)])+
```

```
  sum(psmIIItot$VStreTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEman <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$URzeroTOdueP>0)])+
```

```
  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$SEX13=="man" &
psmIIItot$VSzeroTOdueP>0)])


#man cluster 3

UNOtoTREman <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREman <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$ZHdueTOtreP>0)])


TREtoTREman <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$GEtreTOtreP>0)])+
```

```
  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREman <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$GEzeroTOtreP>0)])+

  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$SEX13=="man" &
psmIIItot$ZHzeroTOtreP>0)])


#man cluster abroad

UNOtoZEROman <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$SEX13=="man" &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROman <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$SEX13=="man" &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROman <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$SEX13=="man" &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROman <-
```

```
  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$SEX13=="man" &
psmIIItot$ABzeroTOzeroP>0)])
```

##SEX WOMAN

```
#woman cluster 1

UNOtoUNOwoman <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$VDunoTOunoP>0)])

DUEtoUNOwoman <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$BEdueTOunoP>0)])+
```

```
  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOwoman <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$VDtreTOunoP>0)])
```

```
ZEROtoUNOwoman <-
  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$AGzeroTOunoP>0)])+
  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$BEzeroTOunoP>0)])+
  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$BLzeroTOunoP>0)])+
  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$NEzeroTOunoP>0)])+
  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SGzeroTOunoP>0)])+
  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SHzeroTOunoP>0)])+
  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$TIzeroTOunoP>0)])+
  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$SEX13=="woman" &
psmIIItot$VDzeroTOunoP>0)])


#woman cluster 2
UNOtoDUEwoman <-
  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$AIunoTOdueP>0)])+
  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ARunoTOdueP>0)])+
  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$FRunoTOdueP>0)])+
  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$GLunoTOdueP>0)])+
  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$GRunoTOdueP>0)])+
```

```
  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEwoman <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$GRdueTOdueP>0)])+
```

```
  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEwoman <-

  sum(psmIIItot$AltreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$AltreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$GRtreTOdueP>0)])+
```

```
  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEwoman <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$GRzeroTOdueP>0)])+
```

```
  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$SEX13=="woman" &
psmIIItot$VSzeroTOdueP>0)])


#woman cluster 3

UNOtoTREwoman <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREwoman <-
```

```
  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ZHdueTOtreP>0)])


TREtoTREwoman <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREwoman <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$GEzeroTOtreP>0)])+

  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ZHzeroTOtreP>0)])


#woman cluster abroad
```

```
UNOtoZEROwoman <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROwoman <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROwoman <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROwoman <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$SEX13=="woman" &
psmIIItot$ABzeroTOzeroP>0)])


------


### definizione variabili lavoro dopo cambio ###


##variabili per cantone##

for (i in 1:length(psmIIItot[,1])){

psmIIItot$jobAB[i] <- ifelse(is.na(psmIIItot$posAB[i]==T), NA,
as.character(seqact[i,psmIIItot$posAB[i]]))

}


for (i in 1:length(psmIIItot[,1])){
```

```
  psmIIItot$jobAG[i] <- ifelse(is.na(psmIIItot$posAG[i]==T), NA,
as.character(seqact[i,psmIIItot$posAG[i]]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobBE[i] <- ifelse(is.na(psmIIItot$posBE[i]==T), NA,
as.character(seqact[i,psmIIItot$posBE[i]]))
}


for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobBL[i] <- ifelse(is.na(psmIIItot$posBL[i]==T), NA,
as.character(seqact[i,psmIIItot$posBL[i]]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobNE[i] <- ifelse(is.na(psmIIItot$posNE[i]==T), NA,
as.character(seqact[i,psmIIItot$posNE[i]]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobSG[i] <- ifelse(is.na(psmIIItot$posSG[i]==T), NA,
as.character(seqact[i,psmIIItot$posSG[i]]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobSH[i] <- ifelse(is.na(psmIIItot$posSH[i]==T), NA,
as.character(seqact[i,psmIIItot$posSH[i]]))
```

```
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobTI[i] <- ifelse(is.na(psmIIItot$posTI[i]==T), NA,
as.character(seqact[i,psmIIItot$posTI[i]]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobVD[i] <- ifelse(is.na(psmIIItot$posVD[i]==T), NA,
as.character(seqact[i,psmIIItot$posVD[i]]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobAI[i] <- ifelse(is.na(psmIIItot$posAI[i]==T), NA,
as.character(seqact[i,psmIIItot$posAI[i]]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobAR[i] <- ifelse(is.na(psmIIItot$posAR[i]==T), NA,
as.character(seqact[i,psmIIItot$posAR[i]]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobFR[i] <- ifelse(is.na(psmIIItot$posFR[i]==T), NA,
as.character(seqact[i,psmIIItot$posFR[i]]))
}

for (i in 1:length(psmIIItot[,1])){
```

```
  psmIIItot$jobGL[i] <- ifelse(is.na(psmIIItot$posGL[i]==T), NA,
as.character(seqact[i,psmIIItot$posGL[i]]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobGR[i] <- ifelse(is.na(psmIIItot$posGR[i]==T), NA,
as.character(seqact[i,psmIIItot$posGR[i]]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobJU[i] <- ifelse(is.na(psmIIItot$posJU[i]==T), NA,
as.character(seqact[i,psmIIItot$posJU[i]]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobLU[i] <- ifelse(is.na(psmIIItot$posLU[i]==T), NA,
as.character(seqact[i,psmIIItot$posLU[i]]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobNW[i] <- ifelse(is.na(psmIIItot$posNW[i]==T), NA,
as.character(seqact[i,psmIIItot$posNW[i]]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobOW[i] <- ifelse(is.na(psmIIItot$posOW[i]==T), NA,
as.character(seqact[i,psmIIItot$posOW[i]]))
}
```

```
for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobSO[i] <- ifelse(is.na(psmIIItot$posSO[i]==T), NA,
as.character(seqact[i,psmIIItot$posSO[i]]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobSZ[i] <- ifelse(is.na(psmIIItot$posSZ[i]==T), NA,
as.character(seqact[i,psmIIItot$posSZ[i]]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobTG[i] <- ifelse(is.na(psmIIItot$posTG[i]==T), NA,
as.character(seqact[i,psmIIItot$posTG[i]]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobUR[i] <- ifelse(is.na(psmIIItot$posUR[i]==T), NA,
as.character(seqact[i,psmIIItot$posUR[i]]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobVS[i] <- ifelse(is.na(psmIIItot$posVS[i]==T), NA,
as.character(seqact[i,psmIIItot$posVS[i]]))

}


for (i in 1:length(psmIIItot[,1])){
```

```
  psmIIItot$jobBS[i] <- ifelse(is.na(psmIIItot$posBS[i]==T), NA,
as.character(seqact[i,psmIIItot$posBS[i]]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobGE[i] <- ifelse(is.na(psmIIItot$posGE[i]==T), NA,
as.character(seqact[i,psmIIItot$posGE[i]]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobZG[i] <- ifelse(is.na(psmIIItot$posZG[i]==T), NA,
as.character(seqact[i,psmIIItot$posZG[i]]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobZH[i] <- ifelse(is.na(psmIIItot$posZH[i]==T), NA,
as.character(seqact[i,psmIIItot$posZH[i]]))

}


#ricodifica#


for (i in 1:length(psmIIItot[,1])){

psmIIItot$jobAG[i] <- ifelse((psmIIItot$jobAG[i]=="*"|psmIIItot$jobAG[i]=="%"),NA,
as.numeric(psmIIItot$jobAG[i]))

}


for (i in 1:length(psmIIItot[,1])){
```

```
  psmIIItot$jobBE[i] <- ifelse((psmIIItot$jobBE[i]=="*"|psmIIItot$jobBE[i]=="%"),NA,
as.numeric(psmIIItot$jobBE[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobBL[i] <- ifelse((psmIIItot$jobBL[i]=="*"|psmIIItot$jobBL[i]=="%"),NA,
as.numeric(psmIIItot$jobBL[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobNE[i] <- ifelse((psmIIItot$jobNE[i]=="*"|psmIIItot$jobNE[i]=="%"),NA,
as.numeric(psmIIItot$jobNE[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobSG[i] <- ifelse((psmIIItot$jobSG[i]=="*"|psmIIItot$jobSG[i]=="%"),NA,
as.numeric(psmIIItot$jobSG[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobSH[i] <- ifelse((psmIIItot$jobSH[i]=="*"|psmIIItot$jobSH[i]=="%"),NA,
as.numeric(psmIIItot$jobSH[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobTI[i] <- ifelse((psmIIItot$jobTI[i]=="*"|psmIIItot$jobTI[i]=="%"),NA,
as.numeric(psmIIItot$jobTI[i]))
}
```

```
for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobVD[i] <- ifelse((psmIIItot$jobVD[i]=="*"|psmIIItot$jobVD[i]=="%"),NA,
as.numeric(psmIIItot$jobVD[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobAI[i] <- ifelse((psmIIItot$jobAI[i]=="*"|psmIIItot$jobAI[i]=="%"),NA,
as.numeric(psmIIItot$jobAI[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobAR[i] <- ifelse((psmIIItot$jobAR[i]=="*"|psmIIItot$jobAR[i]=="%"),NA,
as.numeric(psmIIItot$jobAR[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobFR[i] <- ifelse((psmIIItot$jobFR[i]=="*"|psmIIItot$jobFR[i]=="%"),NA,
as.numeric(psmIIItot$jobFR[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobGL[i] <- ifelse((psmIIItot$jobGL[i]=="*"|psmIIItot$jobGL[i]=="%"),NA,
as.numeric(psmIIItot$jobGL[i]))
}

for (i in 1:length(psmIIItot[,1])){
```

```
  psmIIItot$jobGR[i] <- ifelse((psmIIItot$jobGR[i]=="*"|psmIIItot$jobGR[i]=="%"),NA,
as.numeric(psmIIItot$jobGR[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobJU[i] <- ifelse((psmIIItot$jobJU[i]=="*"|psmIIItot$jobJU[i]=="%"),NA,
as.numeric(psmIIItot$jobJU[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobLU[i] <- ifelse((psmIIItot$jobLU[i]=="*"|psmIIItot$jobLU[i]=="%"),NA,
as.numeric(psmIIItot$jobLU[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobNW[i] <-
ifelse((psmIIItot$jobNW[i]=="*"|psmIIItot$jobNW[i]=="%"),NA,
as.numeric(psmIIItot$jobNW[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobOW[i] <-
ifelse((psmIIItot$jobOW[i]=="*"|psmIIItot$jobOW[i]=="%"),NA,
as.numeric(psmIIItot$jobOW[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobSO[i] <- ifelse((psmIIItot$jobSO[i]=="*"|psmIIItot$jobSO[i]=="%"),NA,
as.numeric(psmIIItot$jobSO[i]))
```

```
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobSZ[i] <- ifelse((psmIIItot$jobSZ[i]=="*"|psmIIItot$jobSZ[i]=="%"),NA,
as.numeric(psmIIItot$jobSZ[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobTG[i] <- ifelse((psmIIItot$jobTG[i]=="*"|psmIIItot$jobTG[i]=="%"),NA,
as.numeric(psmIIItot$jobTG[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobUR[i] <- ifelse((psmIIItot$jobUR[i]=="*"|psmIIItot$jobUR[i]=="%"),NA,
as.numeric(psmIIItot$jobUR[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobVS[i] <- ifelse((psmIIItot$jobVS[i]=="*"|psmIIItot$jobVS[i]=="%"),NA,
as.numeric(psmIIItot$jobVS[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobBS[i] <- ifelse((psmIIItot$jobBS[i]=="*"|psmIIItot$jobBS[i]=="%"),NA,
as.numeric(psmIIItot$jobBS[i]))
}

for (i in 1:length(psmIIItot[,1])){
```

```
  psmIIItot$jobGE[i] <- ifelse((psmIIItot$jobGE[i]=="*"|psmIIItot$jobGE[i]=="%"),NA,
as.numeric(psmIIItot$jobGE[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobZG[i] <- ifelse((psmIIItot$jobZG[i]=="*"|psmIIItot$jobZG[i]=="%"),NA,
as.numeric(psmIIItot$jobZG[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobZH[i] <- ifelse((psmIIItot$jobZH[i]=="*"|psmIIItot$jobZH[i]=="%"),NA,
as.numeric(psmIIItot$jobZH[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobAB[i] <- ifelse((psmIIItot$jobAB[i]=="*"|psmIIItot$jobAB[i]=="%"),NA,
as.numeric(psmIIItot$jobAB[i]))

}


table(psmIIItot$jobABisco1)

# ricodifica a 1 #

psmIIItot$jobABisco1 <-
ifelse(psmIIItot$jobAB==67|psmIIItot$jobAB==68|psmIIItot$jobAB==69,"small job",
                    trunc(as.numeric(psmIIItot$jobAB)/1000))


psmIIItot$jobAGisco1 <-
ifelse(psmIIItot$jobAG==67|psmIIItot$jobAG==68|psmIIItot$jobAG==69,"small job",
                    trunc(as.numeric(psmIIItot$jobAG)/1000))
```

```
psmIIItot$jobBEisco1 <-
ifelse(psmIIItot$jobBE==67|psmIIItot$jobBE==68|psmIIItot$jobBE==69,"small job",
                trunc(as.numeric(psmIIItot$jobBE)/1000))

psmIIItot$jobBLisco1 <-
ifelse(psmIIItot$jobBL==67|psmIIItot$jobBL==68|psmIIItot$jobBL==69,"small job",
                trunc(as.numeric(psmIIItot$jobBL)/1000))

psmIIItot$jobNEisco1 <-
ifelse(psmIIItot$jobNE==67|psmIIItot$jobNE==68|psmIIItot$jobNE==69,"small job",
                trunc(as.numeric(psmIIItot$jobNE)/1000))

psmIIItot$jobSGisco1 <-
ifelse(psmIIItot$jobSG==67|psmIIItot$jobSG==68|psmIIItot$jobSG==69,"small job",
                trunc(as.numeric(psmIIItot$jobSG)/1000))

psmIIItot$jobSHisco1 <-
ifelse(psmIIItot$jobSH==67|psmIIItot$jobSH==68|psmIIItot$jobSH==69,"small job",
                trunc(as.numeric(psmIIItot$jobSH)/1000))

psmIIItot$jobTIisco1 <-
ifelse(psmIIItot$jobTI==67|psmIIItot$jobTI==68|psmIIItot$jobTI==69,"small job",
                trunc(as.numeric(psmIIItot$jobTI)/1000))

psmIIItot$jobVDisco1 <-
ifelse(psmIIItot$jobVD==67|psmIIItot$jobVD==68|psmIIItot$jobVD==69,"small job",
                trunc(as.numeric(psmIIItot$jobVD)/1000))
```

```
psmIIItot$jobAIisco1 <-
ifelse(psmIIItot$jobAI==67|psmIIItot$jobAI==68|psmIIItot$jobAI==69,"small job",
                    trunc(as.numeric(psmIIItot$jobAI)/1000))

psmIIItot$jobARisco1 <-
ifelse(psmIIItot$jobAR==67|psmIIItot$jobAR==68|psmIIItot$jobAR==69,"small job",
                    trunc(as.numeric(psmIIItot$jobAR)/1000))

psmIIItot$jobFRisco1 <-
ifelse(psmIIItot$jobFR==67|psmIIItot$jobFR==68|psmIIItot$jobFR==69,"small job",
                    trunc(as.numeric(psmIIItot$jobFR)/1000))

psmIIItot$jobGLisco1 <-
ifelse(psmIIItot$jobGL==67|psmIIItot$jobGL==68|psmIIItot$jobGL==69,"small job",
                    trunc(as.numeric(psmIIItot$jobGL)/1000))

psmIIItot$jobGRisco1 <-
ifelse(psmIIItot$jobGR==67|psmIIItot$jobGR==68|psmIIItot$jobGR==69,"small job",
                    trunc(as.numeric(psmIIItot$jobGR)/1000))

psmIIItot$jobJUisco1 <-
ifelse(psmIIItot$jobJU==67|psmIIItot$jobJU==68|psmIIItot$jobJU==69,"small job",
                    trunc(as.numeric(psmIIItot$jobJU)/1000))

psmIIItot$jobLUisco1 <-
ifelse(psmIIItot$jobLU==67|psmIIItot$jobLU==68|psmIIItot$jobLU==69,"small job",
                    trunc(as.numeric(psmIIItot$jobLU)/1000))
```

```
psmIIItot$jobNWisco1 <-
ifelse(psmIIItot$jobNW==67|psmIIItot$jobNW==68|psmIIItot$jobNW==69,"small
job",
                trunc(as.numeric(psmIIItot$jobNW)/1000))


psmIIItot$jobOWisco1 <-
ifelse(psmIIItot$jobOW==67|psmIIItot$jobOW==68|psmIIItot$jobOW==69,"small
job",
                trunc(as.numeric(psmIIItot$jobOW)/1000))


psmIIItot$jobSOisco1 <-
ifelse(psmIIItot$jobSO==67|psmIIItot$jobSO==68|psmIIItot$jobSO==69,"small job",
                trunc(as.numeric(psmIIItot$jobSO)/1000))


psmIIItot$jobSZisco1 <-
ifelse(psmIIItot$jobSZ==67|psmIIItot$jobSZ==68|psmIIItot$jobSZ==69,"small job",
                trunc(as.numeric(psmIIItot$jobSZ)/1000))


psmIIItot$jobTGisco1 <-
ifelse(psmIIItot$jobTG==67|psmIIItot$jobTG==68|psmIIItot$jobTG==69,"small job",
                trunc(as.numeric(psmIIItot$jobTG)/1000))


psmIIItot$jobURisco1 <-
ifelse(psmIIItot$jobUR==67|psmIIItot$jobUR==68|psmIIItot$jobUR==69,"small job",
                trunc(as.numeric(psmIIItot$jobUR)/1000))


psmIIItot$jobVSisco1 <-
ifelse(psmIIItot$jobVS==67|psmIIItot$jobVS==68|psmIIItot$jobVS==69,"small job",
                trunc(as.numeric(psmIIItot$jobVS)/1000))
```

```
psmIIItot$jobBSisco1 <-
ifelse(psmIIItot$jobBS==67|psmIIItot$jobBS==68|psmIIItot$jobBS==69,"small job",
                    trunc(as.numeric(psmIIItot$jobBS)/1000))

psmIIItot$jobGEisco1 <-
ifelse(psmIIItot$jobGE==67|psmIIItot$jobGE==68|psmIIItot$jobGE==69,"small job",
                    trunc(as.numeric(psmIIItot$jobGE)/1000))

psmIIItot$jobZGisco1 <-
ifelse(psmIIItot$jobZG==67|psmIIItot$jobZG==68|psmIIItot$jobZG==69,"small job",
                    trunc(as.numeric(psmIIItot$jobZG)/1000))

psmIIItot$jobZHisco1 <-
ifelse(psmIIItot$jobZH==67|psmIIItot$jobZH==68|psmIIItot$jobZH==69,"small job",
                    trunc(as.numeric(psmIIItot$jobZH)/1000))



##TIPO LAVORO ZERO (situazione lavoro indefinito (eg si sa la % ma non il tipo etc)
ma diverso dal precedente)


#zero cluster 1

UNOtoUNOzero <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1==0 &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1==0&
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1==0&
psmIIItot$BLunoTOunoP>0)])+
```

```
  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1==0&
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1==0&
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1==0&
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1==0&
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1==0&
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOzero <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1==0&
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1==0&
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1==0&
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1==0&
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1==0&
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1==0&
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1==0&
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1==0&
psmIIItot$VDdueTOunoP>0)])


TREtoUNOzero <-
```

```
  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1==0&
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1==0&
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1==0&
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1==0&
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1==0&
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1==0&
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1==0&
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1==0&
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOzero <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1==0&
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1==0&
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1==0&
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1==0&
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1==0&
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1==0&
psmIIItot$SHzeroTOunoP>0)])+
```

```
  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1==0&
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1==0&
psmIIItot$VDzeroTOunoP>0)])


#zero cluster 2

UNOtoDUEzero <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1==0&
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1==0&
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1==0&
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1==0&
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1==0&
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1==0&
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1==0&
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1==0&
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1==0&
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1==0&
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1==0&
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1==0&
psmIIItot$TGunoTOdueP>0)])+
```

```
  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1==0&
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1==0&
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEzero <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1==0&
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1==0&
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1==0&
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1==0&
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1==0&
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1==0&
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1==0&
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1==0&
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1==0&
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1==0&
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1==0&
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1==0&
psmIIItot$TGdueTOdueP>0)])+
```

```
  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1==0&
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1==0&
psmIIItot$VSdueTOdueP>0)])


TREtoDUEzero <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1==0&
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1==0&
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1==0&
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1==0&
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1==0&
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1==0&
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1==0&
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1==0&
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1==0&
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1==0&
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1==0&
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1==0&
psmIIItot$TGtreTOdueP>0)])+
```

```
  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1==0&
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1==0&
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEzero <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1==0&
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1==0&
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1==0&
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1==0&
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1==0&
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1==0&
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1==0&
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1==0&
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1==0&
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1==0&
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1==0&
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1==0&
psmIIItot$TGzeroTOdueP>0)])+
```

```
  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1==0&
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1==0&
psmIIItot$VSzeroTOdueP>0)])


#zero cluster 3

UNOtoTREzero <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1==0&
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1==0&
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1==0&
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1==0&
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREzero <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1==0&
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1==0&
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1==0&
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1==0&
psmIIItot$ZHdueTOtreP>0)])


TREtoTREzero <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1==0&
psmIIItot$BStreTOtreP>0)])+
```

```
  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1==0&
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1==0&
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1==0&
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREzero <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1==0&
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1==0&
psmIIItot$GEzeroTOtreP>0)])+

  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1==0&
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1==0&
psmIIItot$ZHzeroTOtreP>0)])


#zero cluster abroad

UNOtoZEROzero <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1==0&
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROzero <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1==0&
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROzero <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1==0&
psmIIItot$ABtreTOzeroP>0)])
```

```
ZEROtoZEROzero <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1==0&
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO UNO


#uno cluster 1

UNOtoUNOuno <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1==1 &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1==1 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1==1 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1==1 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1==1 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1==1 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1==1 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1==1 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOuno <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1==1 &
psmIIItot$AGdueTOunoP>0)])+
```

```
  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1==1 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1==1 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1==1 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1==1 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1==1 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1==1 &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1==1 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOuno <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1==1 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1==1 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1==1 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1==1 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1==1 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1==1 &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1==1 &
psmIIItot$TItreTOunoP>0)])+
```

```
  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1==1 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOuno <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1==1 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1==1 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1==1 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1==1 &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1==1 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1==1 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1==1 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1==1 &
psmIIItot$VDzeroTOunoP>0)])


#uno cluster 2

UNOtoDUEuno <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1==1 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1==1 &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1==1 &
psmIIItot$FRunoTOdueP>0)])+
```

```
  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1==1 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1==1 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1==1 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1==1 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1==1 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1==1 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1==1 &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1==1 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1==1 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1==1 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1==1 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEuno <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1==1 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1==1 &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1==1 &
psmIIItot$FRdueTOdueP>0)])+
```

```
  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1==1 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1==1 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1==1 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1==1 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1==1 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1==1 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1==1 &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1==1 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1==1 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1==1 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1==1 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEuno <-

  sum(psmIIItot$AltreTOdueP[which(psmIIItot$jobAlisco1==1 &
psmIIItot$AltreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1==1 &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1==1 &
psmIIItot$FRtreTOdueP>0)])+
```

```
  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1==1 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1==1 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1==1 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1==1 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1==1 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1==1 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1==1 &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1==1 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1==1 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1==1 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1==1 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEuno <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1==1 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1==1 &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1==1 &
psmIIItot$FRzeroTOdueP>0)])+
```

```
  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1==1 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1==1 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1==1 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1==1 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1==1 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1==1 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1==1 &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1==1 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1==1 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1==1 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1==1 &
psmIIItot$VSzeroTOdueP>0)])


#uno cluster 3

UNOtoTREuno <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1==1 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1==1 &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1==1 &
psmIIItot$ZGunoTOtreP>0)])+
```

```
  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1==1 &
psmIIItot$ZHunoTOtreP>0)])

DUEtoTREuno <-
  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1==1 &
psmIIItot$BSdueTOtreP>0)])+
  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1==1 &
psmIIItot$GEdueTOtreP>0)])+
  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1==1 &
psmIIItot$ZGdueTOtreP>0)])+
  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1==1 &
psmIIItot$ZHdueTOtreP>0)])

TREtoTREuno <-
  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1==1 &
psmIIItot$BStreTOtreP>0)])+
  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1==1 &
psmIIItot$GEtreTOtreP>0)])+
  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1==1 &
psmIIItot$ZGtreTOtreP>0)])+
  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1==1 &
psmIIItot$ZHtreTOtreP>0)])

ZEROtoTREuno <-
  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1==1 &
psmIIItot$BSzeroTOtreP>0)])+
  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1==1 &
psmIIItot$GEzeroTOtreP>0)])+
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1==1 &
psmIIItot$ZGzeroTOtreP>0)])+
```

```
  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1==1 &
psmIIItot$ZHzeroTOtreP>0)])


#uno cluster abroad

UNOtoZEROuno <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1==1 &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROuno <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1==1 &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROuno <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1==1 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROuno <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1==1 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO DUE


#due cluster 1

UNOtoUNOdue <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1==2 &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1==2 &
psmIIItot$BEunoTOunoP>0)])+
```

```
  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1==2 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1==2 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1==2 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1==2 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1==2 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1==2 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOdue <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1==2 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1==2 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1==2 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1==2 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1==2 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1==2 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1==2 &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1==2 &
psmIIItot$VDdueTOunoP>0)])
```

```
TREtoUNOdue <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1==2 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1==2 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1==2 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1==2 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1==2 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1==2 &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1==2 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1==2 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOdue <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1==2 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1==2 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1==2 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1==2 &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1==2 &
psmIIItot$SGzeroTOunoP>0)])+
```

```
  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1==2 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1==2 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1==2 &
psmIIItot$VDzeroTOunoP>0)])


#due cluster 2

UNOtoDUEdue <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1==2 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1==2 &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1==2 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1==2 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1==2 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1==2 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1==2 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1==2 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1==2 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1==2 &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1==2 &
psmIIItot$SZunoTOdueP>0)])+
```

```
  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1==2 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1==2 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1==2 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEdue <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1==2 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1==2 &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1==2 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1==2 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1==2 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1==2 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1==2 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1==2 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1==2 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1==2 &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1==2 &
psmIIItot$SZdueTOdueP>0)])+
```

```
  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1==2 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1==2 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1==2 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEdue <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1==2 &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1==2 &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1==2 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1==2 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1==2 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1==2 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1==2 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1==2 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1==2 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1==2 &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1==2 &
psmIIItot$SZtreTOdueP>0)])+
```

```
  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1==2 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1==2 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1==2 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEdue <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1==2 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1==2 &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1==2 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1==2 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1==2 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1==2 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1==2 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1==2 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1==2 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1==2 &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1==2 &
psmIIItot$SZzeroTOdueP>0)])+
```

```
  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1==2 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1==2 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1==2 &
psmIIItot$VSzeroTOdueP>0)])


#due cluster 3

UNOtoTREdue <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1==2 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1==2 &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1==2 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1==2 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREdue <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1==2 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1==2 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1==2 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1==2 &
psmIIItot$ZHdueTOtreP>0)])


TREtoTREdue <-
```

```
  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1==2 &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1==2 &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1==2 &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1==2 &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREdue <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1==2 &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1==2 &
psmIIItot$GEzeroTOtreP>0)])+

  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1==2 &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1==2 &
psmIIItot$ZHzeroTOtreP>0)])


#due cluster abroad

UNOtoZEROdue <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1==2 &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROdue <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1==2 &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROdue <-
```

```
  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1==2 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROdue <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1==2 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO TRE


#tre cluster 1

UNOtoUNOtre <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1==3 &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1==3 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1==3 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1==3 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1==3 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1==3 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1==3 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1==3 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOtre <-
```

```
  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1==3 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1==3 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1==3 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1==3 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1==3 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1==3 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1==3 &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1==3 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOtre <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1==3 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1==3 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1==3 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1==3 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1==3 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1==3 &
psmIIItot$SHtreTOunoP>0)])+
```

```
  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1==3 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1==3 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOtre <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1==3 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1==3 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1==3 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1==3 &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1==3 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1==3 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1==3 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1==3 &
psmIIItot$VDzeroTOunoP>0)])



#tre cluster 2

UNOtoDUEtre <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1==3 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1==3 &
psmIIItot$ARunoTOdueP>0)])+
```

```
  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1==3 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1==3 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1==3 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1==3 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1==3 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1==3 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1==3 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1==3 &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1==3 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1==3 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1==3 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1==3 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEtre <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1==3 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1==3 &
psmIIItot$ARdueTOdueP>0)])+
```

```
  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1==3 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1==3 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1==3 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1==3 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1==3 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1==3 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1==3 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1==3 &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1==3 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1==3 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1==3 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1==3 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEtre <-

  sum(psmIIItot$AltreTOdueP[which(psmIIItot$jobAlisco1==3 &
psmIIItot$AltreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1==3 &
psmIIItot$ARtreTOdueP>0)])+
```

```
  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1==3 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1==3 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1==3 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1==3 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1==3 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1==3 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1==3 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1==3 &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1==3 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1==3 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1==3 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1==3 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEtre <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1==3 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1==3 &
psmIIItot$ARzeroTOdueP>0)])+
```

```
  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1==3 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1==3 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1==3 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1==3 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1==3 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1==3 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1==3 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1==3 &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1==3 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1==3 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1==3 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1==3 &
psmIIItot$VSzeroTOdueP>0)])


#tre cluster 3

UNOtoTREtre <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1==3 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1==3 &
psmIIItot$GEunoTOtreP>0)])+
```

```
  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1==3 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1==3 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREtre <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1==3 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1==3 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1==3 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1==3 &
psmIIItot$ZHdueTOtreP>0)])


TREtoTREtre <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1==3 &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1==3 &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1==3 &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1==3 &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREtre <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1==3 &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1==3 &
psmIIItot$GEzeroTOtreP>0)])+
```

```
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1==3 &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1==3 &
psmIIItot$ZHzeroTOtreP>0)])


#tre cluster abroad

UNOtoZEROtre <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1==3 &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROtre <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1==3 &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROtre <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1==3 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROtre <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1==3 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO QUATTRO


UNOtoUNOquattro <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1==4 &
psmIIItot$AGunoTOunoP>0)])+
```

```
  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1==4 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1==4 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1==4 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1==4 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1==4 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1==4 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1==4 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOquattro <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1==4 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1==4 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1==4 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1==4 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1==4 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1==4 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1==4 &
psmIIItot$TIdueTOunoP>0)])+
```

```
  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1==4 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOquattro <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1==4 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1==4 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1==4 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1==4 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1==4 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1==4 &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1==4 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1==4 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOquattro <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1==4 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1==4 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1==4 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1==4 &
psmIIItot$NEzeroTOunoP>0)])+
```

```
  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1==4 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1==4 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1==4 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1==4 &
psmIIItot$VDzeroTOunoP>0)])


#tre cluster 2

UNOtoDUEquattro <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1==4 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1==4 &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1==4 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1==4 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1==4 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1==4 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1==4 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1==4 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1==4 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1==4 &
psmIIItot$SOunoTOdueP>0)])+
```

```
  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1==4 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1==4 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1==4 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1==4 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEquattro <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1==4 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1==4 &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1==4 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1==4 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1==4 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1==4 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1==4 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1==4 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1==4 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1==4 &
psmIIItot$SOdueTOdueP>0)])+
```

```
  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1==4 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1==4 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1==4 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1==4 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEquattro <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1==4 &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1==4 &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1==4 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1==4 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1==4 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1==4 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1==4 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1==4 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1==4 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1==4 &
psmIIItot$SOtreTOdueP>0)])+
```

```
  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1==4 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1==4 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1==4 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1==4 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEquattro <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1==4 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1==4 &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1==4 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1==4 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1==4 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1==4 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1==4 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1==4 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1==4 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1==4 &
psmIIItot$SOzeroTOdueP>0)])+
```

```
  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1==4 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1==4 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1==4 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1==4 &
psmIIItot$VSzeroTOdueP>0)])


#tre cluster 3

UNOtoTREquattro <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1==4 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1==4 &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1==4 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1==4 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREquattro <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1==4 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1==4 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1==4 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1==4 &
psmIIItot$ZHdueTOtreP>0)])
```

```
TREtoTREquattro <-
  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1==4 &
psmIIItot$BStreTOtreP>0)])+
  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1==4 &
psmIIItot$GEtreTOtreP>0)])+
  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1==4 &
psmIIItot$ZGtreTOtreP>0)])+
  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1==4 &
psmIIItot$ZHtreTOtreP>0)])

ZEROtoTREquattro <-
  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1==4 &
psmIIItot$BSzeroTOtreP>0)])+
  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1==4 &
psmIIItot$GEzeroTOtreP>0)])+
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1==4 &
psmIIItot$ZGzeroTOtreP>0)])+
  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1==4 &
psmIIItot$ZHzeroTOtreP>0)])

#tre cluster abroad
UNOtoZEROquattro <-
  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1==4 &
psmIIItot$ABunoTOzeroP>0)])

DUEtoZEROquattro <-
  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1==4 &
psmIIItot$ABdueTOzeroP>0)])

TREtoZEROquattro <-
```

```
  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1==4 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROquattro <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1==4 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO CINQUE


#cinque cluster 1

UNOtoUNOcinque <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1==5 &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1==5 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1==5 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1==5 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1==5 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1==5 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1==5 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1==5 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOcinque <-
```

```
  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1==5 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1==5 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1==5 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1==5 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1==5 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1==5 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1==5 &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1==5 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOcinque <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1==5 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1==5 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1==5 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1==5 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1==5 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1==5 &
psmIIItot$SHtreTOunoP>0)])+
```

```
  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1==5 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1==5 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOcinque <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1==5 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1==5 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1==5 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1==5 &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1==5 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1==5 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1==5 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1==5 &
psmIIItot$VDzeroTOunoP>0)])


#cinque cluster 2

UNOtoDUEcinque <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1==5 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1==5 &
psmIIItot$ARunoTOdueP>0)])+
```

```
  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1==5 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1==5 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1==5 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1==5 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1==5 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1==5 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1==5 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1==5 &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1==5 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1==5 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1==5 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1==5 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEcinque <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1==5 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1==5 &
psmIIItot$ARdueTOdueP>0)])+
```

```
  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1==5 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1==5 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1==5 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1==5 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1==5 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1==5 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1==5 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1==5 &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1==5 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1==5 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1==5 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1==5 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEcinque <-

  sum(psmIIItot$AltreTOdueP[which(psmIIItot$jobAlisco1==5 &
psmIIItot$AltreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1==5 &
psmIIItot$ARtreTOdueP>0)])+
```

```
  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1==5 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1==5 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1==5 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1==5 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1==5 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1==5 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1==5 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1==5 &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1==5 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1==5 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1==5 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1==5 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEcinque <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1==5 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1==5 &
psmIIItot$ARzeroTOdueP>0)])+
```

```
  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1==5 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1==5 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1==5 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1==5 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1==5 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1==5 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1==5 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1==5 &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1==5 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1==5 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1==5 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1==5 &
psmIIItot$VSzeroTOdueP>0)])


#cinque cluster 3

UNOtoTREcinque <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1==5 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1==5 &
psmIIItot$GEunoTOtreP>0)])+
```

```
  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1==5 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1==5 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREcinque <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1==5 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1==5 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1==5 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1==5 &
psmIIItot$ZHdueTOtreP>0)])


TREtoTREcinque <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1==5 &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1==5 &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1==5 &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1==5 &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREcinque <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1==5 &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1==5 &
psmIIItot$GEzeroTOtreP>0)])+
```

```
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1==5 &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1==5 &
psmIIItot$ZHzeroTOtreP>0)])


#cinque cluster abroad

UNOtoZEROcinque <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1==5 &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROcinque <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1==5 &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROcinque <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1==5 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROcinque <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1==5 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO SEI


#sei cluster 1

UNOtoUNOsei <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1==6 &
psmIIItot$AGunoTOunoP>0)])+
```

```
  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1==6 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1==6 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1==6 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1==6 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1==6 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1==6 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1==6 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOsei <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1==6 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1==6 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1==6 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1==6 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1==6 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1==6 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1==6 &
psmIIItot$TIdueTOunoP>0)])+
```

```
  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1==6 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOsei <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1==6 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1==6 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1==6 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1==6 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1==6 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1==6 &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1==6 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1==6 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOsei <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1==6 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1==6 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1==6 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1==6 &
psmIIItot$NEzeroTOunoP>0)])+
```

```
  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1==6 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1==6 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1==6 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1==6 &
psmIIItot$VDzeroTOunoP>0)])


#sei cluster 2

UNOtoDUEsei <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1==6 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1==6 &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1==6 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1==6 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1==6 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1==6 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1==6 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1==6 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1==6 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1==6 &
psmIIItot$SOunoTOdueP>0)])+
```

```
  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1==6 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1==6 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1==6 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1==6 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEsei <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1==6 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1==6 &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1==6 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1==6 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1==6 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1==6 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1==6 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1==6 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1==6 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1==6 &
psmIIItot$SOdueTOdueP>0)])+
```

```
  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1==6 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1==6 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1==6 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1==6 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEsei <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1==6 &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1==6 &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1==6 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1==6 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1==6 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1==6 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1==6 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1==6 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1==6 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1==6 &
psmIIItot$SOtreTOdueP>0)])+
```

```
  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1==6 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1==6 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1==6 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1==6 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEsei <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1==6 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1==6 &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1==6 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1==6 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1==6 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1==6 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1==6 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1==6 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1==6 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1==6 &
psmIIItot$SOzeroTOdueP>0)])+
```

```
  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1==6 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1==6 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1==6 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1==6 &
psmIIItot$VSzeroTOdueP>0)])


#sei cluster 3

UNOtoTREsei <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1==6 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1==6 &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1==6 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1==6 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREsei <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1==6 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1==6 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1==6 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1==6 &
psmIIItot$ZHdueTOtreP>0)])
```

```
TREtoTREsei <-
  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1==6 &
psmIIItot$BStreTOtreP>0)])+
  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1==6 &
psmIIItot$GEtreTOtreP>0)])+
  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1==6 &
psmIIItot$ZGtreTOtreP>0)])+
  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1==6 &
psmIIItot$ZHtreTOtreP>0)])

ZEROtoTREsei <-
  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1==6 &
psmIIItot$BSzeroTOtreP>0)])+
  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1==6 &
psmIIItot$GEzeroTOtreP>0)])+
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1==6 &
psmIIItot$ZGzeroTOtreP>0)])+
  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1==6 &
psmIIItot$ZHzeroTOtreP>0)])

#sei cluster abroad
UNOtoZEROsei <-
  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1==6 &
psmIIItot$ABunoTOzeroP>0)])

DUEtoZEROsei <-
  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1==6 &
psmIIItot$ABdueTOzeroP>0)])

TREtoZEROsei <-
```

```
  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1==6 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROsei <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1==6 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO SETTE


#sette cluster 1

UNOtoUNOsette <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1==7 &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1==7 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1==7 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1==7 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1==7 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1==7 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1==7 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1==7 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOsette <-
```

```
  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1==7 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1==7 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1==7 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1==7 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1==7 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1==7 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1==7 &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1==7 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOsette <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1==7 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1==7 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1==7 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1==7 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1==7 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1==7 &
psmIIItot$SHtreTOunoP>0)])+
```

```
  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1==7 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1==7 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOsette <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1==7 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1==7 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1==7 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1==7 &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1==7 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1==7 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1==7 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1==7 &
psmIIItot$VDzeroTOunoP>0)])


#sette cluster 2

UNOtoDUEsette <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1==7 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1==7 &
psmIIItot$ARunoTOdueP>0)])+
```

```
  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1==7 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1==7 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1==7 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1==7 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1==7 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1==7 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1==7 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1==7 &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1==7 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1==7 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1==7 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1==7 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEsette <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1==7 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1==7 &
psmIIItot$ARdueTOdueP>0)])+
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```
  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1==7 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1==7 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1==7 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1==7 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1==7 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1==7 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1==7 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1==7 &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1==7 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1==7 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1==7 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1==7 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEsette <-

  sum(psmIIItot$AltreTOdueP[which(psmIIItot$jobAlisco1==7 &
psmIIItot$AltreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1==7 &
psmIIItot$ARtreTOdueP>0)])+
```

```
  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1==7 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1==7 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1==7 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1==7 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1==7 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1==7 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1==7 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1==7 &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1==7 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1==7 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1==7 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1==7 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEsette <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1==7 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1==7 &
psmIIItot$ARzeroTOdueP>0)])+
```

```
  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1==7 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1==7 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1==7 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1==7 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1==7 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1==7 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1==7 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1==7 &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1==7 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1==7 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1==7 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1==7 &
psmIIItot$VSzeroTOdueP>0)])


#sette cluster 3

UNOtoTREsette <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1==7 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1==7 &
psmIIItot$GEunoTOtreP>0)])+
```

```
  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1==7 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1==7 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREsette <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1==7 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1==7 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1==7 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1==7 &
psmIIItot$ZHdueTOtreP>0)])


TREtoTREsette <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1==7 &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1==7 &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1==7 &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1==7 &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREsette <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1==7 &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1==7 &
psmIIItot$GEzeroTOtreP>0)])+
```

```
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1==7 &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1==7 &
psmIIItot$ZHzeroTOtreP>0)])


#sette cluster abroad

UNOtoZEROsette <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1==7 &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROsette <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1==7 &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROsette <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1==7 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROsette <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1==7 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO OTTO


#otto cluster 1

UNOtoUNOotto <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1==8 &
psmIIItot$AGunoTOunoP>0)])+
```

```
  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1==8 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1==8 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1==8 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1==8 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1==8 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1==8 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1==8 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOotto <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1==8 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1==8 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1==8 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1==8 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1==8 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1==8 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1==8 &
psmIIItot$TIdueTOunoP>0)])+
```

```
  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1==8 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOotto <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1==8 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1==8 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1==8 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1==8 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1==8 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1==8 &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1==8 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1==8 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOotto <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1==8 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1==8 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1==8 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1==8 &
psmIIItot$NEzeroTOunoP>0)])+
```

```
  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1==8 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1==8 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1==8 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1==8 &
psmIIItot$VDzeroTOunoP>0)])


#otto cluster 2

UNOtoDUEotto <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1==8 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1==8 &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1==8 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1==8 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1==8 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1==8 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1==8 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1==8 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1==8 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1==8 &
psmIIItot$SOunoTOdueP>0)])+
```

```
  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1==8 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1==8 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1==8 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1==8 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEotto <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1==8 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1==8 &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1==8 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1==8 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1==8 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1==8 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1==8 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1==8 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1==8 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1==8 &
psmIIItot$SOdueTOdueP>0)])+
```

```
  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1==8 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1==8 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1==8 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1==8 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEotto <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1==8 &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1==8 &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1==8 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1==8 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1==8 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1==8 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1==8 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1==8 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1==8 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1==8 &
psmIIItot$SOtreTOdueP>0)])+
```

```
  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1==8 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1==8 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1==8 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1==8 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEotto <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1==8 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1==8 &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1==8 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1==8 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1==8 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1==8 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1==8 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1==8 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1==8 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1==8 &
psmIIItot$SOzeroTOdueP>0)])+
```

```
  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1==8 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1==8 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1==8 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1==8 &
psmIIItot$VSzeroTOdueP>0)])


#otto cluster 3

UNOtoTREotto <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1==8 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1==8 &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1==8 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1==8 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREotto <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1==8 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1==8 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1==8 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1==8 &
psmIIItot$ZHdueTOtreP>0)])
```

```
TREtoTREotto <-
  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1==8 &
psmIIItot$BStreTOtreP>0)])+
  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1==8 &
psmIIItot$GEtreTOtreP>0)])+
  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1==8 &
psmIIItot$ZGtreTOtreP>0)])+
  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1==8 &
psmIIItot$ZHtreTOtreP>0)])

ZEROtoTREotto <-
  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1==8 &
psmIIItot$BSzeroTOtreP>0)])+
  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1==8 &
psmIIItot$GEzeroTOtreP>0)])+
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1==8 &
psmIIItot$ZGzeroTOtreP>0)])+
  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1==8 &
psmIIItot$ZHzeroTOtreP>0)])

#otto cluster abroad
UNOtoZEROotto <-
  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1==8 &
psmIIItot$ABunoTOzeroP>0)])

DUEtoZEROotto <-
  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1==8 &
psmIIItot$ABdueTOzeroP>0)])

TREtoZEROotto <-
```

```
  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1==8 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROotto <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1==8 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO NOVE


#nove cluster 1

UNOtoUNOnove <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1==9 &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1==9 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1==9 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1==9 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1==9 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1==9 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1==9 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1==9 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOnove <-
```

```
  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1==9 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1==9 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1==9 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1==9 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1==9 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1==9 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1==9 &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1==9 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOnove <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1==9 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1==9 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1==9 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1==9 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1==9 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1==9 &
psmIIItot$SHtreTOunoP>0)])+
```

```
  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1==9 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1==9 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOnove <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1==9 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1==9 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1==9 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1==9 &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1==9 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1==9 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1==9 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1==9 &
psmIIItot$VDzeroTOunoP>0)])


#nove cluster 2

UNOtoDUEnove <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1==9 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1==9 &
psmIIItot$ARunoTOdueP>0)])+
```

```
  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1==9 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1==9 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1==9 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1==9 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1==9 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1==9 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1==9 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1==9 &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1==9 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1==9 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1==9 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1==9 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEnove <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1==9 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1==9 &
psmIIItot$ARdueTOdueP>0)])+
```

```
  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1==9 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1==9 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1==9 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1==9 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1==9 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1==9 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1==9 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1==9 &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1==9 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1==9 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1==9 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1==9 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEnove <-

  sum(psmIIItot$AltreTOdueP[which(psmIIItot$jobAlisco1==9 &
psmIIItot$AltreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1==9 &
psmIIItot$ARtreTOdueP>0)])+
```

```
  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1==9 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1==9 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1==9 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1==9 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1==9 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1==9 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1==9 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1==9 &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1==9 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1==9 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1==9 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1==9 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEnove <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1==9 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1==9 &
psmIIItot$ARzeroTOdueP>0)])+
```

```
  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1==9 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1==9 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1==9 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1==9 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1==9 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1==9 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1==9 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1==9 &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1==9 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1==9 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1==9 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1==9 &
psmIIItot$VSzeroTOdueP>0)])


#nove cluster 3

UNOtoTREnove <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1==9 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1==9 &
psmIIItot$GEunoTOtreP>0)])+
```

```
  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1==9 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1==9 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREnove <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1==9 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1==9 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1==9 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1==9 &
psmIIItot$ZHdueTOtreP>0)])


TREtoTREnove <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1==9 &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1==9 &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1==9 &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1==9 &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREnove <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1==9 &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1==9 &
psmIIItot$GEzeroTOtreP>0)])+
```

```
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1==9 &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1==9 &
psmIIItot$ZHzeroTOtreP>0)])


#nove cluster abroad

UNOtoZEROnove <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1==9 &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROnove <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1==9 &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROnove <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1==9 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROnove <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1==9 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO SMALL JOB


#small cluster 1

UNOtoUNOsmall <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1=="small job" &
psmIIItot$AGunoTOunoP>0)])+
```

```
  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1=="small job" &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1=="small job" &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1=="small job" &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1=="small job" &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1=="small job" &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1=="small job" &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1=="small job" &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOsmall <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1=="small job" &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1=="small job" &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1=="small job" &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1=="small job" &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1=="small job" &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1=="small job" &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1=="small job" &
psmIIItot$TIdueTOunoP>0)])+
```

```
  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1=="small job" &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOsmall <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1=="small job" &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1=="small job" &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1=="small job" &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1=="small job" &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1=="small job" &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1=="small job" &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1=="small job" &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1=="small job" &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOsmall <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1=="small job" &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1=="small job" &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1=="small job" &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1=="small job" &
psmIIItot$NEzeroTOunoP>0)])+
```

```
  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1=="small job" &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1=="small job" &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1=="small job" &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1=="small job" &
psmIIItot$VDzeroTOunoP>0)])


#small cluster 2

UNOtoDUEsmall <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1=="small job" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1=="small job" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1=="small job" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1=="small job" &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1=="small job" &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1=="small job" &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1=="small job" &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1=="small job" &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1=="small job" &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1=="small job" &
psmIIItot$SOunoTOdueP>0)])+
```

```
  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1=="small job" &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1=="small job" &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1=="small job" &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1=="small job" &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEsmall <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1=="small job" &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1=="small job" &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1=="small job" &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1=="small job" &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1=="small job" &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1=="small job" &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1=="small job" &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1=="small job" &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1=="small job" &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1=="small job" &
psmIIItot$SOdueTOdueP>0)])+
```

```
  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1=="small job" &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1=="small job" &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1=="small job" &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1=="small job" &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEsmall <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1=="small job" &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1=="small job" &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1=="small job" &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1=="small job" &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1=="small job" &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1=="small job" &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1=="small job" &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1=="small job" &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1=="small job" &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1=="small job" &
psmIIItot$SOtreTOdueP>0)])+
```

```
  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1=="small job" &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1=="small job" &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1=="small job" &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1=="small job" &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEsmall <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1=="small job" &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1=="small job" &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1=="small job" &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1=="small job" &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1=="small job" &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1=="small job" &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1=="small job" &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1=="small job" &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1=="small job" &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1=="small job" &
psmIIItot$SOzeroTOdueP>0)])+
```

```
  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1=="small job" &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1=="small job" &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1=="small job" &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1=="small job" &
psmIIItot$VSzeroTOdueP>0)])


#small cluster 3

UNOtoTREsmall <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1=="small job" &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1=="small job" &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1=="small job" &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1=="small job" &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREsmall <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1=="small job" &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1=="small job" &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1=="small job" &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1=="small job" &
psmIIItot$ZHdueTOtreP>0)])
```

```
TREtoTREsmall <-
  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1=="small job" &
psmIIItot$BStreTOtreP>0)])+
  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1=="small job" &
psmIIItot$GEtreTOtreP>0)])+
  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1=="small job" &
psmIIItot$ZGtreTOtreP>0)])+
  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1=="small job" &
psmIIItot$ZHtreTOtreP>0)])

ZEROtoTREsmall <-
  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1=="small job" &
psmIIItot$BSzeroTOtreP>0)])+
  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1=="small job" &
psmIIItot$GEzeroTOtreP>0)])+
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1=="small job" &
psmIIItot$ZGzeroTOtreP>0)])+
  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1=="small job" &
psmIIItot$ZHzeroTOtreP>0)])

#small cluster abroad
UNOtoZEROsmall <-
  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1=="small job" &
psmIIItot$ABunoTOzeroP>0)])

DUEtoZEROsmall <-
  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1=="small job" &
psmIIItot$ABdueTOzeroP>0)])

TREtoZEROsmall <-
```

```
  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1=="small job" &
psmIIItot$ABtreTOzeroP>0)])

ZEROtoZEROsmall <-
  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1=="small job" &
psmIIItot$ABzeroTOzeroP>0)])

----

### definizione variabili lavoro prima cambio ###

##variabili per cantone##
for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobABm1[i] <- ifelse(is.na(psmIIItot$posAB[i]==T), NA,
as.character(seqact[i,psmIIItot$posAB[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobAGm1[i] <- ifelse(is.na(psmIIItot$posAG[i]==T), NA,
as.character(seqact[i,psmIIItot$posAG[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobBEm1[i] <- ifelse(is.na(psmIIItot$posBE[i]==T), NA,
as.character(seqact[i,psmIIItot$posBE[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
```

```
  psmIIItot$jobBLm1[i] <- ifelse(is.na(psmIIItot$posBL[i]==T), NA,
as.character(seqact[i,psmIIItot$posBL[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobNEm1[i] <- ifelse(is.na(psmIIItot$posNE[i]==T), NA,
as.character(seqact[i,psmIIItot$posNE[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobSGm1[i] <- ifelse(is.na(psmIIItot$posSG[i]==T), NA,
as.character(seqact[i,psmIIItot$posSG[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobSHm1[i] <- ifelse(is.na(psmIIItot$posSH[i]==T), NA,
as.character(seqact[i,psmIIItot$posSH[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobTIm1[i] <- ifelse(is.na(psmIIItot$posTI[i]==T), NA,
as.character(seqact[i,psmIIItot$posTI[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobVDm1[i] <- ifelse(is.na(psmIIItot$posVD[i]==T), NA,
as.character(seqact[i,psmIIItot$posVD[i]-1]))
}
```

```
for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobAIm1[i] <- ifelse(is.na(psmIIItot$posAI[i]==T), NA,
as.character(seqact[i,psmIIItot$posAI[i]-1]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobARm1[i] <- ifelse(is.na(psmIIItot$posAR[i]==T), NA,
as.character(seqact[i,psmIIItot$posAR[i]-1]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobFRm1[i] <- ifelse(is.na(psmIIItot$posFR[i]==T), NA,
as.character(seqact[i,psmIIItot$posFR[i]-1]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobGLm1[i] <- ifelse(is.na(psmIIItot$posGL[i]==T), NA,
as.character(seqact[i,psmIIItot$posGL[i]-1]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobGRm1[i] <- ifelse(is.na(psmIIItot$posGR[i]==T), NA,
as.character(seqact[i,psmIIItot$posGR[i]-1]))

}


for (i in 1:length(psmIIItot[,1])){
```

```
  psmIIItot$jobJUm1[i] <- ifelse(is.na(psmIIItot$posJU[i]==T), NA,
as.character(seqact[i,psmIIItot$posJU[i]-1]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobLUm1[i] <- ifelse(is.na(psmIIItot$posLU[i]==T), NA,
as.character(seqact[i,psmIIItot$posLU[i]-1]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobNWm1[i] <- ifelse(is.na(psmIIItot$posNW[i]==T), NA,
as.character(seqact[i,psmIIItot$posNW[i]-1]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobOWm1[i] <- ifelse(is.na(psmIIItot$posOW[i]==T), NA,
as.character(seqact[i,psmIIItot$posOW[i]-1]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobSOm1[i] <- ifelse(is.na(psmIIItot$posSO[i]==T), NA,
as.character(seqact[i,psmIIItot$posSO[i]-1]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobSZm1[i] <- ifelse(is.na(psmIIItot$posSZ[i]==T), NA,
as.character(seqact[i,psmIIItot$posSZ[i]-1]))

}
```

```
for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobTGm1[i] <- ifelse(is.na(psmIIItot$posTG[i]==T), NA,
as.character(seqact[i,psmIIItot$posTG[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobURm1[i] <- ifelse(is.na(psmIIItot$posUR[i]==T), NA,
as.character(seqact[i,psmIIItot$posUR[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobVSm1[i] <- ifelse(is.na(psmIIItot$posVS[i]==T), NA,
as.character(seqact[i,psmIIItot$posVS[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobBSm1[i] <- ifelse(is.na(psmIIItot$posBS[i]==T), NA,
as.character(seqact[i,psmIIItot$posBS[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobGEm1[i] <- ifelse(is.na(psmIIItot$posGE[i]==T), NA,
as.character(seqact[i,psmIIItot$posGE[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
```

```
  psmIIItot$jobZGm1[i] <- ifelse(is.na(psmIIItot$posZG[i]==T), NA,
as.character(seqact[i,psmIIItot$posZG[i]-1]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobZHm1[i] <- ifelse(is.na(psmIIItot$posZH[i]==T), NA,
as.character(seqact[i,psmIIItot$posZH[i]-1]))
}

#ricodifica#

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobAGm1[i] <-
ifelse((psmIIItot$jobAGm1[i]=="*"|psmIIItot$jobAGm1[i]=="%"),NA,
as.numeric(psmIIItot$jobAGm1[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobBEm1[i] <-
ifelse((psmIIItot$jobBEm1[i]=="*"|psmIIItot$jobBEm1[i]=="%"),NA,
as.numeric(psmIIItot$jobBEm1[i]))
}

for (i in 1:length(psmIIItot[,1])){
  psmIIItot$jobBLm1[i] <-
ifelse((psmIIItot$jobBLm1[i]=="*"|psmIIItot$jobBLm1[i]=="%"),NA,
as.numeric(psmIIItot$jobBLm1[i]))
}
```

```
for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobNEm1[i] <-
ifelse((psmIIItot$jobNEm1[i]=="*"|psmIIItot$jobNEm1[i]=="%"),NA,
as.numeric(psmIIItot$jobNEm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobSGm1[i] <-
ifelse((psmIIItot$jobSGm1[i]=="*"|psmIIItot$jobSGm1[i]=="%"),NA,
as.numeric(psmIIItot$jobSGm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobSHm1[i] <-
ifelse((psmIIItot$jobSHm1[i]=="*"|psmIIItot$jobSHm1[i]=="%"),NA,
as.numeric(psmIIItot$jobSHm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobTIm1[i] <-
ifelse((psmIIItot$jobTIm1[i]=="*"|psmIIItot$jobTIm1[i]=="%"),NA,
as.numeric(psmIIItot$jobTIm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobVDm1[i] <-
ifelse((psmIIItot$jobVDm1[i]=="*"|psmIIItot$jobVDm1[i]=="%"),NA,
as.numeric(psmIIItot$jobVDm1[i]))

}
```

```
for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobAIm1[i] <-
ifelse((psmIIItot$jobAIm1[i]=="*"|psmIIItot$jobAIm1[i]=="%"),NA,
as.numeric(psmIIItot$jobAIm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobARm1[i] <-
ifelse((psmIIItot$jobARm1[i]=="*"|psmIIItot$jobARm1[i]=="%"),NA,
as.numeric(psmIIItot$jobARm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobFRm1[i] <-
ifelse((psmIIItot$jobFRm1[i]=="*"|psmIIItot$jobFRm1[i]=="%"),NA,
as.numeric(psmIIItot$jobFRm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobGLm1[i] <-
ifelse((psmIIItot$jobGLm1[i]=="*"|psmIIItot$jobGLm1[i]=="%"),NA,
as.numeric(psmIIItot$jobGLm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobGRm1[i] <-
ifelse((psmIIItot$jobGRm1[i]=="*"|psmIIItot$jobGRm1[i]=="%"),NA,
as.numeric(psmIIItot$jobGRm1[i]))

}
```

```
for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobJUm1[i] <-
ifelse((psmIIItot$jobJUm1[i]=="*"|psmIIItot$jobJUm1[i]=="%"),NA,
as.numeric(psmIIItot$jobJUm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobLUm1[i] <-
ifelse((psmIIItot$jobLUm1[i]=="*"|psmIIItot$jobLUm1[i]=="%"),NA,
as.numeric(psmIIItot$jobLUm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobNWm1[i] <-
ifelse((psmIIItot$jobNWm1[i]=="*"|psmIIItot$jobNWm1[i]=="%"),NA,
as.numeric(psmIIItot$jobNWm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobOWm1[i] <-
ifelse((psmIIItot$jobOWm1[i]=="*"|psmIIItot$jobOWm1[i]=="%"),NA,
as.numeric(psmIIItot$jobOWm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobSOm1[i] <-
ifelse((psmIIItot$jobSOm1[i]=="*"|psmIIItot$jobSOm1[i]=="%"),NA,
as.numeric(psmIIItot$jobSOm1[i]))

}
```

```
for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobSZm1[i] <-
ifelse((psmIIItot$jobSZm1[i]=="*"|psmIIItot$jobSZm1[i]=="%"),NA,
as.numeric(psmIIItot$jobSZm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobTGm1[i] <-
ifelse((psmIIItot$jobTGm1[i]=="*"|psmIIItot$jobTGm1[i]=="%"),NA,
as.numeric(psmIIItot$jobTGm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobURm1[i] <-
ifelse((psmIIItot$jobURm1[i]=="*"|psmIIItot$jobURm1[i]=="%"),NA,
as.numeric(psmIIItot$jobURm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobVSm1[i] <-
ifelse((psmIIItot$jobVSm1[i]=="*"|psmIIItot$jobVSm1[i]=="%"),NA,
as.numeric(psmIIItot$jobVSm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobBSm1[i] <-
ifelse((psmIIItot$jobBSm1[i]=="*"|psmIIItot$jobBSm1[i]=="%"),NA,
as.numeric(psmIIItot$jobBSm1[i]))

}
```

```
for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobGEm1[i] <-
ifelse((psmIIItot$jobGEm1[i]=="*"|psmIIItot$jobGEm1[i]=="%"),NA,
as.numeric(psmIIItot$jobGEm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobZGm1[i] <-
ifelse((psmIIItot$jobZGm1[i]=="*"|psmIIItot$jobZGm1[i]=="%"),NA,
as.numeric(psmIIItot$jobZGm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobZHm1[i] <-
ifelse((psmIIItot$jobZHm1[i]=="*"|psmIIItot$jobZHm1[i]=="%"),NA,
as.numeric(psmIIItot$jobZHm1[i]))

}


for (i in 1:length(psmIIItot[,1])){

  psmIIItot$jobABm1[i] <-
ifelse((psmIIItot$jobABm1[i]=="*"|psmIIItot$jobABm1[i]=="%"),NA,
as.numeric(psmIIItot$jobABm1[i]))

}


# ricodifica a 1 #

psmIIItot$jobABisco1m1 <-
ifelse(psmIIItot$jobABm1==67|psmIIItot$jobABm1==68|psmIIItot$jobABm1==69,"s
mall job",

                    trunc(as.numeric(psmIIItot$jobABm1)/1000))
```

```
psmIIItot$jobAGisco1m1 <-
ifelse(psmIIItot$jobAGm1==67|psmIIItot$jobAGm1==68|psmIIItot$jobAGm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobAGm1)/1000))


psmIIItot$jobBEisco1m1 <-
ifelse(psmIIItot$jobBEm1==67|psmIIItot$jobBEm1==68|psmIIItot$jobBEm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobBEm1)/1000))


psmIIItot$jobBLisco1m1 <-
ifelse(psmIIItot$jobBLm1==67|psmIIItot$jobBLm1==68|psmIIItot$jobBLm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobBLm1)/1000))


psmIIItot$jobNEisco1m1 <-
ifelse(psmIIItot$jobNEm1==67|psmIIItot$jobNEm1==68|psmIIItot$jobNEm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobNEm1)/1000))


psmIIItot$jobSGisco1m1 <-
ifelse(psmIIItot$jobSGm1==67|psmIIItot$jobSGm1==68|psmIIItot$jobSGm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobSGm1)/1000))


psmIIItot$jobSHisco1m1 <-
ifelse(psmIIItot$jobSHm1==67|psmIIItot$jobSHm1==68|psmIIItot$jobSHm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobSHm1)/1000))
```

```
psmIIItot$jobTIisco1m1 <-
ifelse(psmIIItot$jobTIm1==67|psmIIItot$jobTIm1==68|psmIIItot$jobTIm1==69,"sma
ll job",
                trunc(as.numeric(psmIIItot$jobTIm1)/1000))


psmIIItot$jobVDisco1m1 <-
ifelse(psmIIItot$jobVDm1==67|psmIIItot$jobVDm1==68|psmIIItot$jobVDm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobVDm1)/1000))


psmIIItot$jobAIisco1m1 <-
ifelse(psmIIItot$jobAIm1==67|psmIIItot$jobAIm1==68|psmIIItot$jobAIm1==69,"sm
all job",
                trunc(as.numeric(psmIIItot$jobAIm1)/1000))


psmIIItot$jobARisco1m1 <-
ifelse(psmIIItot$jobARm1==67|psmIIItot$jobARm1==68|psmIIItot$jobARm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobARm1)/1000))


psmIIItot$jobFRisco1m1 <-
ifelse(psmIIItot$jobFRm1==67|psmIIItot$jobFRm1==68|psmIIItot$jobFRm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobFRm1)/1000))


psmIIItot$jobGLisco1m1 <-
ifelse(psmIIItot$jobGLm1==67|psmIIItot$jobGLm1==68|psmIIItot$jobGLm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobGLm1)/1000))
```

```
psmIIItot$jobGRisco1m1 <-
ifelse(psmIIItot$jobGRm1==67|psmIIItot$jobGRm1==68|psmIIItot$jobGRm1==69,"s
mall job",
                    trunc(as.numeric(psmIIItot$jobGRm1)/1000))


psmIIItot$jobJUisco1m1 <-
ifelse(psmIIItot$jobJUm1==67|psmIIItot$jobJUm1==68|psmIIItot$jobJUm1==69,"s
mall job",
                    trunc(as.numeric(psmIIItot$jobJUm1)/1000))


psmIIItot$jobLUisco1m1 <-
ifelse(psmIIItot$jobLUm1==67|psmIIItot$jobLUm1==68|psmIIItot$jobLUm1==69,"s
mall job",
                    trunc(as.numeric(psmIIItot$jobLUm1)/1000))


psmIIItot$jobNWisco1m1 <-
ifelse(psmIIItot$jobNWm1==67|psmIIItot$jobNWm1==68|psmIIItot$jobNWm1==69
,"small job",
                    trunc(as.numeric(psmIIItot$jobNWm1)/1000))


psmIIItot$jobOWisco1m1 <-
ifelse(psmIIItot$jobOWm1==67|psmIIItot$jobOWm1==68|psmIIItot$jobOWm1==69
,"small job",
                    trunc(as.numeric(psmIIItot$jobOWm1)/1000))


psmIIItot$jobSOisco1m1 <-
ifelse(psmIIItot$jobSOm1==67|psmIIItot$jobSOm1==68|psmIIItot$jobSOm1==69,"s
mall job",
                    trunc(as.numeric(psmIIItot$jobSOm1)/1000))
```

```
psmIIItot$jobSZisco1m1 <-
ifelse(psmIIItot$jobSZm1==67|psmIIItot$jobSZm1==68|psmIIItot$jobSZm1==69,"sm
all job",
                trunc(as.numeric(psmIIItot$jobSZm1)/1000))


psmIIItot$jobTGisco1m1 <-
ifelse(psmIIItot$jobTGm1==67|psmIIItot$jobTGm1==68|psmIIItot$jobTGm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobTGm1)/1000))


psmIIItot$jobURisco1m1 <-
ifelse(psmIIItot$jobURm1==67|psmIIItot$jobURm1==68|psmIIItot$jobURm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobURm1)/1000))


psmIIItot$jobVSisco1m1 <-
ifelse(psmIIItot$jobVSm1==67|psmIIItot$jobVSm1==68|psmIIItot$jobVSm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobVSm1)/1000))


psmIIItot$jobBSisco1m1 <-
ifelse(psmIIItot$jobBSm1==67|psmIIItot$jobBSm1==68|psmIIItot$jobBSm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobBSm1)/1000))


psmIIItot$jobGEisco1m1 <-
ifelse(psmIIItot$jobGEm1==67|psmIIItot$jobGEm1==68|psmIIItot$jobGEm1==69,"s
mall job",
                trunc(as.numeric(psmIIItot$jobGEm1)/1000))
```

```
psmIIItot$jobZGisco1m1 <-
ifelse(psmIIItot$jobZGm1==67|psmIIItot$jobZGm1==68|psmIIItot$jobZGm1==69,"s
mall job",
                        trunc(as.numeric(psmIIItot$jobZGm1)/1000))


psmIIItot$jobZHisco1m1 <-
ifelse(psmIIItot$jobZHm1==67|psmIIItot$jobZHm1==68|psmIIItot$jobZHm1==69,"s
mall job",
                        trunc(as.numeric(psmIIItot$jobZHm1)/1000))


############

#############

############

#SEI ARRIVATO QUI#

#############

############

#############


##TIPO LAVORO ZERO (situazione lavoro indefinito (eg si sa la % ma non il tipo etc)
ma diverso dal precedente)


#zero cluster 1

UNOtoUNOzeroM1 <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1m1==0 &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1m1==0&
psmIIItot$BEunoTOunoP>0)])+
```

```
  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1m1==0&
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1m1==0&
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1m1==0&
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1m1==0&
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1m1==0&
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1m1==0&
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOzeroM1 <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1m1==0&
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1m1==0&
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1m1==0&
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1m1==0&
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1m1==0&
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1m1==0&
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1m1==0&
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1m1==0&
psmIIItot$VDdueTOunoP>0)])
```

```
TREtoUNOzeroM1 <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1m1==0&
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1m1==0&
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1m1==0&
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1m1==0&
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1m1==0&
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1m1==0&
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1m1==0&
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1m1==0&
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOzeroM1 <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1m1==0&
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1m1==0&
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1m1==0&
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1m1==0&
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1m1==0&
psmIIItot$SGzeroTOunoP>0)])+
```

```
  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1m1==0&
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1m1==0&
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1m1==0&
psmIIItot$VDzeroTOunoP>0)])


#zero cluster 2

UNOtoDUEzeroM1 <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1m1==0&
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1m1==0&
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1m1==0&
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1m1==0&
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1m1==0&
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1m1==0&
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1m1==0&
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1m1==0&
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1m1==0&
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1m1==0&
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1m1==0&
psmIIItot$SZunoTOdueP>0)])+
```

```
  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1m1==0&
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1m1==0&
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1m1==0&
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEzeroM1 <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1m1==0&
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1m1==0&
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1m1==0&
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1m1==0&
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1m1==0&
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1m1==0&
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1m1==0&
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1m1==0&
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1m1==0&
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1m1==0&
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1m1==0&
psmIIItot$SZdueTOdueP>0)])+
```

```
  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1m1==0&
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1m1==0&
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1m1==0&
psmIIItot$VSdueTOdueP>0)])


TREtoDUEzeroM1 <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1m1==0&
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1m1==0&
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1m1==0&
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1m1==0&
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1m1==0&
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1m1==0&
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1m1==0&
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1m1==0&
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1m1==0&
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1m1==0&
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1m1==0&
psmIIItot$SZtreTOdueP>0)])+
```

```
  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1m1==0&
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1m1==0&
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1m1==0&
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEzeroM1 <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1m1==0&
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1m1==0&
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1m1==0&
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1m1==0&
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1m1==0&
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1m1==0&
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1m1==0&
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1m1==0&
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1m1==0&
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1m1==0&
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1m1==0&
psmIIItot$SZzeroTOdueP>0)])+
```

```
  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1m1==0&
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1m1==0&
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1m1==0&
psmIIItot$VSzeroTOdueP>0)])


#zero cluster 3

UNOtoTREzeroM1 <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1m1==0&
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1m1==0&
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1m1==0&
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1m1==0&
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREzeroM1 <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1m1==0&
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1m1==0&
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1m1==0&
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1m1==0&
psmIIItot$ZHdueTOtreP>0)])


TREtoTREzeroM1 <-
```

```
  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1m1==0&
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1m1==0&
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1m1==0&
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1m1==0&
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREzeroM1 <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1m1==0&
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1m1==0&
psmIIItot$GEzeroTOtreP>0)])+

  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1m1==0&
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1m1==0&
psmIIItot$ZHzeroTOtreP>0)])


#zero cluster abroad

UNOtoZEROzeroM1 <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1m1==0&
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROzeroM1 <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1m1==0&
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROzeroM1 <-
```

```
  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1m1==0&
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROzeroM1 <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1m1==0&
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO UNO


#uno cluster 1

UNOtoUNOunoM1 <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1m1==1 &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1m1==1 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1m1==1 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1m1==1 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1m1==1 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1m1==1 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1m1==1 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1m1==1 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOunoM1 <-
```

```
  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1m1==1 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1m1==1 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1m1==1 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1m1==1 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1m1==1 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1m1==1 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1m1==1 &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1m1==1 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOunoM1 <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1m1==1 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1m1==1 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1m1==1 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1m1==1 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1m1==1 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1m1==1 &
psmIIItot$SHtreTOunoP>0)])+
```

```
  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1m1==1 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1m1==1 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOunoM1 <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1m1==1 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1m1==1 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1m1==1 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1m1==1 &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1m1==1 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1m1==1 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1m1==1 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1m1==1 &
psmIIItot$VDzeroTOunoP>0)])


#uno cluster 2

UNOtoDUEunoM1 <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1m1==1 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1m1==1 &
psmIIItot$ARunoTOdueP>0)])+
```

```
  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1m1==1 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1m1==1 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1m1==1 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1m1==1 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1m1==1 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1m1==1 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1m1==1 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1m1==1 &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1m1==1 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1m1==1 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1m1==1 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1m1==1 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEunoM1 <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1m1==1 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1m1==1 &
psmIIItot$ARdueTOdueP>0)])+
```

```
  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1m1==1 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1m1==1 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1m1==1 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1m1==1 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1m1==1 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1m1==1 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1m1==1 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1m1==1 &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1m1==1 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1m1==1 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1m1==1 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1m1==1 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEunoM1 <-

  sum(psmIIItot$AltreTOdueP[which(psmIIItot$jobAlisco1m1==1 &
psmIIItot$AltreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1m1==1 &
psmIIItot$ARtreTOdueP>0)])+
```

```
  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1m1==1 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1m1==1 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1m1==1 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1m1==1 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1m1==1 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1m1==1 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1m1==1 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1m1==1 &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1m1==1 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1m1==1 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1m1==1 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1m1==1 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEunoM1 <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1m1==1 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1m1==1 &
psmIIItot$ARzeroTOdueP>0)])+
```

```
  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1m1==1 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1m1==1 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1m1==1 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1m1==1 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1m1==1 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1m1==1 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1m1==1 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1m1==1 &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1m1==1 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1m1==1 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1m1==1 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1m1==1 &
psmIIItot$VSzeroTOdueP>0)])


#uno cluster 3

UNOtoTREunoM1 <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1m1==1 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1m1==1 &
psmIIItot$GEunoTOtreP>0)])+
```

```
  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1m1==1 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1m1==1 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREunoM1 <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1m1==1 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1m1==1 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1m1==1 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1m1==1 &
psmIIItot$ZHdueTOtreP>0)])


TREtoTREunoM1 <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1m1==1 &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1m1==1 &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1m1==1 &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1m1==1 &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREunoM1 <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1m1==1 &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1m1==1 &
psmIIItot$GEzeroTOtreP>0)])+
```

```
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1m1==1 &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1m1==1 &
psmIIItot$ZHzeroTOtreP>0)])


#uno cluster abroad

UNOtoZEROunoM1 <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1m1==1 &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROunoM1 <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1m1==1 &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROunoM1 <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1m1==1 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROunoM1 <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1m1==1 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO DUE


#due cluster 1

UNOtoUNOdueM1 <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1m1==2 &
psmIIItot$AGunoTOunoP>0)])+
```

```
  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1m1==2 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1m1==2 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1m1==2 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1m1==2 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1m1==2 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1m1==2 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1m1==2 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOdueM1 <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1m1==2 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1m1==2 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1m1==2 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1m1==2 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1m1==2 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1m1==2 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1m1==2 &
psmIIItot$TIdueTOunoP>0)])+
```

```
  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1m1==2 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOdueM1 <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1m1==2 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1m1==2 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1m1==2 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1m1==2 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1m1==2 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1m1==2 &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1m1==2 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1m1==2 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOdueM1 <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1m1==2 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1m1==2 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1m1==2 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1m1==2 &
psmIIItot$NEzeroTOunoP>0)])+
```

```
  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1m1==2 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1m1==2 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1m1==2 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1m1==2 &
psmIIItot$VDzeroTOunoP>0)])


#due cluster 2

UNOtoDUEdueM1 <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1m1==2 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1m1==2 &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1m1==2 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1m1==2 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1m1==2 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1m1==2 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1m1==2 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1m1==2 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1m1==2 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1m1==2 &
psmIIItot$SOunoTOdueP>0)])+
```

```
  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1m1==2 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1m1==2 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1m1==2 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1m1==2 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEdueM1 <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1m1==2 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1m1==2 &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1m1==2 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1m1==2 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1m1==2 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1m1==2 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1m1==2 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1m1==2 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1m1==2 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1m1==2 &
psmIIItot$SOdueTOdueP>0)])+
```

```
  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1m1==2 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1m1==2 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1m1==2 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1m1==2 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEdueM1 <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1m1==2 &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1m1==2 &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1m1==2 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1m1==2 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1m1==2 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1m1==2 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1m1==2 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1m1==2 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1m1==2 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1m1==2 &
psmIIItot$SOtreTOdueP>0)])+
```

```
  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1m1==2 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1m1==2 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1m1==2 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1m1==2 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEdueM1 <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1m1==2 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1m1==2 &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1m1==2 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1m1==2 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1m1==2 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1m1==2 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1m1==2 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1m1==2 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1m1==2 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1m1==2 &
psmIIItot$SOzeroTOdueP>0)])+
```

```
  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1m1==2 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1m1==2 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1m1==2 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1m1==2 &
psmIIItot$VSzeroTOdueP>0)])


#due cluster 3

UNOtoTREdueM1 <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1m1==2 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1m1==2 &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1m1==2 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1m1==2 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREdueM1 <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1m1==2 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1m1==2 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1m1==2 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1m1==2 &
psmIIItot$ZHdueTOtreP>0)])
```

```
TREtoTREdueM1 <-
  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1m1==2 &
psmIIItot$BStreTOtreP>0)])+
  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1m1==2 &
psmIIItot$GEtreTOtreP>0)])+
  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1m1==2 &
psmIIItot$ZGtreTOtreP>0)])+
  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1m1==2 &
psmIIItot$ZHtreTOtreP>0)])

ZEROtoTREdueM1 <-
  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1m1==2 &
psmIIItot$BSzeroTOtreP>0)])+
  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1m1==2 &
psmIIItot$GEzeroTOtreP>0)])+
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1m1==2 &
psmIIItot$ZGzeroTOtreP>0)])+
  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1m1==2 &
psmIIItot$ZHzeroTOtreP>0)])

#due cluster abroad
UNOtoZEROdueM1 <-
  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1m1==2 &
psmIIItot$ABunoTOzeroP>0)])

DUEtoZEROdueM1 <-
  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1m1==2 &
psmIIItot$ABdueTOzeroP>0)])

TREtoZEROdueM1 <-
```

```
  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1m1==2 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZERObueM1 <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1m1==2 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO TRE


#tre cluster 1

UNOtoUNOtreM1 <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1m1==3 &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1m1==3 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1m1==3 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1m1==3 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1m1==3 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1m1==3 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1m1==3 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1m1==3 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOtreM1 <-
```

```
  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1m1==3 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1m1==3 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1m1==3 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1m1==3 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1m1==3 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1m1==3 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1m1==3 &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1m1==3 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOtreM1 <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1m1==3 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1m1==3 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1m1==3 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1m1==3 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1m1==3 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1m1==3 &
psmIIItot$SHtreTOunoP>0)])+
```

```
  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1m1==3 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1m1==3 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOtreM1 <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1m1==3 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1m1==3 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1m1==3 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1m1==3 &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1m1==3 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1m1==3 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1m1==3 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1m1==3 &
psmIIItot$VDzeroTOunoP>0)])



#tre cluster 2

UNOtoDUEtreM1 <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1m1==3 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1m1==3 &
psmIIItot$ARunoTOdueP>0)])+
```

```
  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1m1==3 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1m1==3 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1m1==3 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1m1==3 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1m1==3 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1m1==3 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1m1==3 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1m1==3 &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1m1==3 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1m1==3 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1m1==3 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1m1==3 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEtreM1 <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1m1==3 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1m1==3 &
psmIIItot$ARdueTOdueP>0)])+
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```
  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1m1==3 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1m1==3 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1m1==3 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1m1==3 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1m1==3 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1m1==3 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1m1==3 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1m1==3 &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1m1==3 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1m1==3 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1m1==3 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1m1==3 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEtreM1 <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1m1==3 &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1m1==3 &
psmIIItot$ARtreTOdueP>0)])+
```

```
  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1m1==3 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1m1==3 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1m1==3 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1m1==3 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1m1==3 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1m1==3 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1m1==3 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1m1==3 &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1m1==3 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1m1==3 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1m1==3 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1m1==3 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEtreM1 <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1m1==3 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1m1==3 &
psmIIItot$ARzeroTOdueP>0)])+
```

```
 sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1m1==3 &
psmIIItot$FRzeroTOdueP>0)])+

 sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1m1==3 &
psmIIItot$GLzeroTOdueP>0)])+

 sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1m1==3 &
psmIIItot$GRzeroTOdueP>0)])+

 sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1m1==3 &
psmIIItot$JUzeroTOdueP>0)])+

 sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1m1==3 &
psmIIItot$LUzeroTOdueP>0)])+

 sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1m1==3 &
psmIIItot$NWzeroTOdueP>0)])+

 sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1m1==3 &
psmIIItot$OWzeroTOdueP>0)])+

 sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1m1==3 &
psmIIItot$SOzeroTOdueP>0)])+

 sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1m1==3 &
psmIIItot$SZzeroTOdueP>0)])+

 sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1m1==3 &
psmIIItot$TGzeroTOdueP>0)])+

 sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1m1==3 &
psmIIItot$URzeroTOdueP>0)])+

 sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1m1==3 &
psmIIItot$VSzeroTOdueP>0)])


#tre cluster 3

UNOtoTREtreM1 <-

 sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1m1==3 &
psmIIItot$BSunoTOtreP>0)])+

 sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1m1==3 &
psmIIItot$GEunoTOtreP>0)])+
```

```
  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1m1==3 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1m1==3 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREtreM1 <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1m1==3 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1m1==3 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1m1==3 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1m1==3 &
psmIIItot$ZHdueTOtreP>0)])


TREtoTREtreM1 <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1m1==3 &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1m1==3 &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1m1==3 &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1m1==3 &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREtreM1 <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1m1==3 &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1m1==3 &
psmIIItot$GEzeroTOtreP>0)])+
```

```
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1m1==3 &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1m1==3 &
psmIIItot$ZHzeroTOtreP>0)])


#tre cluster abroad

UNOtoZEROtreM1 <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1m1==3 &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROtreM1 <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1m1==3 &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROtreM1 <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1m1==3 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROtreM1 <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1m1==3 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO QUATTRO


UNOtoUNOquattroM1 <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1m1==4 &
psmIIItot$AGunoTOunoP>0)])+
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```
  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1m1==4 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1m1==4 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1m1==4 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1m1==4 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1m1==4 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1m1==4 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1m1==4 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOquattroM1 <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1m1==4 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1m1==4 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1m1==4 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1m1==4 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1m1==4 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1m1==4 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1m1==4 &
psmIIItot$TIdueTOunoP>0)])+
```

```
  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1m1==4 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOquattroM1 <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1m1==4 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1m1==4 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1m1==4 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1m1==4 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1m1==4 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1m1==4 &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1m1==4 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1m1==4 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOquattroM1 <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1m1==4 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1m1==4 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1m1==4 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1m1==4 &
psmIIItot$NEzeroTOunoP>0)])+
```

```
  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1m1==4 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1m1==4 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1m1==4 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1m1==4 &
psmIIItot$VDzeroTOunoP>0)])


#tre cluster 2

UNOtoDUEquattroM1 <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1m1==4 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1m1==4 &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1m1==4 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1m1==4 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1m1==4 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1m1==4 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1m1==4 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1m1==4 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1m1==4 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1m1==4 &
psmIIItot$SOunoTOdueP>0)])+
```

```
  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1m1==4 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1m1==4 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1m1==4 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1m1==4 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEquattroM1 <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1m1==4 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1m1==4 &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1m1==4 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1m1==4 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1m1==4 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1m1==4 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1m1==4 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1m1==4 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1m1==4 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1m1==4 &
psmIIItot$SOdueTOdueP>0)])+
```

```
  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1m1==4 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1m1==4 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1m1==4 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1m1==4 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEquattroM1 <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1m1==4 &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1m1==4 &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1m1==4 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1m1==4 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1m1==4 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1m1==4 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1m1==4 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1m1==4 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1m1==4 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1m1==4 &
psmIIItot$SOtreTOdueP>0)])+
```

```
  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1m1==4 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1m1==4 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1m1==4 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1m1==4 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEquattroM1 <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1m1==4 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1m1==4 &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1m1==4 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1m1==4 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1m1==4 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1m1==4 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1m1==4 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1m1==4 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1m1==4 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1m1==4 &
psmIIItot$SOzeroTOdueP>0)])+
```

```
  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1m1==4 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1m1==4 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1m1==4 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1m1==4 &
psmIIItot$VSzeroTOdueP>0)])


#tre cluster 3

UNOtoTREquattroM1 <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1m1==4 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1m1==4 &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1m1==4 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1m1==4 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREquattroM1 <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1m1==4 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1m1==4 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1m1==4 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1m1==4 &
psmIIItot$ZHdueTOtreP>0)])
```

```
TREtoTREquattroM1 <-
  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1m1==4 &
psmIIItot$BStreTOtreP>0)])+
  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1m1==4 &
psmIIItot$GEtreTOtreP>0)])+
  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1m1==4 &
psmIIItot$ZGtreTOtreP>0)])+
  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1m1==4 &
psmIIItot$ZHtreTOtreP>0)])

ZEROtoTREquattroM1 <-
  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1m1==4 &
psmIIItot$BSzeroTOtreP>0)])+
  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1m1==4 &
psmIIItot$GEzeroTOtreP>0)])+
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1m1==4 &
psmIIItot$ZGzeroTOtreP>0)])+
  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1m1==4 &
psmIIItot$ZHzeroTOtreP>0)])

#tre cluster abroad
UNOtoZEROquattroM1 <-
  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1m1==4 &
psmIIItot$ABunoTOzeroP>0)])

DUEtoZEROquattroM1 <-
  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1m1==4 &
psmIIItot$ABdueTOzeroP>0)])

TREtoZEROquattroM1 <-
```

```
  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1m1==4 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROquattroM1 <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1m1==4 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO CINQUE


#cinque cluster 1

UNOtoUNOcinqueM1 <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1m1==5 &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1m1==5 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1m1==5 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1m1==5 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1m1==5 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1m1==5 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1m1==5 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1m1==5 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOcinqueM1 <-
```

```
  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1m1==5 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1m1==5 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1m1==5 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1m1==5 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1m1==5 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1m1==5 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1m1==5 &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1m1==5 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOcinqueM1 <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1m1==5 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1m1==5 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1m1==5 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1m1==5 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1m1==5 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1m1==5 &
psmIIItot$SHtreTOunoP>0)])+
```

```
  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1m1==5 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1m1==5 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOcinqueM1 <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1m1==5 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1m1==5 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1m1==5 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1m1==5 &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1m1==5 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1m1==5 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1m1==5 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1m1==5 &
psmIIItot$VDzeroTOunoP>0)])



#cinque cluster 2

UNOtoDUEcinqueM1 <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1m1==5 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1m1==5 &
psmIIItot$ARunoTOdueP>0)])+
```

```
  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1m1==5 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1m1==5 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1m1==5 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1m1==5 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1m1==5 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1m1==5 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1m1==5 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1m1==5 &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1m1==5 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1m1==5 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1m1==5 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1m1==5 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEcinqueM1 <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1m1==5 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1m1==5 &
psmIIItot$ARdueTOdueP>0)])+
```

```
  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1m1==5 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1m1==5 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1m1==5 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1m1==5 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1m1==5 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1m1==5 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1m1==5 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1m1==5 &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1m1==5 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1m1==5 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1m1==5 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1m1==5 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEcinqueM1 <-

  sum(psmIIItot$AltreTOdueP[which(psmIIItot$jobAlisco1m1==5 &
psmIIItot$AltreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1m1==5 &
psmIIItot$ARtreTOdueP>0)])+
```

```
  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1m1==5 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1m1==5 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1m1==5 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1m1==5 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1m1==5 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1m1==5 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1m1==5 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1m1==5 &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1m1==5 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1m1==5 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1m1==5 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1m1==5 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEcinqueM1 <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1m1==5 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1m1==5 &
psmIIItot$ARzeroTOdueP>0)])+
```

```
  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1m1==5 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1m1==5 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1m1==5 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1m1==5 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1m1==5 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1m1==5 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1m1==5 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1m1==5 &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1m1==5 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1m1==5 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1m1==5 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1m1==5 &
psmIIItot$VSzeroTOdueP>0)])


#cinque cluster 3

UNOtoTREcinqueM1 <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1m1==5 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1m1==5 &
psmIIItot$GEunoTOtreP>0)])+
```

```
  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1m1==5 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1m1==5 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREcinqueM1 <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1m1==5 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1m1==5 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1m1==5 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1m1==5 &
psmIIItot$ZHdueTOtreP>0)])


TREtoTREcinqueM1 <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1m1==5 &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1m1==5 &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1m1==5 &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1m1==5 &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREcinqueM1 <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1m1==5 &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1m1==5 &
psmIIItot$GEzeroTOtreP>0)])+
```

```
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1m1==5 &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1m1==5 &
psmIIItot$ZHzeroTOtreP>0)])


#cinque cluster abroad

UNOtoZEROcinqueM1 <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1m1==5 &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROcinqueM1 <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1m1==5 &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROcinqueM1 <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1m1==5 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROcinqueM1 <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1m1==5 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO SEI


#sei cluster 1

UNOtoUNOseiM1 <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1m1==6 &
psmIIItot$AGunoTOunoP>0)])+
```

```
  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1m1==6 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1m1==6 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1m1==6 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1m1==6 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1m1==6 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1m1==6 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1m1==6 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOseiM1 <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1m1==6 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1m1==6 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1m1==6 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1m1==6 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1m1==6 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1m1==6 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1m1==6 &
psmIIItot$TIdueTOunoP>0)])+
```

```
  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1m1==6 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOseiM1 <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1m1==6 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1m1==6 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1m1==6 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1m1==6 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1m1==6 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1m1==6 &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1m1==6 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1m1==6 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOseiM1 <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1m1==6 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1m1==6 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1m1==6 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1m1==6 &
psmIIItot$NEzeroTOunoP>0)])+
```

```
  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1m1==6 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1m1==6 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1m1==6 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1m1==6 &
psmIIItot$VDzeroTOunoP>0)])


#sei cluster 2

UNOtoDUEseiM1 <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1m1==6 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1m1==6 &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1m1==6 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1m1==6 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1m1==6 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1m1==6 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1m1==6 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1m1==6 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1m1==6 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1m1==6 &
psmIIItot$SOunoTOdueP>0)])+
```

```
  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1m1==6 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1m1==6 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1m1==6 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1m1==6 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEseiM1 <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1m1==6 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1m1==6 &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1m1==6 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1m1==6 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1m1==6 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1m1==6 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1m1==6 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1m1==6 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1m1==6 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1m1==6 &
psmIIItot$SOdueTOdueP>0)])+
```

```
  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1m1==6 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1m1==6 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1m1==6 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1m1==6 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEseiM1 <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1m1==6 &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1m1==6 &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1m1==6 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1m1==6 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1m1==6 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1m1==6 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1m1==6 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1m1==6 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1m1==6 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1m1==6 &
psmIIItot$SOtreTOdueP>0)])+
```

```
  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1m1==6 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1m1==6 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1m1==6 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1m1==6 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEseiM1 <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1m1==6 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1m1==6 &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1m1==6 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1m1==6 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1m1==6 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1m1==6 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1m1==6 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1m1==6 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1m1==6 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1m1==6 &
psmIIItot$SOzeroTOdueP>0)])+
```

```
  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1m1==6 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1m1==6 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1m1==6 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1m1==6 &
psmIIItot$VSzeroTOdueP>0)])


#sei cluster 3

UNOtoTREseiM1 <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1m1==6 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1m1==6 &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1m1==6 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1m1==6 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREseiM1 <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1m1==6 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1m1==6 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1m1==6 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1m1==6 &
psmIIItot$ZHdueTOtreP>0)])
```

```
TREtoTREseiM1 <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1m1==6 &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1m1==6 &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1m1==6 &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1m1==6 &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREseiM1 <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1m1==6 &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1m1==6 &
psmIIItot$GEzeroTOtreP>0)])+

  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1m1==6 &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1m1==6 &
psmIIItot$ZHzeroTOtreP>0)])


#sei cluster abroad

UNOtoZEROseiM1 <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1m1==6 &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROseiM1 <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1m1==6 &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROseiM1 <-
```

```
  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1m1==6 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROseiM1 <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1m1==6 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO SETTE


#sette cluster 1

UNOtoUNOsetteM1 <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1m1==7 &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1m1==7 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1m1==7 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1m1==7 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1m1==7 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1m1==7 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1m1==7 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1m1==7 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOsetteM1 <-
```

```
  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1m1==7 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1m1==7 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1m1==7 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1m1==7 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1m1==7 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1m1==7 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1m1==7 &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1m1==7 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOsetteM1 <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1m1==7 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1m1==7 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1m1==7 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1m1==7 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1m1==7 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1m1==7 &
psmIIItot$SHtreTOunoP>0)])+
```

```
  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1m1==7 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1m1==7 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOsetteM1 <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1m1==7 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1m1==7 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1m1==7 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1m1==7 &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1m1==7 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1m1==7 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1m1==7 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1m1==7 &
psmIIItot$VDzeroTOunoP>0)])


#sette cluster 2

UNOtoDUEsetteM1 <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1m1==7 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1m1==7 &
psmIIItot$ARunoTOdueP>0)])+
```

```
  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1m1==7 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1m1==7 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1m1==7 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1m1==7 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1m1==7 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1m1==7 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1m1==7 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1m1==7 &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1m1==7 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1m1==7 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1m1==7 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1m1==7 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEsetteM1 <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1m1==7 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1m1==7 &
psmIIItot$ARdueTOdueP>0)])+
```

```
  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1m1==7 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1m1==7 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1m1==7 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1m1==7 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1m1==7 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1m1==7 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1m1==7 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1m1==7 &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1m1==7 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1m1==7 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1m1==7 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1m1==7 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEsetteM1 <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1m1==7 &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1m1==7 &
psmIIItot$ARtreTOdueP>0)])+
```

```
  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1m1==7 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1m1==7 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1m1==7 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1m1==7 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1m1==7 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1m1==7 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1m1==7 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1m1==7 &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1m1==7 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1m1==7 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1m1==7 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1m1==7 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEsetteM1 <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1m1==7 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1m1==7 &
psmIIItot$ARzeroTOdueP>0)])+
```

```
  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1m1==7 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1m1==7 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1m1==7 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1m1==7 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1m1==7 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1m1==7 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1m1==7 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1m1==7 &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1m1==7 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1m1==7 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1m1==7 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1m1==7 &
psmIIItot$VSzeroTOdueP>0)])


#sette cluster 3

UNOtoTREsetteM1 <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1m1==7 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1m1==7 &
psmIIItot$GEunoTOtreP>0)])+
```

```
  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1m1==7 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1m1==7 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREsetteM1 <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1m1==7 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1m1==7 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1m1==7 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1m1==7 &
psmIIItot$ZHdueTOtreP>0)])


TREtoTREsetteM1 <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1m1==7 &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1m1==7 &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1m1==7 &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1m1==7 &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREsetteM1 <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1m1==7 &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1m1==7 &
psmIIItot$GEzeroTOtreP>0)])+
```

```
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1m1==7 &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1m1==7 &
psmIIItot$ZHzeroTOtreP>0)])


#sette cluster abroad

UNOtoZEROsetteM1 <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1m1==7 &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROsetteM1 <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1m1==7 &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROsetteM1 <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1m1==7 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROsetteM1 <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1m1==7 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO OTTO


#otto cluster 1

UNOtoUNOottoM1 <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1m1==8 &
psmIIItot$AGunoTOunoP>0)])+
```

```
  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1m1==8 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1m1==8 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1m1==8 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1m1==8 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1m1==8 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1m1==8 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1m1==8 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOottoM1 <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1m1==8 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1m1==8 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1m1==8 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1m1==8 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1m1==8 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1m1==8 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1m1==8 &
psmIIItot$TIdueTOunoP>0)])+
```

```
  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1m1==8 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOottoM1 <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1m1==8 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1m1==8 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1m1==8 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1m1==8 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1m1==8 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1m1==8 &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1m1==8 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1m1==8 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOottoM1 <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1m1==8 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1m1==8 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1m1==8 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1m1==8 &
psmIIItot$NEzeroTOunoP>0)])+
```

```
  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1m1==8 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1m1==8 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1m1==8 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1m1==8 &
psmIIItot$VDzeroTOunoP>0)])


#otto cluster 2

UNOtoDUEottoM1 <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1m1==8 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1m1==8 &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1m1==8 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1m1==8 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1m1==8 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1m1==8 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1m1==8 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1m1==8 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1m1==8 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1m1==8 &
psmIIItot$SOunoTOdueP>0)])+
```

```
  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1m1==8 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1m1==8 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1m1==8 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1m1==8 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEottoM1 <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1m1==8 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1m1==8 &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1m1==8 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1m1==8 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1m1==8 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1m1==8 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1m1==8 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1m1==8 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1m1==8 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1m1==8 &
psmIIItot$SOdueTOdueP>0)])+
```

```
  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1m1==8 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1m1==8 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1m1==8 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1m1==8 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEottoM1 <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1m1==8 &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1m1==8 &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1m1==8 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1m1==8 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1m1==8 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1m1==8 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1m1==8 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1m1==8 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1m1==8 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1m1==8 &
psmIIItot$SOtreTOdueP>0)])+
```

```
  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1m1==8 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1m1==8 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1m1==8 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1m1==8 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEottoM1 <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1m1==8 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1m1==8 &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1m1==8 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1m1==8 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1m1==8 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1m1==8 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1m1==8 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1m1==8 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1m1==8 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1m1==8 &
psmIIItot$SOzeroTOdueP>0)])+
```

```
  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1m1==8 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1m1==8 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1m1==8 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1m1==8 &
psmIIItot$VSzeroTOdueP>0)])


#otto cluster 3

UNOtoTREottoM1 <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1m1==8 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1m1==8 &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1m1==8 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1m1==8 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREottoM1 <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1m1==8 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1m1==8 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1m1==8 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1m1==8 &
psmIIItot$ZHdueTOtreP>0)])
```

```
TREtoTREottoM1 <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1m1==8 &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1m1==8 &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1m1==8 &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1m1==8 &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTREottoM1 <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1m1==8 &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1m1==8 &
psmIIItot$GEzeroTOtreP>0)])+

  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1m1==8 &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1m1==8 &
psmIIItot$ZHzeroTOtreP>0)])


#otto cluster abroad

UNOtoZEROottoM1 <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1m1==8 &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROottoM1 <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1m1==8 &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROottoM1 <-
```

```
  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1m1==8 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROottoM1 <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1m1==8 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO NOVE


#nove cluster 1

UNOtoUNOnoveM1 <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1m1==9 &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1m1==9 &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1m1==9 &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1m1==9 &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1m1==9 &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1m1==9 &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1m1==9 &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1m1==9 &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOnoveM1 <-
```

```
  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1m1==9 &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1m1==9 &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1m1==9 &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1m1==9 &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1m1==9 &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1m1==9 &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1m1==9 &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1m1==9 &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOnoveM1 <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1m1==9 &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1m1==9 &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1m1==9 &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1m1==9 &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1m1==9 &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1m1==9 &
psmIIItot$SHtreTOunoP>0)])+
```

```
  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1m1==9 &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1m1==9 &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOnoveM1 <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1m1==9 &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1m1==9 &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1m1==9 &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1m1==9 &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1m1==9 &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1m1==9 &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1m1==9 &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1m1==9 &
psmIIItot$VDzeroTOunoP>0)])


#nove cluster 2

UNOtoDUEnoveM1 <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1m1==9 &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1m1==9 &
psmIIItot$ARunoTOdueP>0)])+
```

```
  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1m1==9 &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1m1==9 &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1m1==9 &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1m1==9 &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1m1==9 &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1m1==9 &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1m1==9 &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1m1==9 &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1m1==9 &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1m1==9 &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1m1==9 &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1m1==9 &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEnoveM1 <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1m1==9 &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1m1==9 &
psmIIItot$ARdueTOdueP>0)])+
```

```
  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1m1==9 &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1m1==9 &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1m1==9 &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1m1==9 &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1m1==9 &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1m1==9 &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1m1==9 &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1m1==9 &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1m1==9 &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1m1==9 &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1m1==9 &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1m1==9 &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEnoveM1 <-

  sum(psmIIItot$AltreTOdueP[which(psmIIItot$jobAlisco1m1==9 &
psmIIItot$AltreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1m1==9 &
psmIIItot$ARtreTOdueP>0)])+
```

```
  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1m1==9 &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1m1==9 &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1m1==9 &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1m1==9 &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1m1==9 &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1m1==9 &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1m1==9 &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1m1==9 &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1m1==9 &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1m1==9 &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1m1==9 &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1m1==9 &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEnoveM1 <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1m1==9 &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1m1==9 &
psmIIItot$ARzeroTOdueP>0)])+
```

```
  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1m1==9 &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1m1==9 &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1m1==9 &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1m1==9 &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1m1==9 &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1m1==9 &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1m1==9 &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1m1==9 &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1m1==9 &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1m1==9 &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1m1==9 &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1m1==9 &
psmIIItot$VSzeroTOdueP>0)])


#nove cluster 3

UNOtoTREnoveM1 <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1m1==9 &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1m1==9 &
psmIIItot$GEunoTOtreP>0)])+
```

```
  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1m1==9 &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1m1==9 &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTRENoveM1 <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1m1==9 &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1m1==9 &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1m1==9 &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1m1==9 &
psmIIItot$ZHdueTOtreP>0)])


TREtoTRENoveM1 <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1m1==9 &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1m1==9 &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1m1==9 &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1m1==9 &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTRENoveM1 <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1m1==9 &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1m1==9 &
psmIIItot$GEzeroTOtreP>0)])+
```

```
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1m1==9 &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1m1==9 &
psmIIItot$ZHzeroTOtreP>0)])


#nove cluster abroad

UNOtoZEROnoveM1 <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1m1==9 &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZEROnoveM1 <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1m1==9 &
psmIIItot$ABdueTOzeroP>0)])


TREtoZEROnoveM1 <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1m1==9 &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZEROnoveM1 <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1m1==9 &
psmIIItot$ABzeroTOzeroP>0)])



##TIPO LAVORO SMALL JOB


#small cluster 1

UNOtoUNOsmallM1 <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$jobAGisco1m1=="small job" &
psmIIItot$AGunoTOunoP>0)])+
```

```
  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$jobBEisco1m1=="small job" &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$jobBLisco1m1=="small job" &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$jobNEisco1m1=="small job" &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$jobSGisco1m1=="small job" &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$jobSHisco1m1=="small job" &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$jobTIisco1m1=="small job" &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$jobVDisco1m1=="small job" &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNOsmallM1 <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$jobAGisco1m1=="small job" &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$jobBEisco1m1=="small job" &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$jobBLisco1m1=="small job" &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$jobNEisco1m1=="small job" &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$jobSGisco1m1=="small job" &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$jobSHisco1m1=="small job" &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$jobTIisco1m1=="small job" &
psmIIItot$TIdueTOunoP>0)])+
```

```
  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$jobVDisco1m1=="small job" &
psmIIItot$VDdueTOunoP>0)])


TREtoUNOsmallM1 <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$jobAGisco1m1=="small job" &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$jobBEisco1m1=="small job" &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$jobBLisco1m1=="small job" &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$jobNEisco1m1=="small job" &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$jobSGisco1m1=="small job" &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$jobSHisco1m1=="small job" &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$jobTIisco1m1=="small job" &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$jobVDisco1m1=="small job" &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNOsmallM1 <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$jobAGisco1m1=="small job" &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$jobBEisco1m1=="small job" &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$jobBLisco1m1=="small job" &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$jobNEisco1m1=="small job" &
psmIIItot$NEzeroTOunoP>0)])+
```

```
  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$jobSGisco1m1=="small job" &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$jobSHisco1m1=="small job" &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$jobTIisco1m1=="small job" &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$jobVDisco1m1=="small job" &
psmIIItot$VDzeroTOunoP>0)])


#small cluster 2

UNOtoDUEsmallM1 <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$jobAIisco1m1=="small job" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$jobARisco1m1=="small job" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$jobFRisco1m1=="small job" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$jobGLisco1m1=="small job" &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$jobGRisco1m1=="small job" &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$jobJUisco1m1=="small job" &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$jobLUisco1m1=="small job" &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$jobNWisco1m1=="small job" &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$jobOWisco1m1=="small job" &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$jobSOisco1m1=="small job" &
psmIIItot$SOunoTOdueP>0)])+
```

```
  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$jobSZisco1m1=="small job" &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$jobTGisco1m1=="small job" &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$jobURisco1m1=="small job" &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$jobVSisco1m1=="small job" &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUEsmallM1 <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$jobAIisco1m1=="small job" &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$jobARisco1m1=="small job" &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$jobFRisco1m1=="small job" &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$jobGLisco1m1=="small job" &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$jobGRisco1m1=="small job" &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$jobJUisco1m1=="small job" &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$jobLUisco1m1=="small job" &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$jobNWisco1m1=="small job" &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$jobOWisco1m1=="small job" &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$jobSOisco1m1=="small job" &
psmIIItot$SOdueTOdueP>0)])+
```

```
  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$jobSZisco1m1=="small job" &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$jobTGisco1m1=="small job" &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$jobURisco1m1=="small job" &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$jobVSisco1m1=="small job" &
psmIIItot$VSdueTOdueP>0)])


TREtoDUEsmallM1 <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$jobAIisco1m1=="small job" &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$jobARisco1m1=="small job" &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$jobFRisco1m1=="small job" &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$jobGLisco1m1=="small job" &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$jobGRisco1m1=="small job" &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$jobJUisco1m1=="small job" &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$jobLUisco1m1=="small job" &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$jobNWisco1m1=="small job" &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$jobOWisco1m1=="small job" &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$jobSOisco1m1=="small job" &
psmIIItot$SOtreTOdueP>0)])+
```

```
  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$jobSZisco1m1=="small job" &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$jobTGisco1m1=="small job" &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$jobURisco1m1=="small job" &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$jobVSisco1m1=="small job" &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUEsmallM1 <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$jobAIisco1m1=="small job" &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$jobARisco1m1=="small job" &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$jobFRisco1m1=="small job" &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$jobGLisco1m1=="small job" &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$jobGRisco1m1=="small job" &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$jobJUisco1m1=="small job" &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$jobLUisco1m1=="small job" &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$jobNWisco1m1=="small job" &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$jobOWisco1m1=="small job" &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$jobSOisco1m1=="small job" &
psmIIItot$SOzeroTOdueP>0)])+
```

```
  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$jobSZisco1m1=="small job" &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$jobTGisco1m1=="small job" &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$jobURisco1m1=="small job" &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$jobVSisco1m1=="small job" &
psmIIItot$VSzeroTOdueP>0)])


#small cluster 3

UNOtoTREsmallM1 <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$jobBSisco1m1=="small job" &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$jobGEisco1m1=="small job" &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$jobZGisco1m1=="small job" &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$jobZHisco1m1=="small job" &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTREsmallM1 <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$jobBSisco1m1=="small job" &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$jobGEisco1m1=="small job" &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$jobZGisco1m1=="small job" &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$jobZHisco1m1=="small job" &
psmIIItot$ZHdueTOtreP>0)])
```

```
TREtoTREsmallM1 <-
  sum(psmIIItot$BStreTOtreP[which(psmIIItot$jobBSisco1m1=="small job" &
psmIIItot$BStreTOtreP>0)])+
  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$jobGEisco1m1=="small job" &
psmIIItot$GEtreTOtreP>0)])+
  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$jobZGisco1m1=="small job" &
psmIIItot$ZGtreTOtreP>0)])+
  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$jobZHisco1m1=="small job" &
psmIIItot$ZHtreTOtreP>0)])

ZEROtoTREsmallM1 <-
  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$jobBSisco1m1=="small job" &
psmIIItot$BSzeroTOtreP>0)])+
  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$jobGEisco1m1=="small job" &
psmIIItot$GEzeroTOtreP>0)])+
  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$jobZGisco1m1=="small job" &
psmIIItot$ZGzeroTOtreP>0)])+
  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$jobZHisco1m1=="small job" &
psmIIItot$ZHzeroTOtreP>0)])

#small cluster abroad
UNOtoZEROsmallM1 <-
  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$jobABisco1m1=="small job" &
psmIIItot$ABunoTOzeroP>0)])

DUEtoZEROsmallM1 <-
  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$jobABisco1m1=="small job" &
psmIIItot$ABdueTOzeroP>0)])

TREtoZEROsmallM1 <-
```

```
  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$jobABisco1m1=="small job" &
psmIIItot$ABtreTOzeroP>0)])

ZEROtoZEROsmallM1 <-
  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$jobABisco1m1=="small job" &
psmIIItot$ABzeroTOzeroP>0)])

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#creazione variabile età#

psmIIItot$ageAG <- psmIIItot$posAG + 1998 - psmIIItot$YB
psmIIItot$ageBE <- psmIIItot$posBE + 1998 - psmIIItot$YB
psmIIItot$ageBL <- psmIIItot$posBL + 1998 - psmIIItot$YB
psmIIItot$ageNE <- psmIIItot$posNE + 1998 - psmIIItot$YB
psmIIItot$ageSG <- psmIIItot$posSG + 1998 - psmIIItot$YB
psmIIItot$ageSH <- psmIIItot$posSH + 1998 - psmIIItot$YB
psmIIItot$ageTI <- psmIIItot$posTI + 1998 - psmIIItot$YB
psmIIItot$ageVD <- psmIIItot$posVD + 1998 - psmIIItot$YB
psmIIItot$ageAI <- psmIIItot$posAI + 1998 - psmIIItot$YB
psmIIItot$ageAR <- psmIIItot$posAR + 1998 - psmIIItot$YB
psmIIItot$ageFR <- psmIIItot$posFR + 1998 - psmIIItot$YB
psmIIItot$ageGL <- psmIIItot$posGL + 1998 - psmIIItot$YB
psmIIItot$ageGR <- psmIIItot$posGR + 1998 - psmIIItot$YB
psmIIItot$ageJU <- psmIIItot$posJU + 1998 - psmIIItot$YB
psmIIItot$ageLU <- psmIIItot$posLU + 1998 - psmIIItot$YB
psmIIItot$ageNW <- psmIIItot$posNW + 1998 - psmIIItot$YB
```

```
psmIIItot$ageOW <- psmIIItot$posOW + 1998 - psmIIItot$YB
psmIIItot$ageSO <- psmIIItot$posSO + 1998 - psmIIItot$YB
psmIIItot$ageSZ <- psmIIItot$posSZ + 1998 - psmIIItot$YB
psmIIItot$ageTG <- psmIIItot$posTG + 1998 - psmIIItot$YB
psmIIItot$ageUR <- psmIIItot$posUR + 1998 - psmIIItot$YB
psmIIItot$ageVS <- psmIIItot$posVS + 1998 - psmIIItot$YB
psmIIItot$ageBS <- psmIIItot$posBS + 1998 - psmIIItot$YB
psmIIItot$ageGE <- psmIIItot$posGE + 1998 - psmIIItot$YB
psmIIItot$ageZG <- psmIIItot$posZG + 1998 - psmIIItot$YB
psmIIItot$ageZH <- psmIIItot$posZH + 1998 - psmIIItot$YB
psmIIItot$ageAB <- psmIIItot$posAB + 1998 - psmIIItot$YB

#ricodifica in classi

psmIIItot$CLageAG <- ifelse(psmIIItot$ageAG<26, "25 or below",
                ifelse((psmIIItot$ageAG>26 & psmIIItot$ageAG<40), "26-39 years",
                 ifelse((psmIIItot$ageAG>39 & psmIIItot$ageAG<66), "40-65 years",
                  "65 or more"
                    )))

psmIIItot$CLageBE <- ifelse(psmIIItot$ageBE<26, "25 or below",
                    ifelse((psmIIItot$ageBE>26 & psmIIItot$ageBE<40), "26-39 years",
                        ifelse((psmIIItot$ageBE>39 & psmIIItot$ageBE<66), "40-65
years",
                             "65 or more"
                        )))
```

```
psmIIItot$CLageBL <- ifelse(psmIIItot$ageBL<26, "25 or below",
                    ifelse((psmIIItot$ageBL>26 & psmIIItot$ageBL<40), "26-39 years",
                        ifelse((psmIIItot$ageBL>39 & psmIIItot$ageBL<66), "40-65
years",
                            "65 or more"
                        )))
psmIIItot$CLageNE <- ifelse(psmIIItot$ageNE<26, "25 or below",
                    ifelse((psmIIItot$ageNE>26 & psmIIItot$ageNE<40), "26-39 years",
                        ifelse((psmIIItot$ageNE>39 & psmIIItot$ageNE<66), "40-65
years",
                            "65 or more"
                        )))
psmIIItot$CLageSG <- ifelse(psmIIItot$ageSG<26, "25 or below",
                    ifelse((psmIIItot$ageSG>26 & psmIIItot$ageSG<40), "26-39 years",
                        ifelse((psmIIItot$ageSG>39 & psmIIItot$ageSG<66), "40-65
years",
                            "65 or more"
                        )))
psmIIItot$CLageSH <- ifelse(psmIIItot$ageSH<26, "25 or below",
                    ifelse((psmIIItot$ageSH>26 & psmIIItot$ageSH<40), "26-39 years",
                        ifelse((psmIIItot$ageSH>39 & psmIIItot$ageSH<66), "40-65
years",
                            "65 or more"
                        )))
psmIIItot$CLageTI <- ifelse(psmIIItot$ageTI<26, "25 or below",
                    ifelse((psmIIItot$ageTI>26 & psmIIItot$ageTI<40), "26-39 years",
                        ifelse((psmIIItot$ageTI>39 & psmIIItot$ageTI<66), "40-65 years",
                            "65 or more"
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                        )))
psmIIItot$CLageVD <- ifelse(psmIIItot$ageVD<26, "25 or below",
                    ifelse((psmIIItot$ageVD>26 & psmIIItot$ageVD<40), "26-39 years",
                        ifelse((psmIIItot$ageVD>39 & psmIIItot$ageVD<66), "40-65
years",
                            "65 or more"
                        )))
psmIIItot$CLageAI <- ifelse(psmIIItot$ageAI<26, "25 or below",
                    ifelse((psmIIItot$ageAI>26 & psmIIItot$ageAI<40), "26-39 years",
                        ifelse((psmIIItot$ageAI>39 & psmIIItot$ageAI<66), "40-65 years",
                            "65 or more"
                        )))
psmIIItot$CLageAR <- ifelse(psmIIItot$ageAR<26, "25 or below",
                    ifelse((psmIIItot$ageARG>26 & psmIIItot$ageAR<40), "26-39 years",
                        ifelse((psmIIItot$ageAR>39 & psmIIItot$ageAR<66), "40-65
years",
                            "65 or more"
                        )))
psmIIItot$CLageFR <- ifelse(psmIIItot$ageFR<26, "25 or below",
                    ifelse((psmIIItot$ageFR>26 & psmIIItot$ageFR<40), "26-39 years",
                        ifelse((psmIIItot$ageFR>39 & psmIIItot$ageFR<66), "40-65
years",
                            "65 or more"
                        )))
psmIIItot$CLageGL <- ifelse(psmIIItot$ageGL<26, "25 or below",
                    ifelse((psmIIItot$ageGL>26 & psmIIItot$ageGL<40), "26-39 years",
                        ifelse((psmIIItot$ageGL>39 & psmIIItot$ageGL<66), "40-65
years",
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```
                    "65 or more"
                ))) 
psmIIItot$CLageGR <- ifelse(psmIIItot$ageGR<26, "25 or below",
                ifelse((psmIIItot$ageGR>26 & psmIIItot$ageGR<40), "26-39 years",
                    ifelse((psmIIItot$ageGR>39 & psmIIItot$ageGR<66), "40-65
years",
                    "65 or more"
                ))) 
psmIIItot$CLageJU <- ifelse(psmIIItot$ageJU<26, "25 or below",
                ifelse((psmIIItot$ageJU>26 & psmIIItot$ageJU<40), "26-39 years",
                    ifelse((psmIIItot$ageJU>39 & psmIIItot$ageJU<66), "40-65
years",
                    "65 or more"
                ))) 
psmIIItot$CLageLU <- ifelse(psmIIItot$ageLU<26, "25 or below",
                ifelse((psmIIItot$ageLU>26 & psmIIItot$ageLU<40), "26-39 years",
                    ifelse((psmIIItot$ageLU>39 & psmIIItot$ageLU<66), "40-65
years",
                    "65 or more"
                ))) 
psmIIItot$CLageNW <- ifelse(psmIIItot$ageNW<26, "25 or below",
                ifelse((psmIIItot$ageNW>26 & psmIIItot$ageNW<40), "26-39 years",
                    ifelse((psmIIItot$ageNW>39 & psmIIItot$ageNW<66), "40-65
years",
                    "65 or more"
                ))) 
psmIIItot$CLageOW <- ifelse(psmIIItot$ageOW<26, "25 or below",
                ifelse((psmIIItot$ageOW>26 & psmIIItot$ageOW<40), "26-39 years",
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                ifelse((psmIIItot$ageOW>39 & psmIIItot$ageOW<66), "40-65
years",
                    "65 or more"
                )))
psmIIItot$CLageSO <- ifelse(psmIIItot$ageSO<26, "25 or below",
            ifelse((psmIIItot$ageSO>26 & psmIIItot$ageSO<40), "26-39 years",
                ifelse((psmIIItot$ageSO>39 & psmIIItot$ageSO<66), "40-65
years",
                    "65 or more"
                )))
psmIIItot$CLageSZ <- ifelse(psmIIItot$ageSZ<26, "25 or below",
            ifelse((psmIIItot$ageSZ>26 & psmIIItot$ageSZ<40), "26-39 years",
                ifelse((psmIIItot$ageSZ>39 & psmIIItot$ageSZ<66), "40-65
years",
                    "65 or more"
                )))
psmIIItot$CLageTG <- ifelse(psmIIItot$ageTG<26, "25 or below",
            ifelse((psmIIItot$ageTG>26 & psmIIItot$ageTG<40), "26-39 years",
                ifelse((psmIIItot$ageTG>39 & psmIIItot$ageTG<66), "40-65
years",
                    "65 or more"
                )))
psmIIItot$CLageUR <- ifelse(psmIIItot$ageUR<26, "25 or below",
            ifelse((psmIIItot$ageUR>26 & psmIIItot$ageUR<40), "26-39 years",
                ifelse((psmIIItot$ageUR>39 & psmIIItot$ageUR<66), "40-65
years",
                    "65 or more"
                )))
```

```
psmIIItot$CLageVS <- ifelse(psmIIItot$ageVS<26, "25 or below",
                    ifelse((psmIIItot$ageVS>26 & psmIIItot$ageVS<40), "26-39 years",
                        ifelse((psmIIItot$ageVS>39 & psmIIItot$ageVS<66), "40-65
years",
                            "65 or more"
                        )))
psmIIItot$CLageBS <- ifelse(psmIIItot$ageBS<26, "25 or below",
                    ifelse((psmIIItot$ageBS>26 & psmIIItot$ageBS<40), "26-39 years",
                        ifelse((psmIIItot$ageBS>39 & psmIIItot$ageBS<66), "40-65
years",
                            "65 or more"
                        )))
psmIIItot$CLageGE <- ifelse(psmIIItot$ageGE<26, "25 or below",
                    ifelse((psmIIItot$ageGE>26 & psmIIItot$ageGE<40), "26-39 years",
                        ifelse((psmIIItot$ageGE>39 & psmIIItot$ageGE<66), "40-65
years",
                            "65 or more"
                        )))
psmIIItot$CLageZG <- ifelse(psmIIItot$ageZG<26, "25 or below",
                    ifelse((psmIIItot$ageZG>26 & psmIIItot$ageZG<40), "26-39 years",
                        ifelse((psmIIItot$ageZG>39 & psmIIItot$ageZG<66), "40-65
years",
                            "65 or more"
                        )))
psmIIItot$CLageZH <- ifelse(psmIIItot$ageZH<26, "25 or below",
                    ifelse((psmIIItot$ageZH>26 & psmIIItot$ageZH<40), "26-39 years",
                        ifelse((psmIIItot$ageZH>39 & psmIIItot$ageZH<66), "40-65
years",
```

```
                    "65 or more"
                ))) 
psmIIItot$CLageAB <- ifelse(psmIIItot$ageAB<26, "25 or below",
                ifelse((psmIIItot$ageAB>26 & psmIIItot$ageAB<40), "26-39 years",
                    ifelse((psmIIItot$ageAB>39 & psmIIItot$ageAB<66), "40-65
years",
                    "65 or more"
                ))) 


##ETA 25 or below


# age 25 or below claster 1
UNOtoUNO25y <-
  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$CLageAG=="25 or below" &
psmIIItot$AGunoTOunoP>0)])+
  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$CLageBE=="25 or below" &
psmIIItot$BEunoTOunoP>0)])+
  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$CLageBL=="25 or below" &
psmIIItot$BLunoTOunoP>0)])+
  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$CLageNE=="25 or below" &
psmIIItot$NEunoTOunoP>0)])+
  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$CLageSG=="25 or below" &
psmIIItot$SGunoTOunoP>0)])+
  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$CLageSH=="25 or below" &
psmIIItot$SHunoTOunoP>0)])+
  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$CLageTI=="25 or below" &
psmIIItot$TIunoTOunoP>0)])+
```

```
  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$CLageVD=="25 or below" &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNO25y <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$CLageAG=="25 or below" &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$CLageBE=="25 or below" &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$CLageBL=="25 or below" &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$CLageNE=="25 or below" &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$CLageSG=="25 or below" &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$CLageSH=="25 or below" &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$CLageTI=="25 or below" &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$CLageVD=="25 or below" &
psmIIItot$VDdueTOunoP>0)])


TREtoUNO25y <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$CLageAG=="25 or below" &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$CLageBE=="25 or below" &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$CLageBL=="25 or below" &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$CLageNE=="25 or below" &
psmIIItot$NEtreTOunoP>0)])+
```

```
  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$CLageSG=="25 or below" &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$CLageSH=="25 or below" &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$CLageTI=="25 or below" &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$CLageVD=="25 or below" &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNO25y <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$CLageAG=="25 or below" &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$CLageBE=="25 or below" &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$CLageBL=="25 or below" &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$CLageNE=="25 or below" &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$CLageSG=="25 or below" &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$CLageSH=="25 or below" &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$CLageTI=="25 or below" &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$CLageVD=="25 or below" &
psmIIItot$VDzeroTOunoP>0)])


#age 25 or below cluster 2

UNOtoDUE25y <-
```

```
  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$CLageAI=="25 or below" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$CLageAR=="25 or below" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$CLageFR=="25 or below" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$CLageGL=="25 or below" &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$CLageGR=="25 or below" &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$CLageJU=="25 or below" &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$CLageLU=="25 or below" &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$CLageNW=="25 or below" &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$CLageOW=="25 or below" &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$CLageSO=="25 or below" &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$CLageSZ=="25 or below" &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$CLageTG=="25 or below" &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$CLageUR=="25 or below" &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$CLageVS=="25 or below" &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUE25y <-
```

```
  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$CLageAI=="25 or below" &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$CLageAR=="25 or below" &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$CLageFR=="25 or below" &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$CLageGL=="25 or below" &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$CLageGR=="25 or below" &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$CLageJU=="25 or below" &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$CLageLU=="25 or below" &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$CLageNW=="25 or below" &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$CLageOW=="25 or below" &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$CLageSO=="25 or below" &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$CLageSZ=="25 or below" &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$CLageTG=="25 or below" &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$CLageUR=="25 or below" &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$CLageVS=="25 or below" &
psmIIItot$VSdueTOdueP>0)])


TREtoDUE25y <-
```

```
  sum(psmIIItot$AItreTOdueP[which(psmIIItot$CLageAI=="25 or below" &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$CLageAR=="25 or below" &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$CLageFR=="25 or below" &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$CLageGL=="25 or below" &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$CLageGR=="25 or below" &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$CLageJU=="25 or below" &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$CLageLU=="25 or below" &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$CLageNW=="25 or below" &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$CLageOW=="25 or below" &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$CLageSO=="25 or below" &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$CLageSZ=="25 or below" &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$CLageTG=="25 or below" &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$CLageUR=="25 or below" &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$CLageVS=="25 or below" &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUE25y <-
```

```
  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$CLageAI=="25 or below" &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$CLageAR=="25 or below" &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$CLageFR=="25 or below" &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$CLageGL=="25 or below" &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$CLageGR=="25 or below" &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$CLageJU=="25 or below" &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$CLageLU=="25 or below" &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$CLageNW=="25 or below" &
psmIIItot$NWzeroTOdueP>0)])+

  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$CLageOW=="25 or below" &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$CLageSO=="25 or below" &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$CLageSZ=="25 or below" &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$CLageTG=="25 or below" &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$CLageUR=="25 or below" &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$CLageVS=="25 or below" &
psmIIItot$VSzeroTOdueP>0)])


#age 25 or below cluster 3

UNOtoTRE25y <-
```

```
  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$CLageBS=="25 or below" &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$CLageGE=="25 or below" &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$CLageZG=="25 or below" &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$CLageZH=="25 or below" &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTRE25y <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$CLageBS=="25 or below" &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$CLageGE=="25 or below" &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$CLageZG=="25 or below" &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$CLageZH=="25 or below" &
psmIIItot$ZHdueTOtreP>0)])


TREtoTRE25y <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$CLageBS=="25 or below" &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$CLageGE=="25 or below" &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$CLageZG=="25 or below" &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$CLageZH=="25 or below" &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTRE25y <-
```

```
  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$CLageBS=="25 or below" &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$CLageGE=="25 or below" &
psmIIItot$GEzeroTOtreP>0)])+

  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$CLageZG=="25 or below" &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$CLageZH=="25 or below" &
psmIIItot$ZHzeroTOtreP>0)])


#age 25 or below cluster abroad

UNOtoZERO25y <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$CLageAB=="25 or below" &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZERO25y <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$CLageAB=="25 or below" &
psmIIItot$ABdueTOzeroP>0)])


TREtoZERO25y <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$CLageAB=="25 or below" &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZERO25y <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$CLageAB=="25 or below" &
psmIIItot$ABzeroTOzeroP>0)])



##ETA 26-39 years
```

```
# age 26-39 years claster 1

UNOtoUNO39y <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$CLageAG=="26-39 years" &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$CLageBE=="26-39 years" &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$CLageBL=="26-39 years" &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$CLageNE=="26-39 years" &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$CLageSG=="26-39 years" &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$CLageSH=="26-39 years" &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$CLageTI=="26-39 years" &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$CLageVD=="26-39 years" &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNO39y <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$CLageAG=="26-39 years" &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$CLageBE=="26-39 years" &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$CLageBL=="26-39 years" &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$CLageNE=="26-39 years" &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$CLageSG=="26-39 years" &
psmIIItot$SGdueTOunoP>0)])+
```

```
  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$CLageSH=="26-39 years" &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$CLageTI=="26-39 years" &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$CLageVD=="26-39 years" &
psmIIItot$VDdueTOunoP>0)])


TREtoUNO39y <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$CLageAG=="26-39 years" &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$CLageBE=="26-39 years" &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$CLageBL=="26-39 years" &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$CLageNE=="26-39 years" &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$CLageSG=="26-39 years" &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$CLageSH=="26-39 years" &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$CLageTI=="26-39 years" &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$CLageVD=="26-39 years" &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNO39y <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$CLageAG=="26-39 years" &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$CLageBE=="26-39 years" &
psmIIItot$BEzeroTOunoP>0)])+
```

```
  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$CLageBL=="26-39 years" &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$CLageNE=="26-39 years" &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$CLageSG=="26-39 years" &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$CLageSH=="26-39 years" &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$CLageTI=="26-39 years" &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$CLageVD=="26-39 years" &
psmIIItot$VDzeroTOunoP>0)])


#age 26-39 years cluster 2

UNOtoDUE39y <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$CLageAI=="26-39 years" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$CLageAR=="26-39 years" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$CLageFR=="26-39 years" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$CLageGL=="26-39 years" &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$CLageGR=="26-39 years" &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$CLageJU=="26-39 years" &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$CLageLU=="26-39 years" &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$CLageNW=="26-39 years" &
psmIIItot$NWunoTOdueP>0)])+
```

```
  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$CLageOW=="26-39 years" &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$CLageSO=="26-39 years" &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$CLageSZ=="26-39 years" &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$CLageTG=="26-39 years" &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$CLageUR=="26-39 years" &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$CLageVS=="26-39 years" &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUE39y <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$CLageAI=="26-39 years" &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$CLageAR=="26-39 years" &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$CLageFR=="26-39 years" &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$CLageGL=="26-39 years" &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$CLageGR=="26-39 years" &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$CLageJU=="26-39 years" &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$CLageLU=="26-39 years" &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$CLageNW=="26-39 years" &
psmIIItot$NWdueTOdueP>0)])+
```

```
  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$CLageOW=="26-39 years" &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$CLageSO=="26-39 years" &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$CLageSZ=="26-39 years" &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$CLageTG=="26-39 years" &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$CLageUR=="26-39 years" &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$CLageVS=="26-39 years" &
psmIIItot$VSdueTOdueP>0)])


TREtoDUE39y <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$CLageAI=="26-39 years" &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$CLageAR=="26-39 years" &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$CLageFR=="26-39 years" &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$CLageGL=="26-39 years" &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$CLageGR=="26-39 years" &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$CLageJU=="26-39 years" &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$CLageLU=="26-39 years" &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$CLageNW=="26-39 years" &
psmIIItot$NWtreTOdueP>0)])+
```

```
  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$CLageOW=="26-39 years" &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$CLageSO=="26-39 years" &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$CLageSZ=="26-39 years" &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$CLageTG=="26-39 years" &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$CLageUR=="26-39 years" &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$CLageVS=="26-39 years" &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUE39y <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$CLageAI=="26-39 years" &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$CLageAR=="26-39 years" &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$CLageFR=="26-39 years" &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$CLageGL=="26-39 years" &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$CLageGR=="26-39 years" &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$CLageJU=="26-39 years" &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$CLageLU=="26-39 years" &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$CLageNW=="26-39 years" &
psmIIItot$NWzeroTOdueP>0)])+
```

```
  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$CLageOW=="26-39 years" &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$CLageSO=="26-39 years" &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$CLageSZ=="26-39 years" &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$CLageTG=="26-39 years" &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$CLageUR=="26-39 years" &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$CLageVS=="26-39 years" &
psmIIItot$VSzeroTOdueP>0)])


#age 26-39 years cluster 3

UNOtoTRE39y <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$CLageBS=="26-39 years" &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$CLageGE=="26-39 years" &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$CLageZG=="26-39 years" &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$CLageZH=="26-39 years" &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTRE39y <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$CLageBS=="26-39 years" &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$CLageGE=="26-39 years" &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$CLageZG=="26-39 years" &
psmIIItot$ZGdueTOtreP>0)])+
```

```
  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$CLageZH=="26-39 years" &
psmIIItot$ZHdueTOtreP>0)])


TREtoTRE39y <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$CLageBS=="26-39 years" &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$CLageGE=="26-39 years" &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$CLageZG=="26-39 years" &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$CLageZH=="26-39 years" &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTRE39y <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$CLageBS=="26-39 years" &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$CLageGE=="26-39 years" &
psmIIItot$GEzeroTOtreP>0)])+

  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$CLageZG=="26-39 years" &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$CLageZH=="26-39 years" &
psmIIItot$ZHzeroTOtreP>0)])


#age 26-39 years cluster abroad

UNOtoZERO39y <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$CLageAB=="26-39 years" &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZERO39y <-
```

```
  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$CLageAB=="26-39 years" &
psmIIItot$ABdueTOzeroP>0)])

TREtoZERO39y <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$CLageAB=="26-39 years" &
psmIIItot$ABtreTOzeroP>0)])

ZEROtoZERO39y <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$CLageAB=="26-39 years" &
psmIIItot$ABzeroTOzeroP>0)])



##ETA 40-65 years

# age 40-65 years claster 1

UNOtoUNO65y <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$CLageAG=="40-65 years" &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$CLageBE=="40-65 years" &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$CLageBL=="40-65 years" &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$CLageNE=="40-65 years" &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$CLageSG=="40-65 years" &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$CLageSH=="40-65 years" &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$CLageTI=="40-65 years" &
psmIIItot$TIunoTOunoP>0)])+
```

```
  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$CLageVD=="40-65 years" &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNO65y <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$CLageAG=="40-65 years" &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$CLageBE=="40-65 years" &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$CLageBL=="40-65 years" &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$CLageNE=="40-65 years" &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$CLageSG=="40-65 years" &
psmIIItot$SGdueTOunoP>0)])+

  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$CLageSH=="40-65 years" &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$CLageTI=="40-65 years" &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$CLageVD=="40-65 years" &
psmIIItot$VDdueTOunoP>0)])


TREtoUNO65y <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$CLageAG=="40-65 years" &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$CLageBE=="40-65 years" &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$CLageBL=="40-65 years" &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$CLageNE=="40-65 years" &
psmIIItot$NEtreTOunoP>0)])+
```

```
  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$CLageSG=="40-65 years" &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$CLageSH=="40-65 years" &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$CLageTI=="40-65 years" &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$CLageVD=="40-65 years" &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNO65y <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$CLageAG=="40-65 years" &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$CLageBE=="40-65 years" &
psmIIItot$BEzeroTOunoP>0)])+

  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$CLageBL=="40-65 years" &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$CLageNE=="40-65 years" &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$CLageSG=="40-65 years" &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$CLageSH=="40-65 years" &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$CLageTI=="40-65 years" &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$CLageVD=="40-65 years" &
psmIIItot$VDzeroTOunoP>0)])


#age 40-65 years cluster 2

UNOtoDUE65y <-
```

```
  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$CLageAI=="40-65 years" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$CLageAR=="40-65 years" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$CLageFR=="40-65 years" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$CLageGL=="40-65 years" &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$CLageGR=="40-65 years" &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$CLageJU=="40-65 years" &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$CLageLU=="40-65 years" &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$CLageNW=="40-65 years" &
psmIIItot$NWunoTOdueP>0)])+

  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$CLageOW=="40-65 years" &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$CLageSO=="40-65 years" &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$CLageSZ=="40-65 years" &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$CLageTG=="40-65 years" &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$CLageUR=="40-65 years" &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$CLageVS=="40-65 years" &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUE65y <-
```

```
  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$CLageAI=="40-65 years" &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$CLageAR=="40-65 years" &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$CLageFR=="40-65 years" &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$CLageGL=="40-65 years" &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$CLageGR=="40-65 years" &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$CLageJU=="40-65 years" &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$CLageLU=="40-65 years" &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$CLageNW=="40-65 years" &
psmIIItot$NWdueTOdueP>0)])+

  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$CLageOW=="40-65 years" &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$CLageSO=="40-65 years" &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$CLageSZ=="40-65 years" &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$CLageTG=="40-65 years" &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$CLageUR=="40-65 years" &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$CLageVS=="40-65 years" &
psmIIItot$VSdueTOdueP>0)])


TREtoDUE65y <-
```

```
  sum(psmIIItot$AItreTOdueP[which(psmIIItot$CLageAI=="40-65 years" &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$CLageAR=="40-65 years" &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$CLageFR=="40-65 years" &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$CLageGL=="40-65 years" &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$CLageGR=="40-65 years" &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$CLageJU=="40-65 years" &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$CLageLU=="40-65 years" &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$CLageNW=="40-65 years" &
psmIIItot$NWtreTOdueP>0)])+

  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$CLageOW=="40-65 years" &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$CLageSO=="40-65 years" &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$CLageSZ=="40-65 years" &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$CLageTG=="40-65 years" &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$CLageUR=="40-65 years" &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$CLageVS=="40-65 years" &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUE65y <-
```

```
 sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$CLageAI=="40-65 years" &
psmIIItot$AIzeroTOdueP>0)])+

 sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$CLageAR=="40-65 years" &
psmIIItot$ARzeroTOdueP>0)])+

 sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$CLageFR=="40-65 years" &
psmIIItot$FRzeroTOdueP>0)])+

 sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$CLageGL=="40-65 years" &
psmIIItot$GLzeroTOdueP>0)])+

 sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$CLageGR=="40-65 years" &
psmIIItot$GRzeroTOdueP>0)])+

 sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$CLageJU=="40-65 years" &
psmIIItot$JUzeroTOdueP>0)])+

 sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$CLageLU=="40-65 years" &
psmIIItot$LUzeroTOdueP>0)])+

 sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$CLageNW=="40-65 years" &
psmIIItot$NWzeroTOdueP>0)])+

 sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$CLageOW=="40-65 years" &
psmIIItot$OWzeroTOdueP>0)])+

 sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$CLageSO=="40-65 years" &
psmIIItot$SOzeroTOdueP>0)])+

 sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$CLageSZ=="40-65 years" &
psmIIItot$SZzeroTOdueP>0)])+

 sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$CLageTG=="40-65 years" &
psmIIItot$TGzeroTOdueP>0)])+

 sum(psmIIItot$URzeroTOdueP[which(psmIIItot$CLageUR=="40-65 years" &
psmIIItot$URzeroTOdueP>0)])+

 sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$CLageVS=="40-65 years" &
psmIIItot$VSzeroTOdueP>0)])


#age 40-65 years cluster 3

UNOtoTRE65y <-
```

```
  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$CLageBS=="40-65 years" &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$CLageGE=="40-65 years" &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$CLageZG=="40-65 years" &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$CLageZH=="40-65 years" &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTRE65y <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$CLageBS=="40-65 years" &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$CLageGE=="40-65 years" &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$CLageZG=="40-65 years" &
psmIIItot$ZGdueTOtreP>0)])+

  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$CLageZH=="40-65 years" &
psmIIItot$ZHdueTOtreP>0)])


TREtoTRE65y <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$CLageBS=="40-65 years" &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$CLageGE=="40-65 years" &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$CLageZG=="40-65 years" &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$CLageZH=="40-65 years" &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTRE65y <-
```

```
  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$CLageBS=="40-65 years" &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$CLageGE=="40-65 years" &
psmIIItot$GEzeroTOtreP>0)])+

  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$CLageZG=="40-65 years" &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$CLageZH=="40-65 years" &
psmIIItot$ZHzeroTOtreP>0)])


#age 40-65 years cluster abroad

UNOtoZERO65y <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$CLageAB=="40-65 years" &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZERO65y <-

  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$CLageAB=="40-65 years" &
psmIIItot$ABdueTOzeroP>0)])


TREtoZERO65y <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$CLageAB=="40-65 years" &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZERO65y <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$CLageAB=="40-65 years" &
psmIIItot$ABzeroTOzeroP>0)])



##ETA 65 or more
```

```
# age 65 or more claster 1

UNOtoUNO99y <-

  sum(psmIIItot$AGunoTOunoP[which(psmIIItot$CLageAG=="65 or more" &
psmIIItot$AGunoTOunoP>0)])+

  sum(psmIIItot$BEunoTOunoP[which(psmIIItot$CLageBE=="65 or more" &
psmIIItot$BEunoTOunoP>0)])+

  sum(psmIIItot$BLunoTOunoP[which(psmIIItot$CLageBL=="65 or more" &
psmIIItot$BLunoTOunoP>0)])+

  sum(psmIIItot$NEunoTOunoP[which(psmIIItot$CLageNE=="65 or more" &
psmIIItot$NEunoTOunoP>0)])+

  sum(psmIIItot$SGunoTOunoP[which(psmIIItot$CLageSG=="65 or more" &
psmIIItot$SGunoTOunoP>0)])+

  sum(psmIIItot$SHunoTOunoP[which(psmIIItot$CLageSH=="65 or more" &
psmIIItot$SHunoTOunoP>0)])+

  sum(psmIIItot$TIunoTOunoP[which(psmIIItot$CLageTI=="65 or more" &
psmIIItot$TIunoTOunoP>0)])+

  sum(psmIIItot$VDunoTOunoP[which(psmIIItot$CLageVD=="65 or more" &
psmIIItot$VDunoTOunoP>0)])


DUEtoUNO99y <-

  sum(psmIIItot$AGdueTOunoP[which(psmIIItot$CLageAG=="65 or more" &
psmIIItot$AGdueTOunoP>0)])+

  sum(psmIIItot$BEdueTOunoP[which(psmIIItot$CLageBE=="65 or more" &
psmIIItot$BEdueTOunoP>0)])+

  sum(psmIIItot$BLdueTOunoP[which(psmIIItot$CLageBL=="65 or more" &
psmIIItot$BLdueTOunoP>0)])+

  sum(psmIIItot$NEdueTOunoP[which(psmIIItot$CLageNE=="65 or more" &
psmIIItot$NEdueTOunoP>0)])+

  sum(psmIIItot$SGdueTOunoP[which(psmIIItot$CLageSG=="65 or more" &
psmIIItot$SGdueTOunoP>0)])+
```

```
  sum(psmIIItot$SHdueTOunoP[which(psmIIItot$CLageSH=="65 or more" &
psmIIItot$SHdueTOunoP>0)])+

  sum(psmIIItot$TIdueTOunoP[which(psmIIItot$CLageTI=="65 or more" &
psmIIItot$TIdueTOunoP>0)])+

  sum(psmIIItot$VDdueTOunoP[which(psmIIItot$CLageVD=="65 or more" &
psmIIItot$VDdueTOunoP>0)])


TREtoUNO99y <-

  sum(psmIIItot$AGtreTOunoP[which(psmIIItot$CLageAG=="65 or more" &
psmIIItot$AGtreTOunoP>0)])+

  sum(psmIIItot$BEtreTOunoP[which(psmIIItot$CLageBE=="65 or more" &
psmIIItot$BEtreTOunoP>0)])+

  sum(psmIIItot$BLtreTOunoP[which(psmIIItot$CLageBL=="65 or more" &
psmIIItot$BLtreTOunoP>0)])+

  sum(psmIIItot$NEtreTOunoP[which(psmIIItot$CLageNE=="65 or more" &
psmIIItot$NEtreTOunoP>0)])+

  sum(psmIIItot$SGtreTOunoP[which(psmIIItot$CLageSG=="65 or more" &
psmIIItot$SGtreTOunoP>0)])+

  sum(psmIIItot$SHtreTOunoP[which(psmIIItot$CLageSH=="65 or more" &
psmIIItot$SHtreTOunoP>0)])+

  sum(psmIIItot$TItreTOunoP[which(psmIIItot$CLageTI=="65 or more" &
psmIIItot$TItreTOunoP>0)])+

  sum(psmIIItot$VDtreTOunoP[which(psmIIItot$CLageVD=="65 or more" &
psmIIItot$VDtreTOunoP>0)])



ZEROtoUNO99y <-

  sum(psmIIItot$AGzeroTOunoP[which(psmIIItot$CLageAG=="65 or more" &
psmIIItot$AGzeroTOunoP>0)])+

  sum(psmIIItot$BEzeroTOunoP[which(psmIIItot$CLageBE=="65 or more" &
psmIIItot$BEzeroTOunoP>0)])+
```

```
  sum(psmIIItot$BLzeroTOunoP[which(psmIIItot$CLageBL=="65 or more" &
psmIIItot$BLzeroTOunoP>0)])+

  sum(psmIIItot$NEzeroTOunoP[which(psmIIItot$CLageNE=="65 or more" &
psmIIItot$NEzeroTOunoP>0)])+

  sum(psmIIItot$SGzeroTOunoP[which(psmIIItot$CLageSG=="65 or more" &
psmIIItot$SGzeroTOunoP>0)])+

  sum(psmIIItot$SHzeroTOunoP[which(psmIIItot$CLageSH=="65 or more" &
psmIIItot$SHzeroTOunoP>0)])+

  sum(psmIIItot$TIzeroTOunoP[which(psmIIItot$CLageTI=="65 or more" &
psmIIItot$TIzeroTOunoP>0)])+

  sum(psmIIItot$VDzeroTOunoP[which(psmIIItot$CLageVD=="65 or more" &
psmIIItot$VDzeroTOunoP>0)])


#age 65 or more cluster 2

UNOtoDUE99y <-

  sum(psmIIItot$AIunoTOdueP[which(psmIIItot$CLageAI=="65 or more" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$ARunoTOdueP[which(psmIIItot$CLageAR=="65 or more" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRunoTOdueP[which(psmIIItot$CLageFR=="65 or more" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$GLunoTOdueP[which(psmIIItot$CLageGL=="65 or more" &
psmIIItot$GLunoTOdueP>0)])+

  sum(psmIIItot$GRunoTOdueP[which(psmIIItot$CLageGR=="65 or more" &
psmIIItot$GRunoTOdueP>0)])+

  sum(psmIIItot$JUunoTOdueP[which(psmIIItot$CLageJU=="65 or more" &
psmIIItot$JUunoTOdueP>0)])+

  sum(psmIIItot$LUunoTOdueP[which(psmIIItot$CLageLU=="65 or more" &
psmIIItot$LUunoTOdueP>0)])+

  sum(psmIIItot$NWunoTOdueP[which(psmIIItot$CLageNW=="65 or more" &
psmIIItot$NWunoTOdueP>0)])+
```

```
  sum(psmIIItot$OWunoTOdueP[which(psmIIItot$CLageOW=="65 or more" &
psmIIItot$OWunoTOdueP>0)])+

  sum(psmIIItot$SOunoTOdueP[which(psmIIItot$CLageSO=="65 or more" &
psmIIItot$SOunoTOdueP>0)])+

  sum(psmIIItot$SZunoTOdueP[which(psmIIItot$CLageSZ=="65 or more" &
psmIIItot$SZunoTOdueP>0)])+

  sum(psmIIItot$TGunoTOdueP[which(psmIIItot$CLageTG=="65 or more" &
psmIIItot$TGunoTOdueP>0)])+

  sum(psmIIItot$URunoTOdueP[which(psmIIItot$CLageUR=="65 or more" &
psmIIItot$URunoTOdueP>0)])+

  sum(psmIIItot$VSunoTOdueP[which(psmIIItot$CLageVS=="65 or more" &
psmIIItot$VSunoTOdueP>0)])


DUEtoDUE99y <-

  sum(psmIIItot$AIdueTOdueP[which(psmIIItot$CLageAI=="65 or more" &
psmIIItot$AIdueTOdueP>0)])+

  sum(psmIIItot$ARdueTOdueP[which(psmIIItot$CLageAR=="65 or more" &
psmIIItot$ARdueTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueP[which(psmIIItot$CLageFR=="65 or more" &
psmIIItot$FRdueTOdueP>0)])+

  sum(psmIIItot$GLdueTOdueP[which(psmIIItot$CLageGL=="65 or more" &
psmIIItot$GLdueTOdueP>0)])+

  sum(psmIIItot$GRdueTOdueP[which(psmIIItot$CLageGR=="65 or more" &
psmIIItot$GRdueTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueP[which(psmIIItot$CLageJU=="65 or more" &
psmIIItot$JUdueTOdueP>0)])+

  sum(psmIIItot$LUdueTOdueP[which(psmIIItot$CLageLU=="65 or more" &
psmIIItot$LUdueTOdueP>0)])+

  sum(psmIIItot$NWdueTOdueP[which(psmIIItot$CLageNW=="65 or more" &
psmIIItot$NWdueTOdueP>0)])+
```

```
  sum(psmIIItot$OWdueTOdueP[which(psmIIItot$CLageOW=="65 or more" &
psmIIItot$OWdueTOdueP>0)])+

  sum(psmIIItot$SOdueTOdueP[which(psmIIItot$CLageSO=="65 or more" &
psmIIItot$SOdueTOdueP>0)])+

  sum(psmIIItot$SZdueTOdueP[which(psmIIItot$CLageSZ=="65 or more" &
psmIIItot$SZdueTOdueP>0)])+

  sum(psmIIItot$TGdueTOdueP[which(psmIIItot$CLageTG=="65 or more" &
psmIIItot$TGdueTOdueP>0)])+

  sum(psmIIItot$URdueTOdueP[which(psmIIItot$CLageUR=="65 or more" &
psmIIItot$URdueTOdueP>0)])+

  sum(psmIIItot$VSdueTOdueP[which(psmIIItot$CLageVS=="65 or more" &
psmIIItot$VSdueTOdueP>0)])


TREtoDUE99y <-

  sum(psmIIItot$AItreTOdueP[which(psmIIItot$CLageAI=="65 or more" &
psmIIItot$AItreTOdueP>0)])+

  sum(psmIIItot$ARtreTOdueP[which(psmIIItot$CLageAR=="65 or more" &
psmIIItot$ARtreTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueP[which(psmIIItot$CLageFR=="65 or more" &
psmIIItot$FRtreTOdueP>0)])+

  sum(psmIIItot$GLtreTOdueP[which(psmIIItot$CLageGL=="65 or more" &
psmIIItot$GLtreTOdueP>0)])+

  sum(psmIIItot$GRtreTOdueP[which(psmIIItot$CLageGR=="65 or more" &
psmIIItot$GRtreTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueP[which(psmIIItot$CLageJU=="65 or more" &
psmIIItot$JUtreTOdueP>0)])+

  sum(psmIIItot$LUtreTOdueP[which(psmIIItot$CLageLU=="65 or more" &
psmIIItot$LUtreTOdueP>0)])+

  sum(psmIIItot$NWtreTOdueP[which(psmIIItot$CLageNW=="65 or more" &
psmIIItot$NWtreTOdueP>0)])+
```

```
  sum(psmIIItot$OWtreTOdueP[which(psmIIItot$CLageOW=="65 or more" &
psmIIItot$OWtreTOdueP>0)])+

  sum(psmIIItot$SOtreTOdueP[which(psmIIItot$CLageSO=="65 or more" &
psmIIItot$SOtreTOdueP>0)])+

  sum(psmIIItot$SZtreTOdueP[which(psmIIItot$CLageSZ=="65 or more" &
psmIIItot$SZtreTOdueP>0)])+

  sum(psmIIItot$TGtreTOdueP[which(psmIIItot$CLageTG=="65 or more" &
psmIIItot$TGtreTOdueP>0)])+

  sum(psmIIItot$URtreTOdueP[which(psmIIItot$CLageUR=="65 or more" &
psmIIItot$URtreTOdueP>0)])+

  sum(psmIIItot$VStreTOdueP[which(psmIIItot$CLageVS=="65 or more" &
psmIIItot$VStreTOdueP>0)])


ZEROtoDUE99y <-

  sum(psmIIItot$AIzeroTOdueP[which(psmIIItot$CLageAI=="65 or more" &
psmIIItot$AIzeroTOdueP>0)])+

  sum(psmIIItot$ARzeroTOdueP[which(psmIIItot$CLageAR=="65 or more" &
psmIIItot$ARzeroTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueP[which(psmIIItot$CLageFR=="65 or more" &
psmIIItot$FRzeroTOdueP>0)])+

  sum(psmIIItot$GLzeroTOdueP[which(psmIIItot$CLageGL=="65 or more" &
psmIIItot$GLzeroTOdueP>0)])+

  sum(psmIIItot$GRzeroTOdueP[which(psmIIItot$CLageGR=="65 or more" &
psmIIItot$GRzeroTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueP[which(psmIIItot$CLageJU=="65 or more" &
psmIIItot$JUzeroTOdueP>0)])+

  sum(psmIIItot$LUzeroTOdueP[which(psmIIItot$CLageLU=="65 or more" &
psmIIItot$LUzeroTOdueP>0)])+

  sum(psmIIItot$NWzeroTOdueP[which(psmIIItot$CLageNW=="65 or more" &
psmIIItot$NWzeroTOdueP>0)])+
```

```
  sum(psmIIItot$OWzeroTOdueP[which(psmIIItot$CLageOW=="65 or more" &
psmIIItot$OWzeroTOdueP>0)])+

  sum(psmIIItot$SOzeroTOdueP[which(psmIIItot$CLageSO=="65 or more" &
psmIIItot$SOzeroTOdueP>0)])+

  sum(psmIIItot$SZzeroTOdueP[which(psmIIItot$CLageSZ=="65 or more" &
psmIIItot$SZzeroTOdueP>0)])+

  sum(psmIIItot$TGzeroTOdueP[which(psmIIItot$CLageTG=="65 or more" &
psmIIItot$TGzeroTOdueP>0)])+

  sum(psmIIItot$URzeroTOdueP[which(psmIIItot$CLageUR=="65 or more" &
psmIIItot$URzeroTOdueP>0)])+

  sum(psmIIItot$VSzeroTOdueP[which(psmIIItot$CLageVS=="65 or more" &
psmIIItot$VSzeroTOdueP>0)])


#age 65 or more cluster 3

UNOtoTRE99y <-

  sum(psmIIItot$BSunoTOtreP[which(psmIIItot$CLageBS=="65 or more" &
psmIIItot$BSunoTOtreP>0)])+

  sum(psmIIItot$GEunoTOtreP[which(psmIIItot$CLageGE=="65 or more" &
psmIIItot$GEunoTOtreP>0)])+

  sum(psmIIItot$ZGunoTOtreP[which(psmIIItot$CLageZG=="65 or more" &
psmIIItot$ZGunoTOtreP>0)])+

  sum(psmIIItot$ZHunoTOtreP[which(psmIIItot$CLageZH=="65 or more" &
psmIIItot$ZHunoTOtreP>0)])


DUEtoTRE99y <-

  sum(psmIIItot$BSdueTOtreP[which(psmIIItot$CLageBS=="65 or more" &
psmIIItot$BSdueTOtreP>0)])+

  sum(psmIIItot$GEdueTOtreP[which(psmIIItot$CLageGE=="65 or more" &
psmIIItot$GEdueTOtreP>0)])+

  sum(psmIIItot$ZGdueTOtreP[which(psmIIItot$CLageZG=="65 or more" &
psmIIItot$ZGdueTOtreP>0)])+
```

```
  sum(psmIIItot$ZHdueTOtreP[which(psmIIItot$CLageZH=="65 or more" &
psmIIItot$ZHdueTOtreP>0)])


TREtoTRE99y <-

  sum(psmIIItot$BStreTOtreP[which(psmIIItot$CLageBS=="65 or more" &
psmIIItot$BStreTOtreP>0)])+

  sum(psmIIItot$GEtreTOtreP[which(psmIIItot$CLageGE=="65 or more" &
psmIIItot$GEtreTOtreP>0)])+

  sum(psmIIItot$ZGtreTOtreP[which(psmIIItot$CLageZG=="65 or more" &
psmIIItot$ZGtreTOtreP>0)])+

  sum(psmIIItot$ZHtreTOtreP[which(psmIIItot$CLageZH=="65 or more" &
psmIIItot$ZHtreTOtreP>0)])


ZEROtoTRE99y <-

  sum(psmIIItot$BSzeroTOtreP[which(psmIIItot$CLageBS=="65 or more" &
psmIIItot$BSzeroTOtreP>0)])+

  sum(psmIIItot$GEzeroTOtreP[which(psmIIItot$CLageGE=="65 or more" &
psmIIItot$GEzeroTOtreP>0)])+

  sum(psmIIItot$ZGzeroTOtreP[which(psmIIItot$CLageZG=="65 or more" &
psmIIItot$ZGzeroTOtreP>0)])+

  sum(psmIIItot$ZHzeroTOtreP[which(psmIIItot$CLageZH=="65 or more" &
psmIIItot$ZHzeroTOtreP>0)])


#age 65 or more cluster abroad

UNOtoZERO99y <-

  sum(psmIIItot$ABunoTOzeroP[which(psmIIItot$CLageAB=="65 or more" &
psmIIItot$ABunoTOzeroP>0)])


DUEtoZERO99y <-
```

```
  sum(psmIIItot$ABdueTOzeroP[which(psmIIItot$CLageAB=="65 or more" &
psmIIItot$ABdueTOzeroP>0)])


TREtoZERO99y <-

  sum(psmIIItot$ABtreTOzeroP[which(psmIIItot$CLageAB=="65 or more" &
psmIIItot$ABtreTOzeroP>0)])


ZEROtoZERO99y <-

  sum(psmIIItot$ABzeroTOzeroP[which(psmIIItot$CLageAB=="65 or more" &
psmIIItot$ABzeroTOzeroP>0)])
```

7- Tests

```
library(cluster)


#### script clustering fanny ####


#(fase 2 - variaili selezionate)#

PerClustersCantoni <- appoggioCantoni2


DistanceCanton2 <- dist(appoggioCantoni2, method = "euclidean")


ClustersCantons2 <- hclust(DistanceCanton2,method = "complete", members =
NULL)

CantonsSilouette2 <- as.clustrange(ClustersCantons2, diss =
as.dist(DistanceCanton2), ncluster = 12)


fanny4Canton2 <- fanny(DistanceCanton2, k=4, diss=TRUE,  maxit = 500)
```

```
PerClustersCantoni$fannyCanton4.1bis <- fanny4Canton2$membership[,1]
PerClustersCantoni$fannyCanton4.2bis <- fanny4Canton2$membership[,2]
PerClustersCantoni$fannyCanton4.3bis <- fanny4Canton2$membership[,3]
PerClustersCantoni$fannyCanton4.4bis <- fanny4Canton2$membership[,4]


##### sensitivity al tipo di distanz usata ####

fanny4M <- fanny(DistanceCanton2, k=4, diss=TRUE,  maxit = 500, metric =
"manhattan")

cor(fanny4Canton2$membership[,1],fanny4M$membership[,1])
cor(fanny4Canton2$membership[,2],fanny4M$membership[,2])
cor(fanny4Canton2$membership[,3],fanny4M$membership[,3])
cor(fanny4Canton2$membership[,4],fanny4M$membership[,4])

fanny4SQ <- fanny(DistanceCanton2, k=4, diss=TRUE,  maxit = 500, metric =
"SqEuclidean")

cor(fanny4Canton2$membership[,1],fanny4SQ$membership[,1])
cor(fanny4Canton2$membership[,2],fanny4SQ$membership[,2])
cor(fanny4Canton2$membership[,3],fanny4SQ$membership[,3])
cor(fanny4Canton2$membership[,4],fanny4SQ$membership[,4])

##### sensitivity al tipo di algoritmo usato ####
```

```
## uso cmeans 1 ##

set.seed(123)

library(e1071)
cm <- cmeans(appoggioCantoni2, 4)

names(cm)
cm$membership[,1]
cm$membership[,2]
cm$membership[,3]
cm$membership[,4]

## correlazioni tra misure ##

plot(cm$membership[,1],PerClustersCantoni$fannyCanton4.3bis)
plot(cm$membership[,2],PerClustersCantoni$fannyCanton4.2bis)
plot(cm$membership[,3],PerClustersCantoni$fannyCanton4.1bis)
plot(cm$membership[,4],PerClustersCantoni$fannyCanton4.4bis)

cor(cm$membership[,1],PerClustersCantoni$fannyCanton4.3bis)
cor(cm$membership[,2],PerClustersCantoni$fannyCanton4.2bis)
cor(cm$membership[,3],PerClustersCantoni$fannyCanton4.1bis)
cor(cm$membership[,4],PerClustersCantoni$fannyCanton4.4bis)


## zugo ##
```

```
PerClustersCantoni$fannyCanton4.1bis[25]
PerClustersCantoni$fannyCanton4.2bis[25]
PerClustersCantoni$fannyCanton4.3bis[25]
PerClustersCantoni$fannyCanton4.4bis[25]

cm$membership[25,1]
cm$membership[25,2]
cm$membership[25,3]
cm$membership[25,4] #problem, non davvero perché si avvicina a gruppo di zurigo



##### sensitivity al numero di variabili #### ABBANDONATO

perTest <- appoggioCantoni2[,1:12]
perTest3 <- as.data.frame(matrix(nrow=nrow(perTest), ncol=12*4,NA))

## levo una variabile ##
i <- 1
for(i in 1:12){
perTest2 <- perTest[,-i]

DistanceCantonX <- dist(perTest2, method = "euclidean")

fanny4CantonX <- fanny(DistanceCantonX, k=4, diss=TRUE,  maxit = 500)

perTest3[,1+((i-1)*4)] <- fanny4CantonX$membership[,1]
```

```
perTest3[,2+((i-1)*4)] <- fanny4CantonX$membership[,2]
perTest3[,3+((i-1)*4)] <- fanny4CantonX$membership[,3]
perTest3[,4+((i-1)*4)] <- fanny4CantonX$membership[,4]

}

# correlazioni # solo quando togli la prima variabile è problematico
perTest4 <- as.data.frame(matrix(nrow=12*4, ncol=2, NA))

for(i in 1:(12*4)){
  a <- (i/4 - trunc(i/4))/0.25
  b <-
as.data.frame(matrix(ncol=1,nrow=length(PerClustersCantoni$fannyCanton4.1bis),NA))

  for(j in 1:length(b[,1])){
    b[j,1] <- ifelse(a==1,PerClustersCantoni$fannyCanton4.1bis[j],
            ifelse(a==2,PerClustersCantoni$fannyCanton4.2bis[j],
                ifelse(a==3,PerClustersCantoni$fannyCanton4.3bis[j],
                    ifelse(a==0,PerClustersCantoni$fannyCanton4.4bis[j],
                        "error"))))
  }
  perTest4[i,1] <-  cor(perTest3[,i],b)
  perTest4[i,2] <-  a
}

perTest4
```

8- Flows with other typologies

```
# psmIIItot$AG e similari --> dopo il trasferimento

#ricodifica secondo NUTS e scarto i missing
# Lake Geneva region = 1
# Espace Mittelland = 2
# Northwestern Switzerland = 3
# Zurich = 4
# Eastern Switzerland = 5
# Central Switzerland = 6
# Ticino = 7

library(car)

psmIIItot$AG2NUTS <- recode (psmIIItot$AG,
                    "'%'=NA;
                    '*'=NA;
                    'AG Argovia'=3;
                    'BE Berne'=2;
                    'BL Basle-Country'=3;
                    'NE Neuchatel'=2;
                    'SG St. Gall'=5;
                    'SH Schaffhaussen'=5;
                    'TI Ticino'=7;
```

```
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$BE2NUTS <- recode (psmIIItot$BE,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
```

'BL Basle-Country'=3;

'NE Neuchatel'=2;

'SG St. Gall'=5;

'SH Schaffhaussen'=5;

'TI Ticino'=7;

'VD Vaud'=1;

'AI Appenzell Inner-Rhodes'=5;

'AR Appenzell Outer-Rhodes'=5;

'FR Fribourg'=2;

'GL Glarus'=5;

'GR Grisons'=5;

'JU Jura'=2;

'LU Lucerne'=6;

'NW Nidwalden'=6;

'OW Obwalden'=6;

'SO Solothurn'=2;

'SZ Schwyz'=6;

'TG Thurgovia'=5;

'UR Uri'=6;

'VS Valais'=1;

'BS Basle-Town'=3;

'GE Geneva'=1;

'ZG Zug'=6;

'ZH Zurich'=4;

'abroad'=0"

)

```
psmIIItot$BL2NUTS <- recode (psmIIItot$BL,
                    "'%'=NA;
                    '*'=NA;
                    'AG Argovia'=3;
                    'BE Berne'=2;
                    'BL Basle-Country'=3;
                    'NE Neuchatel'=2;
                    'SG St. Gall'=5;
                    'SH Schaffhaussen'=5;
                    'TI Ticino'=7;
                    'VD Vaud'=1;
                    'AI Appenzell Inner-Rhodes'=5;
                    'AR Appenzell Outer-Rhodes'=5;
                    'FR Fribourg'=2;
                    'GL Glarus'=5;
                    'GR Grisons'=5;
                    'JU Jura'=2;
                    'LU Lucerne'=6;
                    'NW Nidwalden'=6;
                    'OW Obwalden'=6;
                    'SO Solothurn'=2;
                    'SZ Schwyz'=6;
                    'TG Thurgovia'=5;
                    'UR Uri'=6;
                    'VS Valais'=1;
                    'BS Basle-Town'=3;
                    'GE Geneva'=1;
```

```
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$NE2NUTS <- recode (psmIIItot$NE,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
```

```
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$SG2NUTS <- recode (psmIIItot$SG,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
```

```
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$SH2NUTS <- recode (psmIIItot$SH,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
```

```
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$TI2NUTS <- recode (psmIIItot$TI,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
```

```
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$VD2NUTS <- recode (psmIIItot$VD,
                "'%'=NA;
```

'*'=NA;

'AG Argovia'=3;

'BE Berne'=2;

'BL Basle-Country'=3;

'NE Neuchatel'=2;

'SG St. Gall'=5;

'SH Schaffhaussen'=5;

'TI Ticino'=7;

'VD Vaud'=1;

'AI Appenzell Inner-Rhodes'=5;

'AR Appenzell Outer-Rhodes'=5;

'FR Fribourg'=2;

'GL Glarus'=5;

'GR Grisons'=5;

'JU Jura'=2;

'LU Lucerne'=6;

'NW Nidwalden'=6;

'OW Obwalden'=6;

'SO Solothurn'=2;

'SZ Schwyz'=6;

'TG Thurgovia'=5;

'UR Uri'=6;

'VS Valais'=1;

'BS Basle-Town'=3;

'GE Geneva'=1;

'ZG Zug'=6;

'ZH Zurich'=4;

```
                'abroad'=0"
)

psmIIItot$AI2NUTS <- recode (psmIIItot$AI,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
```

```
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$AR2NUTS <- recode (psmIIItot$AR,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
```

```
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$FR2NUTS <- recode (psmIIItot$FR,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
```

```
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)


psmIIItot$GL2NUTS <- recode (psmIIItot$GL,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
```

```
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$GR2NUTS <- recode (psmIIItot$GR,
                "'%'=NA;
                '*'=NA;
```

'AG Argovia'=3;

'BE Berne'=2;

'BL Basle-Country'=3;

'NE Neuchatel'=2;

'SG St. Gall'=5;

'SH Schaffhaussen'=5;

'TI Ticino'=7;

'VD Vaud'=1;

'AI Appenzell Inner-Rhodes'=5;

'AR Appenzell Outer-Rhodes'=5;

'FR Fribourg'=2;

'GL Glarus'=5;

'GR Grisons'=5;

'JU Jura'=2;

'LU Lucerne'=6;

'NW Nidwalden'=6;

'OW Obwalden'=6;

'SO Solothurn'=2;

'SZ Schwyz'=6;

'TG Thurgovia'=5;

'UR Uri'=6;

'VS Valais'=1;

'BS Basle-Town'=3;

'GE Geneva'=1;

'ZG Zug'=6;

'ZH Zurich'=4;

'abroad'=0"

```
)

psmIIItot$JU2NUTS <- recode (psmIIItot$JU,
                    "'%'=NA;
                    '*'=NA;
                    'AG Argovia'=3;
                    'BE Berne'=2;
                    'BL Basle-Country'=3;
                    'NE Neuchatel'=2;
                    'SG St. Gall'=5;
                    'SH Schaffhaussen'=5;
                    'TI Ticino'=7;
                    'VD Vaud'=1;
                    'AI Appenzell Inner-Rhodes'=5;
                    'AR Appenzell Outer-Rhodes'=5;
                    'FR Fribourg'=2;
                    'GL Glarus'=5;
                    'GR Grisons'=5;
                    'JU Jura'=2;
                    'LU Lucerne'=6;
                    'NW Nidwalden'=6;
                    'OW Obwalden'=6;
                    'SO Solothurn'=2;
                    'SZ Schwyz'=6;
                    'TG Thurgovia'=5;
                    'UR Uri'=6;
                    'VS Valais'=1;
```

```
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$LU2NUTS <- recode (psmIIItot$LU,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
```

```
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$NW2NUTS <- recode (psmIIItot$NW,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
```

```
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$OW2NUTS <- recode (psmIIItot$OW,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
```

```
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$SO2NUTS <- recode (psmIIItot$SO,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
```

'BL Basle-Country'=3;

'NE Neuchatel'=2;

'SG St. Gall'=5;

'SH Schaffhaussen'=5;

'TI Ticino'=7;

'VD Vaud'=1;

'AI Appenzell Inner-Rhodes'=5;

'AR Appenzell Outer-Rhodes'=5;

'FR Fribourg'=2;

'GL Glarus'=5;

'GR Grisons'=5;

'JU Jura'=2;

'LU Lucerne'=6;

'NW Nidwalden'=6;

'OW Obwalden'=6;

'SO Solothurn'=2;

'SZ Schwyz'=6;

'TG Thurgovia'=5;

'UR Uri'=6;

'VS Valais'=1;

'BS Basle-Town'=3;

'GE Geneva'=1;

'ZG Zug'=6;

'ZH Zurich'=4;

'abroad'=0"

)

```
psmIIItot$SZ2NUTS <- recode (psmIIItot$SZ,
                    "'%'=NA;
                    '*'=NA;
                    'AG Argovia'=3;
                    'BE Berne'=2;
                    'BL Basle-Country'=3;
                    'NE Neuchatel'=2;
                    'SG St. Gall'=5;
                    'SH Schaffhaussen'=5;
                    'TI Ticino'=7;
                    'VD Vaud'=1;
                    'AI Appenzell Inner-Rhodes'=5;
                    'AR Appenzell Outer-Rhodes'=5;
                    'FR Fribourg'=2;
                    'GL Glarus'=5;
                    'GR Grisons'=5;
                    'JU Jura'=2;
                    'LU Lucerne'=6;
                    'NW Nidwalden'=6;
                    'OW Obwalden'=6;
                    'SO Solothurn'=2;
                    'SZ Schwyz'=6;
                    'TG Thurgovia'=5;
                    'UR Uri'=6;
                    'VS Valais'=1;
                    'BS Basle-Town'=3;
                    'GE Geneva'=1;
```

```
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$TG2NUTS <- recode (psmIIItot$TG,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
```

```
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$UR2NUTS <- recode (psmIIItot$UR,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
```

```
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$VS2NUTS <- recode (psmIIItot$VS,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
```

```
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$BS2NUTS <- recode (psmIIItot$BS,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
```

```
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$GE2NUTS <- recode (psmIIItot$GE,
                "'%'=NA;
```

'*'=NA;

'AG Argovia'=3;

'BE Berne'=2;

'BL Basle-Country'=3;

'NE Neuchatel'=2;

'SG St. Gall'=5;

'SH Schaffhaussen'=5;

'TI Ticino'=7;

'VD Vaud'=1;

'AI Appenzell Inner-Rhodes'=5;

'AR Appenzell Outer-Rhodes'=5;

'FR Fribourg'=2;

'GL Glarus'=5;

'GR Grisons'=5;

'JU Jura'=2;

'LU Lucerne'=6;

'NW Nidwalden'=6;

'OW Obwalden'=6;

'SO Solothurn'=2;

'SZ Schwyz'=6;

'TG Thurgovia'=5;

'UR Uri'=6;

'VS Valais'=1;

'BS Basle-Town'=3;

'GE Geneva'=1;

'ZG Zug'=6;

'ZH Zurich'=4;

```
                'abroad'=0"
)

psmIIItot$ZG2NUTS <- recode (psmIIItot$ZG,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
```

```
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$ZH2NUTS <- recode (psmIIItot$ZH,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
```

```
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)

psmIIItot$AB2NUTS <- recode (psmIIItot$AB,
                "'%'=NA;
                '*'=NA;
                'AG Argovia'=3;
                'BE Berne'=2;
                'BL Basle-Country'=3;
                'NE Neuchatel'=2;
                'SG St. Gall'=5;
                'SH Schaffhaussen'=5;
                'TI Ticino'=7;
                'VD Vaud'=1;
                'AI Appenzell Inner-Rhodes'=5;
                'AR Appenzell Outer-Rhodes'=5;
                'FR Fribourg'=2;
```

```
                'GL Glarus'=5;
                'GR Grisons'=5;
                'JU Jura'=2;
                'LU Lucerne'=6;
                'NW Nidwalden'=6;
                'OW Obwalden'=6;
                'SO Solothurn'=2;
                'SZ Schwyz'=6;
                'TG Thurgovia'=5;
                'UR Uri'=6;
                'VS Valais'=1;
                'BS Basle-Town'=3;
                'GE Geneva'=1;
                'ZG Zug'=6;
                'ZH Zurich'=4;
                'abroad'=0"
)


#binari (poi pesi non servono) # da correggere, ci sono 7 gruppi

#1
psmIIItot$VDunoTOunoNUTS <- ifelse(psmIIItot$VD2NUTS==1,1,NA)
psmIIItot$VDdueTOunoNUTS <- ifelse(psmIIItot$VD2NUTS==2,1,NA)
psmIIItot$VDtreTOunoNUTS <- ifelse(psmIIItot$VD2NUTS==3,1,NA)
psmIIItot$VDquattroTOunoNUTS <- ifelse(psmIIItot$VD2NUTS==4,1,NA)
psmIIItot$VDcinqueTOunoNUTS <- ifelse(psmIIItot$VD2NUTS==5,1,NA)
```

```
psmIIItot$VDseiTOunoNUTS <- ifelse(psmIIItot$VD2NUTS==6,1,NA)
psmIIItot$VDsetteTOunoNUTS <- ifelse(psmIIItot$VD2NUTS==7,1,NA)
psmIIItot$VDzeroTOunoNUTS <- ifelse(psmIIItot$VD2NUTS==0,1,NA)

psmIIItot$VSunoTOunoNUTS <- ifelse(psmIIItot$VS2NUTS==1,1,NA)
psmIIItot$VSdueTOunoNUTS <- ifelse(psmIIItot$VS2NUTS==2,1,NA)
psmIIItot$VStreTOunoNUTS <- ifelse(psmIIItot$VS2NUTS==3,1,NA)
psmIIItot$VSquattroTOunoNUTS <- ifelse(psmIIItot$VS2NUTS==4,1,NA)
psmIIItot$VScinqueTOunoNUTS <- ifelse(psmIIItot$VS2NUTS==5,1,NA)
psmIIItot$VSseiTOunoNUTS <- ifelse(psmIIItot$VS2NUTS==6,1,NA)
psmIIItot$VSsetteTOunoNUTS <- ifelse(psmIIItot$VS2NUTS==7,1,NA)
psmIIItot$VSzeroTOunoNUTS <- ifelse(psmIIItot$VS2NUTS==0,1,NA)

psmIIItot$GEunoTOunoNUTS <- ifelse(psmIIItot$GE2NUTS==1,1,NA)
psmIIItot$GEdueTOunoNUTS <- ifelse(psmIIItot$GE2NUTS==2,1,NA)
psmIIItot$GEtreTOunoNUTS <- ifelse(psmIIItot$GE2NUTS==3,1,NA)
psmIIItot$GEquattroTOunoNUTS <- ifelse(psmIIItot$GE2NUTS==4,1,NA)
psmIIItot$GEcinqueTOunoNUTS <- ifelse(psmIIItot$GE2NUTS==5,1,NA)
psmIIItot$GEseiTOunoNUTS <- ifelse(psmIIItot$GE2NUTS==6,1,NA)
psmIIItot$GEsetteTOunoNUTS <- ifelse(psmIIItot$GE2NUTS==7,1,NA)
psmIIItot$GEzeroTOunoNUTS <- ifelse(psmIIItot$GE2NUTS==0,1,NA)

#2
psmIIItot$NEunoTOdueNUTS <- ifelse(psmIIItot$NE2NUTS==1,1,NA)
psmIIItot$NEdueTOdueNUTS <- ifelse(psmIIItot$NE2NUTS==2,1,NA)
psmIIItot$NEtreTOdueNUTS <- ifelse(psmIIItot$NE2NUTS==3,1,NA)
psmIIItot$NEquattroTOdueNUTS <- ifelse(psmIIItot$NE2NUTS==4,1,NA)
```

```
psmIIItot$NEcinqueTOdueNUTS <- ifelse(psmIIItot$NE2NUTS==5,1,NA)
psmIIItot$NEseiTOdueNUTS <- ifelse(psmIIItot$NE2NUTS==6,1,NA)
psmIIItot$NEsetteTOdueNUTS <- ifelse(psmIIItot$NE2NUTS==7,1,NA)
psmIIItot$NEzeroTOdueNUTS <- ifelse(psmIIItot$NE2NUTS==0,1,NA)

psmIIItot$BEunoTOdueNUTS <- ifelse(psmIIItot$BE2NUTS==1,1,NA)
psmIIItot$BEdueTOdueNUTS <- ifelse(psmIIItot$BE2NUTS==2,1,NA)
psmIIItot$BEtreTOdueNUTS <- ifelse(psmIIItot$BE2NUTS==3,1,NA)
psmIIItot$BEquattroTOdueNUTS <- ifelse(psmIIItot$BE2NUTS==4,1,NA)
psmIIItot$BEcinqueTOdueNUTS <- ifelse(psmIIItot$BE2NUTS==5,1,NA)
psmIIItot$BEseiTOdueNUTS <- ifelse(psmIIItot$BE2NUTS==6,1,NA)
psmIIItot$BEsetteTOdueNUTS <- ifelse(psmIIItot$BE2NUTS==7,1,NA)
psmIIItot$BEzeroTOdueNUTS <- ifelse(psmIIItot$BE2NUTS==0,1,NA)

psmIIItot$FRunoTOdueNUTS <- ifelse(psmIIItot$FR2NUTS==1,1,NA)
psmIIItot$FRdueTOdueNUTS <- ifelse(psmIIItot$FR2NUTS==2,1,NA)
psmIIItot$FRtreTOdueNUTS <- ifelse(psmIIItot$FR2NUTS==3,1,NA)
psmIIItot$FRquattroTOdueNUTS <- ifelse(psmIIItot$FR2NUTS==4,1,NA)
psmIIItot$FRcinqueTOdueNUTS <- ifelse(psmIIItot$FR2NUTS==5,1,NA)
psmIIItot$FRseiTOdueNUTS <- ifelse(psmIIItot$FR2NUTS==6,1,NA)
psmIIItot$FRsetteTOdueNUTS <- ifelse(psmIIItot$FR2NUTS==7,1,NA)
psmIIItot$FRzeroTOdueNUTS <- ifelse(psmIIItot$FR2NUTS==0,1,NA)

psmIIItot$JUunoTOdueNUTS <- ifelse(psmIIItot$JU2NUTS==1,1,NA)
psmIIItot$JUdueTOdueNUTS <- ifelse(psmIIItot$JU2NUTS==2,1,NA)
psmIIItot$JUtreTOdueNUTS <- ifelse(psmIIItot$JU2NUTS==3,1,NA)
psmIIItot$JUquattroTOdueNUTS <- ifelse(psmIIItot$JU2NUTS==4,1,NA)
```

```
psmIIItot$JUcinqueTOdueNUTS <- ifelse(psmIIItot$JU2NUTS==5,1,NA)
psmIIItot$JUseiTOdueNUTS <- ifelse(psmIIItot$JU2NUTS==6,1,NA)
psmIIItot$JUsetteTOdueNUTS <- ifelse(psmIIItot$JU2NUTS==7,1,NA)
psmIIItot$JUzeroTOdueNUTS <- ifelse(psmIIItot$JU2NUTS==0,1,NA)

#3

psmIIItot$AGunoTOtreNUTS <- ifelse(psmIIItot$AG2NUTS==1,1,NA)
psmIIItot$AGdueTOtreNUTS <- ifelse(psmIIItot$AG2NUTS==2,1,NA)
psmIIItot$AGtreTOtreNUTS <- ifelse(psmIIItot$AG2NUTS==3,1,NA)
psmIIItot$AGquattroTOtreNUTS <- ifelse(psmIIItot$AG2NUTS==4,1,NA)
psmIIItot$AGcinqueTOtreNUTS <- ifelse(psmIIItot$AG2NUTS==5,1,NA)
psmIIItot$AGseiTOtreNUTS <- ifelse(psmIIItot$AG2NUTS==6,1,NA)
psmIIItot$AGsetteTOtreNUTS <- ifelse(psmIIItot$AG2NUTS==7,1,NA)
psmIIItot$AGzeroTOtreNUTS <- ifelse(psmIIItot$AG2NUTS==0,1,NA)

psmIIItot$BLunoTOtreNUTS <- ifelse(psmIIItot$BL2NUTS==1,1,NA)
psmIIItot$BLdueTOtreNUTS <- ifelse(psmIIItot$BL2NUTS==2,1,NA)
psmIIItot$BLtreTOtreNUTS <- ifelse(psmIIItot$BL2NUTS==3,1,NA)
psmIIItot$BLquattroTOtreNUTS <- ifelse(psmIIItot$BL2NUTS==4,1,NA)
psmIIItot$BLcinqueTOtreNUTS <- ifelse(psmIIItot$BL2NUTS==5,1,NA)
psmIIItot$BLseiTOtreNUTS <- ifelse(psmIIItot$BL2NUTS==6,1,NA)
psmIIItot$BLsetteTOtreNUTS <- ifelse(psmIIItot$BL2NUTS==7,1,NA)
psmIIItot$BLzeroTOtreNUTS <- ifelse(psmIIItot$BL2NUTS==0,1,NA)

psmIIItot$BSunoTOtreNUTS <- ifelse(psmIIItot$BS2NUTS==1,1,NA)
psmIIItot$BSdueTOtreNUTS <- ifelse(psmIIItot$BS2NUTS==2,1,NA)
```

```
psmIIItot$BStreTOtreNUTS <- ifelse(psmIIItot$BS2NUTS==3,1,NA)
psmIIItot$BSquattroTOtreNUTS <- ifelse(psmIIItot$BS2NUTS==4,1,NA)
psmIIItot$BScinqueTOtreNUTS <- ifelse(psmIIItot$BS2NUTS==5,1,NA)
psmIIItot$BSseiTOtreNUTS <- ifelse(psmIIItot$BS2NUTS==6,1,NA)
psmIIItot$BSsetteTOtreNUTS <- ifelse(psmIIItot$BS2NUTS==7,1,NA)
psmIIItot$BSzeroTOtreNUTS <- ifelse(psmIIItot$BS2NUTS==0,1,NA)

#4

psmIIItot$ZHunoTOquattroNUTS <- ifelse(psmIIItot$ZH2NUTS==1,1,NA)
psmIIItot$ZHdueTOquattroNUTS <- ifelse(psmIIItot$ZH2NUTS==2,1,NA)
psmIIItot$ZHtreTOquattroNUTS <- ifelse(psmIIItot$ZH2NUTS==3,1,NA)
psmIIItot$ZHquattroTOquattroNUTS <- ifelse(psmIIItot$ZH2NUTS==4,1,NA)
psmIIItot$ZHcinqueTOquattroNUTS <- ifelse(psmIIItot$ZH2NUTS==5,1,NA)
psmIIItot$ZHseiTOquattroNUTS <- ifelse(psmIIItot$ZH2NUTS==6,1,NA)
psmIIItot$ZHsetteTOquattroNUTS <- ifelse(psmIIItot$ZH2NUTS==7,1,NA)
psmIIItot$ZHzeroTOquattroNUTS <- ifelse(psmIIItot$ZH2NUTS==0,1,NA)

#5

psmIIItot$SGunoTOcinqueNUTS <- ifelse(psmIIItot$SG2NUTS==1,1,NA)
psmIIItot$SGdueTOcinqueNUTS <- ifelse(psmIIItot$SG2NUTS==2,1,NA)
psmIIItot$SGtreTOcinqueNUTS <- ifelse(psmIIItot$SG2NUTS==3,1,NA)
psmIIItot$SGquattroTOcinqueNUTS <- ifelse(psmIIItot$SG2NUTS==4,1,NA)
psmIIItot$SGcinqueTOcinqueNUTS <- ifelse(psmIIItot$SG2NUTS==5,1,NA)
psmIIItot$SGseiTOcinqueNUTS <- ifelse(psmIIItot$SG2NUTS==6,1,NA)
psmIIItot$SGsetteTOcinqueNUTS <- ifelse(psmIIItot$SG2NUTS==7,1,NA)
```

```
psmIIItot$SGzeroTOcinqueNUTS <- ifelse(psmIIItot$SG2NUTS==0,1,NA)

psmIIItot$SHunoTOcinqueNUTS <- ifelse(psmIIItot$SH2NUTS==1,1,NA)
psmIIItot$SHdueTOcinqueNUTS <- ifelse(psmIIItot$SH2NUTS==2,1,NA)
psmIIItot$SHtreTOcinqueNUTS <- ifelse(psmIIItot$SH2NUTS==3,1,NA)
psmIIItot$SHquattroTOcinqueNUTS <- ifelse(psmIIItot$SH2NUTS==4,1,NA)
psmIIItot$SHcinqueTOcinqueNUTS <- ifelse(psmIIItot$SH2NUTS==5,1,NA)
psmIIItot$SHseiTOcinqueNUTS <- ifelse(psmIIItot$SH2NUTS==6,1,NA)
psmIIItot$SHsetteTOcinqueNUTS <- ifelse(psmIIItot$SH2NUTS==7,1,NA)
psmIIItot$SHzeroTOcinqueNUTS <- ifelse(psmIIItot$SH2NUTS==0,1,NA)

psmIIItot$GLunoTOcinqueNUTS <- ifelse(psmIIItot$GL2NUTS==1,1,NA)
psmIIItot$GLdueTOcinqueNUTS <- ifelse(psmIIItot$GL2NUTS==2,1,NA)
psmIIItot$GLtreTOcinqueNUTS <- ifelse(psmIIItot$GL2NUTS==3,1,NA)
psmIIItot$GLquattroTOcinqueNUTS <- ifelse(psmIIItot$GL2NUTS==4,1,NA)
psmIIItot$GLcinqueTOcinqueNUTS <- ifelse(psmIIItot$GL2NUTS==5,1,NA)
psmIIItot$GLseiTOcinqueNUTS <- ifelse(psmIIItot$GL2NUTS==6,1,NA)
psmIIItot$GLsetteTOcinqueNUTS <- ifelse(psmIIItot$GL2NUTS==7,1,NA)
psmIIItot$GLzeroTOcinqueNUTS <- ifelse(psmIIItot$GL2NUTS==0,1,NA)

psmIIItot$GRunoTOcinqueNUTS <- ifelse(psmIIItot$GR2NUTS==1,1,NA)
psmIIItot$GRdueTOcinqueNUTS <- ifelse(psmIIItot$GR2NUTS==2,1,NA)
psmIIItot$GRtreTOcinqueNUTS <- ifelse(psmIIItot$GR2NUTS==3,1,NA)
psmIIItot$GRquattroTOcinqueNUTS <- ifelse(psmIIItot$GR2NUTS==4,1,NA)
psmIIItot$GRcinqueTOcinqueNUTS <- ifelse(psmIIItot$GR2NUTS==5,1,NA)
psmIIItot$GRseiTOcinqueNUTS <- ifelse(psmIIItot$GR2NUTS==6,1,NA)
psmIIItot$GRsetteTOcinqueNUTS <- ifelse(psmIIItot$GR2NUTS==7,1,NA)
```

```
psmIIItot$GRzeroTOcinqueNUTS <- ifelse(psmIIItot$GR2NUTS==0,1,NA)

psmIIItot$AIunoTOcinqueNUTS <- ifelse(psmIIItot$AI2NUTS==1,1,NA)
psmIIItot$AIdueTOcinqueNUTS <- ifelse(psmIIItot$AI2NUTS==2,1,NA)
psmIIItot$AItreTOcinqueNUTS <- ifelse(psmIIItot$AI2NUTS==3,1,NA)
psmIIItot$AIquattroTOcinqueNUTS <- ifelse(psmIIItot$AI2NUTS==4,1,NA)
psmIIItot$AIcinqueTOcinqueNUTS <- ifelse(psmIIItot$AI2NUTS==5,1,NA)
psmIIItot$AIseiTOcinqueNUTS <- ifelse(psmIIItot$AI2NUTS==6,1,NA)
psmIIItot$AIsetteTOcinqueNUTS <- ifelse(psmIIItot$AI2NUTS==7,1,NA)
psmIIItot$AIzeroTOcinqueNUTS <- ifelse(psmIIItot$AI2NUTS==0,1,NA)

psmIIItot$ARunoTOcinqueNUTS <- ifelse(psmIIItot$AR2NUTS==1,1,NA)
psmIIItot$ARdueTOcinqueNUTS <- ifelse(psmIIItot$AR2NUTS==2,1,NA)
psmIIItot$ARtreTOcinqueNUTS <- ifelse(psmIIItot$AR2NUTS==3,1,NA)
psmIIItot$ARquattroTOcinqueNUTS <- ifelse(psmIIItot$AR2NUTS==4,1,NA)
psmIIItot$ARcinqueTOcinqueNUTS <- ifelse(psmIIItot$AR2NUTS==5,1,NA)
psmIIItot$ARseiTOcinqueNUTS <- ifelse(psmIIItot$AR2NUTS==6,1,NA)
psmIIItot$ARsetteTOcinqueNUTS <- ifelse(psmIIItot$AR2NUTS==7,1,NA)
psmIIItot$ARzeroTOcinqueNUTS <- ifelse(psmIIItot$AR2NUTS==0,1,NA)

psmIIItot$TGunoTOcinqueNUTS <- ifelse(psmIIItot$TG2NUTS==1,1,NA)
psmIIItot$TGdueTOcinqueNUTS <- ifelse(psmIIItot$TG2NUTS==2,1,NA)
psmIIItot$TGtreTOcinqueNUTS <- ifelse(psmIIItot$TG2NUTS==3,1,NA)
psmIIItot$TGquattroTOcinqueNUTS <- ifelse(psmIIItot$TG2NUTS==4,1,NA)
psmIIItot$TGcinqueTOcinqueNUTS <- ifelse(psmIIItot$TG2NUTS==5,1,NA)
psmIIItot$TGseiTOcinqueNUTS <- ifelse(psmIIItot$TG2NUTS==6,1,NA)
psmIIItot$TGsetteTOcinqueNUTS <- ifelse(psmIIItot$TG2NUTS==7,1,NA)
```

```
psmIIItot$TGzeroTOcinqueNUTS <- ifelse(psmIIItot$TG2NUTS==0,1,NA)

#6

psmIIItot$LUunoTOseiNUTS <- ifelse(psmIIItot$LU2NUTS==1,1,NA)
psmIIItot$LUdueTOseiNUTS <- ifelse(psmIIItot$LU2NUTS==2,1,NA)
psmIIItot$LUtreTOseiNUTS <- ifelse(psmIIItot$LU2NUTS==3,1,NA)
psmIIItot$LUquattroTOseiNUTS <- ifelse(psmIIItot$LU2NUTS==4,1,NA)
psmIIItot$LUcinqueTOseiNUTS <- ifelse(psmIIItot$LU2NUTS==5,1,NA)
psmIIItot$LUseiTOseiNUTS <- ifelse(psmIIItot$LU2NUTS==6,1,NA)
psmIIItot$LUsetteTOseiNUTS <- ifelse(psmIIItot$LU2NUTS==7,1,NA)
psmIIItot$LUzeroTOseiNUTS <- ifelse(psmIIItot$LU2NUTS==0,1,NA)

psmIIItot$NWunoTOseiNUTS <- ifelse(psmIIItot$NW2NUTS==1,1,NA)
psmIIItot$NWdueTOseiNUTS <- ifelse(psmIIItot$NW2NUTS==2,1,NA)
psmIIItot$NWtreTOseiNUTS <- ifelse(psmIIItot$NW2NUTS==3,1,NA)
psmIIItot$NWquattroTOseiNUTS <- ifelse(psmIIItot$NW2NUTS==4,1,NA)
psmIIItot$NWcinqueTOseiNUTS <- ifelse(psmIIItot$NW2NUTS==5,1,NA)
psmIIItot$NWseiTOseiNUTS <- ifelse(psmIIItot$NW2NUTS==6,1,NA)
psmIIItot$NWsetteTOseiNUTS <- ifelse(psmIIItot$NW2NUTS==7,1,NA)
psmIIItot$NWzeroTOseiNUTS <- ifelse(psmIIItot$NW2NUTS==0,1,NA)

psmIIItot$OWunoTOseiNUTS <- ifelse(psmIIItot$OW2NUTS==1,1,NA)
psmIIItot$OWdueTOseiNUTS <- ifelse(psmIIItot$OW2NUTS==2,1,NA)
psmIIItot$OWtreTOseiNUTS <- ifelse(psmIIItot$OW2NUTS==3,1,NA)
psmIIItot$OWquattroTOseiNUTS <- ifelse(psmIIItot$OW2NUTS==4,1,NA)
psmIIItot$OWcinqueTOseiNUTS <- ifelse(psmIIItot$OW2NUTS==5,1,NA)
```

```
psmIIItot$OWseiTOseiNUTS <- ifelse(psmIIItot$OW2NUTS==6,1,NA)
psmIIItot$OWsetteTOseiNUTS <- ifelse(psmIIItot$OW2NUTS==7,1,NA)
psmIIItot$OWzeroTOseiNUTS <- ifelse(psmIIItot$OW2NUTS==0,1,NA)

psmIIItot$SOunoTOseiNUTS <- ifelse(psmIIItot$SO2NUTS==1,1,NA)
psmIIItot$SOdueTOseiNUTS <- ifelse(psmIIItot$SO2NUTS==2,1,NA)
psmIIItot$SOtreTOseiNUTS <- ifelse(psmIIItot$SO2NUTS==3,1,NA)
psmIIItot$SOquattroTOseiNUTS <- ifelse(psmIIItot$SO2NUTS==4,1,NA)
psmIIItot$SOcinqueTOseiNUTS <- ifelse(psmIIItot$SO2NUTS==5,1,NA)
psmIIItot$SOseiTOseiNUTS <- ifelse(psmIIItot$SO2NUTS==6,1,NA)
psmIIItot$SOsetteTOseiNUTS <- ifelse(psmIIItot$SO2NUTS==7,1,NA)
psmIIItot$SOzeroTOseiNUTS <- ifelse(psmIIItot$SO2NUTS==0,1,NA)

psmIIItot$SZunoTOseiNUTS <- ifelse(psmIIItot$SZ2NUTS==1,1,NA)
psmIIItot$SZdueTOseiNUTS <- ifelse(psmIIItot$SZ2NUTS==2,1,NA)
psmIIItot$SZtreTOseiNUTS <- ifelse(psmIIItot$SZ2NUTS==3,1,NA)
psmIIItot$SZquattroTOseiNUTS <- ifelse(psmIIItot$SZ2NUTS==4,1,NA)
psmIIItot$SZcinqueTOseiNUTS <- ifelse(psmIIItot$SZ2NUTS==5,1,NA)
psmIIItot$SZseiTOseiNUTS <- ifelse(psmIIItot$SZ2NUTS==6,1,NA)
psmIIItot$SZsetteTOseiNUTS <- ifelse(psmIIItot$SZ2NUTS==7,1,NA)
psmIIItot$SZzeroTOseiNUTS <- ifelse(psmIIItot$SZ2NUTS==0,1,NA)

psmIIItot$URunoTOseiNUTS <- ifelse(psmIIItot$UR2NUTS==1,1,NA)
psmIIItot$URdueTOseiNUTS <- ifelse(psmIIItot$UR2NUTS==2,1,NA)
psmIIItot$URtreTOseiNUTS <- ifelse(psmIIItot$UR2NUTS==3,1,NA)
psmIIItot$URquattroTOseiNUTS <- ifelse(psmIIItot$UR2NUTS==4,1,NA)
psmIIItot$URcinqueTOseiNUTS <- ifelse(psmIIItot$UR2NUTS==5,1,NA)
```

```
psmIIItot$URseiTOseiNUTS <- ifelse(psmIIItot$UR2NUTS==6,1,NA)
psmIIItot$URsetteTOseiNUTS <- ifelse(psmIIItot$UR2NUTS==7,1,NA)
psmIIItot$URzeroTOseiNUTS <- ifelse(psmIIItot$UR2NUTS==0,1,NA)

psmIIItot$ZGunoTOseiNUTS <- ifelse(psmIIItot$ZG2NUTS==1,1,NA)
psmIIItot$ZGdueTOseiNUTS <- ifelse(psmIIItot$ZG2NUTS==2,1,NA)
psmIIItot$ZGtreTOseiNUTS <- ifelse(psmIIItot$ZG2NUTS==3,1,NA)
psmIIItot$ZGquattroTOseiNUTS <- ifelse(psmIIItot$ZG2NUTS==4,1,NA)
psmIIItot$ZGcinqueTOseiNUTS <- ifelse(psmIIItot$ZG2NUTS==5,1,NA)
psmIIItot$ZGseiTOseiNUTS <- ifelse(psmIIItot$ZG2NUTS==6,1,NA)
psmIIItot$ZGsetteTOseiNUTS <- ifelse(psmIIItot$ZG2NUTS==7,1,NA)
psmIIItot$ZGzeroTOseiNUTS <- ifelse(psmIIItot$ZG2NUTS==0,1,NA)

#7

psmIIItot$TIunoTOsetteNUTS <- ifelse(psmIIItot$TI2NUTS==1,1,NA)
psmIIItot$TIdueTOsetteNUTS <- ifelse(psmIIItot$TI2NUTS==2,1,NA)
psmIIItot$TItreTOsetteNUTS <- ifelse(psmIIItot$TI2NUTS==3,1,NA)
psmIIItot$TIquattroTOsetteNUTS <- ifelse(psmIIItot$TI2NUTS==4,1,NA)
psmIIItot$TIcinqueTOsetteNUTS <- ifelse(psmIIItot$TI2NUTS==5,1,NA)
psmIIItot$TIseiTOsetteNUTS <- ifelse(psmIIItot$TI2NUTS==6,1,NA)
psmIIItot$TIsetteTOsetteNUTS <- ifelse(psmIIItot$TI2NUTS==7,1,NA)
psmIIItot$TIzeroTOsetteNUTS <- ifelse(psmIIItot$TI2NUTS==0,1,NA)

# 0

psmIIItot$ABunoTOzeroNUTS <- ifelse(psmIIItot$AB2NUTS==1,1,NA)
```

```
psmIIItot$ABdueTOzeroNUTS <- ifelse(psmIIItot$AB2NUTS==2,1,NA)

psmIIItot$ABtreTOzeroNUTS <- ifelse(psmIIItot$AB2NUTS==3,1,NA)

psmIIItot$ABquattroTOzeroNUTS <- ifelse(psmIIItot$AB2NUTS==4,1,NA)

psmIIItot$ABcinqueTOzeroNUTS <- ifelse(psmIIItot$AB2NUTS==5,1,NA)

psmIIItot$ABseiTOzeroNUTS <- ifelse(psmIIItot$AB2NUTS==6,1,NA)

psmIIItot$ABsetteTOzeroNUTS <- ifelse(psmIIItot$AB2NUTS==7,1,NA)

psmIIItot$ABzeroTOzeroNUTS <- ifelse(psmIIItot$AB2NUTS==0,1,NA)


####pesi standardizzato#

psmIIItot$pesoStand <-
psmIIItot$WP13T3S*(length(psmIIItot$WP13T3S)/sum(psmIIItot$WP13T3S))


####binari pesati


psmIIItot$AGunoTOtreNUTSP <- psmIIItot$AGunoTOtreNUTS*psmIIItot$pesoStand

psmIIItot$AGdueTOtreNUTSP <- psmIIItot$AGdueTOtreNUTS*psmIIItot$pesoStand

psmIIItot$AGtreTOtreNUTSP <- psmIIItot$AGtreTOtreNUTS*psmIIItot$pesoStand

psmIIItot$AGquattroTOtreNUTSP <-
psmIIItot$AGquattroTOtreNUTS*psmIIItot$pesoStand

psmIIItot$AGcinqueTOtreNUTSP <-
psmIIItot$AGcinqueTOtreNUTS*psmIIItot$pesoStand

psmIIItot$AGseiTOtreNUTSP <- psmIIItot$AGseiTOtreNUTS*psmIIItot$pesoStand

psmIIItot$AGsetteTOtreNUTSP <-
psmIIItot$AGsetteTOtreNUTS*psmIIItot$pesoStand

psmIIItot$AGzeroTOtreNUTSP <- psmIIItot$AGzeroTOtreNUTS*psmIIItot$pesoStand


psmIIItot$BEunoTOdueNUTSP <- psmIIItot$BEunoTOdueNUTS*psmIIItot$pesoStand

psmIIItot$BEdueTOdueNUTSP <- psmIIItot$BEdueTOdueNUTS*psmIIItot$pesoStand
```

```
psmIIItot$BEtreTOdueNUTSP <- psmIIItot$BEtreTOdueNUTS*psmIIItot$pesoStand

psmIIItot$BEquattroTOdueNUTSP <-
psmIIItot$BEquattroTOdueNUTS*psmIIItot$pesoStand

psmIIItot$BEcinqueTOdueNUTSP <-
psmIIItot$BEcinqueTOdueNUTS*psmIIItot$pesoStand

psmIIItot$BEseiTOdueNUTSP <- psmIIItot$BEseiTOdueNUTS*psmIIItot$pesoStand

psmIIItot$BEsetteTOdueNUTSP <-
psmIIItot$BEsetteTOdueNUTS*psmIIItot$pesoStand

psmIIItot$BEzeroTOdueNUTSP <-
psmIIItot$BEzeroTOdueNUTS*psmIIItot$pesoStand


psmIIItot$BLunoTOtreNUTSP <- psmIIItot$BLunoTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BLdueTOtreNUTSP <- psmIIItot$BLdueTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BLtreTOtreNUTSP <- psmIIItot$BLtreTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BLquattroTOtreNUTSP <-
psmIIItot$BLquattroTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BLcinqueTOtreNUTSP <-
psmIIItot$BLcinqueTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BLseiTOtreNUTSP <- psmIIItot$BLseiTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BLsetteTOtreNUTSP <- psmIIItot$BLsetteTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BLzeroTOtreNUTSP <- psmIIItot$BLzeroTOtreNUTS*psmIIItot$pesoStand


psmIIItot$NEunoTOdueNUTSP <- psmIIItot$NEunoTOdueNUTS*psmIIItot$pesoStand

psmIIItot$NEdueTOdueNUTSP <- psmIIItot$NEdueTOdueNUTS*psmIIItot$pesoStand

psmIIItot$NEtreTOdueNUTSP <- psmIIItot$NEtreTOdueNUTS*psmIIItot$pesoStand

psmIIItot$NEquattroTOdueNUTSP <-
psmIIItot$NEquattroTOdueNUTS*psmIIItot$pesoStand

psmIIItot$NEcinqueTOdueNUTSP <-
psmIIItot$NEcinqueTOdueNUTS*psmIIItot$pesoStand
```

```
psmIIItot$NEseiTOdueNUTSP <- psmIIItot$NEseiTOdueNUTS*psmIIItot$pesoStand

psmIIItot$NEsetteTOdueNUTSP <-
psmIIItot$NEsetteTOdueNUTS*psmIIItot$pesoStand

psmIIItot$NEzeroTOdueNUTSP <-
psmIIItot$NEzeroTOdueNUTS*psmIIItot$pesoStand


psmIIItot$SGunoTOcinqueNUTSP <-
psmIIItot$SGunoTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$SGdueTOcinqueNUTSP <-
psmIIItot$SGdueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$SGtreTOcinqueNUTSP <-
psmIIItot$SGtreTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$SGquattroTOcinqueNUTSP <-
psmIIItot$SGquattroTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$SGcinqueTOcinqueNUTSP <-
psmIIItot$SGcinqueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$SGseiTOcinqueNUTSP <-
psmIIItot$SGseiTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$SGsetteTOcinqueNUTSP <-
psmIIItot$SGsetteTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$SGzeroTOcinqueNUTSP <-
psmIIItot$SGzeroTOcinqueNUTS*psmIIItot$pesoStand


psmIIItot$SHunoTOcinqueNUTSP <-
psmIIItot$SHunoTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$SHdueTOcinqueNUTSP <-
psmIIItot$SHdueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$SHtreTOcinqueNUTSP <-
psmIIItot$SHtreTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$SHquattroTOcinqueNUTSP <-
psmIIItot$SHquattroTOcinqueNUTS*psmIIItot$pesoStand
```

```
psmIIItot$SHcinqueTOcinqueNUTSP <-
psmIIItot$SHcinqueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$SHseiTOcinqueNUTSP <-
psmIIItot$SHseiTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$SHsetteTOcinqueNUTSP <-
psmIIItot$SHsetteTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$SHzeroTOcinqueNUTSP <-
psmIIItot$SHzeroTOcinqueNUTS*psmIIItot$pesoStand


psmIIItot$TIunoTOsetteNUTSP <-
psmIIItot$TIunoTOsetteNUTS*psmIIItot$pesoStand

psmIIItot$TIdueTOsetteNUTSP <-
psmIIItot$TIdueTOsetteNUTS*psmIIItot$pesoStand

psmIIItot$TItreTOsetteNUTSP <- psmIIItot$TItreTOsetteNUTS*psmIIItot$pesoStand

psmIIItot$TIquattroTOsetteNUTSP <-
psmIIItot$TIquattroTOsetteNUTS*psmIIItot$pesoStand

psmIIItot$TIcinqueTOsetteNUTSP <-
psmIIItot$TIcinqueTOsetteNUTS*psmIIItot$pesoStand

psmIIItot$TIseiTOsetteNUTSP <- psmIIItot$TIseiTOsetteNUTS*psmIIItot$pesoStand

psmIIItot$TIsetteTOsetteNUTSP <-
psmIIItot$TIsetteTOsetteNUTS*psmIIItot$pesoStand

psmIIItot$TIzeroTOsetteNUTSP <-
psmIIItot$TIzeroTOsetteNUTS*psmIIItot$pesoStand


psmIIItot$VDunoTOunoNUTSP <-
psmIIItot$VDunoTOunoNUTS*psmIIItot$pesoStand

psmIIItot$VDdueTOunoNUTSP <-
psmIIItot$VDdueTOunoNUTS*psmIIItot$pesoStand

psmIIItot$VDtreTOunoNUTSP <- psmIIItot$VDtreTOunoNUTS*psmIIItot$pesoStand

psmIIItot$VDquattroTOunoNUTSP <-
psmIIItot$VDquattroTOunoNUTS*psmIIItot$pesoStand
```

```
psmIIItot$VDcinqueTOunoNUTSP <-
psmIIItot$VDcinqueTOunoNUTS*psmIIItot$pesoStand

psmIIItot$VDseiTOunoNUTSP <- psmIIItot$VDseiTOunoNUTS*psmIIItot$pesoStand

psmIIItot$VDsetteTOunoNUTSP <-
psmIIItot$VDsetteTOunoNUTS*psmIIItot$pesoStand

psmIIItot$VDzeroTOunoNUTSP <-
psmIIItot$VDzeroTOunoNUTS*psmIIItot$pesoStand


psmIIItot$AIunoTOcinqueNUTSP <-
psmIIItot$AIunoTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$AIdueTOcinqueNUTSP <-
psmIIItot$AIdueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$AItreTOcinqueNUTSP <-
psmIIItot$AItreTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$AIquattroTOcinqueNUTSP <-
psmIIItot$AIquattroTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$AIcinqueTOcinqueNUTSP <-
psmIIItot$AIcinqueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$AIseiTOcinqueNUTSP <-
psmIIItot$AIseiTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$AIsetteTOcinqueNUTSP <-
psmIIItot$AIsetteTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$AIzeroTOcinqueNUTSP <-
psmIIItot$AIzeroTOcinqueNUTS*psmIIItot$pesoStand


psmIIItot$ARunoTOcinqueNUTSP <-
psmIIItot$ARunoTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$ARdueTOcinqueNUTSP <-
psmIIItot$ARdueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$ARtreTOcinqueNUTSP <-
psmIIItot$ARtreTOcinqueNUTS*psmIIItot$pesoStand
```

```
psmIIItot$ARquattroTOcinqueNUTSP <-
psmIIItot$ARquattroTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$ARcinqueTOcinqueNUTSP <-
psmIIItot$ARcinqueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$ARseiTOcinqueNUTSP <-
psmIIItot$ARseiTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$ARsetteTOcinqueNUTSP <-
psmIIItot$ARsetteTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$ARzeroTOcinqueNUTSP <-
psmIIItot$ARzeroTOcinqueNUTS*psmIIItot$pesoStand


psmIIItot$FRunoTOdueNUTSP <- psmIIItot$FRunoTOdueNUTS*psmIIItot$pesoStand

psmIIItot$FRdueTOdueNUTSP <- psmIIItot$FRdueTOdueNUTS*psmIIItot$pesoStand

psmIIItot$FRtreTOdueNUTSP <- psmIIItot$FRtreTOdueNUTS*psmIIItot$pesoStand

psmIIItot$FRquattroTOdueNUTSP <-
psmIIItot$FRquattroTOdueNUTS*psmIIItot$pesoStand

psmIIItot$FRcinqueTOdueNUTSP <-
psmIIItot$FRcinqueTOdueNUTS*psmIIItot$pesoStand

psmIIItot$FRseiTOdueNUTSP <- psmIIItot$FRseiTOdueNUTS*psmIIItot$pesoStand

psmIIItot$FRsetteTOdueNUTSP <-
psmIIItot$FRsetteTOdueNUTS*psmIIItot$pesoStand

psmIIItot$FRzeroTOdueNUTSP <-
psmIIItot$FRzeroTOdueNUTS*psmIIItot$pesoStand


psmIIItot$GLunoTOcinqueNUTSP <-
psmIIItot$GLunoTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$GLdueTOcinqueNUTSP <-
psmIIItot$GLdueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$GLtreTOcinqueNUTSP <-
psmIIItot$GLtreTOcinqueNUTS*psmIIItot$pesoStand
```

```
psmIIItot$GLquattroTOcinqueNUTSP <-
psmIIItot$GLquattroTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$GLcinqueTOcinqueNUTSP <-
psmIIItot$GLcinqueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$GLseiTOcinqueNUTSP <-
psmIIItot$GLseiTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$GLsetteTOcinqueNUTSP <-
psmIIItot$GLsetteTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$GLzeroTOcinqueNUTSP <-
psmIIItot$GLzeroTOcinqueNUTS*psmIIItot$pesoStand


psmIIItot$GRunoTOcinqueNUTSP <-
psmIIItot$GRunoTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$GRdueTOcinqueNUTSP <-
psmIIItot$GRdueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$GRtreTOcinqueNUTSP <-
psmIIItot$GRtreTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$GRquattroTOcinqueNUTSP <-
psmIIItot$GRquattroTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$GRcinqueTOcinqueNUTSP <-
psmIIItot$GRcinqueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$GRseiTOcinqueNUTSP <-
psmIIItot$GRseiTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$GRsetteTOcinqueNUTSP <-
psmIIItot$GRsetteTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$GRzeroTOcinqueNUTSP <-
psmIIItot$GRzeroTOcinqueNUTS*psmIIItot$pesoStand


psmIIItot$JUunoTOdueNUTSP <- psmIIItot$JUunoTOdueNUTS*psmIIItot$pesoStand

psmIIItot$JUdueTOdueNUTSP <- psmIIItot$JUdueTOdueNUTS*psmIIItot$pesoStand

psmIIItot$JUtreTOdueNUTSP <- psmIIItot$JUtreTOdueNUTS*psmIIItot$pesoStand
```

psmIIItot$JUquattroTOdueNUTSP <-
psmIIItot$JUquattroTOdueNUTS*psmIIItot$pesoStand

psmIIItot$JUcinqueTOdueNUTSP <-
psmIIItot$JUcinqueTOdueNUTS*psmIIItot$pesoStand

psmIIItot$JUseiTOdueNUTSP <- psmIIItot$JUseiTOdueNUTS*psmIIItot$pesoStand

psmIIItot$JUsetteTOdueNUTSP <-
psmIIItot$JUsetteTOdueNUTS*psmIIItot$pesoStand

psmIIItot$JUzeroTOdueNUTSP <- psmIIItot$JUzeroTOdueNUTS*psmIIItot$pesoStand

psmIIItot$LUunoTOseiNUTSP <- psmIIItot$LUunoTOseiNUTS*psmIIItot$pesoStand

psmIIItot$LUdueTOseiNUTSP <- psmIIItot$LUdueTOseiNUTS*psmIIItot$pesoStand

psmIIItot$LUtreTOseiNUTSP <- psmIIItot$LUtreTOseiNUTS*psmIIItot$pesoStand

psmIIItot$LUquattroTOseiNUTSP <-
psmIIItot$LUquattroTOseiNUTS*psmIIItot$pesoStand

psmIIItot$LUcinqueTOseiNUTSP <-
psmIIItot$LUcinqueTOseiNUTS*psmIIItot$pesoStand

psmIIItot$LUseiTOseiNUTSP <- psmIIItot$LUseiTOseiNUTS*psmIIItot$pesoStand

psmIIItot$LUsetteTOseiNUTSP <- psmIIItot$LUsetteTOseiNUTS*psmIIItot$pesoStand

psmIIItot$LUzeroTOseiNUTSP <- psmIIItot$LUzeroTOseiNUTS*psmIIItot$pesoStand

psmIIItot$NWunoTOseiNUTSP <- psmIIItot$NWunoTOseiNUTS*psmIIItot$pesoStand

psmIIItot$NWdueTOseiNUTSP <- psmIIItot$NWdueTOseiNUTS*psmIIItot$pesoStand

psmIIItot$NWtreTOseiNUTSP <- psmIIItot$NWtreTOseiNUTS*psmIIItot$pesoStand

psmIIItot$NWquattroTOseiNUTSP <-
psmIIItot$NWquattroTOseiNUTS*psmIIItot$pesoStand

psmIIItot$NWcinqueTOseiNUTSP <-
psmIIItot$NWcinqueTOseiNUTS*psmIIItot$pesoStand

psmIIItot$NWseiTOseiNUTSP <- psmIIItot$NWseiTOseiNUTS*psmIIItot$pesoStand

```
psmIIItot$NWsetteTOseiNUTSP <-
psmIIItot$NWsetteTOseiNUTS*psmIIItot$pesoStand

psmIIItot$NWzeroTOseiNUTSP <-
psmIIItot$NWzeroTOseiNUTS*psmIIItot$pesoStand


psmIIItot$OWunoTOseiNUTSP <- psmIIItot$OWunoTOseiNUTS*psmIIItot$pesoStand

psmIIItot$OWdueTOseiNUTSP <- psmIIItot$OWdueTOseiNUTS*psmIIItot$pesoStand

psmIIItot$OWtreTOseiNUTSP <- psmIIItot$OWtreTOseiNUTS*psmIIItot$pesoStand

psmIIItot$OWquattroTOseiNUTSP <-
psmIIItot$OWquattroTOseiNUTS*psmIIItot$pesoStand

psmIIItot$OWcinqueTOseiNUTSP <-
psmIIItot$OWcinqueTOseiNUTS*psmIIItot$pesoStand

psmIIItot$OWseiTOseiNUTSP <- psmIIItot$OWseiTOseiNUTS*psmIIItot$pesoStand

psmIIItot$OWsetteTOseiNUTSP <-
psmIIItot$OWsetteTOseiNUTS*psmIIItot$pesoStand

psmIIItot$OWzeroTOseiNUTSP <-
psmIIItot$OWzeroTOseiNUTS*psmIIItot$pesoStand


psmIIItot$SOunoTOseiNUTSP <- psmIIItot$SOunoTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SOdueTOseiNUTSP <- psmIIItot$SOdueTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SOtreTOseiNUTSP <- psmIIItot$SOtreTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SOquattroTOseiNUTSP <-
psmIIItot$SOquattroTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SOcinqueTOseiNUTSP <-
psmIIItot$SOcinqueTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SOseiTOseiNUTSP <- psmIIItot$SOseiTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SOsetteTOseiNUTSP <- psmIIItot$SOsetteTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SOzeroTOseiNUTSP <- psmIIItot$SOzeroTOseiNUTS*psmIIItot$pesoStand
```

```
psmIIItot$SZunoTOseiNUTSP <- psmIIItot$SZunoTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SZdueTOseiNUTSP <- psmIIItot$SZdueTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SZtreTOseiNUTSP <- psmIIItot$SZtreTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SZquattroTOseiNUTSP <-
psmIIItot$SZquattroTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SZcinqueTOseiNUTSP <-
psmIIItot$SZcinqueTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SZseiTOseiNUTSP <- psmIIItot$SZseiTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SZsetteTOseiNUTSP <- psmIIItot$SZsetteTOseiNUTS*psmIIItot$pesoStand

psmIIItot$SZzeroTOseiNUTSP <- psmIIItot$SZzeroTOseiNUTS*psmIIItot$pesoStand


psmIIItot$TGunoTOcinqueNUTSP <-
psmIIItot$TGunoTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$TGdueTOcinqueNUTSP <-
psmIIItot$TGdueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$TGtreTOcinqueNUTSP <-
psmIIItot$TGtreTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$TGquattroTOcinqueNUTSP <-
psmIIItot$TGquattroTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$TGcinqueTOcinqueNUTSP <-
psmIIItot$TGcinqueTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$TGseiTOcinqueNUTSP <-
psmIIItot$TGseiTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$TGsetteTOcinqueNUTSP <-
psmIIItot$TGsetteTOcinqueNUTS*psmIIItot$pesoStand

psmIIItot$TGzeroTOcinqueNUTSP <-
psmIIItot$TGzeroTOcinqueNUTS*psmIIItot$pesoStand


psmIIItot$URunoTOseiNUTSP <- psmIIItot$URunoTOseiNUTS*psmIIItot$pesoStand

psmIIItot$URdueTOseiNUTSP <- psmIIItot$URdueTOseiNUTS*psmIIItot$pesoStand
```

```
psmIIItot$URtreTOseiNUTSP <- psmIIItot$URtreTOseiNUTS*psmIIItot$pesoStand

psmIIItot$URquattroTOseiNUTSP <-
psmIIItot$URquattroTOseiNUTS*psmIIItot$pesoStand

psmIIItot$URcinqueTOseiNUTSP <-
psmIIItot$URcinqueTOseiNUTS*psmIIItot$pesoStand

psmIIItot$URseiTOseiNUTSP <- psmIIItot$URseiTOseiNUTS*psmIIItot$pesoStand

psmIIItot$URsetteTOseiNUTSP <-
psmIIItot$URsetteTOseiNUTS*psmIIItot$pesoStand

psmIIItot$URzeroTOseiNUTSP <- psmIIItot$URzeroTOseiNUTS*psmIIItot$pesoStand


psmIIItot$VSunoTOunoNUTSP <- psmIIItot$VSunoTOunoNUTS*psmIIItot$pesoStand

psmIIItot$VSdueTOunoNUTSP <- psmIIItot$VSdueTOunoNUTS*psmIIItot$pesoStand

psmIIItot$VStreTOunoNUTSP <- psmIIItot$VStreTOunoNUTS*psmIIItot$pesoStand

psmIIItot$VSquattroTOunoNUTSP <-
psmIIItot$VSquattroTOunoNUTS*psmIIItot$pesoStand

psmIIItot$VScinqueTOunoNUTSP <-
psmIIItot$VScinqueTOunoNUTS*psmIIItot$pesoStand

psmIIItot$VSseiTOunoNUTSP <- psmIIItot$VSseiTOunoNUTS*psmIIItot$pesoStand

psmIIItot$VSsetteTOunoNUTSP <-
psmIIItot$VSsetteTOunoNUTS*psmIIItot$pesoStand

psmIIItot$VSzeroTOunoNUTSP <-
psmIIItot$VSzeroTOunoNUTS*psmIIItot$pesoStand


psmIIItot$GEunoTOunoNUTSP <- psmIIItot$GEunoTOunoNUTS*psmIIItot$pesoStand

psmIIItot$GEdueTOunoNUTSP <- psmIIItot$GEdueTOunoNUTS*psmIIItot$pesoStand

psmIIItot$GEtreTOunoNUTSP <- psmIIItot$GEtreTOunoNUTS*psmIIItot$pesoStand

psmIIItot$GEquattroTOunoNUTSP <-
psmIIItot$GEquattroTOunoNUTS*psmIIItot$pesoStand
```

```
psmIIItot$GEcinqueTOunoNUTSP <-
psmIIItot$GEcinqueTOunoNUTS*psmIIItot$pesoStand

psmIIItot$GEseiTOunoNUTSP <- psmIIItot$GEseiTOunoNUTS*psmIIItot$pesoStand

psmIIItot$GEsetteTOunoNUTSP <-
psmIIItot$GEsetteTOunoNUTS*psmIIItot$pesoStand

psmIIItot$GEzeroTOunoNUTSP <-
psmIIItot$GEzeroTOunoNUTS*psmIIItot$pesoStand


psmIIItot$ZHunoTOquattroNUTSP <-
psmIIItot$ZHunoTOquattroNUTS*psmIIItot$pesoStand

psmIIItot$ZHdueTOquattroNUTSP <-
psmIIItot$ZHdueTOquattroNUTS*psmIIItot$pesoStand

psmIIItot$ZHtreTOquattroNUTSP <-
psmIIItot$ZHtreTOquattroNUTS*psmIIItot$pesoStand

psmIIItot$ZHquattroTOquattroNUTSP <-
psmIIItot$ZHquattroTOquattroNUTS*psmIIItot$pesoStand

psmIIItot$ZHcinqueTOquattroNUTSP <-
psmIIItot$ZHcinqueTOquattroNUTS*psmIIItot$pesoStand

psmIIItot$ZHseiTOquattroNUTSP <-
psmIIItot$ZHseiTOquattroNUTS*psmIIItot$pesoStand

psmIIItot$ZHsetteTOquattroNUTSP <-
psmIIItot$ZHsetteTOquattroNUTS*psmIIItot$pesoStand

psmIIItot$ZHzeroTOquattroNUTSP <-
psmIIItot$ZHzeroTOquattroNUTS*psmIIItot$pesoStand


psmIIItot$ZGunoTOseiNUTSP <- psmIIItot$ZGunoTOseiNUTS*psmIIItot$pesoStand

psmIIItot$ZGdueTOseiNUTSP <- psmIIItot$ZGdueTOseiNUTS*psmIIItot$pesoStand

psmIIItot$ZGtreTOseiNUTSP <- psmIIItot$ZGtreTOseiNUTS*psmIIItot$pesoStand

psmIIItot$ZGquattroTOseiNUTSP <-
psmIIItot$ZGquattroTOseiNUTS*psmIIItot$pesoStand
```

```
psmIIItot$ZGcinqueTOseiNUTSP <-
psmIIItot$ZGcinqueTOseiNUTS*psmIIItot$pesoStand

psmIIItot$ZGseiTOseiNUTSP <- psmIIItot$ZGseiTOseiNUTS*psmIIItot$pesoStand

psmIIItot$ZGsetteTOseiNUTSP <- psmIIItot$ZGsetteTOseiNUTS*psmIIItot$pesoStand

psmIIItot$ZGzeroTOseiNUTSP <- psmIIItot$ZGzeroTOseiNUTS*psmIIItot$pesoStand


psmIIItot$BSunoTOtreNUTSP <- psmIIItot$BSunoTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BSdueTOtreNUTSP <- psmIIItot$BSdueTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BStreTOtreNUTSP <- psmIIItot$BStreTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BSquattroTOtreNUTSP <-
psmIIItot$BSquattroTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BScinqueTOtreNUTSP <-
psmIIItot$BScinqueTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BSseiTOtreNUTSP <- psmIIItot$BSseiTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BSsetteTOtreNUTSP <- psmIIItot$BSsetteTOtreNUTS*psmIIItot$pesoStand

psmIIItot$BSzeroTOtreNUTSP <- psmIIItot$BSzeroTOtreNUTS*psmIIItot$pesoStand


psmIIItot$ABunoTOzeroNUTSP <-
psmIIItot$ABunoTOzeroNUTS*psmIIItot$pesoStand

psmIIItot$ABdueTOzeroNUTSP <-
psmIIItot$ABdueTOzeroNUTS*psmIIItot$pesoStand

psmIIItot$ABtreTOzeroNUTSP <- psmIIItot$ABtreTOzeroNUTS*psmIIItot$pesoStand

psmIIItot$ABquattroTOzeroNUTSP <-
psmIIItot$ABquattroTOzeroNUTS*psmIIItot$pesoStand

psmIIItot$ABcinqueTOzeroNUTSP <-
psmIIItot$ABcinqueTOzeroNUTS*psmIIItot$pesoStand

psmIIItot$ABseiTOzeroNUTSP <- psmIIItot$ABseiTOzeroNUTS*psmIIItot$pesoStand

psmIIItot$ABsetteTOzeroNUTSP <-
psmIIItot$ABsetteTOzeroNUTS*psmIIItot$pesoStand
```

```
psmIIItot$ABzeroTOzeroNUTSP <-
psmIIItot$ABzeroTOzeroNUTS*psmIIItot$pesoStand

#######

#cella per cella
UNOtoUNOnuts <-
  sum(psmIIItot$VDunoTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$VSunoTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$GEunoTOunoNUTSP, na.rm=T)

DUEtoUNOnuts <-
  sum(psmIIItot$VDdueTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$VSdueTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$GEdueTOunoNUTSP, na.rm=T)

TREtoUNOnuts <-
  sum(psmIIItot$VDtreTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$VStreTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$GEtreTOunoNUTSP, na.rm=T)

QUATTROtoUNOnuts <-
  sum(psmIIItot$VDquattroTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$VSquattroTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$GEquattroTOunoNUTSP, na.rm=T)

CINQUEtoUNOnuts <-
```

```
  sum(psmIIItot$VDcinqueTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$VScinqueTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$GEcinqueTOunoNUTSP, na.rm=T)

SEItoUNOnuts <-
  sum(psmIIItot$VDseiTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$VSseiTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$GEseiTOunoNUTSP, na.rm=T)

SETTEtoUNOnuts <-
  sum(psmIIItot$VDsetteTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$VSsetteTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$GEsetteTOunoNUTSP, na.rm=T)

ZEROtoUNOnuts <-
  sum(psmIIItot$VDzeroTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$VSzeroTOunoNUTSP, na.rm=T)+
  sum(psmIIItot$GEzeroTOunoNUTSP, na.rm=T)

#

UNOtoDUEnuts <-
  sum(psmIIItot$NEunoTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$BEunoTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$FRunoTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$JUunoTOdueNUTSP, na.rm=T)
```

```
DUEtoDUEnuts <-
  sum(psmIIItot$NEdueTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$BEdueTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$FRdueTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$JUdueTOdueNUTSP, na.rm=T)

TREtoDUEnuts <-
  sum(psmIIItot$NEtreTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$BEtreTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$FRtreTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$JUtreTOdueNUTSP, na.rm=T)

QUATTROtoDUEnuts <-
  sum(psmIIItot$NEquattroTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$BEquattroTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$FRquattroTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$JUquattroTOdueNUTSP, na.rm=T)

CINQUEtoDUEnuts <-
  sum(psmIIItot$NEcinqueTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$BEcinqueTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$FRcinqueTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$JUcinqueTOdueNUTSP, na.rm=T)

SEItoDUEnuts <-
  sum(psmIIItot$NEseiTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$BEseiTOdueNUTSP, na.rm=T)+
```

```
  sum(psmIIItot$FRseiTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$JUseiTOdueNUTSP, na.rm=T)

SETTEtoDUEnuts <-
  sum(psmIIItot$NEsetteTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$BEsetteTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$FRsetteTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$JUsetteTOdueNUTSP, na.rm=T)

ZEROtoDUEnuts <-
  sum(psmIIItot$NEzeroTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$BEzeroTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$FRzeroTOdueNUTSP, na.rm=T)+
  sum(psmIIItot$JUzeroTOdueNUTSP, na.rm=T)

#

UNOtoTREnuts <-
  sum(psmIIItot$AGunoTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BLunoTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BSunoTOtreNUTSP, na.rm=T)

DUEtoTREnuts <-
  sum(psmIIItot$AGdueTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BLdueTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BSdueTOtreNUTSP, na.rm=T)
```

```
TREtoTRENuts <-
  sum(psmIIItot$AGtreTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BLtreTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BStreTOtreNUTSP, na.rm=T)

QUATTROtoTRENuts <-
  sum(psmIIItot$AGquattroTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BLquattroTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BSquattroTOtreNUTSP, na.rm=T)

CINQUEtoTRENuts <-
  sum(psmIIItot$AGcinqueTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BLcinqueTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BScinqueTOtreNUTSP, na.rm=T)

SEItoTRENuts <-
  sum(psmIIItot$AGseiTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BLseiTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BSseiTOtreNUTSP, na.rm=T)

SETTEtoTRENuts <-
  sum(psmIIItot$AGsetteTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BLsetteTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BSsetteTOtreNUTSP, na.rm=T)

ZEROtoTRENuts <-
  sum(psmIIItot$AGzeroTOtreNUTSP, na.rm=T)+
```

```
  sum(psmIIItot$BLzeroTOtreNUTSP, na.rm=T)+
  sum(psmIIItot$BSzeroTOtreNUTSP, na.rm=T)

#

UNOtoQUATTROnuts <-
  sum(psmIIItot$ZHunoTOquattroNUTSP, na.rm=T)

DUEtoQUATTROnuts <-
  sum(psmIIItot$ZHdueTOquattroNUTSP, na.rm=T)

TREtoQUATTROnuts <-
  sum(psmIIItot$ZHtreTOquattroNUTSP, na.rm=T)

QUATTROtoQUATTROnuts <-
  sum(psmIIItot$ZHquattroTOquattroNUTSP, na.rm=T)

CINQUEtoQUATTROnuts <-
  sum(psmIIItot$ZHcinqueTOquattroNUTSP, na.rm=T)

SEItoQUATTROnuts <-
  sum(psmIIItot$ZHseiTOquattroNUTSP, na.rm=T)

SETTEtoQUATTROnuts <-
  sum(psmIIItot$ZHsetteTOquattroNUTSP, na.rm=T)

ZEROtoQUATTROnuts <-
```

```
  sum(psmIIItot$ZHzeroTOquattroNUTSP, na.rm=T)

#

UNOtoCINQUEnuts <-
  sum(psmIIItot$SGunoTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$SHunoTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GLunoTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GRunoTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$AIunoTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$ARunoTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$TGunoTOcinqueNUTSP, na.rm=T)

DUEtoCINQUEnuts <-
  sum(psmIIItot$SGdueTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$SHdueTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GLdueTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GRdueTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$AIdueTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$ARdueTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$TGdueTOcinqueNUTSP, na.rm=T)

TREtoCINQUEnuts <-
  sum(psmIIItot$SGtreTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$SHtreTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GLtreTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GRtreTOcinqueNUTSP, na.rm=T)+
```

```
  sum(psmIIItot$AItreTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$ARtreTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$TGtreTOcinqueNUTSP, na.rm=T)

QUATTROtoCINQUEnuts <-
  sum(psmIIItot$SGquattroTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$SHquattroTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GLquattroTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GRquattroTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$AIquattroTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$ARquattroTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$TGquattroTOcinqueNUTSP, na.rm=T)

CINQUEtoCINQUEnuts <-
  sum(psmIIItot$SGcinqueTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$SHcinqueTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GLcinqueTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GRcinqueTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$AIcinqueTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$ARcinqueTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$TGcinqueTOcinqueNUTSP, na.rm=T)

SEItoCINQUEnuts <-
  sum(psmIIItot$SGseiTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$SHseiTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GLseiTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GRseiTOcinqueNUTSP, na.rm=T)+
```

```
  sum(psmIIItot$AIseiTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$ARseiTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$TGseiTOcinqueNUTSP, na.rm=T)

SETTEtoCINQUEnuts <-
  sum(psmIIItot$SGsetteTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$SHsetteTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GLsetteTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GRsetteTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$AIsetteTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$ARsetteTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$TGsetteTOcinqueNUTSP, na.rm=T)

ZEROtoCINQUEnuts <-
  sum(psmIIItot$SGzeroTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$SHzeroTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GLzeroTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$GRzeroTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$AIzeroTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$ARzeroTOcinqueNUTSP, na.rm=T)+
  sum(psmIIItot$TGzeroTOcinqueNUTSP, na.rm=T)

#

UNOtoSEInuts <-
  sum(psmIIItot$LUunoTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$NWunoTOseiNUTSP, na.rm=T)+
```

```
  sum(psmIIItot$OWunoTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SOunoTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SZunoTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$URunoTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$ZGunoTOseiNUTSP, na.rm=T)

DUEtoSEInuts <-
  sum(psmIIItot$LUdueTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$NWdueTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$OWdueTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SOdueTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SZdueTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$URdueTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$ZGdueTOseiNUTSP, na.rm=T)

TREtoSEInuts <-
  sum(psmIIItot$LUtreTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$NWtreTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$OWtreTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SOtreTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SZtreTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$URtreTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$ZGtreTOseiNUTSP, na.rm=T)

QUATTROtoSEInuts <-
  sum(psmIIItot$LUquattroTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$NWquattroTOseiNUTSP, na.rm=T)+
```

```
  sum(psmIIItot$OWquattroTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SOquattroTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SZquattroTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$URquattroTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$ZGquattroTOseiNUTSP, na.rm=T)

CINQUEtoSEInuts <-
  sum(psmIIItot$LUcinqueTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$NWcinqueTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$OWcinqueTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SOcinqueTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SZcinqueTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$URcinqueTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$ZGcinqueTOseiNUTSP, na.rm=T)

SEItoSEInuts <-
  sum(psmIIItot$LUseiTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$NWseiTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$OWseiTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SOseiTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SZseiTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$URseiTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$ZGseiTOseiNUTSP, na.rm=T)

SETTEtoSEInuts <-
  sum(psmIIItot$LUsetteTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$NWsetteTOseiNUTSP, na.rm=T)+
```

```
  sum(psmIIItot$OWsetteTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SOsetteTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SZsetteTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$URsetteTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$ZGsetteTOseiNUTSP, na.rm=T)

ZEROtoSEInuts <-
  sum(psmIIItot$LUzeroTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$NWzeroTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$OWzeroTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SOzeroTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$SZzeroTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$URzeroTOseiNUTSP, na.rm=T)+
  sum(psmIIItot$ZGzeroTOseiNUTSP, na.rm=T)

#

UNOtoSETTEnuts <-
  sum(psmIIItot$TIunoTOsetteNUTSP, na.rm=T)

DUEtoSETTEnuts <-
  sum(psmIIItot$TIdueTOsetteNUTSP, na.rm=T)

TREtoSETTEnuts <-
  sum(psmIIItot$TItreTOsetteNUTSP, na.rm=T)

QUATTROtoSETTEnuts <-
```

```
  sum(psmIIItot$TIquattroTOsetteNUTSP, na.rm=T)

CINQUEtoSETTEnuts <-
  sum(psmIIItot$TIcinqueTOsetteNUTSP, na.rm=T)

SEItoSETTEnuts <-
  sum(psmIIItot$TIseiTOsetteNUTSP, na.rm=T)

SETTEtoSETTEnuts <-
  sum(psmIIItot$TIsetteTOsetteNUTSP, na.rm=T)

ZEROtoSETTEnuts <-
  sum(psmIIItot$TIzeroTOsetteNUTSP, na.rm=T)



#
UNOtoZEROnuts <-
  sum(psmIIItot$ABunoTOzeroNUTSP, na.rm=T)

DUEtoZEROnuts <-
  sum(psmIIItot$ABdueTOzeroNUTSP, na.rm=T)

TREtoZEROnuts <-
  sum(psmIIItot$ABtreTOzeroNUTSP, na.rm=T)

QUATTROtoZEROnuts <-
  sum(psmIIItot$ABquattroTOzeroNUTSP, na.rm=T)
```

```
CINQUEtoZEROnuts <-
  sum(psmIIItot$ABcinqueTOzeroNUTSP, na.rm=T)

SEItoZEROnuts <-
  sum(psmIIItot$ABseiTOzeroNUTSP, na.rm=T)

SETTEtoZEROnuts <-
  sum(psmIIItot$ABsetteTOzeroNUTSP, na.rm=T)

ZEROtoZEROnuts <-
  sum(psmIIItot$ABzeroTOzeroNUTSP, na.rm=T)

----------

#ricodifica secondo Lin e scarto i missing
# DE = 1
# FR = 2
# IT = 3
# MULTI = 4

library(car)

psmIIItot$AG2Lin <- recode (psmIIItot$AG,
                            "'%'=NA;
                            '*'=NA;
                            'AG Argovia'=1;
```

```
'BE Berne'=1;
'BL Basle-Country'=1;
'NE Neuchatel'=4;
'SG St. Gall'=1;
'SH Schaffhaussen'=1;
'TI Ticino'=3;
'VD Vaud'=2;
'AI Appenzell Inner-Rhodes'=1;
'AR Appenzell Outer-Rhodes'=1;
'FR Fribourg'=4;
'GL Glarus'=1;
'GR Grisons'=4;
'JU Jura'=2;
'LU Lucerne'=1;
'NW Nidwalden'=1;
'OW Obwalden'=1;
'SO Solothurn'=1;
'SZ Schwyz'=1;
'TG Thurgovia'=1;
'UR Uri'=1;
'VS Valais'=4;
'BS Basle-Town'=1;
'GE Geneva'=2;
'ZG Zug'=1;
'ZH Zurich'=1;
'abroad'=0"
)
```

```
psmIIItot$BE2Lin <- recode (psmIIItot$BE,
                    "'%'=NA;
                     '*'=NA;
                    'AG Argovia'=1;
                    'BE Berne'=1;
                    'BL Basle-Country'=1;
                    'NE Neuchatel'=4;
                    'SG St. Gall'=1;
                    'SH Schaffhaussen'=1;
                    'TI Ticino'=3;
                    'VD Vaud'=2;
                    'AI Appenzell Inner-Rhodes'=1;
                    'AR Appenzell Outer-Rhodes'=1;
                    'FR Fribourg'=4;
                    'GL Glarus'=1;
                    'GR Grisons'=4;
                    'JU Jura'=2;
                    'LU Lucerne'=1;
                    'NW Nidwalden'=1;
                    'OW Obwalden'=1;
                    'SO Solothurn'=1;
                    'SZ Schwyz'=1;
                    'TG Thurgovia'=1;
                    'UR Uri'=1;
                    'VS Valais'=4;
                    'BS Basle-Town'=1;
```

```
                    'GE Geneva'=2;
                    'ZG Zug'=1;
                    'ZH Zurich'=1;
                    'abroad'=0"
)

psmIIItot$BL2Lin <- recode (psmIIItot$BL,
                    "'%'=NA;
                     '*'=NA;
                    'AG Argovia'=1;
                    'BE Berne'=1;
                    'BL Basle-Country'=1;
                    'NE Neuchatel'=4;
                    'SG St. Gall'=1;
                    'SH Schaffhaussen'=1;
                    'TI Ticino'=3;
                    'VD Vaud'=2;
                    'AI Appenzell Inner-Rhodes'=1;
                    'AR Appenzell Outer-Rhodes'=1;
                    'FR Fribourg'=4;
                    'GL Glarus'=1;
                    'GR Grisons'=4;
                    'JU Jura'=2;
                    'LU Lucerne'=1;
                    'NW Nidwalden'=1;
                    'OW Obwalden'=1;
                    'SO Solothurn'=1;
```

```
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$NE2Lin <- recode (psmIIItot$NE,
                "'%'=NA;
                 '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=4;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=3;
                'VD Vaud'=2;
                'AI Appenzell Inner-Rhodes'=1;
                'AR Appenzell Outer-Rhodes'=1;
                'FR Fribourg'=4;
                'GL Glarus'=1;
                'GR Grisons'=4;
```

```
                'JU Jura'=2;
                'LU Lucerne'=1;
                'NW Nidwalden'=1;
                'OW Obwalden'=1;
                'SO Solothurn'=1;
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$SG2Lin <- recode (psmIIItot$SG,
                "'%'=NA;
                 '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=4;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=3;
                'VD Vaud'=2;
```

```
                'AI Appenzell Inner-Rhodes'=1;
                'AR Appenzell Outer-Rhodes'=1;
                'FR Fribourg'=4;
                'GL Glarus'=1;
                'GR Grisons'=4;
                'JU Jura'=2;
                'LU Lucerne'=1;
                'NW Nidwalden'=1;
                'OW Obwalden'=1;
                'SO Solothurn'=1;
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$SH2Lin <- recode (psmIIItot$SH,
                "'%'=NA;
                 '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
```

```
                'NE Neuchatel'=4;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=3;
                'VD Vaud'=2;
                'AI Appenzell Inner-Rhodes'=1;
                'AR Appenzell Outer-Rhodes'=1;
                'FR Fribourg'=4;
                'GL Glarus'=1;
                'GR Grisons'=4;
                'JU Jura'=2;
                'LU Lucerne'=1;
                'NW Nidwalden'=1;
                'OW Obwalden'=1;
                'SO Solothurn'=1;
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$TI2Lin <- recode (psmIIItot$TI,
```

"'%'=NA;

'*'=NA;

'AG Argovia'=1;

'BE Berne'=1;

'BL Basle-Country'=1;

'NE Neuchatel'=4;

'SG St. Gall'=1;

'SH Schaffhaussen'=1;

'TI Ticino'=3;

'VD Vaud'=2;

'AI Appenzell Inner-Rhodes'=1;

'AR Appenzell Outer-Rhodes'=1;

'FR Fribourg'=4;

'GL Glarus'=1;

'GR Grisons'=4;

'JU Jura'=2;

'LU Lucerne'=1;

'NW Nidwalden'=1;

'OW Obwalden'=1;

'SO Solothurn'=1;

'SZ Schwyz'=1;

'TG Thurgovia'=1;

'UR Uri'=1;

'VS Valais'=4;

'BS Basle-Town'=1;

'GE Geneva'=2;

'ZG Zug'=1;

```
                    'ZH Zurich'=1;
                    'abroad'=0"
)

psmIIItot$VD2Lin <- recode (psmIIItot$VD,
                    "'%'=NA;
                     '*'=NA;
                    'AG Argovia'=1;
                    'BE Berne'=1;
                    'BL Basle-Country'=1;
                    'NE Neuchatel'=4;
                    'SG St. Gall'=1;
                    'SH Schaffhaussen'=1;
                    'TI Ticino'=3;
                    'VD Vaud'=2;
                    'AI Appenzell Inner-Rhodes'=1;
                    'AR Appenzell Outer-Rhodes'=1;
                    'FR Fribourg'=4;
                    'GL Glarus'=1;
                    'GR Grisons'=4;
                    'JU Jura'=2;
                    'LU Lucerne'=1;
                    'NW Nidwalden'=1;
                    'OW Obwalden'=1;
                    'SO Solothurn'=1;
                    'SZ Schwyz'=1;
                    'TG Thurgovia'=1;
```

```
                    'UR Uri'=1;
                    'VS Valais'=4;
                    'BS Basle-Town'=1;
                    'GE Geneva'=2;
                    'ZG Zug'=1;
                    'ZH Zurich'=1;
                    'abroad'=0"
)

psmIIItot$AI2Lin <- recode (psmIIItot$AI,
                    "'%'=NA;
                     '*'=NA;
                    'AG Argovia'=1;
                    'BE Berne'=1;
                    'BL Basle-Country'=1;
                    'NE Neuchatel'=4;
                    'SG St. Gall'=1;
                    'SH Schaffhaussen'=1;
                    'TI Ticino'=3;
                    'VD Vaud'=2;
                    'AI Appenzell Inner-Rhodes'=1;
                    'AR Appenzell Outer-Rhodes'=1;
                    'FR Fribourg'=4;
                    'GL Glarus'=1;
                    'GR Grisons'=4;
                    'JU Jura'=2;
                    'LU Lucerne'=1;
```

```
                    'NW Nidwalden'=1;
                    'OW Obwalden'=1;
                    'SO Solothurn'=1;
                    'SZ Schwyz'=1;
                    'TG Thurgovia'=1;
                    'UR Uri'=1;
                    'VS Valais'=4;
                    'BS Basle-Town'=1;
                    'GE Geneva'=2;
                    'ZG Zug'=1;
                    'ZH Zurich'=1;
                    'abroad'=0"
)

psmIIItot$AR2Lin <- recode (psmIIItot$AR,
                    "'%'=NA;
                     '*'=NA;
                    'AG Argovia'=1;
                    'BE Berne'=1;
                    'BL Basle-Country'=1;
                    'NE Neuchatel'=4;
                    'SG St. Gall'=1;
                    'SH Schaffhaussen'=1;
                    'TI Ticino'=3;
                    'VD Vaud'=2;
                    'AI Appenzell Inner-Rhodes'=1;
                    'AR Appenzell Outer-Rhodes'=1;
```

```
                'FR Fribourg'=4;
                'GL Glarus'=1;
                'GR Grisons'=4;
                'JU Jura'=2;
                'LU Lucerne'=1;
                'NW Nidwalden'=1;
                'OW Obwalden'=1;
                'SO Solothurn'=1;
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$FR2Lin <- recode (psmIIItot$FR,
                "'%'=NA;
                 '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=4;
                'SG St. Gall'=1;
```

```
                'SH Schaffhaussen'=1;
                'TI Ticino'=3;
                'VD Vaud'=2;
                'AI Appenzell Inner-Rhodes'=1;
                'AR Appenzell Outer-Rhodes'=1;
                'FR Fribourg'=4;
                'GL Glarus'=1;
                'GR Grisons'=4;
                'JU Jura'=2;
                'LU Lucerne'=1;
                'NW Nidwalden'=1;
                'OW Obwalden'=1;
                'SO Solothurn'=1;
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$GL2Lin <- recode (psmIIItot$GL,
                "'%'=NA;
```

'*'=NA;

'AG Argovia'=1;

'BE Berne'=1;

'BL Basle-Country'=1;

'NE Neuchatel'=4;

'SG St. Gall'=1;

'SH Schaffhaussen'=1;

'TI Ticino'=3;

'VD Vaud'=2;

'AI Appenzell Inner-Rhodes'=1;

'AR Appenzell Outer-Rhodes'=1;

'FR Fribourg'=4;

'GL Glarus'=1;

'GR Grisons'=4;

'JU Jura'=2;

'LU Lucerne'=1;

'NW Nidwalden'=1;

'OW Obwalden'=1;

'SO Solothurn'=1;

'SZ Schwyz'=1;

'TG Thurgovia'=1;

'UR Uri'=1;

'VS Valais'=4;

'BS Basle-Town'=1;

'GE Geneva'=2;

'ZG Zug'=1;

'ZH Zurich'=1;

```
                    'abroad'=0"
)

psmIIItot$GR2Lin <- recode (psmIIItot$GR,
                    "'%'=NA;
                     '*'=NA;
                    'AG Argovia'=1;
                    'BE Berne'=1;
                    'BL Basle-Country'=1;
                    'NE Neuchatel'=4;
                    'SG St. Gall'=1;
                    'SH Schaffhaussen'=1;
                    'TI Ticino'=3;
                    'VD Vaud'=2;
                    'AI Appenzell Inner-Rhodes'=1;
                    'AR Appenzell Outer-Rhodes'=1;
                    'FR Fribourg'=4;
                    'GL Glarus'=1;
                    'GR Grisons'=4;
                    'JU Jura'=2;
                    'LU Lucerne'=1;
                    'NW Nidwalden'=1;
                    'OW Obwalden'=1;
                    'SO Solothurn'=1;
                    'SZ Schwyz'=1;
                    'TG Thurgovia'=1;
                    'UR Uri'=1;
```

```
                    'VS Valais'=4;
                    'BS Basle-Town'=1;
                    'GE Geneva'=2;
                    'ZG Zug'=1;
                    'ZH Zurich'=1;
                    'abroad'=0"
)

psmIIItot$JU2Lin <- recode (psmIIItot$JU,
                    "'%'=NA;
                     '*'=NA;
                    'AG Argovia'=1;
                    'BE Berne'=1;
                    'BL Basle-Country'=1;
                    'NE Neuchatel'=4;
                    'SG St. Gall'=1;
                    'SH Schaffhaussen'=1;
                    'TI Ticino'=3;
                    'VD Vaud'=2;
                    'AI Appenzell Inner-Rhodes'=1;
                    'AR Appenzell Outer-Rhodes'=1;
                    'FR Fribourg'=4;
                    'GL Glarus'=1;
                    'GR Grisons'=4;
                    'JU Jura'=2;
                    'LU Lucerne'=1;
                    'NW Nidwalden'=1;
```

```
                'OW Obwalden'=1;
                'SO Solothurn'=1;
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$LU2Lin <- recode (psmIIItot$LU,
                "'%'=NA;
                 '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=4;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=3;
                'VD Vaud'=2;
                'AI Appenzell Inner-Rhodes'=1;
                'AR Appenzell Outer-Rhodes'=1;
                'FR Fribourg'=4;
```

```
                'GL Glarus'=1;
                'GR Grisons'=4;
                'JU Jura'=2;
                'LU Lucerne'=1;
                'NW Nidwalden'=1;
                'OW Obwalden'=1;
                'SO Solothurn'=1;
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$NW2Lin <- recode (psmIIItot$NW,
                "'%'=NA;
                 '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=4;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
```

```
                'TI Ticino'=3;
                'VD Vaud'=2;
                'AI Appenzell Inner-Rhodes'=1;
                'AR Appenzell Outer-Rhodes'=1;
                'FR Fribourg'=4;
                'GL Glarus'=1;
                'GR Grisons'=4;
                'JU Jura'=2;
                'LU Lucerne'=1;
                'NW Nidwalden'=1;
                'OW Obwalden'=1;
                'SO Solothurn'=1;
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$OW2Lin <- recode (psmIIItot$OW,
                "'%'=NA;
                 '*'=NA;
                'AG Argovia'=1;
```

'BE Berne'=1;

'BL Basle-Country'=1;

'NE Neuchatel'=4;

'SG St. Gall'=1;

'SH Schaffhaussen'=1;

'TI Ticino'=3;

'VD Vaud'=2;

'AI Appenzell Inner-Rhodes'=1;

'AR Appenzell Outer-Rhodes'=1;

'FR Fribourg'=4;

'GL Glarus'=1;

'GR Grisons'=4;

'JU Jura'=2;

'LU Lucerne'=1;

'NW Nidwalden'=1;

'OW Obwalden'=1;

'SO Solothurn'=1;

'SZ Schwyz'=1;

'TG Thurgovia'=1;

'UR Uri'=1;

'VS Valais'=4;

'BS Basle-Town'=1;

'GE Geneva'=2;

'ZG Zug'=1;

'ZH Zurich'=1;

'abroad'=0"

)

```
psmIIItot$SO2Lin <- recode (psmIIItot$SO,
                    "'%'=NA;
                     '*'=NA;
                    'AG Argovia'=1;
                    'BE Berne'=1;
                    'BL Basle-Country'=1;
                    'NE Neuchatel'=4;
                    'SG St. Gall'=1;
                    'SH Schaffhaussen'=1;
                    'TI Ticino'=3;
                    'VD Vaud'=2;
                    'AI Appenzell Inner-Rhodes'=1;
                    'AR Appenzell Outer-Rhodes'=1;
                    'FR Fribourg'=4;
                    'GL Glarus'=1;
                    'GR Grisons'=4;
                    'JU Jura'=2;
                    'LU Lucerne'=1;
                    'NW Nidwalden'=1;
                    'OW Obwalden'=1;
                    'SO Solothurn'=1;
                    'SZ Schwyz'=1;
                    'TG Thurgovia'=1;
                    'UR Uri'=1;
                    'VS Valais'=4;
                    'BS Basle-Town'=1;
```

```
                    'GE Geneva'=2;
                    'ZG Zug'=1;
                    'ZH Zurich'=1;
                    'abroad'=0"
)

psmIIItot$SZ2Lin <- recode (psmIIItot$SZ,
                    "'%'=NA;
                     '*'=NA;
                    'AG Argovia'=1;
                    'BE Berne'=1;
                    'BL Basle-Country'=1;
                    'NE Neuchatel'=4;
                    'SG St. Gall'=1;
                    'SH Schaffhaussen'=1;
                    'TI Ticino'=3;
                    'VD Vaud'=2;
                    'AI Appenzell Inner-Rhodes'=1;
                    'AR Appenzell Outer-Rhodes'=1;
                    'FR Fribourg'=4;
                    'GL Glarus'=1;
                    'GR Grisons'=4;
                    'JU Jura'=2;
                    'LU Lucerne'=1;
                    'NW Nidwalden'=1;
                    'OW Obwalden'=1;
                    'SO Solothurn'=1;
```

```
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$TG2Lin <- recode (psmIIItot$TG,
                "'%'=NA;
                 '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=4;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=3;
                'VD Vaud'=2;
                'AI Appenzell Inner-Rhodes'=1;
                'AR Appenzell Outer-Rhodes'=1;
                'FR Fribourg'=4;
                'GL Glarus'=1;
                'GR Grisons'=4;
```

```
                'JU Jura'=2;
                'LU Lucerne'=1;
                'NW Nidwalden'=1;
                'OW Obwalden'=1;
                'SO Solothurn'=1;
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$UR2Lin <- recode (psmIIItot$UR,
                "'%'=NA;
                 '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=4;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=3;
                'VD Vaud'=2;
```

```
                'AI Appenzell Inner-Rhodes'=1;
                'AR Appenzell Outer-Rhodes'=1;
                'FR Fribourg'=4;
                'GL Glarus'=1;
                'GR Grisons'=4;
                'JU Jura'=2;
                'LU Lucerne'=1;
                'NW Nidwalden'=1;
                'OW Obwalden'=1;
                'SO Solothurn'=1;
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$VS2Lin <- recode (psmIIItot$VS,
                "'%'=NA;
                 '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
```

```
                'NE Neuchatel'=4;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=3;
                'VD Vaud'=2;
                'AI Appenzell Inner-Rhodes'=1;
                'AR Appenzell Outer-Rhodes'=1;
                'FR Fribourg'=4;
                'GL Glarus'=1;
                'GR Grisons'=4;
                'JU Jura'=2;
                'LU Lucerne'=1;
                'NW Nidwalden'=1;
                'OW Obwalden'=1;
                'SO Solothurn'=1;
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$BS2Lin <- recode (psmIIItot$BS,
```

"'%'=NA;

'*'=NA;

'AG Argovia'=1;

'BE Berne'=1;

'BL Basle-Country'=1;

'NE Neuchatel'=4;

'SG St. Gall'=1;

'SH Schaffhaussen'=1;

'TI Ticino'=3;

'VD Vaud'=2;

'AI Appenzell Inner-Rhodes'=1;

'AR Appenzell Outer-Rhodes'=1;

'FR Fribourg'=4;

'GL Glarus'=1;

'GR Grisons'=4;

'JU Jura'=2;

'LU Lucerne'=1;

'NW Nidwalden'=1;

'OW Obwalden'=1;

'SO Solothurn'=1;

'SZ Schwyz'=1;

'TG Thurgovia'=1;

'UR Uri'=1;

'VS Valais'=4;

'BS Basle-Town'=1;

'GE Geneva'=2;

'ZG Zug'=1;

```
                    'ZH Zurich'=1;
                    'abroad'=0"
)

psmIIItot$GE2Lin <- recode (psmIIItot$GE,
                    "'%'=NA;
                     '*'=NA;
                    'AG Argovia'=1;
                    'BE Berne'=1;
                    'BL Basle-Country'=1;
                    'NE Neuchatel'=4;
                    'SG St. Gall'=1;
                    'SH Schaffhaussen'=1;
                    'TI Ticino'=3;
                    'VD Vaud'=2;
                    'AI Appenzell Inner-Rhodes'=1;
                    'AR Appenzell Outer-Rhodes'=1;
                    'FR Fribourg'=4;
                    'GL Glarus'=1;
                    'GR Grisons'=4;
                    'JU Jura'=2;
                    'LU Lucerne'=1;
                    'NW Nidwalden'=1;
                    'OW Obwalden'=1;
                    'SO Solothurn'=1;
                    'SZ Schwyz'=1;
                    'TG Thurgovia'=1;
```

```
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$ZG2Lin <- recode (psmIIItot$ZG,
                "'%'=NA;
                 '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=4;
                'SG St. Gall'=1;
                'SH Schaffhaussen'=1;
                'TI Ticino'=3;
                'VD Vaud'=2;
                'AI Appenzell Inner-Rhodes'=1;
                'AR Appenzell Outer-Rhodes'=1;
                'FR Fribourg'=4;
                'GL Glarus'=1;
                'GR Grisons'=4;
                'JU Jura'=2;
                'LU Lucerne'=1;
```

```
                    'NW Nidwalden'=1;
                    'OW Obwalden'=1;
                    'SO Solothurn'=1;
                    'SZ Schwyz'=1;
                    'TG Thurgovia'=1;
                    'UR Uri'=1;
                    'VS Valais'=4;
                    'BS Basle-Town'=1;
                    'GE Geneva'=2;
                    'ZG Zug'=1;
                    'ZH Zurich'=1;
                    'abroad'=0"
)

psmIIItot$ZH2Lin <- recode (psmIIItot$ZH,
                    "'%'=NA;
                     '*'=NA;
                    'AG Argovia'=1;
                    'BE Berne'=1;
                    'BL Basle-Country'=1;
                    'NE Neuchatel'=4;
                    'SG St. Gall'=1;
                    'SH Schaffhaussen'=1;
                    'TI Ticino'=3;
                    'VD Vaud'=2;
                    'AI Appenzell Inner-Rhodes'=1;
                    'AR Appenzell Outer-Rhodes'=1;
```

```
                'FR Fribourg'=4;
                'GL Glarus'=1;
                'GR Grisons'=4;
                'JU Jura'=2;
                'LU Lucerne'=1;
                'NW Nidwalden'=1;
                'OW Obwalden'=1;
                'SO Solothurn'=1;
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)

psmIIItot$AB2Lin <- recode (psmIIItot$AB,
                "'%'=NA;
                 '*'=NA;
                'AG Argovia'=1;
                'BE Berne'=1;
                'BL Basle-Country'=1;
                'NE Neuchatel'=4;
                'SG St. Gall'=1;
```

```
                'SH Schaffhaussen'=1;
                'TI Ticino'=3;
                'VD Vaud'=2;
                'AI Appenzell Inner-Rhodes'=1;
                'AR Appenzell Outer-Rhodes'=1;
                'FR Fribourg'=4;
                'GL Glarus'=1;
                'GR Grisons'=4;
                'JU Jura'=2;
                'LU Lucerne'=1;
                'NW Nidwalden'=1;
                'OW Obwalden'=1;
                'SO Solothurn'=1;
                'SZ Schwyz'=1;
                'TG Thurgovia'=1;
                'UR Uri'=1;
                'VS Valais'=4;
                'BS Basle-Town'=1;
                'GE Geneva'=2;
                'ZG Zug'=1;
                'ZH Zurich'=1;
                'abroad'=0"
)


#binari
```

#1

psmIIItot$BEunoTOunoLin <- ifelse(psmIIItot$BE2Lin==1,1,NA)

psmIIItot$BEdueTOunoLin <- ifelse(psmIIItot$BE2Lin==2,1,NA)

psmIIItot$BEtreTOunoLin <- ifelse(psmIIItot$BE2Lin==3,1,NA)

psmIIItot$BEquattroTOunoLin <- ifelse(psmIIItot$BE2Lin==4,1,NA)

psmIIItot$BEzeroTOunoLin <- ifelse(psmIIItot$BE2Lin==0,1,NA)

psmIIItot$AGunoTOunoLin <- ifelse(psmIIItot$AG2Lin==1,1,NA)

psmIIItot$AGdueTOunoLin <- ifelse(psmIIItot$AG2Lin==2,1,NA)

psmIIItot$AGtreTOunoLin <- ifelse(psmIIItot$AG2Lin==3,1,NA)

psmIIItot$AGquattroTOunoLin <- ifelse(psmIIItot$AG2Lin==4,1,NA)

psmIIItot$AGzeroTOunoLin <- ifelse(psmIIItot$AG2Lin==0,1,NA)

psmIIItot$BLunoTOunoLin <- ifelse(psmIIItot$BL2Lin==1,1,NA)

psmIIItot$BLdueTOunoLin <- ifelse(psmIIItot$BL2Lin==2,1,NA)

psmIIItot$BLtreTOunoLin <- ifelse(psmIIItot$BL2Lin==3,1,NA)

psmIIItot$BLquattroTOunoLin <- ifelse(psmIIItot$BL2Lin==4,1,NA)

psmIIItot$BLzeroTOunoLin <- ifelse(psmIIItot$BL2Lin==0,1,NA)

psmIIItot$BSunoTOunoLin <- ifelse(psmIIItot$BS2Lin==1,1,NA)

psmIIItot$BSdueTOunoLin <- ifelse(psmIIItot$BS2Lin==2,1,NA)

psmIIItot$BStreTOunoLin <- ifelse(psmIIItot$BS2Lin==3,1,NA)

psmIIItot$BSquattroTOunoLin <- ifelse(psmIIItot$BS2Lin==4,1,NA)

psmIIItot$BSzeroTOunoLin <- ifelse(psmIIItot$BS2Lin==0,1,NA)

psmIIItot$ZHunoTOunoLin <- ifelse(psmIIItot$ZH2Lin==1,1,NA)

```
psmIIItot$ZHdueTOunoLin <- ifelse(psmIIItot$ZH2Lin==2,1,NA)
psmIIItot$ZHtreTOunoLin <- ifelse(psmIIItot$ZH2Lin==3,1,NA)
psmIIItot$ZHquattroTOunoLin <- ifelse(psmIIItot$ZH2Lin==4,1,NA)
psmIIItot$ZHzeroTOunoLin <- ifelse(psmIIItot$ZH2Lin==0,1,NA)

psmIIItot$SGunoTOunoLin <- ifelse(psmIIItot$SG2Lin==1,1,NA)
psmIIItot$SGdueTOunoLin <- ifelse(psmIIItot$SG2Lin==2,1,NA)
psmIIItot$SGtreTOunoLin <- ifelse(psmIIItot$SG2Lin==3,1,NA)
psmIIItot$SGquattroTOunoLin <- ifelse(psmIIItot$SG2Lin==4,1,NA)
psmIIItot$SGzeroTOunoLin <- ifelse(psmIIItot$SG2Lin==0,1,NA)

psmIIItot$SHunoTOunoLin <- ifelse(psmIIItot$SH2Lin==1,1,NA)
psmIIItot$SHdueTOunoLin <- ifelse(psmIIItot$SH2Lin==2,1,NA)
psmIIItot$SHtreTOunoLin <- ifelse(psmIIItot$SH2Lin==3,1,NA)
psmIIItot$SHquattroTOunoLin <- ifelse(psmIIItot$SH2Lin==4,1,NA)
psmIIItot$SHzeroTOunoLin <- ifelse(psmIIItot$SH2Lin==0,1,NA)

psmIIItot$GLunoTOunoLin <- ifelse(psmIIItot$GL2Lin==1,1,NA)
psmIIItot$GLdueTOunoLin <- ifelse(psmIIItot$GL2Lin==2,1,NA)
psmIIItot$GLtreTOunoLin <- ifelse(psmIIItot$GL2Lin==3,1,NA)
psmIIItot$GLquattroTOunoLin <- ifelse(psmIIItot$GL2Lin==4,1,NA)
psmIIItot$GLzeroTOunoLin <- ifelse(psmIIItot$GL2Lin==0,1,NA)

psmIIItot$AIunoTOunoLin <- ifelse(psmIIItot$AI2Lin==1,1,NA)
psmIIItot$AIdueTOunoLin <- ifelse(psmIIItot$AI2Lin==2,1,NA)
psmIIItot$AItreTOunoLin <- ifelse(psmIIItot$AI2Lin==3,1,NA)
psmIIItot$AIquattroTOunoLin <- ifelse(psmIIItot$AI2Lin==4,1,NA)
```

```
psmIIItot$AIzeroTOunoLin <- ifelse(psmIIItot$AI2Lin==0,1,NA)

psmIIItot$ARunoTOunoLin <- ifelse(psmIIItot$AR2Lin==1,1,NA)
psmIIItot$ARdueTOunoLin <- ifelse(psmIIItot$AR2Lin==2,1,NA)
psmIIItot$ARtreTOunoLin <- ifelse(psmIIItot$AR2Lin==3,1,NA)
psmIIItot$ARquattroTOunoLin <- ifelse(psmIIItot$AR2Lin==4,1,NA)
psmIIItot$ARzeroTOunoLin <- ifelse(psmIIItot$AR2Lin==0,1,NA)

psmIIItot$TGunoTOunoLin <- ifelse(psmIIItot$TG2Lin==1,1,NA)
psmIIItot$TGdueTOunoLin <- ifelse(psmIIItot$TG2Lin==2,1,NA)
psmIIItot$TGtreTOunoLin <- ifelse(psmIIItot$TG2Lin==3,1,NA)
psmIIItot$TGquattroTOunoLin <- ifelse(psmIIItot$TG2Lin==4,1,NA)
psmIIItot$TGzeroTOunoLin <- ifelse(psmIIItot$TG2Lin==0,1,NA)

psmIIItot$LUunoTOunoLin <- ifelse(psmIIItot$LU2Lin==1,1,NA)
psmIIItot$LUdueTOunoLin <- ifelse(psmIIItot$LU2Lin==2,1,NA)
psmIIItot$LUtreTOunoLin <- ifelse(psmIIItot$LU2Lin==3,1,NA)
psmIIItot$LUquattroTOunoLin <- ifelse(psmIIItot$LU2Lin==4,1,NA)
psmIIItot$LUzeroTOunoLin <- ifelse(psmIIItot$LU2Lin==0,1,NA)

psmIIItot$NWunoTOunoLin <- ifelse(psmIIItot$NW2Lin==1,1,NA)
psmIIItot$NWdueTOunoLin <- ifelse(psmIIItot$NW2Lin==2,1,NA)
psmIIItot$NWtreTOunoLin <- ifelse(psmIIItot$NW2Lin==3,1,NA)
psmIIItot$NWquattroTOunoLin <- ifelse(psmIIItot$NW2Lin==4,1,NA)
psmIIItot$NWzeroTOunoLin <- ifelse(psmIIItot$NW2Lin==0,1,NA)

psmIIItot$OWunoTOunoLin <- ifelse(psmIIItot$OW2Lin==1,1,NA)
```

```
psmIIItot$OWdueTOunoLin <- ifelse(psmIIItot$OW2Lin==2,1,NA)
psmIIItot$OWtreTOunoLin <- ifelse(psmIIItot$OW2Lin==3,1,NA)
psmIIItot$OWquattroTOunoLin <- ifelse(psmIIItot$OW2Lin==4,1,NA)
psmIIItot$OWzeroTOunoLin <- ifelse(psmIIItot$OW2Lin==0,1,NA)

psmIIItot$SOunoTOunoLin <- ifelse(psmIIItot$SO2Lin==1,1,NA)
psmIIItot$SOdueTOunoLin <- ifelse(psmIIItot$SO2Lin==2,1,NA)
psmIIItot$SOtreTOunoLin <- ifelse(psmIIItot$SO2Lin==3,1,NA)
psmIIItot$SOquattroTOunoLin <- ifelse(psmIIItot$SO2Lin==4,1,NA)
psmIIItot$SOzeroTOunoLin <- ifelse(psmIIItot$SO2Lin==0,1,NA)

psmIIItot$SZunoTOunoLin <- ifelse(psmIIItot$SZ2Lin==1,1,NA)
psmIIItot$SZdueTOunoLin <- ifelse(psmIIItot$SZ2Lin==2,1,NA)
psmIIItot$SZtreTOunoLin <- ifelse(psmIIItot$SZ2Lin==3,1,NA)
psmIIItot$SZquattroTOunoLin <- ifelse(psmIIItot$SZ2Lin==4,1,NA)
psmIIItot$SZzeroTOunoLin <- ifelse(psmIIItot$SZ2Lin==0,1,NA)

psmIIItot$URunoTOunoLin <- ifelse(psmIIItot$UR2Lin==1,1,NA)
psmIIItot$URdueTOunoLin <- ifelse(psmIIItot$UR2Lin==2,1,NA)
psmIIItot$URtreTOunoLin <- ifelse(psmIIItot$UR2Lin==3,1,NA)
psmIIItot$URquattroTOunoLin <- ifelse(psmIIItot$UR2Lin==4,1,NA)
psmIIItot$URzeroTOunoLin <- ifelse(psmIIItot$UR2Lin==0,1,NA)

psmIIItot$ZGunoTOunoLin <- ifelse(psmIIItot$ZG2Lin==1,1,NA)
psmIIItot$ZGdueTOunoLin <- ifelse(psmIIItot$ZG2Lin==2,1,NA)
psmIIItot$ZGtreTOunoLin <- ifelse(psmIIItot$ZG2Lin==3,1,NA)
psmIIItot$ZGquattroTOunoLin <- ifelse(psmIIItot$ZG2Lin==4,1,NA)
```

```
psmIIItot$ZGzeroTOunoLin <- ifelse(psmIIItot$ZG2Lin==0,1,NA)

#2
psmIIItot$VDunoTOdueLin <- ifelse(psmIIItot$VD2Lin==1,1,NA)
psmIIItot$VDdueTOdueLin <- ifelse(psmIIItot$VD2Lin==2,1,NA)
psmIIItot$VDtreTOdueLin <- ifelse(psmIIItot$VD2Lin==3,1,NA)
psmIIItot$VDquattroTOdueLin <- ifelse(psmIIItot$VD2Lin==4,1,NA)
psmIIItot$VDzeroTOdueLin <- ifelse(psmIIItot$VD2Lin==0,1,NA)

psmIIItot$GEunoTOdueLin <- ifelse(psmIIItot$GE2Lin==1,1,NA)
psmIIItot$GEdueTOdueLin <- ifelse(psmIIItot$GE2Lin==2,1,NA)
psmIIItot$GEtreTOdueLin <- ifelse(psmIIItot$GE2Lin==3,1,NA)
psmIIItot$GEquattroTOdueLin <- ifelse(psmIIItot$GE2Lin==4,1,NA)
psmIIItot$GEzeroTOdueLin <- ifelse(psmIIItot$GE2Lin==0,1,NA)

psmIIItot$JUunoTOdueLin <- ifelse(psmIIItot$JU2Lin==1,1,NA)
psmIIItot$JUdueTOdueLin <- ifelse(psmIIItot$JU2Lin==2,1,NA)
psmIIItot$JUtreTOdueLin <- ifelse(psmIIItot$JU2Lin==3,1,NA)
psmIIItot$JUquattroTOdueLin <- ifelse(psmIIItot$JU2Lin==4,1,NA)
psmIIItot$JUzeroTOdueLin <- ifelse(psmIIItot$JU2Lin==0,1,NA)

#3

psmIIItot$TIunoTOtreLin <- ifelse(psmIIItot$TI2Lin==1,1,NA)
psmIIItot$TIdueTOtreLin <- ifelse(psmIIItot$TI2Lin==2,1,NA)
psmIIItot$TItreTOtreLin <- ifelse(psmIIItot$TI2Lin==3,1,NA)
psmIIItot$TIquattroTOtreLin <- ifelse(psmIIItot$TI2Lin==4,1,NA)
```

```
psmIIItot$TIzeroTOtreLin <- ifelse(psmIIItot$TI2Lin==0,1,NA)

#4

psmIIItot$VSunoTOquattroLin <- ifelse(psmIIItot$VS2Lin==1,1,NA)
psmIIItot$VSdueTOquattroLin <- ifelse(psmIIItot$VS2Lin==2,1,NA)
psmIIItot$VStreTOquattroLin <- ifelse(psmIIItot$VS2Lin==3,1,NA)
psmIIItot$VSquattroTOquattroLin <- ifelse(psmIIItot$VS2Lin==4,1,NA)
psmIIItot$VSzeroTOquattroLin <- ifelse(psmIIItot$VS2Lin==0,1,NA)

psmIIItot$FRunoTOquattroLin <- ifelse(psmIIItot$FR2Lin==1,1,NA)
psmIIItot$FRdueTOquattroLin <- ifelse(psmIIItot$FR2Lin==2,1,NA)
psmIIItot$FRtreTOquattroLin <- ifelse(psmIIItot$FR2Lin==3,1,NA)
psmIIItot$FRquattroTOquattroLin <- ifelse(psmIIItot$FR2Lin==4,1,NA)
psmIIItot$FRzeroTOquattroLin <- ifelse(psmIIItot$FR2Lin==0,1,NA)

psmIIItot$GRunoTOquattroLin <- ifelse(psmIIItot$GR2Lin==1,1,NA)
psmIIItot$GRdueTOquattroLin <- ifelse(psmIIItot$GR2Lin==2,1,NA)
psmIIItot$GRtreTOquattroLin <- ifelse(psmIIItot$GR2Lin==3,1,NA)
psmIIItot$GRquattroTOquattroLin <- ifelse(psmIIItot$GR2Lin==4,1,NA)
psmIIItot$GRzeroTOquattroLin <- ifelse(psmIIItot$GR2Lin==0,1,NA)

psmIIItot$NEunoTOquattroLin <- ifelse(psmIIItot$NE2Lin==1,1,NA)
psmIIItot$NEdueTOquattroLin <- ifelse(psmIIItot$NE2Lin==2,1,NA)
psmIIItot$NEtreTOquattroLin <- ifelse(psmIIItot$NE2Lin==3,1,NA)
psmIIItot$NEquattroTOquattroLin <- ifelse(psmIIItot$NE2Lin==4,1,NA)
psmIIItot$NEzeroTOquattroLin <- ifelse(psmIIItot$NE2Lin==0,1,NA)
```

0

psmIIItot$ABunoTOzeroLin <- ifelse(psmIIItot$AB2Lin==1,1,NA)

psmIIItot$ABdueTOzeroLin <- ifelse(psmIIItot$AB2Lin==2,1,NA)

psmIIItot$ABtreTOzeroLin <- ifelse(psmIIItot$AB2Lin==3,1,NA)

psmIIItot$ABquattroTOzeroLin <- ifelse(psmIIItot$AB2Lin==4,1,NA)

psmIIItot$ABzeroTOzeroLin <- ifelse(psmIIItot$AB2Lin==0,1,NA)

####pesi standardizzato#

psmIIItot$pesoStand <-
psmIIItot$WP13T3S*(length(psmIIItot$WP13T3S)/sum(psmIIItot$WP13T3S))

####binari pesati

psmIIItot$AGunoTOunoLinP <-
psmIIItot$AGunoTOunoLin*psmIIItot$pesoStand*1.12

psmIIItot$AGdueTOunoLinP <-
psmIIItot$AGdueTOunoLin*psmIIItot$pesoStand*1.12

psmIIItot$AGtreTOunoLinP <- psmIIItot$AGtreTOunoLin*psmIIItot$pesoStand*1.12

psmIIItot$AGquattroTOunoLinP <-
psmIIItot$AGquattroTOunoLin*psmIIItot$pesoStand*1.12

psmIIItot$AGzeroTOunoLinP <-
psmIIItot$AGzeroTOunoLin*psmIIItot$pesoStand*1.12

psmIIItot$BEunoTOunoLinP <- psmIIItot$BEunoTOunoLin*psmIIItot$pesoStand*0.91

psmIIItot$BEdueTOunoLinP <- psmIIItot$BEdueTOunoLin*psmIIItot$pesoStand*0.91

```
psmIIItot$BEtreTOunoLinP <- psmIIItot$BEtreTOunoLin*psmIIItot$pesoStand*0.91

psmIIItot$BEquattroTOunoLinP <-
psmIIItot$BEquattroTOunoLin*psmIIItot$pesoStand*0.91

psmIIItot$BEzeroTOunoLinP <-
psmIIItot$BEzeroTOunoLin*psmIIItot$pesoStand*0.91


psmIIItot$BLunoTOunoLinP <- psmIIItot$BLunoTOunoLin*psmIIItot$pesoStand*1.16

psmIIItot$BLdueTOunoLinP <- psmIIItot$BLdueTOunoLin*psmIIItot$pesoStand*1.16

psmIIItot$BLtreTOunoLinP <- psmIIItot$BLtreTOunoLin*psmIIItot$pesoStand*1.16

psmIIItot$BLquattroTOunoLinP <-
psmIIItot$BLquattroTOunoLin*psmIIItot$pesoStand*1.16

psmIIItot$BLzeroTOunoLinP <-
psmIIItot$BLzeroTOunoLin*psmIIItot$pesoStand*1.16


psmIIItot$NEunoTOquattroLinP <-
psmIIItot$NEunoTOquattroLin*psmIIItot$pesoStand*0.48

psmIIItot$NEdueTOquattroLinP <-
psmIIItot$NEdueTOquattroLin*psmIIItot$pesoStand*0.48

psmIIItot$NEtreTOquattroLinP <-
psmIIItot$NEtreTOquattroLin*psmIIItot$pesoStand*0.48

psmIIItot$NEquattroTOquattroLinP <-
psmIIItot$NEquattroTOquattroLin*psmIIItot$pesoStand*0.48

psmIIItot$NEzeroTOquattroLinP <-
psmIIItot$NEzeroTOquattroLin*psmIIItot$pesoStand*0.48


psmIIItot$SGunoTOunoLinP <-
psmIIItot$SGunoTOunoLin*psmIIItot$pesoStand*1.04

psmIIItot$SGdueTOunoLinP <- psmIIItot$SGdueTOunoLin*psmIIItot$pesoStand*1.04

psmIIItot$SGtreTOunoLinP <- psmIIItot$SGtreTOunoLin*psmIIItot$pesoStand*1.04
```

```
psmIIItot$SGquattroTOunoLinP <-
psmIIItot$SGquattroTOunoLin*psmIIItot$pesoStand*1.04

psmIIItot$SGzeroTOunoLinP <-
psmIIItot$SGzeroTOunoLin*psmIIItot$pesoStand*1.04


psmIIItot$SHunoTOunoLinP <-
psmIIItot$SHunoTOunoLin*psmIIItot$pesoStand*3.86

psmIIItot$SHdueTOunoLinP <- psmIIItot$SHdueTOunoLin*psmIIItot$pesoStand*3.86

psmIIItot$SHtreTOunoLinP <- psmIIItot$SHtreTOunoLin*psmIIItot$pesoStand*3.86

psmIIItot$SHquattroTOunoLinP <-
psmIIItot$SHquattroTOunoLin*psmIIItot$pesoStand*3.86

psmIIItot$SHzeroTOunoLinP <-
psmIIItot$SHzeroTOunoLin*psmIIItot$pesoStand*3.86


psmIIItot$TIunoTOtreLinP <- psmIIItot$TIunoTOtreLin*psmIIItot$pesoStand*1.47

psmIIItot$TIdueTOtreLinP <- psmIIItot$TIdueTOtreLin*psmIIItot$pesoStand*1.47

psmIIItot$TItreTOtreLinP <- psmIIItot$TItreTOtreLin*psmIIItot$pesoStand*1.47

psmIIItot$TIquattroTOtreLinP <-
psmIIItot$TIquattroTOtreLin*psmIIItot$pesoStand*1.47

psmIIItot$TIzeroTOtreLinP <- psmIIItot$TIzeroTOtreLin*psmIIItot$pesoStand*1.47


psmIIItot$VDunoTOdueLinP <-
psmIIItot$VDunoTOdueLin*psmIIItot$pesoStand*0.93

psmIIItot$VDdueTOdueLinP <-
psmIIItot$VDdueTOdueLin*psmIIItot$pesoStand*0.93

psmIIItot$VDtreTOdueLinP <- psmIIItot$VDtreTOdueLin*psmIIItot$pesoStand*0.93

psmIIItot$VDquattroTOdueLinP <-
psmIIItot$VDquattroTOdueLin*psmIIItot$pesoStand*0.93

psmIIItot$VDzeroTOdueLinP <-
psmIIItot$VDzeroTOdueLin*psmIIItot$pesoStand*0.93
```

```
psmIIItot$AIunoTOunoLinP <- psmIIItot$AIunoTOunoLin*psmIIItot$pesoStand*0.46

psmIIItot$AIdueTOunoLinP <- psmIIItot$AIdueTOunoLin*psmIIItot$pesoStand*0.46

psmIIItot$AItreTOunoLinP <- psmIIItot$AItreTOunoLin*psmIIItot$pesoStand*0.46

psmIIItot$AIquattroTOunoLinP <-
psmIIItot$AIquattroTOunoLin*psmIIItot$pesoStand*0.46

psmIIItot$AIzeroTOunoLinP <- psmIIItot$AIzeroTOunoLin*psmIIItot$pesoStand*0.46


psmIIItot$ARunoTOunoLinP <-
psmIIItot$ARunoTOunoLin*psmIIItot$pesoStand*1.13

psmIIItot$ARdueTOunoLinP <-
psmIIItot$ARdueTOunoLin*psmIIItot$pesoStand*1.13

psmIIItot$ARtreTOunoLinP <- psmIIItot$ARtreTOunoLin*psmIIItot$pesoStand*1.13

psmIIItot$ARquattroTOunoLinP <-
psmIIItot$ARquattroTOunoLin*psmIIItot$pesoStand*1.13

psmIIItot$ARzeroTOunoLinP <-
psmIIItot$ARzeroTOunoLin*psmIIItot$pesoStand*1.13


psmIIItot$FRunoTOquattroLinP <-
psmIIItot$FRunoTOquattroLin*psmIIItot$pesoStand*1.30

psmIIItot$FRdueTOquattroLinP <-
psmIIItot$FRdueTOquattroLin*psmIIItot$pesoStand*1.30

psmIIItot$FRtreTOquattroLinP <-
psmIIItot$FRtreTOquattroLin*psmIIItot$pesoStand*1.30

psmIIItot$FRquattroTOquattroLinP <-
psmIIItot$FRquattroTOquattroLin*psmIIItot$pesoStand*1.30

psmIIItot$FRzeroTOquattroLinP <-
psmIIItot$FRzeroTOquattroLin*psmIIItot$pesoStand*1.30


psmIIItot$GLunoTOunoLinP <- psmIIItot$GLunoTOunoLin*psmIIItot$pesoStand*0.41
```

```
psmIIItot$GLdueTOunoLinP <- psmIIItot$GLdueTOunoLin*psmIIItot$pesoStand*0.41

psmIIItot$GLtreTOunoLinP <- psmIIItot$GLtreTOunoLin*psmIIItot$pesoStand*0.41

psmIIItot$GLquattroTOunoLinP <-
psmIIItot$GLquattroTOunoLin*psmIIItot$pesoStand*0.41

psmIIItot$GLzeroTOunoLinP <-
psmIIItot$GLzeroTOunoLin*psmIIItot$pesoStand*0.41


psmIIItot$GRunoTOquattroLinP <-
psmIIItot$GRunoTOquattroLin*psmIIItot$pesoStand*0.81

psmIIItot$GRdueTOquattroLinP <-
psmIIItot$GRdueTOquattroLin*psmIIItot$pesoStand*0.81

psmIIItot$GRtreTOquattroLinP <-
psmIIItot$GRtreTOquattroLin*psmIIItot$pesoStand*0.81

psmIIItot$GRquattroTOquattroLinP <-
psmIIItot$GRquattroTOquattroLin*psmIIItot$pesoStand*0.81

psmIIItot$GRzeroTOquattroLinP <-
psmIIItot$GRzeroTOquattroLin*psmIIItot$pesoStand*0.81


psmIIItot$JUunoTOdueLinP <- psmIIItot$JUunoTOdueLin*psmIIItot$pesoStand*2.10

psmIIItot$JUdueTOdueLinP <- psmIIItot$JUdueTOdueLin*psmIIItot$pesoStand*2.10

psmIIItot$JUtreTOdueLinP <- psmIIItot$JUtreTOdueLin*psmIIItot$pesoStand*2.10

psmIIItot$JUquattroTOdueLinP <-
psmIIItot$JUquattroTOdueLin*psmIIItot$pesoStand*2.10

psmIIItot$JUzeroTOdueLinP <-
psmIIItot$JUzeroTOdueLin*psmIIItot$pesoStand*2.10


psmIIItot$LUunoTOunoLinP <- psmIIItot$LUunoTOunoLin*psmIIItot$pesoStand*1.57

psmIIItot$LUdueTOunoLinP <- psmIIItot$LUdueTOunoLin*psmIIItot$pesoStand*1.57

psmIIItot$LUtreTOunoLinP <- psmIIItot$LUtreTOunoLin*psmIIItot$pesoStand*1.57
```

```
psmIIItot$LUquattroTOunoLinP <-
psmIIItot$LUquattroTOunoLin*psmIIItot$pesoStand*1.57

psmIIItot$LUzeroTOunoLinP <-
psmIIItot$LUzeroTOunoLin*psmIIItot$pesoStand*1.57


psmIIItot$NWunoTOunoLinP <-
psmIIItot$NWunoTOunoLin*psmIIItot$pesoStand*1.00

psmIIItot$NWdueTOunoLinP <-
psmIIItot$NWdueTOunoLin*psmIIItot$pesoStand*1.00

psmIIItot$NWtreTOunoLinP <-
psmIIItot$NWtreTOunoLin*psmIIItot$pesoStand*1.00

psmIIItot$NWquattroTOunoLinP <-
psmIIItot$NWquattroTOunoLin*psmIIItot$pesoStand*1.00

psmIIItot$NWzeroTOunoLinP <-
psmIIItot$NWzeroTOunoLin*psmIIItot$pesoStand*1.00


psmIIItot$OWunoTOunoLinP <-
psmIIItot$OWunoTOunoLin*psmIIItot$pesoStand*0.30

psmIIItot$OWdueTOunoLinP <-
psmIIItot$OWdueTOunoLin*psmIIItot$pesoStand*0.30

psmIIItot$OWtreTOunoLinP <-
psmIIItot$OWtreTOunoLin*psmIIItot$pesoStand*0.30

psmIIItot$OWquattroTOunoLinP <-
psmIIItot$OWquattroTOunoLin*psmIIItot$pesoStand*0.30

psmIIItot$OWzeroTOunoLinP <-
psmIIItot$OWzeroTOunoLin*psmIIItot$pesoStand*0.30


psmIIItot$SOunoTOunoLinP <-
psmIIItot$SOunoTOunoLin*psmIIItot$pesoStand*1.09

psmIIItot$SOdueTOunoLinP <-
psmIIItot$SOdueTOunoLin*psmIIItot$pesoStand*1.09
```

```
psmIIItot$SOtreTOunoLinP <- psmIIItot$SOtreTOunoLin*psmIIItot$pesoStand*1.09

psmIIItot$SOquattroTOunoLinP <-
psmIIItot$SOquattroTOunoLin*psmIIItot$pesoStand*1.09

psmIIItot$SOzeroTOunoLinP <-
psmIIItot$SOzeroTOunoLin*psmIIItot$pesoStand*1.09


psmIIItot$SZunoTOunoLinP <- psmIIItot$SZunoTOunoLin*psmIIItot$pesoStand*1.10

psmIIItot$SZdueTOunoLinP <- psmIIItot$SZdueTOunoLin*psmIIItot$pesoStand*1.10

psmIIItot$SZtreTOunoLinP <- psmIIItot$SZtreTOunoLin*psmIIItot$pesoStand*1.10

psmIIItot$SZquattroTOunoLinP <-
psmIIItot$SZquattroTOunoLin*psmIIItot$pesoStand*1.10

psmIIItot$SZzeroTOunoLinP <-
psmIIItot$SZzeroTOunoLin*psmIIItot$pesoStand*1.10


psmIIItot$TGunoTOunoLinP <-
psmIIItot$TGunoTOunoLin*psmIIItot$pesoStand*1.17

psmIIItot$TGdueTOunoLinP <-
psmIIItot$TGdueTOunoLin*psmIIItot$pesoStand*1.17

psmIIItot$TGtreTOunoLinP <- psmIIItot$TGtreTOunoLin*psmIIItot$pesoStand*1.17

psmIIItot$TGquattroTOunoLinP <-
psmIIItot$TGquattroTOunoLin*psmIIItot$pesoStand*1.17

psmIIItot$TGzeroTOunoLinP <-
psmIIItot$TGzeroTOunoLin*psmIIItot$pesoStand*1.17


psmIIItot$URunoTOunoLinP <-
psmIIItot$URunoTOunoLin*psmIIItot$pesoStand*1.00

psmIIItot$URdueTOunoLinP <-
psmIIItot$URdueTOunoLin*psmIIItot$pesoStand*1.00

psmIIItot$URtreTOunoLinP <- psmIIItot$URtreTOunoLin*psmIIItot$pesoStand*1.00
```

```
psmIIItot$URquattroTOunoLinP <-
psmIIItot$URquattroTOunoLin*psmIIItot$pesoStand*1.00

psmIIItot$URzeroTOunoLinP <-
psmIIItot$URzeroTOunoLin*psmIIItot$pesoStand*1.00


psmIIItot$VSunoTOquattroLinP <-
psmIIItot$VSunoTOquattroLin*psmIIItot$pesoStand*0.58

psmIIItot$VSdueTOquattroLinP <-
psmIIItot$VSdueTOquattroLin*psmIIItot$pesoStand*0.58

psmIIItot$VStreTOquattroLinP <-
psmIIItot$VStreTOquattroLin*psmIIItot$pesoStand*0.58

psmIIItot$VSquattroTOquattroLinP <-
psmIIItot$VSquattroTOquattroLin*psmIIItot$pesoStand*0.58

psmIIItot$VSzeroTOquattroLinP <-
psmIIItot$VSzeroTOquattroLin*psmIIItot$pesoStand*0.58


psmIIItot$GEunoTOdueLinP <-
psmIIItot$GEunoTOdueLin*psmIIItot$pesoStand*1.55

psmIIItot$GEdueTOdueLinP <- psmIIItot$GEdueTOdueLin*psmIIItot$pesoStand*1.55

psmIIItot$GEtreTOdueLinP <- psmIIItot$GEtreTOdueLin*psmIIItot$pesoStand*1.55

psmIIItot$GEquattroTOdueLinP <-
psmIIItot$GEquattroTOdueLin*psmIIItot$pesoStand*1.55

psmIIItot$GEzeroTOdueLinP <-
psmIIItot$GEzeroTOdueLin*psmIIItot$pesoStand*1.55


psmIIItot$ZHunoTOunoLinP <-
psmIIItot$ZHunoTOunoLin*psmIIItot$pesoStand*1.23

psmIIItot$ZHdueTOunoLinP <- psmIIItot$ZHdueTOunoLin*psmIIItot$pesoStand*1.23

psmIIItot$ZHtreTOunoLinP <- psmIIItot$ZHtreTOunoLin*psmIIItot$pesoStand*1.23
```

```
psmIIItot$ZHquattroTOunoLinP <-
psmIIItot$ZHquattroTOunoLin*psmIIItot$pesoStand*1.23

psmIIItot$ZHzeroTOunoLinP <-
psmIIItot$ZHzeroTOunoLin*psmIIItot$pesoStand*1.23


psmIIItot$ZGunoTOunoLinP <-
psmIIItot$ZGunoTOunoLin*psmIIItot$pesoStand*0.72

psmIIItot$ZGdueTOunoLinP <-
psmIIItot$ZGdueTOunoLin*psmIIItot$pesoStand*0.72

psmIIItot$ZGtreTOunoLinP <- psmIIItot$ZGtreTOunoLin*psmIIItot$pesoStand*0.72

psmIIItot$ZGquattroTOunoLinP <-
psmIIItot$ZGquattroTOunoLin*psmIIItot$pesoStand*0.72

psmIIItot$ZGzeroTOunoLinP <-
psmIIItot$ZGzeroTOunoLin*psmIIItot$pesoStand*0.72


psmIIItot$BSunoTOunoLinP <- psmIIItot$BSunoTOunoLin*psmIIItot$pesoStand*0.36

psmIIItot$BSdueTOunoLinP <- psmIIItot$BSdueTOunoLin*psmIIItot$pesoStand*0.36

psmIIItot$BStreTOunoLinP <- psmIIItot$BStreTOunoLin*psmIIItot$pesoStand*0.36

psmIIItot$BSquattroTOunoLinP <-
psmIIItot$BSquattroTOunoLin*psmIIItot$pesoStand*0.36

psmIIItot$BSzeroTOunoLinP <-
psmIIItot$BSzeroTOunoLin*psmIIItot$pesoStand*0.36


psmIIItot$ABunoTOzeroLinP <- psmIIItot$ABunoTOzeroLin*psmIIItot$pesoStand*1

psmIIItot$ABdueTOzeroLinP <- psmIIItot$ABdueTOzeroLin*psmIIItot$pesoStand*1

psmIIItot$ABtreTOzeroLinP <- psmIIItot$ABtreTOzeroLin*psmIIItot$pesoStand*1

psmIIItot$ABquattroTOzeroLinP <-
psmIIItot$ABquattroTOzeroLin*psmIIItot$pesoStand*1

psmIIItot$ABzeroTOzeroLinP <- psmIIItot$ABzeroTOzeroLin*psmIIItot$pesoStand*1
```

```
#cella per cella
UNOtoUNOLin <-
  sum(psmIIItot$AGunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$BEunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$BLunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$SGunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$SHunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$AIunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$ARunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$GLunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$LUunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$NWunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$OWunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$SOunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$SZunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$TGunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$URunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$ZHunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$ZGunoTOunoLinP, na.rm=T)+
  sum(psmIIItot$BSunoTOunoLinP, na.rm=T)

DUEtoUNOLin <-
  sum(psmIIItot$AGdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$BEdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$BLdueTOunoLinP, na.rm=T)+
```

```
  sum(psmIIItot$SGdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$SHdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$AIdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$ARdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$GLdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$LUdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$NWdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$OWdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$SOdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$SZdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$TGdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$URdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$ZHdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$ZGdueTOunoLinP, na.rm=T)+
  sum(psmIIItot$BSdueTOunoLinP, na.rm=T)

TREtoUNOLin <-
  sum(psmIIItot$AGtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$BEtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$BLtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$SGtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$SHtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$AItreTOunoLinP, na.rm=T)+
  sum(psmIIItot$ARtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$GLtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$LUtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$NWtreTOunoLinP, na.rm=T)+
```

```
  sum(psmIIItot$OWtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$SOtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$SZtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$TGtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$URtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$ZHtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$ZGtreTOunoLinP, na.rm=T)+
  sum(psmIIItot$BStreTOunoLinP, na.rm=T)

QUATTROtoUNOLin <-
  sum(psmIIItot$AGquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$BEquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$BLquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$SGquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$SHquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$AIquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$ARquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$GLquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$LUquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$NWquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$OWquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$SOquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$SZquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$TGquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$URquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$ZHquattroTOunoLinP, na.rm=T)+
  sum(psmIIItot$ZGquattroTOunoLinP, na.rm=T)+
```

```
  sum(psmIIItot$BSquattroTOunoLinP, na.rm=T)

ZEROtoUNOLin <-
  sum(psmIIItot$AGzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$BEzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$BLzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$SGzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$SHzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$AIzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$ARzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$GLzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$LUzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$NWzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$OWzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$SOzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$SZzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$TGzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$URzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$ZHzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$ZGzeroTOunoLinP, na.rm=T)+
  sum(psmIIItot$BSzeroTOunoLinP, na.rm=T)

#

UNOtoDUELin <-
  sum(psmIIItot$VDunoTOdueLinP, na.rm=T)+
  sum(psmIIItot$JUunoTOdueLinP, na.rm=T)+
```

```
  sum(psmIIItot$GEunoTOdueLinP, na.rm=T)

DUEtoDUELin <-
  sum(psmIIItot$VDdueTOdueLinP, na.rm=T)+
  sum(psmIIItot$JUdueTOdueLinP, na.rm=T)+
  sum(psmIIItot$GEdueTOdueLinP, na.rm=T)

TREtoDUELin <-
  sum(psmIIItot$VDtreTOdueLinP, na.rm=T)+
  sum(psmIIItot$JUtreTOdueLinP, na.rm=T)+
  sum(psmIIItot$GEtreTOdueLinP, na.rm=T)

QUATTROtoDUELin <-
  sum(psmIIItot$VDquattroTOdueLinP, na.rm=T)+
  sum(psmIIItot$JUquattroTOdueLinP, na.rm=T)+
  sum(psmIIItot$GEquattroTOdueLinP, na.rm=T)

ZEROtoDUELin <-
  sum(psmIIItot$VDzeroTOdueLinP, na.rm=T)+
  sum(psmIIItot$JUzeroTOdueLinP, na.rm=T)+
  sum(psmIIItot$GEzeroTOdueLinP, na.rm=T)

#

UNOtoTRELin <-
  sum(psmIIItot$TIunoTOtreLinP, na.rm=T)
```

```
DUEtoTRELin <-
  sum(psmIIItot$TIdueTOtreLinP, na.rm=T)

TREtoTRELin <-
  sum(psmIIItot$TItreTOtreLinP, na.rm=T)

QUATTROtoTRELin <-
  sum(psmIIItot$TIquattroTOtreLinP, na.rm=T)

ZEROtoTRELin <-
  sum(psmIIItot$TIzeroTOtreLinP, na.rm=T)

#

UNOtoQUATTROLin <-
  sum(psmIIItot$NEunoTOquattroLinP, na.rm=T)+
  sum(psmIIItot$FRunoTOquattroLinP, na.rm=T)+
  sum(psmIIItot$GRunoTOquattroLinP, na.rm=T)+
  sum(psmIIItot$VSunoTOquattroLinP, na.rm=T)

DUEtoQUATTROLin <-
  sum(psmIIItot$NEdueTOquattroLinP, na.rm=T)+
  sum(psmIIItot$FRdueTOquattroLinP, na.rm=T)+
  sum(psmIIItot$GRdueTOquattroLinP, na.rm=T)+
  sum(psmIIItot$VSdueTOquattroLinP, na.rm=T)

TREtoQUATTROLin <-
```

```
  sum(psmIIItot$NEtreTOquattroLinP, na.rm=T)+
  sum(psmIIItot$FRtreTOquattroLinP, na.rm=T)+
  sum(psmIIItot$GRtreTOquattroLinP, na.rm=T)+
  sum(psmIIItot$VStreTOquattroLinP, na.rm=T)

QUATTROtoQUATTROLin <-
  sum(psmIIItot$NEquattroTOquattroLinP, na.rm=T)+
  sum(psmIIItot$FRquattroTOquattroLinP, na.rm=T)+
  sum(psmIIItot$GRquattroTOquattroLinP, na.rm=T)+
  sum(psmIIItot$VSquattroTOquattroLinP, na.rm=T)

ZEROtoQUATTROLin <-
  sum(psmIIItot$NEzeroTOquattroLinP, na.rm=T)+
  sum(psmIIItot$FRzeroTOquattroLinP, na.rm=T)+
  sum(psmIIItot$GRzeroTOquattroLinP, na.rm=T)+
  sum(psmIIItot$VSzeroTOquattroLinP, na.rm=T)

#
UNOtoZEROLin <-
  sum(psmIIItot$ABunoTOzeroLin, na.rm=T)

DUEtoZEROLin <-
  sum(psmIIItot$ABdueTOzeroLin, na.rm=T)

TREtoZEROLin <-
  sum(psmIIItot$ABtreTOzeroLin, na.rm=T)
```

```
QUATTROtoZEROLin <-
  sum(psmIIItot$ABquattroTOzeroLin, na.rm=T)

ZEROtoZEROLin <-
  sum(psmIIItot$ABzeroTOzeroLin, na.rm=T)

------------
## NUTS
##SEX MAN

#man cluster 1
UNOtoUNOmanNUTS <-
  sum(psmIIItot$VDunoTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VDunoTOunoNUTS>0)])+
  sum(psmIIItot$VSunoTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VSunoTOunoNUTS>0)])+
  sum(psmIIItot$GEunoTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GEunoTOunoNUTSP>0)])

DUEtoUNOmanNUTS <-
  sum(psmIIItot$VDdueTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VDdueTOunoNUTS>0)])+
  sum(psmIIItot$VSdueTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VSdueTOunoNUTS>0)])+
  sum(psmIIItot$GEdueTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GEdueTOunoNUTSP>0)])

TREtoUNOmanNUTS <-
```

```
  sum(psmIIItot$VDtreTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VDtreTOunoNUTS>0)])+

  sum(psmIIItot$VStreTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VStreTOunoNUTS>0)])+

  sum(psmIIItot$GEtreTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GEtreTOunoNUTSP>0)])


QUATTROtoUNOmanNUTS <-

  sum(psmIIItot$VDquattroTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VDquattroTOunoNUTS>0)])+

  sum(psmIIItot$VSquattroTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VSquattroTOunoNUTS>0)])+

  sum(psmIIItot$GEquattroTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GEquattroTOunoNUTSP>0)])


CINQUEtoUNOmanNUTS <-

  sum(psmIIItot$VDcinqueTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VDcinqueTOunoNUTS>0)])+

  sum(psmIIItot$VScinqueTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VScinqueTOunoNUTS>0)])+

  sum(psmIIItot$GEcinqueTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GEcinqueTOunoNUTSP>0)])


SEItoUNOmanNUTS <-

  sum(psmIIItot$VDseiTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VDseiTOunoNUTS>0)])+

  sum(psmIIItot$VSseiTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VSseiTOunoNUTS>0)])+

  sum(psmIIItot$GEseiTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GEseiTOunoNUTSP>0)])
```

```
SETTEtoUNOmanNUTS <-
  sum(psmIIItot$VDsetteTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VDsetteTOunoNUTS>0)])+
  sum(psmIIItot$VSsetteTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VSsetteTOunoNUTS>0)])+
  sum(psmIIItot$GEsetteTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GEsetteTOunoNUTSP>0)])

ZEROtoUNOmanNUTS <-
  sum(psmIIItot$VDzeroTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VDzeroTOunoNUTS>0)])+
  sum(psmIIItot$VSzeroTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$VSzeroTOunoNUTS>0)])+
  sum(psmIIItot$GEzeroTOunoNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GEzeroTOunoNUTSP>0)])



#man cluster 2
UNOtoDUEmanNUTS <-
  sum(psmIIItot$NEunoTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AIunoTOdueP>0)])+
  sum(psmIIItot$BEunoTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ARunoTOdueP>0)])+
  sum(psmIIItot$FRunoTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$FRunoTOdueP>0)])+
  sum(psmIIItot$JUunoTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GLunoTOdueP>0)])

DUEtoDUEmanNUTS <-
```

```
  sum(psmIIItot$NEdueTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$BEdueTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRdueTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$JUdueTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GLunoTOdueP>0)])

TREtoDUEmanNUTS <-

  sum(psmIIItot$NEtreTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$BEtreTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRtreTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$JUtreTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GLunoTOdueP>0)])

QUATTROtoDUEmanNUTS <-

  sum(psmIIItot$NEquattroTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$BEquattroTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRquattroTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$JUquattroTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GLunoTOdueP>0)])

CINQUEtoDUEmanNUTS <-
```

```
  sum(psmIIItot$NEcinqueTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$BEcinqueTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRcinqueTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$JUcinqueTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GLunoTOdueP>0)])


SEItoDUEmanNUTS <-

  sum(psmIIItot$NEseiTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$BEseiTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRseiTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$JUseiTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GLunoTOdueP>0)])


SETTEtoDUEmanNUTS <-

  sum(psmIIItot$NEsetteTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$BEsetteTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRsetteTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$JUsetteTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GLunoTOdueP>0)])


ZEROtoDUEmanNUTS <-
```

```
  sum(psmIIItot$NEzeroTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AIunoTOdueP>0)])+

  sum(psmIIItot$BEzeroTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ARunoTOdueP>0)])+

  sum(psmIIItot$FRzeroTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$FRunoTOdueP>0)])+

  sum(psmIIItot$JUzeroTOdueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GLunoTOdueP>0)])


#man cluster 3

UNOtoTREmanNUTS <-

  sum(psmIIItot$AGunoTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AGunoTOtreNUTS>0)])+

  sum(psmIIItot$BLunoTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BLunoTOtreNUTS>0)])+

  sum(psmIIItot$BSunoTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BSunoTOtreNUTS>0)])


DUEtoTREmanNUTS <-

  sum(psmIIItot$AGdueTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AGdueTOtreNUTS>0)])+

  sum(psmIIItot$BLdueTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BLdueTOtreNUTS>0)])+

  sum(psmIIItot$BSdueTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BSdueTOtreNUTS>0)])


TREtoTREmanNUTS <-

  sum(psmIIItot$AGtreTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AGtreTOtreNUTS>0)])+
```

```
  sum(psmIIItot$BLtreTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BLtreTOtreNUTS>0)])+

  sum(psmIIItot$BStreTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BStreTOtreNUTS>0)])


QUATTROtoTREmanNUTS <-

  sum(psmIIItot$AGquattroTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AGquattroTOtreNUTS>0)])+

  sum(psmIIItot$BLquattroTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BLquattroTOtreNUTS>0)])+

  sum(psmIIItot$BSquattroTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BSquattroTOtreNUTS>0)])


CINQUEtoTREmanNUTS <-

  sum(psmIIItot$AGcinqueTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AGcinqueTOtreNUTS>0)])+

  sum(psmIIItot$BLcinqueTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BLcinqueTOtreNUTS>0)])+

  sum(psmIIItot$BScinqueTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BScinqueTOtreNUTS>0)])


SEItoTREmanNUTS <-

  sum(psmIIItot$AGseiTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AGseiTOtreNUTS>0)])+

  sum(psmIIItot$BLseiTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BLseiTOtreNUTS>0)])+

  sum(psmIIItot$BSseiTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BSseiTOtreNUTS>0)])


SETTEtoTREmanNUTS <-
```

```
  sum(psmIIItot$AGsetteTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AGsetteTOtreNUTS>0)])+

  sum(psmIIItot$BLsetteTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BLsetteTOtreNUTS>0)])+

  sum(psmIIItot$BSsetteTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BSsetteTOtreNUTS>0)])


ZEROtoTREmanNUTS <-

  sum(psmIIItot$AGzeroTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AGzeroTOtreNUTS>0)])+

  sum(psmIIItot$BLzeroTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BLzeroTOtreNUTS>0)])+

  sum(psmIIItot$BSzeroTOtreNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$BSzeroTOtreNUTS>0)])


#man cluster 4

UNOtoQUATTROmanNUTS <-

  sum(psmIIItot$ZHunoTOquattroNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ZHunoTOquattroNUTS>0)])


DUEtoQUATTROmanNUTS <-

  sum(psmIIItot$ZHdueTOquattroNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ZHdueTOquattroNUTS>0)])


TREtoQUATTROmanNUTS <-

  sum(psmIIItot$ZHtreTOquattroNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ZHtreTOquattroNUTS>0)])


QUATTROtoQUATTROmanNUTS <-
```

```
  sum(psmIIItot$ZHquattroTOquattroNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ZHquattroTOquattroNUTS>0)])

CINQUEtoQUATTROmanNUTS <-

  sum(psmIIItot$ZHcinqueTOquattroNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ZHcinqueTOquattroNUTS>0)])

SEItoQUATTROmanNUTS <-

  sum(psmIIItot$ZHseiTOquattroNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ZHseiTOquattroNUTS>0)])

SETTEtoQUATTROmanNUTS <-

  sum(psmIIItot$ZHsetteTOquattroNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ZHsetteTOquattroNUTS>0)])

ZEROtoQUATTROmanNUTS <-

  sum(psmIIItot$ZHzeroTOquattroNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ZHzeroTOquattroNUTS>0)])

#man cluster 5

UNOtoCINQUEmanNUTS <-

  sum(psmIIItot$SGunoTOcinqueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$SGunoTOcinqueNUTS>0)])+

  sum(psmIIItot$SHunoTOcinqueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$SHunoTOcinqueNUTS>0)])+

  sum(psmIIItot$GLunoTOcinqueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GLunoTOcinqueNUTS>0)])+

  sum(psmIIItot$GRunoTOcinqueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$GRunoTOcinqueNUTS>0)])+
```

```
  sum(psmIIItot$AIunoTOcinqueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$AIunoTOcinqueNUTS>0)])+

  sum(psmIIItot$ARunoTOcinqueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$ARunoTOcinqueNUTS>0)])+

  sum(psmIIItot$TGunoTOcinqueNUTS[which(psmIIItot$SEX13=="man" &
psmIIItot$TGunoTOcinqueNUTS>0)])
```

Chapter 4

SVIZZERA

1- Data preparation

###importazione e creazione grosso###

```
library(foreign)

masterInd <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-WA-SPSS/SHP_MP.sav",to.data.frame=TRUE)

names(masterInd)

work <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-WA-SPSS/SHP_CA.sav",to.data.frame=TRUE)

names(work)

table(work$AUG12)

##

w1 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W1_1999/SHP99_P_USER.sav",to.data.frame=TRUE)

w1$spell99 <- substr(as.Date(as.POSIXlt(w1$PDATE99, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)
```

```
w2 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W2_2000/SHP00_P_USER.sav",to.data.frame=TRUE)

w2$spell00 <- substr(as.Date(as.POSIXlt(w2$PDATE00, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)

w3 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W3_2001/SHP01_P_USER.sav",to.data.frame=TRUE)

w3$spell01 <- substr(as.Date(as.POSIXlt(w3$PDATE01, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)

w4 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W4_2002/SHP02_P_USER.sav",to.data.frame=TRUE)

w4$spell02 <- substr(as.Date(as.POSIXlt(w4$PDATE02, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)

w5 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W5_2003/SHP03_P_USER.sav",to.data.frame=TRUE)

w5$spell03 <- substr(as.Date(as.POSIXlt(w5$PDATE03, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)

w6 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W6_2004/SHP04_P_USER.sav",to.data.frame=TRUE)

w6$spell04 <- substr(as.Date(as.POSIXlt(w6$PDATE04, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)

w7 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W7_2005/SHP05_P_USER.sav",to.data.frame=TRUE)

w7$spell05 <- substr(as.Date(as.POSIXlt(w7$PDATE05, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)
```

```
w8 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W8_2006/SHP06_P_USER.sav",to.data.frame=TRUE)

w8$spell06 <- substr(as.Date(as.POSIXlt(w8$PDATE06, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)


w9 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W9_2007/SHP07_P_USER.sav",to.data.frame=TRUE)

w9$spell07 <- substr(as.Date(as.POSIXlt(w9$PDATE07, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)


w10 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W10_2008/SHP08_P_USER.sav",to.data.frame=TRUE)

w10$spell08 <- substr(as.Date(as.POSIXlt(w10$PDATE08, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)


w11 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W11_2009/SHP09_P_USER.sav",to.data.frame=TRUE)

w11$spell09 <- substr(as.Date(as.POSIXlt(w11$PDATE09, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)


w12 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W12_2010/SHP10_P_USER.sav",to.data.frame=TRUE)

w12$spell10 <- substr(as.Date(as.POSIXlt(w12$PDATE10, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)


w13 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W13_2011/SHP11_P_USER.sav",to.data.frame=TRUE)

w13$spell11 <- substr(as.Date(as.POSIXlt(w13$PDATE11, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)
```

```
w14 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W14_2012/SHP12_P_USER.sav",to.data.frame=TRUE)

w14$spell12 <- substr(as.Date(as.POSIXlt(w14$PDATE12, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)


w15 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W15_2013/SHP13_P_USER.sav",to.data.frame=TRUE)

w15$spell13 <- substr(as.Date(as.POSIXlt(w15$PDATE13, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)


w16 <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W16_2014/SHP14_P_USER.sav",to.data.frame=TRUE)

w16$spell14 <- substr(as.Date(as.POSIXlt(w16$PDATE14, origin = "1582/10/14"),"%Y/%m/%d/"),1,7)


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library(foreign)

masterHou <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-WA-SPSS/SHP_MH.sav",to.data.frame=TRUE)

names(masterHou)


rm(masterHou)



#1

w1b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W1_1999/SHP99_H_USER.sav",to.data.frame=TRUE)

a <- which(names(w1b)=="IDHOUS99")

b <- which(names(w1b)=="CANTON99")
```

```
w1b <- w1b[,c(a,b)]


w1 <- merge(w1, w1b, by="IDHOUS99", all.x=T)



#2

w2b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/W2_2000/SHP00_H_USER.sav",to.data.frame=TRUE)

a <- which(names(w2b)=="IDHOUS00")

b <- which(names(w2b)=="CANTON00")

w2b <- w2b[,c(a,b)]


w2 <- merge(w2, w2b, by="IDHOUS00", all.x=T)



#3

w3b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w3_2001/SHP01_H_USER.sav",to.data.frame=TRUE)

a <- which(names(w3b)=="IDHOUS01")

b <- which(names(w3b)=="CANTON01")

w3b <- w3b[,c(a,b)]


w3 <- merge(w3, w3b, by="IDHOUS01", all.x=T)



#4

w4b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w4_2002/SHP02_H_USER.sav",to.data.frame=TRUE)
```

```
a <- which(names(w4b)=="IDHOUS02")

b <- which(names(w4b)=="CANTON02")

w4b <- w4b[,c(a,b)]


w4 <- merge(w4, w4b, by="IDHOUS02", all.x=T)



#5

w5b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w5_2003/SHP03_H_USER.sav",to.data.frame=TRUE)

a <- which(names(w5b)=="IDHOUS03")

b <- which(names(w5b)=="CANTON03")

w5b <- w5b[,c(a,b)]


w5 <- merge(w5, w5b, by="IDHOUS03", all.x=T)



#6

w6b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w6_2004/SHP04_H_USER.sav",to.data.frame=TRUE)

a <- which(names(w6b)=="IDHOUS04")

b <- which(names(w6b)=="CANTON04")

w6b <- w6b[,c(a,b)]


w6 <- merge(w6, w6b, by="IDHOUS04", all.x=T)
```

```
#7

w7b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w7_2005/SHP05_H_USER.sav",to.data.frame=TRUE)

a <- which(names(w7b)=="IDHOUS05")

b <- which(names(w7b)=="CANTON05")

w7b <- w7b[,c(a,b)]


w7 <- merge(w7, w7b, by="IDHOUS05", all.x=T)



#8

w8b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w8_2006/SHP06_H_USER.sav",to.data.frame=TRUE)

a <- which(names(w8b)=="IDHOUS06")

b <- which(names(w8b)=="CANTON06")

w8b <- w8b[,c(a,b)]


w8 <- merge(w8, w8b, by="IDHOUS06", all.x=T)



#9

w9b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w9_2007/SHP07_H_USER.sav",to.data.frame=TRUE)

a <- which(names(w9b)=="IDHOUS07")

b <- which(names(w9b)=="CANTON07")

w9b <- w9b[,c(a,b)]


w9 <- merge(w9, w9b, by="IDHOUS07", all.x=T)
```

```
#10
w10b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w10_2008/SHP08_H_USER.sav",to.data.frame=TRUE)
a <- which(names(w10b)=="IDHOUS08")
b <- which(names(w10b)=="CANTON08")
w10b <- w10b[,c(a,b)]

w10 <- merge(w10, w10b, by="IDHOUS08", all.x=T)

#11
w11b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w11_2009/SHP09_H_USER.sav",to.data.frame=TRUE)
a <- which(names(w11b)=="IDHOUS09")
b <- which(names(w11b)=="CANTON09")
w11b <- w11b[,c(a,b)]

w11 <- merge(w11, w11b, by="IDHOUS09", all.x=T)

#12
w12b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w12_2010/SHP10_H_USER.sav",to.data.frame=TRUE)
a <- which(names(w12b)=="IDHOUS10")
b <- which(names(w12b)=="CANTON10")
w12b <- w12b[,c(a,b)]

w12 <- merge(w12, w12b, by="IDHOUS10", all.x=T)
```

```
#13
w13b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w13_2011/SHP11_H_USER.sav",to.data.frame=TRUE)
a <- which(names(w13b)=="IDHOUS11")
b <- which(names(w13b)=="CANTON11")
w13b <- w13b[,c(a,b)]

w13 <- merge(w13, w13b, by="IDHOUS11", all.x=T)

#14
w14b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w14_2012/SHP12_H_USER.sav",to.data.frame=TRUE)
a <- which(names(w14b)=="IDHOUS12")
b <- which(names(w14b)=="CANTON12")
w14b <- w14b[,c(a,b)]

w14 <- merge(w14, w14b, by="IDHOUS12", all.x=T)

#15
w15b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w15_2013/SHP13_H_USER.sav",to.data.frame=TRUE)
a <- which(names(w15b)=="IDHOUS13")
b <- which(names(w15b)=="CANTON13")
w15b <- w15b[,c(a,b)]
```

```
w15 <- merge(w15, w15b, by="IDHOUS13", all.x=T)



#16

w16b <- read.spss("D:/Documents/dottorato/canada/dati mensili/SHP-Data-W1-W16-SPSS/w16_2014/SHP14_H_USER.sav",to.data.frame=TRUE)

a <- which(names(w16b)=="IDHOUS14")

b <- which(names(w16b)=="CANTON14")

w16b <- w16b[,c(a,b)]


w16 <- merge(w16, w16b, by="IDHOUS14", all.x=T)


-----



### subset ###

a <- which(names(w1)=="IDPERS")

b <- which(names(w1)=="OCCUPA99")

c <- which(names(w1)=="P99W18")

d <- which(names(w1)=="spell99")

f <- which(names(w1)=="ISCED99")

g <- which(names(w1)=="REG_1_99")

h <- which(names(w1)=="PERMIT99")

i <- which(names(w1)=="CANTON99")


e <- c(a,b,c,d,f,g,h,i)
```

```
w1s <- w1[,e]
rm(w1)


a <- which(names(w2)=="IDPERS")
b <- which(names(w2)=="OCCUPA00")
c <- which(names(w2)=="P00W18")
d <- which(names(w2)=="spell00")
f <- which(names(w2)=="ISCED00")
g <- which(names(w2)=="REG_1_00")
h <- which(names(w2)=="PERMIT00")
i <- which(names(w2)=="CANTON00")

e <- c(a,b,c,d,f,g,h,i)

w2s <- w2[,e]
rm(w2)


a <- which(names(w3)=="IDPERS")
b <- which(names(w3)=="OCCUPA01")
c <- which(names(w3)=="P01W18")
d <- which(names(w3)=="spell01")
f <- which(names(w3)=="ISCED01")
g <- which(names(w3)=="REG_1_01")
h <- which(names(w3)=="PERMIT01")
```

```
i <- which(names(w3)=="CANTON01")

e <- c(a,b,c,d,f,g,h,i)


w3s <- w3[,e]
rm(w3)


a <- which(names(w4)=="IDPERS")
b <- which(names(w4)=="OCCUPA02")
c <- which(names(w4)=="P02W18")
d <- which(names(w4)=="spell02")
f <- which(names(w4)=="ISCED02")
g <- which(names(w4)=="REG_1_02")
h <- which(names(w4)=="PERMIT02")
i <- which(names(w4)=="CANTON02")

e <- c(a,b,c,d,f,g,h,i)

w4s <- w4[,e]
rm(w4)


a <- which(names(w5)=="IDPERS")
b <- which(names(w5)=="OCCUPA03")
c <- which(names(w5)=="P03W18")
```

```
d <- which(names(w5)=="spell03")
f <- which(names(w5)=="ISCED03")
g <- which(names(w5)=="REG_1_03")
h <- which(names(w5)=="PERMIT03")
i <- which(names(w5)=="CANTON03")

e <- c(a,b,c,d,f,g,h,i)

w5s <- w5[,e]
rm(w5)



a <- which(names(w6)=="IDPERS")
b <- which(names(w6)=="OCCUPA04")
c <- which(names(w6)=="P04W18")
d <- which(names(w6)=="spell04")
f <- which(names(w6)=="ISCED04")
g <- which(names(w6)=="REG_1_04")
h <- which(names(w6)=="PERMIT04")
i <- which(names(w6)=="CANTON04")

e <- c(a,b,c,d,f,g,h,i)

w6s <- w6[,e]
rm(w6)
```

```
a <- which(names(w7)=="IDPERS")
b <- which(names(w7)=="OCCUPA05")
c <- which(names(w7)=="P05W18")
d <- which(names(w7)=="spell05")
f <- which(names(w7)=="ISCED05")
g <- which(names(w7)=="REG_1_05")
h <- which(names(w7)=="PERMIT05")
i <- which(names(w7)=="CANTON05")

e <- c(a,b,c,d,f,g,h,i)

w7s <- w7[,e]
rm(w7)


a <- which(names(w8)=="IDPERS")
b <- which(names(w8)=="OCCUPA06")
c <- which(names(w8)=="P06W18")
d <- which(names(w8)=="spell06")
f <- which(names(w8)=="ISCED06")
g <- which(names(w8)=="REG_1_06")
h <- which(names(w8)=="PERMIT06")
i <- which(names(w8)=="CANTON06")

e <- c(a,b,c,d,f,g,h,i)

w8s <- w8[,e]
```

```
rm(w8)



a <- which(names(w9)=="IDPERS")
b <- which(names(w9)=="OCCUPA07")
c <- which(names(w9)=="P07W18")
d <- which(names(w9)=="spell07")
f <- which(names(w9)=="ISCED07")
g <- which(names(w9)=="REG_1_07")
h <- which(names(w9)=="PERMIT07")
i <- which(names(w9)=="CANTON07")

e <- c(a,b,c,d,f,g,h,i)

w9s <- w9[,e]
rm(w9)



a <- which(names(w10)=="IDPERS")
b <- which(names(w10)=="OCCUPA08")
c <- which(names(w10)=="P08W18")
d <- which(names(w10)=="spell08")
f <- which(names(w10)=="ISCED08")
g <- which(names(w10)=="REG_1_08")
h <- which(names(w10)=="PERMIT08")
i <- which(names(w10)=="CANTON08")
```

```
e <- c(a,b,c,d,f,g,h,i)

w10s <- w10[,e]
rm(w10)


a <- which(names(w11)=="IDPERS")
b <- which(names(w11)=="OCCUPA09")
c <- which(names(w11)=="P09W18")
d <- which(names(w11)=="spell09")
f <- which(names(w11)=="ISCED09")
g <- which(names(w11)=="REG_1_09")
h <- which(names(w11)=="PERMIT09")
i <- which(names(w11)=="CANTON09")

e <- c(a,b,c,d,f,g,h,i)

w11s <- w11[,e]
rm(w11)


a <- which(names(w12)=="IDPERS")
b <- which(names(w12)=="OCCUPA10")
c <- which(names(w12)=="P10W18")
d <- which(names(w12)=="spell10")
f <- which(names(w12)=="ISCED10")
g <- which(names(w12)=="REG_1_10")
```

```
h <- which(names(w12)=="PERMIT10")
i <- which(names(w12)=="CANTON10")

e <- c(a,b,c,d,f,g,h,i)

w12s <- w12[,e]
rm(w12)



a <- which(names(w13)=="IDPERS")
b <- which(names(w13)=="OCCUPA11")
c <- which(names(w13)=="P11W18")
d <- which(names(w13)=="spell11")
f <- which(names(w13)=="ISCED11")
g <- which(names(w13)=="REG_1_11")
h <- which(names(w13)=="PERMIT11")
i <- which(names(w13)=="CANTON11")

e <- c(a,b,c,d,f,g,h,i)

w13s <- w13[,e]
rm(w13)



a <- which(names(w14)=="IDPERS")
b <- which(names(w14)=="OCCUPA12")
c <- which(names(w14)=="P12W18")
```

```
d <- which(names(w14)=="spell12")
f <- which(names(w14)=="ISCED12")
g <- which(names(w14)=="REG_1_12")
h <- which(names(w14)=="PERMIT12")
i <- which(names(w14)=="CANTON12")

e <- c(a,b,c,d,f,g,h,i)

w14s <- w14[,e]
rm(w14)


a <- which(names(w15)=="IDPERS")
b <- which(names(w15)=="OCCUPA13")
c <- which(names(w15)=="P13W18")
d <- which(names(w15)=="spell13")
f <- which(names(w15)=="ISCED13")
g <- which(names(w15)=="REG_1_13")
h <- which(names(w15)=="PERMIT13")
i <- which(names(w15)=="CANTON13")

e <- c(a,b,c,d,f,g,h,i)

w15s <- w15[,e]
rm(w15)
```

```
a <- which(names(w16)=="IDPERS")
b <- which(names(w16)=="OCCUPA14")
c <- which(names(w16)=="P14W18")
d <- which(names(w16)=="spell14")
f <- which(names(w16)=="ISCED14")
g <- which(names(w16)=="REG_1_14")
h <- which(names(w16)=="PERMIT14")
i <- which(names(w16)=="CANTON14")

e <- c(a,b,c,d,f,g,h,i)

w16s <- w16[,e]
rm(w16)

## merge ##

a <- merge(w1s,w2s,by="IDPERS", all.x=T, all.y=T)
a <- merge(a,w3s,by="IDPERS", all.x=T, all.y=T)
a <- merge(a,w4s,by="IDPERS", all.x=T, all.y=T)
a <- merge(a,w5s,by="IDPERS", all.x=T, all.y=T)
a <- merge(a,w6s,by="IDPERS", all.x=T, all.y=T)
a <- merge(a,w7s,by="IDPERS", all.x=T, all.y=T)
a <- merge(a,w8s,by="IDPERS", all.x=T, all.y=T)
a <- merge(a,w9s,by="IDPERS", all.x=T, all.y=T)
a <- merge(a,w10s,by="IDPERS", all.x=T, all.y=T)
a <- merge(a,w11s,by="IDPERS", all.x=T, all.y=T)
a <- merge(a,w12s,by="IDPERS", all.x=T, all.y=T)
```

```
a <- merge(a,w13s,by="IDPERS", all.x=T, all.y=T)
a <- merge(a,w14s,by="IDPERS", all.x=T, all.y=T)
a <- merge(a,w15s,by="IDPERS", all.x=T, all.y=T)
a <- merge(a,w16s,by="IDPERS", all.x=T, all.y=T)

names(a)

work <- merge(work,a,by="IDPERS",all.x=T)

names(work)
```

2- Subset selection

```
### selezione posizione madri caso per caso ###
## madri ##
# identificativo #
masterInd$mother <- NA

for (i in 1:length(masterInd$IDPERS)){
  masterInd$mother[i] <- ifelse(is.na(masterInd$IDMOTH..[i])==T,NA,
                                which(masterInd$IDPERS==masterInd$IDMOTH..[i]))
}

# anno #
masterInd$childM1y <- NA
masterInd$childM2y <- NA
masterInd$childM3y <- NA
masterInd$childM4y <- NA
masterInd$childM5y <- NA
masterInd$childM6y <- NA
masterInd$childM7y <- NA
masterInd$childM8y <- NA


for (i in 1:length(masterInd$IDPERS)){
  a <- masterInd$mother[i]
  b2 <- masterInd$childM1y[a]

  masterInd$childM1y[a] <- ifelse(is.na(masterInd$childM1y[a])==T,
```

```
                ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),
                masterInd$childM1y[a])

  b3 <- masterInd$childM2y[a]
  masterInd$childM2y[a] <- ifelse(b2!=masterInd$childM1y[a],
masterInd$childM2y[a],
                ifelse(is.na(masterInd$childM2y[a])==T &
is.na(masterInd$childM1y[a])==F,
                    ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),
                    masterInd$childM2y[a]))

  b4 <- masterInd$childM3y[a]
  masterInd$childM3y[a] <- ifelse(b3!=masterInd$childM2y[a],
masterInd$childM3y[a],
                    ifelse(is.na(masterInd$childM3y[a])==T &
is.na(masterInd$childM2y[a])==F,
                        ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),
                        masterInd$childM3y[a]))

  b5 <- masterInd$childM4y[a]
  masterInd$childM4y[a] <- ifelse(b4!=masterInd$childM3y[a],
masterInd$childM4y[a],
                    ifelse(is.na(masterInd$childM4y[a])==T &
is.na(masterInd$childM3y[a])==F,
                        ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),
                        masterInd$childM4y[a]))

  b6 <- masterInd$childM5y[a]
```

```
  masterInd$childM5y[a] <- ifelse(b5!=masterInd$childM4y[a],
masterInd$childM5y[a],

                  ifelse(is.na(masterInd$childM5y[a])==T &
is.na(masterInd$childM4y[a])==F,

                      ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),

                      masterInd$childM5y[a]))


  b7 <- masterInd$childM6y[a]

  masterInd$childM6y[a] <- ifelse(b6!=masterInd$childM5y[a],
masterInd$childM6y[a],

                  ifelse(is.na(masterInd$childM6y[a])==T &
is.na(masterInd$childM5y[a])==F,

                      ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),

                      masterInd$childM6y[a]))


  b8 <- masterInd$childM7y[a]

  masterInd$childM7y[a] <- ifelse(b7!=masterInd$childM6y[a],
masterInd$childM7y[a],

                  ifelse(is.na(masterInd$childM7y[a])==T &
is.na(masterInd$childM6y[a])==F,

                      ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),

                      masterInd$childM7y[a]))


  masterInd$childM8y[a] <- ifelse(b8!=masterInd$childM7y[a],
masterInd$childM8y[a],

                  ifelse(is.na(masterInd$childM8y[a])==T &
is.na(masterInd$childM7y[a])==F,

                      ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),

                      masterInd$childM8y[a]))
```

```
}

# mese #
masterInd$childM1m <- NA
masterInd$childM2m <- NA
masterInd$childM3m <- NA
masterInd$childM4m <- NA
masterInd$childM5m <- NA
masterInd$childM6m <- NA
masterInd$childM7m <- NA
masterInd$childM8m <- NA


for (i in 1:length(masterInd$IDPERS)){
  a <- masterInd$mother[i]
  b2 <- masterInd$childM1m[a]

  masterInd$childM1m[a] <- ifelse(is.na(masterInd$childM1m[a])==T,
                                  ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),
                                  masterInd$childM1m[a])

  b3 <- masterInd$childM2m[a]
  masterInd$childM2m[a] <- ifelse(b2!=masterInd$childM1m[a],
masterInd$childM2m[a],
                                  ifelse(is.na(masterInd$childM2m[a])==T &
is.na(masterInd$childM1m[a])==F,
```

```
                    ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),
                    masterInd$childM2m[a]))

  b4 <- masterInd$childM3m[a]
  masterInd$childM3m[a] <- ifelse(b3!=masterInd$childM2m[a],
masterInd$childM3m[a],
                    ifelse(is.na(masterInd$childM3m[a])==T &
is.na(masterInd$childM2m[a])==F,
                    ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),
                    masterInd$childM3m[a]))

  b5 <- masterInd$childM4m[a]
  masterInd$childM4m[a] <- ifelse(b4!=masterInd$childM3m[a],
masterInd$childM4m[a],
                    ifelse(is.na(masterInd$childM4m[a])==T &
is.na(masterInd$childM3m[a])==F,
                    ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),
                    masterInd$childM4m[a]))

  b6 <- masterInd$childM5m[a]
  masterInd$childM5m[a] <- ifelse(b5!=masterInd$childM4m[a],
masterInd$childM5m[a],
                    ifelse(is.na(masterInd$childM5m[a])==T &
is.na(masterInd$childM4m[a])==F,
                    ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),
                    masterInd$childM5m[a]))

  b7 <- masterInd$childM6m[a]
```

```
  masterInd$childM6m[a] <- ifelse(b6!=masterInd$childM5m[a],
masterInd$childM6m[a],

                          ifelse(is.na(masterInd$childM6m[a])==T &
is.na(masterInd$childM5m[a])==F,

                                 ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),

                                 masterInd$childM6m[a]))


  b8 <- masterInd$childM7m[a]

  masterInd$childM7m[a] <- ifelse(b7!=masterInd$childM6m[a],
masterInd$childM7m[a],

                          ifelse(is.na(masterInd$childM7m[a])==T &
is.na(masterInd$childM6m[a])==F,

                                 ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),

                                 masterInd$childM7m[a]))


  masterInd$childM8m[a] <- ifelse(b8!=masterInd$childM7m[a],
masterInd$childM8m[a],

                          ifelse(is.na(masterInd$childM8m[a])==T &
is.na(masterInd$childM7m[a])==F,

                                 ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),

                                 masterInd$childM8m[a]))


}


## padri ##

# identificativo #

masterInd$father <- NA
```

```
for (i in 1:length(masterInd$IDPERS)){
  masterInd$father[i] <- ifelse(is.na(masterInd$IDFATH..[i])==T,NA,
                        which(masterInd$IDPERS==masterInd$IDFATH..[i]))
}

# anno #
masterInd$childF1y <- NA
masterInd$childF2y <- NA
masterInd$childF3y <- NA
masterInd$childF4y <- NA
masterInd$childF5y <- NA
masterInd$childF6y <- NA
masterInd$childF7y <- NA
masterInd$childF8y <- NA


for (i in 1:length(masterInd$IDPERS)){
  a <- masterInd$father[i]
  b2 <- masterInd$childF1y[a]

  masterInd$childF1y[a] <- ifelse(is.na(masterInd$childF1y[a])==T,
                           ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),
                           masterInd$childF1y[a])

  b3 <- masterInd$childF2y[a]
  masterInd$childF2y[a] <- ifelse(b2!=masterInd$childF1y[a], masterInd$childF2y[a],
```

```
                    ifelse(is.na(masterInd$childF2y[a])==T &
is.na(masterInd$childF1y[a])==F,
                        ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),
                        masterInd$childF2y[a]))

  b4 <- masterInd$childF3y[a]
  masterInd$childF3y[a] <- ifelse(b3!=masterInd$childF2y[a], masterInd$childF3y[a],
                    ifelse(is.na(masterInd$childF3y[a])==T &
is.na(masterInd$childF2y[a])==F,
                        ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),
                        masterInd$childF3y[a]))

  b5 <- masterInd$childF4y[a]
  masterInd$childF4y[a] <- ifelse(b4!=masterInd$childF3y[a], masterInd$childF4y[a],
                    ifelse(is.na(masterInd$childF4y[a])==T &
is.na(masterInd$childF3y[a])==F,
                        ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),
                        masterInd$childF4y[a]))

  b6 <- masterInd$childF5y[a]
  masterInd$childF5y[a] <- ifelse(b5!=masterInd$childF4y[a], masterInd$childF5y[a],
                    ifelse(is.na(masterInd$childF5y[a])==T &
is.na(masterInd$childF4y[a])==F,
                        ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),
                        masterInd$childF5y[a]))

  b7 <- masterInd$childF6y[a]
  masterInd$childF6y[a] <- ifelse(b6!=masterInd$childF5y[a], masterInd$childF6y[a],
```

```
                    ifelse(is.na(masterInd$childF6y[a])==T &
is.na(masterInd$childF5y[a])==F,
                        ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),
                        masterInd$childF6y[a]))


  b8 <- masterInd$childF7y[a]
  masterInd$childF7y[a] <- ifelse(b7!=masterInd$childF6y[a], masterInd$childF7y[a],
                    ifelse(is.na(masterInd$childF7y[a])==T &
is.na(masterInd$childF6y[a])==F,
                        ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),
                        masterInd$childF7y[a]))


  masterInd$childF8y[a] <- ifelse(b8!=masterInd$childF7y[a], masterInd$childF8y[a],
                    ifelse(is.na(masterInd$childF8y[a])==T &
is.na(masterInd$childF7y[a])==F,
                        ifelse(is.na(a)==T,NA, masterInd$BIRTHY[i]),
                        masterInd$childF8y[a]))


}


# mese #
masterInd$childF1m <- NA
masterInd$childF2m <- NA
masterInd$childF3m <- NA
masterInd$childF4m <- NA
masterInd$childF5m <- NA
masterInd$childF6m <- NA
masterInd$childF7m <- NA
```

```
masterInd$childF8m <- NA



for (i in 1:length(masterInd$IDPERS)){
  a <- masterInd$father[i]
  b2 <- masterInd$childF1m[a]

  masterInd$childF1m[a] <- ifelse(is.na(masterInd$childF1m[a])==T,
                          ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),
                          masterInd$childF1m[a])

  b3 <- masterInd$childF2m[a]
  masterInd$childF2m[a] <- ifelse(b2!=masterInd$childF1m[a],
masterInd$childF2m[a],
                          ifelse(is.na(masterInd$childF2m[a])==T &
is.na(masterInd$childF1m[a])==F,
                              ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),
                              masterInd$childF2m[a]))

  b4 <- masterInd$childF3m[a]
  masterInd$childF3m[a] <- ifelse(b3!=masterInd$childF2m[a],
masterInd$childF3m[a],
                          ifelse(is.na(masterInd$childF3m[a])==T &
is.na(masterInd$childF2m[a])==F,
                              ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),
                              masterInd$childF3m[a]))

  b5 <- masterInd$childF4m[a]
```

```
  masterInd$childF4m[a] <- ifelse(b4!=masterInd$childF3m[a],
masterInd$childF4m[a],

                  ifelse(is.na(masterInd$childF4m[a])==T &
is.na(masterInd$childF3m[a])==F,

                        ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),

                        masterInd$childF4m[a]))


  b6 <- masterInd$childF5m[a]

  masterInd$childF5m[a] <- ifelse(b5!=masterInd$childF4m[a],
masterInd$childF5m[a],

                  ifelse(is.na(masterInd$childF5m[a])==T &
is.na(masterInd$childF4m[a])==F,

                        ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),

                        masterInd$childF5m[a]))


  b7 <- masterInd$childF6m[a]

  masterInd$childF6m[a] <- ifelse(b6!=masterInd$childF5m[a],
masterInd$childF6m[a],

                  ifelse(is.na(masterInd$childF6m[a])==T &
is.na(masterInd$childF5m[a])==F,

                        ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),

                        masterInd$childF6m[a]))


  b8 <- masterInd$childF7m[a]

  masterInd$childF7m[a] <- ifelse(b7!=masterInd$childF6m[a],
masterInd$childF7m[a],

                  ifelse(is.na(masterInd$childF7m[a])==T &
is.na(masterInd$childF6m[a])==F,

                        ifelse(is.na(a)==T,NA, masterInd$BIRTHM[i]),
```

```
                masterInd$childF7m[a]))


  masterInd$childF8m[a] <- ifelse(b8!=masterInd$childF7m[a],
masterInd$childF8m[a],
                ifelse(is.na(masterInd$childF8m[a])==T &
is.na(masterInd$childF7m[a])==F,
                masterInd$childF8m[a]))

}


### selezione campione genitori ###

## selezione genitori con figli dopo il 1998##
names(masterInd)
a1 <- which(names(masterInd)=="childM1y")
b1 <- which(names(masterInd)=="childM8m")
a2 <- which(names(masterInd)=="childF1y")
b2 <- which(names(masterInd)=="childF8m")

c1 <- which(names(masterInd)=="IDPERS")
c2 <- which(names(masterInd)=="SEX")
c3 <- which(names(masterInd)=="BIRTHY")

d <- which(is.na(masterInd$childM1y)==F)
e <- which(is.na(masterInd$childF1y)==F)
```

```
f <- c(d,e)

genitoriALL <- masterInd[f,c(c1,c2,c3,a1:b1,a2:b2)]

names(genitoriALL)

genitoriALL$select <- NA

for (i in 1:length(genitoriALL[,1])){
genitoriALL$select[i] <- max(genitoriALL$childM1y[i],
                    genitoriALL$childM2y[i],
                    genitoriALL$childM3y[i],
                    genitoriALL$childM4y[i],
                    genitoriALL$childM5y[i],
                    genitoriALL$childM6y[i],
                    genitoriALL$childM7y[i],
                    genitoriALL$childM8y[i],
                    genitoriALL$childF1y[i],
                    genitoriALL$childF2y[i],
                    genitoriALL$childF3y[i],
                    genitoriALL$childF4y[i],
                    genitoriALL$childF5y[i],
                    genitoriALL$childF6y[i],
                    genitoriALL$childF7y[i],
                    genitoriALL$childF8y[i],
                    na.rm=T)
}
```

```
genitori <- subset(genitoriALL, select>1998)

## correzione per escludere chi ha figli nel 1999 prima di settembre##

for (i in 1:length(genitori[,1])){
genitori$select[i] <-
ifelse((max(genitori$childM1y[i],genitori$childF1y[i],na.rm=T)==1999 &
                    (genitori$childM1m[i]<9|genitori$childF1m[i]<9)),
                     1,0)
}

genitori <- subset(genitori, select==0)

### lascio stare i figli nati ma non nell'household perché non ho (o non ho sempre)
### l'informazione completa sulla data di nascita. In ogni caso,
### ce ne saranno pochissimo dato che hanno al massimo 15 anni


### unire traiettorie lavoro e selezionare solo chi ha triettorie di lavoro valide ###
sampleG <- merge (genitori, work, by="IDPERS")

### creare anno e mese unico nascita figlio  ###
sampleG$child1y <-
ifelse(is.na(sampleG$childM1y)==T,sampleG$childF1y,sampleG$childM1y)
sampleG$child2y <-
ifelse(is.na(sampleG$childM2y)==T,sampleG$childF2y,sampleG$childM2y)
```

```
sampleG$child3y <-
ifelse(is.na(sampleG$childM3y)==T,sampleG$childF3y,sampleG$childM3y)

sampleG$child4y <-
ifelse(is.na(sampleG$childM4y)==T,sampleG$childF4y,sampleG$childM4y)

sampleG$child5y <-
ifelse(is.na(sampleG$childM5y)==T,sampleG$childF5y,sampleG$childM5y)

sampleG$child6y <-
ifelse(is.na(sampleG$childM6y)==T,sampleG$childF6y,sampleG$childM6y)

sampleG$child7y <-
ifelse(is.na(sampleG$childM7y)==T,sampleG$childF7y,sampleG$childM7y)

sampleG$child8y <-
ifelse(is.na(sampleG$childM8y)==T,sampleG$childF8y,sampleG$childM8y)


sampleG$child1m <-
ifelse(is.na(sampleG$childM1m)==T,sampleG$childF1m,sampleG$childM1m)

sampleG$child2m <-
ifelse(is.na(sampleG$childM2m)==T,sampleG$childF2m,sampleG$childM2m)

sampleG$child3m <-
ifelse(is.na(sampleG$childM3m)==T,sampleG$childF3m,sampleG$childM3m)

sampleG$child4m <-
ifelse(is.na(sampleG$childM4m)==T,sampleG$childF4m,sampleG$childM4m)

sampleG$child5m <-
ifelse(is.na(sampleG$childM5m)==T,sampleG$childF5m,sampleG$childM5m)

sampleG$child6m <-
ifelse(is.na(sampleG$childM6m)==T,sampleG$childF6m,sampleG$childM6m)

sampleG$child7m <-
ifelse(is.na(sampleG$childM7m)==T,sampleG$childF7m,sampleG$childM7m)

sampleG$child8m <-
ifelse(is.na(sampleG$childM8m)==T,sampleG$childF8m,sampleG$childM8m)
```

creare punto di inizio generale (general starting point GSP)###

piccola correzione, probabilmente dovuta a imputazione sbagliata

sampleG <- sampleG[-1567,]

#

a <- min(sampleG$child1y) #prendo solo il primo perché sicuramente il più vecchio in assoluto è tra loro

sampleG$child1yN <- sampleG$child1y - a

sampleG$child2yN <- sampleG$child2y - a

sampleG$child3yN <- sampleG$child3y - a

sampleG$child4yN <- sampleG$child4y - a

sampleG$child5yN <- sampleG$child5y - a

sampleG$child6yN <- sampleG$child6y - a

sampleG$child7yN <- sampleG$child7y - a

sampleG$child8yN <- sampleG$child8y - a

sampleG$child1GSP801 <- (sampleG$child1yN*12)+sampleG$child1m

sampleG$child2GSP801 <- (sampleG$child2yN*12)+sampleG$child2m

sampleG$child3GSP801 <- (sampleG$child3yN*12)+sampleG$child3m

sampleG$child4GSP801 <- (sampleG$child4yN*12)+sampleG$child4m

sampleG$child5GSP801 <- (sampleG$child5yN*12)+sampleG$child5m

sampleG$child6GSP801 <- (sampleG$child6yN*12)+sampleG$child6m

sampleG$child7GSP801 <- (sampleG$child7yN*12)+sampleG$child7m

sampleG$child8GSP801 <- (sampleG$child8yN*12)+sampleG$child8m

```
a <- ((12*(1999-1980)) + 9)-1 # calcolo per passare il riferimento da gennaio 1980 a settembre 1999
                    # 12 mesi per la differenza degli anni + 9(settmbre)
                    #- 1(così settembre il mese 1, non 0)
                    # 236

sampleG$child1GSP999 <- sampleG$child1GSP801 - a
sampleG$child2GSP999 <- sampleG$child2GSP801 - a
sampleG$child3GSP999 <- sampleG$child3GSP801 - a
sampleG$child4GSP999 <- sampleG$child4GSP801 - a
sampleG$child5GSP999 <- sampleG$child5GSP801 - a
sampleG$child6GSP999 <- sampleG$child6GSP801 - a
sampleG$child7GSP999 <- sampleG$child7GSP801 - a
sampleG$child8GSP999 <- sampleG$child8GSP801 - a

### correzione per gemelli ### esempio: se primi 2 figli sono gemelli, risulta secondo figlio = NA e,
                    #se c'è un altro bambino dopo, risulta terzo figlio
for (i in 1:length(sampleG[,1])){
  sampleG$child2GSP999[i] <- ifelse(is.na(sampleG$child2GSP999[i])==T,sampleG$child2GSP999[i],
                     ifelse(sampleG$child2GSP999[i]==sampleG$child1GSP999[i],
                         NA,sampleG$child2GSP999[i]))
}

for (i in 1:length(sampleG[,1])){
  sampleG$child3GSP999[i] <- ifelse(is.na(sampleG$child3GSP999[i])==T,sampleG$child3GSP999[i],
```

```
                    ifelse(sampleG$child3GSP999[i]==sampleG$child2GSP999[i],
                        NA,sampleG$child3GSP999[i]))
}

for (i in 1:length(sampleG[,1])){
  sampleG$child4GSP999[i] <-
ifelse(is.na(sampleG$child4GSP999[i])==T,sampleG$child4GSP999[i],
                    ifelse(sampleG$child4GSP999[i]==sampleG$child3GSP999[i],
                        NA,sampleG$child4GSP999[i]))
}

for (i in 1:length(sampleG[,1])){
  sampleG$child5GSP999[i] <-
ifelse(is.na(sampleG$child5GSP999[i])==T,sampleG$child5GSP999[i],
                    ifelse(sampleG$child5GSP999[i]==sampleG$child4GSP999[i],
                        NA,sampleG$child5GSP999[i]))
}

for (i in 1:length(sampleG[,1])){
  sampleG$child6GSP999[i] <-
ifelse(is.na(sampleG$child6GSP999[i])==T,sampleG$child6GSP999[i],
                    ifelse(sampleG$child6GSP999[i]==sampleG$child5GSP999[i],
                        NA,sampleG$child6GSP999[i]))
}

for (i in 1:length(sampleG[,1])){
  sampleG$child7GSP999[i] <-
ifelse(is.na(sampleG$child7GSP999[i])==T,sampleG$child7GSP999[i],
```

```
                    ifelse(sampleG$child7GSP999[i]==sampleG$child6GSP999[i],
                        NA,sampleG$child7GSP999[i]))
}

for (i in 1:length(sampleG[,1])){
  sampleG$child8GSP999[i] <-
ifelse(is.na(sampleG$child8GSP999[i])==T,sampleG$child8GSP999[i],
                    ifelse(sampleG$child8GSP999[i]==sampleG$child7GSP999[i],
                        NA,sampleG$child8GSP999[i]))
}



### selezioni casi primo figlio ###

a <- which(sampleG$child1GSP999>24) #perchè voglio la sequenza 24 mesi indietro
sampleGf1 <- sampleG[a,]

table(sampleGf1$child1GSP999)

sampleGf1$child1GSP999M24 <- sampleGf1$child1GSP999 -24

table(sampleGf1$child1GSP999M24)



### creazione sequenze e allineamento ###
library(TraMineR)
```

```
library(TraMineRextras)
library(WeightedCluster)

## sequenze di base ##
names(sampleGf1)

a <- which(names(sampleGf1)=="SEP99")
b <- which(names(sampleGf1)=="MAR15")

seqLAf1 <- seqdef(sampleGf1[,a:b])

seqIplot(seqLAf1, sortv="from.start", cex.legend=0.6)



### selezione ####

### primo figlio (se nell'intervallo considerato) ###

# vedere cosa c'è in mese nascita #
a <- which(names(sampleGf1)=="SEP99")-1 #posizione variabile set99

for (i in 1:length(sampleGf1[,1])){

  b <- sampleGf1$child1GSP999[i]
  sampleGf1$meseUno[i] <- as.character(sampleGf1[i,a+b])
}
```

```
table(sampleGf1$meseUno)  # cosa c'è al mese nascita

# selezione #
a <- which(is.na(sampleGf1$meseUno)==F)

sampleGf1s <- sampleGf1[a,]

length(sampleGf1s[,1])

# sequenze allineate #
a <- which(names(sampleGf1s)=="SEP99")
b <- which(names(sampleGf1s)=="MAR15")

perAllLAf1 <- seqstart(sampleGf1s[,a:b], data.start=1,
                  new.start=(sampleGf1s$child1GSP999M24),tmax=49)

seqAllLAf1 <- seqdef(perAllLAf1)

seqIplot(seqAllLAf1, sortv="from.start", cex.legend=0.5)

table(seqAllLAf1[,19])

table(seqAllLAf1[,18])
table(seqAllLAf1[,20])
```

```
## seleziona solo sequenze complete ## lascio 5 mesi di margine, missing tollerati circa 10,2%.

a <- which(names(sampleGf1s)=="SEP99")-1 #posizione variabile set99

limInf <- which(names(sampleGf1s)=="SEP99")
limSup <- which(names(sampleGf1s)=="MAR15")

Nmis <- matrix(ncol=49,nrow=length(sampleGf1s$child1GSP999M24), NA)

for (i in 1:length(sampleGf1s[,1])){
  for (k in -24:24){

    b <- sampleGf1s$child1GSP999[i]
    sampleGf1s$select[i] <- ifelse((a+b+k)>limSup|(a+b+k)<limInf, NA,
                                   as.character(sampleGf1s[i,a+b+k]))
    l <- k + 24 + 1
    Nmis[i,l] <- ifelse(is.na(sampleGf1s$select[i])==T,1,0)
  }}

sampleGf1s$select <- NA

for (i in 1:length(Nmis[,1])){
  sampleGf1s$select[i] <- sum(Nmis[i,])
}

a <- which(sampleGf1s$select<6)
```

```
length(a)

sampleGf1sCOM <- sampleGf1s[a,]



# sequenze allineate #  ## 393 ##
a <- which(names(sampleGf1sCOM)=="SEP99")
b <- which(names(sampleGf1sCOM)=="MAR15")

perAllLAf1 <- seqstart(sampleGf1sCOM[,a:b], data.start=1,
                  new.start=(sampleGf1sCOM$child1GSP999M24),tmax=49)

seqAllLAf1 <- seqdef(perAllLAf1)

seqIplot(seqAllLAf1, sortv="from.start", cex.legend=0.55,  xtlab =-24:24,
        cpal=c("forestgreen","gold","green3","darkorange","blue"))



### selezioni casi secondo figlio ###

a <- which(sampleG$child2GSP999>24) #perchè voglio la sequenza 24 mesi indietro
```

```
sampleGf2 <- sampleG[a,]

table(sampleGf2$child2GSP999)

sampleGf2$child2GSP999M24 <- sampleGf2$child2GSP999 -24

table(sampleGf2$child2GSP999M24)



### creazione sequenze e allineamento ###
library(TraMineR)
library(TraMineRextras)
library(WeightedCluster)

## sequenze di base ##
names(sampleGf2)

a <- which(names(sampleGf2)=="SEP99")
b <- which(names(sampleGf2)=="MAR15")

seqLAf2 <- seqdef(sampleGf2[,a:b])

seqIplot(seqLAf2, sortv="from.start", cex.legend=0.6)



### selezione ####
```

```
### secondo figlio (se nell'intervallo considerato) ###

# vedere cosa c'è in mese nascita #
a <- which(names(sampleGf2)=="SEP99")-1 #posizione variabile set99

for (i in 1:length(sampleGf2[,1])){

  b <- sampleGf2$child2GSP999[i]
  sampleGf2$meseUno[i] <- as.character(sampleGf2[i,a+b])
}



table(sampleGf2$meseUno)  # cosa c'è al mese nascita

# selezione #
a <- which(is.na(sampleGf2$meseUno)==F)

sampleGf2s <- sampleGf2[a,]

length(sampleGf2s[,1])

# sequenze allineate #
a <- which(names(sampleGf2s)=="SEP99")
b <- which(names(sampleGf2s)=="MAR15")

perAllLAf2 <- seqstart(sampleGf2s[,a:b], data.start=1,
                       new.start=(sampleGf2s$child2GSP999M24),tmax=49)
```

```
seqAllLAf2 <- seqdef(perAllLAf2)

seqIplot(seqAllLAf2, sortv="from.start", cex.legend=0.5)

## seleziona solo sequenze complete ## lascio 5 mesi di margine, missing tollerati circa 10,2%.

a <- which(names(sampleGf2s)=="SEP99")-1 #posizione variabile set99

limInf <- which(names(sampleGf2s)=="SEP99")
limSup <- which(names(sampleGf2s)=="MAR15")

Nmis <- matrix(ncol=49,nrow=length(sampleGf2s$child2GSP999M24), NA)

for (i in 1:length(sampleGf2s[,1])){
  for (k in -24:24){

    b <- sampleGf2s$child2GSP999[i]
    sampleGf2s$select[i] <- ifelse((a+b+k)>limSup|(a+b+k)<limInf, NA,
                                   as.character(sampleGf2s[i,a+b+k]))
    l <- k + 24 + 1
    Nmis[i,l] <- ifelse(is.na(sampleGf2s$select[i])==T,1,0)
  }}

sampleGf2s$select <- NA
```

```
for (i in 1:length(Nmis[,1])){
  sampleGf2s$select[i] <- sum(Nmis[i,])
}

a <- which(sampleGf2s$select<6)
length(a)

sampleGf2sCOM <- sampleGf2s[a,]



# sequenze allineate # 362
a <- which(names(sampleGf2sCOM)=="SEP99")
b <- which(names(sampleGf2sCOM)=="MAR15")

perAllLAf2 <- seqstart(sampleGf2sCOM[,a:b], data.start=1,
                       new.start=(sampleGf2sCOM$child2GSP999M24),tmax=49)

seqAllLAf2 <- seqdef(perAllLAf2)

seqIplot(seqAllLAf2, sortv="from.start", cex.legend=0.5,  xtlab =-24:24,
        cpal=c("forestgreen","gold","green3","blue"))
```

```
### selezioni casi terzo figlio ###

a <- which(sampleG$child3GSP999>24) #perchè voglio la sequenza 24 mesi indietro
sampleGf3 <- sampleG[a,]

table(sampleGf3$child3GSP999)

sampleGf3$child3GSP999M24 <- sampleGf3$child3GSP999 -24

table(sampleGf3$child3GSP999M24)


### creazione sequenze e allineamento ###
library(TraMineR)
library(TraMineRextras)
library(WeightedCluster)

## sequenze di base ##
names(sampleGf3)

a <- which(names(sampleGf3)=="SEP99")
b <- which(names(sampleGf3)=="MAR15")

seqLAf3 <- seqdef(sampleGf3[,a:b])
```

```
seqIplot(seqLAf3, sortv="from.start", cex.legend=0.6)



### selezione ####

### terzo figlio (se nell'intervallo considerato) ###

# vedere cosa c'è in mese nascita #
a <- which(names(sampleGf3)=="SEP99")-1 #posizione variabile set99

for (i in 1:length(sampleGf3[,1])){

  b <- sampleGf3$child3GSP999[i]
  sampleGf3$meseUno[i] <- as.character(sampleGf3[i,a+b])
}



table(sampleGf3$meseUno)  # cosa c'è al mese nascita

# selezione #
a <- which(is.na(sampleGf3$meseUno)==F)

sampleGf3s <- sampleGf3[a,]

length(sampleGf3s[,1])
```

```
# sequenze allineate #
a <- which(names(sampleGf3s)=="SEP99")
b <- which(names(sampleGf3s)=="MAR15")

perAllLAf3 <- seqstart(sampleGf3s[,a:b], data.start=1,
                       new.start=(sampleGf3s$child3GSP999M24),tmax=49)

seqAllLAf3 <- seqdef(perAllLAf3)

seqIplot(seqAllLAf3, sortv="from.start", cex.legend=0.5)

## seleziona solo sequenze complete ## lascio 5 mesi di margine, missing tollerati
circa 10,2%.

a <- which(names(sampleGf3s)=="SEP99")-1 #posizione variabile set99

limInf <- which(names(sampleGf3s)=="SEP99")
limSup <- which(names(sampleGf3s)=="MAR15")

Nmis <- matrix(ncol=49,nrow=length(sampleGf3s$child3GSP999M24), NA)

for (i in 1:length(sampleGf3s[,1])){
  for (k in -24:24){

    b <- sampleGf3s$child3GSP999[i]
    sampleGf3s$select[i] <- ifelse((a+b+k)>limSup|(a+b+k)<limInf, NA,
                                   as.character(sampleGf3s[i,a+b+k]))
```

```
   l <- k + 24 + 1
   Nmis[i,l] <- ifelse(is.na(sampleGf3s$select[i])==T,1,0)
  }}

sampleGf3s$select <- NA

for (i in 1:length(Nmis[,1])){
  sampleGf3s$select[i] <- sum(Nmis[i,])
}

a <- which(sampleGf3s$select<6)
length(a)

sampleGf3sCOM <- sampleGf3s[a,]



# sequenze allineate # 128
a <- which(names(sampleGf3sCOM)=="SEP99")
b <- which(names(sampleGf3sCOM)=="MAR15")

perAllLAf3 <- seqstart(sampleGf3sCOM[,a:b], data.start=1,
                       new.start=(sampleGf3sCOM$child3GSP999M24),tmax=49)

seqAllLAf3 <- seqdef(perAllLAf3)

seqIplot(seqAllLAf3, sortv="from.start", cex.legend=0.5)
```

selezioni casi quarto figlio

a <- which(sampleG$child4GSP999>24) #perchè voglio la sequenza 24 mesi indietro

sampleGf4 <- sampleG[a,]

table(sampleGf4$child4GSP999)

sampleGf4$child4GSP999M24 <- sampleGf4$child4GSP999 -24

table(sampleGf4$child4GSP999M24)

creazione sequenze e allineamento

library(TraMineR)

library(TraMineRextras)

library(WeightedCluster)

sequenze di base

names(sampleGf4)

a <- which(names(sampleGf4)=="SEP99")

```
b <- which(names(sampleGf4)=="MAR15")

seqLAf4 <- seqdef(sampleGf4[,a:b])

seqIplot(seqLAf4, sortv="from.start", cex.legend=0.6)



### selezione ####

### quarto figlio (se nell'intervallo considerato) ###

# vedere cosa c'è in mese nascita #
a <- which(names(sampleGf4)=="SEP99")-1 #posizione variabile set99

for (i in 1:length(sampleGf4[,1])){

  b <- sampleGf4$child4GSP999[i]
  sampleGf4$meseUno[i] <- as.character(sampleGf4[i,a+b])
}



table(sampleGf4$meseUno)  # cosa c'è al mese nascita

# selezione #
a <- which(is.na(sampleGf4$meseUno)==F)

sampleGf4s <- sampleGf4[a,]
```

```
length(sampleGf4s[,1])

# sequenze allineate #
a <- which(names(sampleGf4s)=="SEP99")
b <- which(names(sampleGf4s)=="MAR15")

perAllLAf4 <- seqstart(sampleGf4s[,a:b], data.start=1,
                       new.start=(sampleGf4s$child4GSP999M24),tmax=49)

seqAllLAf4 <- seqdef(perAllLAf4)

seqIplot(seqAllLAf4, sortv="from.start", cex.legend=0.5)

## seleziona solo sequenze complete ## lascio 5 mesi di margine, missing tollerati circa 10,2%.

a <- which(names(sampleGf4s)=="SEP99")-1 #posizione variabile set99

limInf <- which(names(sampleGf4s)=="SEP99")
limSup <- which(names(sampleGf4s)=="MAR15")

Nmis <- matrix(ncol=49,nrow=length(sampleGf4s$child4GSP999M24), NA)

for (i in 1:length(sampleGf4s[,1])){
  for (k in -24:24){
```

```
   b <- sampleGf4s$child4GSP999[i]
   sampleGf4s$select[i] <- ifelse((a+b+k)>limSup|(a+b+k)<limInf, NA,
                          as.character(sampleGf4s[i,a+b+k]))
   l <- k + 24 + 1
   Nmis[i,l] <- ifelse(is.na(sampleGf4s$select[i])==T,1,0)
  }}

sampleGf4s$select <- NA

for (i in 1:length(Nmis[,1])){
  sampleGf4s$select[i] <- sum(Nmis[i,])
}

a <- which(sampleGf4s$select<6)
length(a)

sampleGf4sCOM <- sampleGf4s[a,]



# sequenze allineate # 27
a <- which(names(sampleGf4sCOM)=="SEP99")
b <- which(names(sampleGf4sCOM)=="MAR15")

perAllLAf4 <- seqstart(sampleGf4sCOM[,a:b], data.start=1,
                  new.start=(sampleGf4sCOM$child4GSP999M24),tmax=49)

seqAllLAf4 <- seqdef(perAllLAf4)
```

```
seqIplot(seqAllLAf4, sortv="from.start", cex.legend=0.5)




### selezioni casi quinto figlio ###

a <- which(sampleG$child5GSP999>24) #perchè voglio la sequenza 24 mesi indietro
sampleGf5 <- sampleG[a,]

table(sampleGf5$child5GSP999)

sampleGf5$child5GSP999M24 <- sampleGf5$child5GSP999 -24

table(sampleGf5$child5GSP999M24)



### creazione sequenze e allineamento ###
library(TraMineR)
library(TraMineRextras)
library(WeightedCluster)

## sequenze di base ##
names(sampleGf5)
```

```
a <- which(names(sampleGf5)=="SEP99")
b <- which(names(sampleGf5)=="MAR15")

seqLAf5 <- seqdef(sampleGf5[,a:b])

seqIplot(seqLAf5, sortv="from.start", cex.legend=0.6)



### selezione ####

### quinto figlio (se nell'intervallo considerato) ###

# vedere cosa c'è in mese nascita #
a <- which(names(sampleGf5)=="SEP99")-1 #posizione variabile set99

for (i in 1:length(sampleGf5[,1])){

  b <- sampleGf5$child5GSP999[i]
  sampleGf5$meseUno[i] <- as.character(sampleGf5[i,a+b])
}



table(sampleGf5$meseUno)  # cosa c'è al mese nascita

# selezione #
a <- which(is.na(sampleGf5$meseUno)==F)
```

```
sampleGf5s <- sampleGf5[a,]

length(sampleGf5s[,1])

# sequenze allineate #
a <- which(names(sampleGf5s)=="SEP99")
b <- which(names(sampleGf5s)=="MAR15")

perAllLAf5 <- seqstart(sampleGf5s[,a:b], data.start=1,
                       new.start=(sampleGf5s$child5GSP999M24),tmax=49)

seqAllLAf5 <- seqdef(perAllLAf5)

seqIplot(seqAllLAf5, sortv="from.start", cex.legend=0.5)

## seleziona solo sequenze complete ## lascio 5 mesi di margine, missing tollerati
circa 10,2%.

a <- which(names(sampleGf5s)=="SEP99")-1 #posizione variabile set99

limInf <- which(names(sampleGf5s)=="SEP99")
limSup <- which(names(sampleGf5s)=="MAR15")

Nmis <- matrix(ncol=49,nrow=length(sampleGf5s$child5GSP999M24), NA)

for (i in 1:length(sampleGf5s[,1])){
```

```
  for (k in -24:24){

    b <- sampleGf5s$child5GSP999[i]
    sampleGf5s$select[i] <- ifelse((a+b+k)>limSup|(a+b+k)<limInf, NA,
                                   as.character(sampleGf5s[i,a+b+k]))
    l <- k + 24 + 1
    Nmis[i,l] <- ifelse(is.na(sampleGf5s$select[i])==T,1,0)
  }}

sampleGf5s$select <- NA

for (i in 1:length(Nmis[,1])){
  sampleGf5s$select[i] <- sum(Nmis[i,])
}

a <- which(sampleGf5s$select<6)
length(a)

sampleGf5sCOM <- sampleGf5s[a,]

# sequenze allineate # 4
a <- which(names(sampleGf5sCOM)=="SEP99")
b <- which(names(sampleGf5sCOM)=="MAR15")

perAllLAf5 <- seqstart(sampleGf5sCOM[,a:b], data.start=1,
                       new.start=(sampleGf5sCOM$child5GSP999M24),tmax=49)
```

```
seqAllLAf5 <- seqdef(perAllLAf5)

seqIplot(seqAllLAf5, sortv="from.start", cex.legend=0.5)




### selezioni casi sesto figlio ###

a <- which(sampleG$child6GSP999>24) #perchè voglio la sequenza 24 mesi indietro
sampleGf6 <- sampleG[a,]

table(sampleGf6$child6GSP999)

sampleGf6$child6GSP999M24 <- sampleGf6$child6GSP999 -24

table(sampleGf6$child6GSP999M24)



### creazione sequenze e allineamento ###
library(TraMineR)
library(TraMineRextras)
library(WeightedCluster)
```

```
## sequenze di base ##
names(sampleGf6)

a <- which(names(sampleGf6)=="SEP99")
b <- which(names(sampleGf6)=="MAR15")

seqLAf6 <- seqdef(sampleGf6[,a:b])

seqIplot(seqLAf6, sortv="from.start", cex.legend=0.6)



### selezione ####

### sesto figlio (se nell'intervallo considerato) ###

# vedere cosa c'è in mese nascita #
a <- which(names(sampleGf6)=="SEP99")-1 #posizione variabile set99

for (i in 1:length(sampleGf6[,1])){

  b <- sampleGf6$child6GSP999[i]
  sampleGf6$meseUno[i] <- as.character(sampleGf6[i,a+b])
}



table(sampleGf6$meseUno)  # cosa c'è al mese nascita
```

```
# selezione #
a <- which(is.na(sampleGf6$meseUno)==F)

sampleGf6s <- sampleGf6[a,]

length(sampleGf6s[,1])

# sequenze allineate #
a <- which(names(sampleGf6s)=="SEP99")
b <- which(names(sampleGf6s)=="MAR15")

perAllLAf6 <- seqstart(sampleGf6s[,a:b], data.start=1,
                       new.start=(sampleGf6s$child6GSP999M24),tmax=49)

seqAllLAf6 <- seqdef(perAllLAf6)

seqIplot(seqAllLAf6, sortv="from.start", cex.legend=0.5)

## seleziona solo sequenze complete ## lascio 5 mesi di margine, missing tollerati
circa 10,2%.

a <- which(names(sampleGf6s)=="SEP99")-1 #posizione variabile set99

limInf <- which(names(sampleGf6s)=="SEP99")
limSup <- which(names(sampleGf6s)=="MAR15")

Nmis <- matrix(ncol=49,nrow=length(sampleGf6s$child6GSP999M24), NA)
```

```
for (i in 1:length(sampleGf6s[,1])){
  for (k in -24:24){

    b <- sampleGf6s$child6GSP999[i]
    sampleGf6s$select[i] <- ifelse((a+b+k)>limSup|(a+b+k)<limInf, NA,
                                   as.character(sampleGf6s[i,a+b+k]))
    l <- k + 24 + 1
    Nmis[i,l] <- ifelse(is.na(sampleGf6s$select[i])==T,1,0)
  }}

sampleGf6s$select <- NA

for (i in 1:length(Nmis[,1])){
  sampleGf6s$select[i] <- sum(Nmis[i,])
}

a <- which(sampleGf6s$select<6)
length(a)

sampleGf6sCOM <- sampleGf6s[a,]



# sequenze allineate # 2
a <- which(names(sampleGf6sCOM)=="SEP99")
b <- which(names(sampleGf6sCOM)=="MAR15")
```

```
perAllLAf6 <- seqstart(sampleGf6sCOM[,a:b], data.start=1,
                       new.start=(sampleGf6sCOM$child6GSP999M24),tmax=49)

seqAllLAf6 <- seqdef(perAllLAf6)

seqIplot(seqAllLAf6, sortv="from.start", cex.legend=0.5)




### selezioni casi settimo figlio ###

a <- which(sampleG$child7GSP999>24) #perchè voglio la sequenza 24 mesi indietro
sampleGf7 <- sampleG[a,]

table(sampleGf7$child7GSP999)

sampleGf7$child7GSP999M24 <- sampleGf7$child7GSP999 -24

table(sampleGf7$child7GSP999M24)



### creazione sequenze e allineamento ###
library(TraMineR)
library(TraMineRextras)
```

```
library(WeightedCluster)

## sequenze di base ##
names(sampleGf7)

a <- which(names(sampleGf7)=="SEP99")
b <- which(names(sampleGf7)=="MAR15")

seqLAf7 <- seqdef(sampleGf7[,a:b])

seqIplot(seqLAf7, sortv="from.start", cex.legend=0.6)



### selezione ####

### settimo figlio (se nell'intervallo considerato) ###

# vedere cosa c'è in mese nascita #
a <- which(names(sampleGf7)=="SEP99")-1 #posizione variabile set99

for (i in 1:length(sampleGf7[,1])){

  b <- sampleGf7$child7GSP999[i]
  sampleGf7$meseUno[i] <- as.character(sampleGf7[i,a+b])
}
```

```
table(sampleGf7$meseUno)  # cosa c'è al mese nascita

# selezione #
a <- which(is.na(sampleGf7$meseUno)==F)

sampleGf7s <- sampleGf7[a,]

length(sampleGf7s[,1])

# sequenze allineate #
a <- which(names(sampleGf7s)=="SEP99")
b <- which(names(sampleGf7s)=="MAR15")

perAllLAf7 <- seqstart(sampleGf7s[,a:b], data.start=1,
                       new.start=(sampleGf7s$child7GSP999M24),tmax=49)

perAllLAf7[25] <- "children" ### piccola correzione per evitare che ci sia uno stato solo ###

seqAllLAf7 <- seqdef(perAllLAf7)

seqIplot(seqAllLAf7, sortv="from.start", cex.legend=0.5)

## seleziona solo sequenze complete ## lascio 5 mesi di margine, missing tollerati circa 10,2%.

a <- which(names(sampleGf7s)=="SEP99")-1 #posizione variabile set99
```

```
limInf <- which(names(sampleGf7s)=="SEP99")
limSup <- which(names(sampleGf7s)=="MAR15")

Nmis <- matrix(ncol=49,nrow=length(sampleGf7s$child7GSP999M24), NA)

for (i in 1:length(sampleGf7s[,1])){
  for (k in -24:24){

    b <- sampleGf7s$child7GSP999[i]
    sampleGf7s$select[i] <- ifelse((a+b+k)>limSup|(a+b+k)<limInf, NA,
                                   as.character(sampleGf7s[i,a+b+k]))
    l <- k + 24 + 1
    Nmis[i,l] <- ifelse(is.na(sampleGf7s$select[i])==T,1,0)
  }}

sampleGf7s$select <- NA

for (i in 1:length(Nmis[,1])){
  sampleGf7s$select[i] <- sum(Nmis[i,])
}

a <- which(sampleGf7s$select<6)
length(a)

sampleGf7sCOM <- sampleGf7s[a,]
```

```
# sequenze allineate # 0 ## l'unica presente è data dai vecchi calcoli
a <- which(names(sampleGf7sCOM)=="SEP99")
b <- which(names(sampleGf7sCOM)=="MAR15")

perAllLAf7 <- seqstart(sampleGf7sCOM[,a:b], data.start=1,
                       new.start=(sampleGf7sCOM$child7GSP999M24),tmax=49)

seqAllLAf7 <- seqdef(perAllLAf7)

seqIplot(seqAllLAf7, sortv="from.start", cex.legend=0.5)




### selezioni casi ottavo figlio ### non gira perchè diventa subito tutto vuoto

a <- which(sampleG$child8GSP999>24) #perchè voglio la sequenza 24 mesi indietro
sampleGf8 <- sampleG[a,]

table(sampleGf8$child8GSP999)

sampleGf8$child8GSP999M24 <- sampleGf8$child8GSP999 -24

table(sampleGf8$child8GSP999M24)
```

```
### creazione sequenze e allineamento ###
library(TraMineR)
library(TraMineRextras)
library(WeightedCluster)

## sequenze di base ##
names(sampleGf8)

a <- which(names(sampleGf8)=="SEP99")
b <- which(names(sampleGf8)=="MAR15")

seqLAf8 <- seqdef(sampleGf8[,a:b])

seqIplot(seqLAf8, sortv="from.start", cex.legend=0.6)



### selezione ####

### ottavo figlio (se nell'intervallo considerato) ###

# vedere cosa c'è in mese nascita #
a <- which(names(sampleGf8)=="SEP99")-1 #posizione variabile set99

for (i in 1:length(sampleGf8[,1])){
```

```
  b <- sampleGf8$child8GSP999[i]
  sampleGf8$meseUno[i] <- as.character(sampleGf8[i,a+b])
}



table(sampleGf8$meseUno)  # cosa c'è al mese nascita

# selezione #
a <- which(is.na(sampleGf8$meseUno)==F)

sampleGf8s <- sampleGf8[a,]

length(sampleGf8s[,1])

# sequenze allineate #
a <- which(names(sampleGf8s)=="SEP99")
b <- which(names(sampleGf8s)=="MAR15")

perAllLAf8 <- seqstart(sampleGf8s[,a:b], data.start=1,
                       new.start=(sampleGf8s$child8GSP999M24),tmax=49)

perAllLAf8[25] <- "children" ### piccola correzione per evitare che ci sia uno stato solo ###

seqAllLAf8 <- seqdef(perAllLAf8)

seqIplot(seqAllLAf8, sortv="from.start", cex.legend=0.5)
```

```
## seleziona solo sequenze complete ## lascio 5 mesi di margine, missing tollerati circa 10,2%.

a <- which(names(sampleGf8s)=="SEP99")-1 #posizione variabile set99

limInf <- which(names(sampleGf8s)=="SEP99")
limSup <- which(names(sampleGf8s)=="MAR15")

Nmis <- matrix(ncol=49,nrow=length(sampleGf8s$child8GSP999M24), NA)

for (i in 1:length(sampleGf8s[,1])){
  for (k in -24:24){

    b <- sampleGf8s$child8GSP999[i]
    sampleGf8s$select[i] <- ifelse((a+b+k)>limSup|(a+b+k)<limInf, NA,
                                   as.character(sampleGf8s[i,a+b+k]))
    l <- k + 24 + 1
    Nmis[i,l] <- ifelse(is.na(sampleGf8s$select[i])==T,1,0)
  }}

sampleGf8s$select <- NA

for (i in 1:length(Nmis[,1])){
  sampleGf8s$select[i] <- sum(Nmis[i,])
}
```

```
a <- which(sampleGf8s$select<6)
length(a)

sampleGf8sCOM <- sampleGf8s[a,]



# sequenze allineate # 0 ## l'unica presente è esclusa per troppi missing interni
a <- which(names(sampleGf8sCOM)=="SEP99")
b <- which(names(sampleGf8sCOM)=="MAR15")

perAllLAf8 <- seqstart(sampleGf8sCOM[,a:b], data.start=1,
                       new.start=(sampleGf8sCOM$child8GSP999M24),tmax=49)

perAllLAf8[25] <- "children" ### piccola correzione per evitare che ci sia uno stato solo ###

seqAllLAf8 <- seqdef(perAllLAf8)

seqIplot(seqAllLAf8, sortv="from.start", cex.legend=0.5)
```

3- Descriptive analyses

```
library(TraMineR)

### divisione per sesso ###

#1#
seqIplot(seqAllLAf1, sortv="from.start", cex.legend=0.7,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf1sCOM$SEX)

seqdplot(seqAllLAf1, cex.legend=0.7,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf1sCOM$SEX)

#2#
seqIplot(seqAllLAf2,  sortv="from.start", cex.legend=0.7,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf2sCOM$SEX)

seqdplot(seqAllLAf2, cex.legend=0.7,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
```

```
        group=sampleGf2sCOM$SEX)

#3#
seqIplot(seqAllLAf3, sortv="from.start", cex.legend=0.7,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf3sCOM$SEX)

seqdplot(seqAllLAf3, cex.legend=0.7,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf3sCOM$SEX)

#4#
seqIplot(seqAllLAf4, sortv="from.start", cex.legend=0.7,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf4sCOM$SEX)

seqdplot(seqAllLAf4, cex.legend=0.7,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf4sCOM$SEX)

#5#
seqIplot(seqAllLAf5, sortv="from.start", cex.legend=0.7,
        cpal=c("forestgreen","green3"),
```

```
        xtlab =-24:24,
        group=sampleGf5sCOM$SEX)

seqdplot(seqAllLAf5, cex.legend=0.7,
        cpal=c("forestgreen","green3"),
        xtlab =-24:24,
        group=sampleGf5sCOM$SEX)

#6#
seqIplot(seqAllLAf6, sortv="from.start", cex.legend=0.7,
        cpal=c("forestgreen","gold","green3"),
        xtlab =-24:24,
        group=sampleGf6sCOM$SEX)

seqdplot(seqAllLAf6, cex.legend=0.7,
        cpal=c("forestgreen","gold","green3"),
        xtlab =-24:24,
        group=sampleGf6sCOM$SEX)

#7# no sequences

#8# no sequences



### divisione per età ###
table(sampleGf1sCOM$BIRTHY)
```

```
#1#
table(sampleGf1sCOM$child1y)

sampleGf1sCOM$eta <- sampleGf1sCOM$child1y - sampleGf1sCOM$BIRTHY

a <- 25
b <- 30
c <- 35
d <- 40


for (i in 1:length(sampleGf1sCOM[,1])){
sampleGf1sCOM$CLeta[i] <- ifelse(sampleGf1sCOM$eta[i]<d &
sampleGf1sCOM$eta[i]>=c,"35-39 years",
                        ifelse(sampleGf1sCOM$eta[i]<c & sampleGf1sCOM$eta[i]>=b,"30-
34 years",
                               ifelse(sampleGf1sCOM$eta[i]<b &
sampleGf1sCOM$eta[i]>=a,"25-30 years",
                                      ifelse(sampleGf1sCOM$eta[i]<a,"<25",
                                             ">=40"))))
}

table(sampleGf1sCOM$CLeta)
table(sampleGf1sCOM$CLeta,sampleGf1sCOM$eta)


seqIplot(seqAllLAf1, sortv="from.start", cex.legend=0.8,
```

```
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf1sCOM$CLeta)

seqdplot(seqAllLAf1, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf1sCOM$CLeta)

#2#
table(sampleGf2sCOM$child2y)

sampleGf2sCOM$eta <- sampleGf2sCOM$child2y - sampleGf2sCOM$BIRTHY

a <- 25
b <- 30
c <- 35
d <- 40


for (i in 1:length(sampleGf2sCOM[,1])){
  sampleGf2sCOM$CLeta[i] <- ifelse(sampleGf2sCOM$eta[i]<d &
sampleGf2sCOM$eta[i]>=c,"35-39 years",
                                   ifelse(sampleGf2sCOM$eta[i]<c &
sampleGf2sCOM$eta[i]>=b,"30-34 years",
                                          ifelse(sampleGf2sCOM$eta[i]<b &
sampleGf2sCOM$eta[i]>=a,"25-30 years",
                                                 ifelse(sampleGf2sCOM$eta[i]<a,"<25",
```

```
                                        ">=40"))))
}

table(sampleGf2sCOM$CLeta)
table(sampleGf2sCOM$CLeta,sampleGf2sCOM$eta)

seqIplot(seqAllLAf2, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf2sCOM$CLeta)

seqdplot(seqAllLAf2, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf2sCOM$CLeta)



#3#
table(sampleGf3sCOM$child3y)

sampleGf3sCOM$eta <- sampleGf3sCOM$child3y - sampleGf3sCOM$BIRTHY

a <- 25
b <- 30
c <- 35
d <- 40
```

```
for (i in 1:length(sampleGf3sCOM[,1])){
  sampleGf3sCOM$CLeta[i] <- ifelse(sampleGf3sCOM$eta[i]<d &
sampleGf3sCOM$eta[i]>=c,"35-39 years",
                                   ifelse(sampleGf3sCOM$eta[i]<c &
sampleGf3sCOM$eta[i]>=b,"30-34 years",
                                          ifelse(sampleGf3sCOM$eta[i]<b &
sampleGf3sCOM$eta[i]>=a,"25-30 years",
                                                 ifelse(sampleGf3sCOM$eta[i]<a,"<25",
                                                        ">=40"))))
}

table(sampleGf3sCOM$CLeta)
table(sampleGf3sCOM$CLeta,sampleGf3sCOM$eta)

seqIplot(seqAllLAf3, sortv="from.start", cex.legend=0.8,
         cpal=c("forestgreen","gold","green3","darkorange","blue"),
         xtlab =-24:24,
         group=sampleGf3sCOM$CLeta)

seqdplot(seqAllLAf3, cex.legend=0.8,
         cpal=c("forestgreen","gold","green3","darkorange","blue"),
         xtlab =-24:24,
         group=sampleGf3sCOM$CLeta)

#4#
table(sampleGf4sCOM$child4y)
```

```
sampleGf4sCOM$eta <- sampleGf4sCOM$child4y - sampleGf4sCOM$BIRTHY


a <- 25

b <- 30

c <- 35

d <- 40



for (i in 1:length(sampleGf4sCOM[,1])){

  sampleGf4sCOM$CLeta[i] <- ifelse(sampleGf4sCOM$eta[i]<d &
sampleGf4sCOM$eta[i]>=c,"35-39 years",

                                   ifelse(sampleGf4sCOM$eta[i]<c &
sampleGf4sCOM$eta[i]>=b,"30-34 years",

                                          ifelse(sampleGf4sCOM$eta[i]<b &
sampleGf4sCOM$eta[i]>=a,"25-30 years",

                                                 ifelse(sampleGf4sCOM$eta[i]<a,"<25",

                                                        ">=40"))))

}


table(sampleGf4sCOM$CLeta)

table(sampleGf4sCOM$CLeta,sampleGf4sCOM$eta)


seqIplot(seqAllLAf4, sortv="from.start", cex.legend=0.8,

        cpal=c("forestgreen","gold","green3","blue"),

        xtlab =-24:24,

        group=sampleGf4sCOM$CLeta)


seqdplot(seqAllLAf4, cex.legend=0.8,
```

```
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf4sCOM$CLeta)

#5#

table(sampleGf5sCOM$child5y)

sampleGf5sCOM$eta <- sampleGf5sCOM$child5y - sampleGf5sCOM$BIRTHY

a <- 25
b <- 30
c <- 35
d <- 40


for (i in 1:length(sampleGf5sCOM[,1])){
  sampleGf5sCOM$CLeta[i] <- ifelse(sampleGf5sCOM$eta[i]<d &
sampleGf5sCOM$eta[i]>=c,"35-39 years",
                                   ifelse(sampleGf5sCOM$eta[i]<c &
sampleGf5sCOM$eta[i]>=b,"30-34 years",
                                          ifelse(sampleGf5sCOM$eta[i]<b &
sampleGf5sCOM$eta[i]>=a,"25-30 years",
                                                 ifelse(sampleGf5sCOM$eta[i]<a,"<25",
                                                        ">=40"))))
}

table(sampleGf5sCOM$CLeta)
```

```
table(sampleGf5sCOM$CLeta,sampleGf5sCOM$eta)

seqIplot(seqAllLAf5, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","green3"),
        xtlab =-24:24,
        group=sampleGf5sCOM$CLeta)

seqdplot(seqAllLAf5, cex.legend=0.8,
        cpal=c("forestgreen","green3"),
        xtlab =-24:24,
        group=sampleGf5sCOM$CLeta)

#6#
table(sampleGf6sCOM$child6y)

sampleGf6sCOM$eta <- sampleGf6sCOM$child6y - sampleGf6sCOM$BIRTHY

a <- 25
b <- 30
c <- 35
d <- 40


for (i in 1:length(sampleGf6sCOM[,1])){
  sampleGf6sCOM$CLeta[i] <- ifelse(sampleGf6sCOM$eta[i]<d &
sampleGf6sCOM$eta[i]>=c,"35-39 years",
```

```
                        ifelse(sampleGf6sCOM$eta[i]<c &
sampleGf6sCOM$eta[i]>=b,"30-34 years",
                               ifelse(sampleGf6sCOM$eta[i]<b &
sampleGf6sCOM$eta[i]>=a,"25-30 years",
                                      ifelse(sampleGf6sCOM$eta[i]<a,"<25",
                                             ">=40"))))
}

table(sampleGf6sCOM$CLeta)
table(sampleGf6sCOM$CLeta,sampleGf6sCOM$eta)

seqIplot(seqAllLAf6, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3"),
        xtlab =-24:24,
        group=sampleGf6sCOM$CLeta)

seqdplot(seqAllLAf6, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3"),
        xtlab =-24:24,
        group=sampleGf6sCOM$CLeta)

#7# no sequences

#8# no sequences
```

```
### divisione per coorte ###
table(sampleGf1sCOM$BIRTHY)

#1#

a <- 1970
b <- 1980

for (i in 1:length(sampleGf1sCOM[,1])){
  sampleGf1sCOM$cohort[i] <-   ifelse(sampleGf1sCOM$BIRTHY[i]<b &
sampleGf1sCOM$BIRTHY[i]>=a,"1970-1979",
                              ifelse(sampleGf1sCOM$BIRTHY[i]<a,"before 1970",
                                  "after 1980"))
}

table(sampleGf1sCOM$cohort)
table(sampleGf1sCOM$cohort,sampleGf1sCOM$BIRTHY)

seqIplot(seqAllLAf1, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf1sCOM$cohort)

seqdplot(seqAllLAf1, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
```

```
        xtlab =-24:24,
        group=sampleGf1sCOM$cohort)



#2#

a <- 1970
b <- 1980

for (i in 1:length(sampleGf2sCOM[,1])){
  sampleGf2sCOM$cohort[i] <-   ifelse(sampleGf2sCOM$BIRTHY[i]<b &
sampleGf2sCOM$BIRTHY[i]>=a,"1970-1979",
                              ifelse(sampleGf2sCOM$BIRTHY[i]<a,"before 1970",
                                  "after 1980"))
}

table(sampleGf2sCOM$cohort)
table(sampleGf2sCOM$cohort,sampleGf2sCOM$BIRTHY)

seqIplot(seqAllLAf2, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf2sCOM$cohort)

seqdplot(seqAllLAf2, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
```

```
        group=sampleGf2sCOM$cohort)



#3#


a <- 1970

b <- 1980


for (i in 1:length(sampleGf3sCOM[,1])){

  sampleGf3sCOM$cohort[i] <-   ifelse(sampleGf3sCOM$BIRTHY[i]<b &
sampleGf3sCOM$BIRTHY[i]>=a,"1970-1979",

                              ifelse(sampleGf3sCOM$BIRTHY[i]<a,"before 1970",

                                   "after 1980"))

}


table(sampleGf3sCOM$cohort)

table(sampleGf3sCOM$cohort,sampleGf3sCOM$BIRTHY)


seqIplot(seqAllLAf3, sortv="from.start", cex.legend=0.8,

        cpal=c("forestgreen","gold","green3","darkorange","blue"),

        xtlab =-24:24,

        group=sampleGf3sCOM$cohort)


seqdplot(seqAllLAf3, cex.legend=0.8,

        cpal=c("forestgreen","gold","green3","darkorange","blue"),

        xtlab =-24:24,

        group=sampleGf3sCOM$cohort)
```

```
#4#

a <- 1970

b <- 1980

for (i in 1:length(sampleGf4sCOM[,1])){

  sampleGf4sCOM$cohort[i] <-   ifelse(sampleGf4sCOM$BIRTHY[i]<b &
sampleGf4sCOM$BIRTHY[i]>=a,"1970-1979",

                              ifelse(sampleGf4sCOM$BIRTHY[i]<a,"before 1970",

                                  "after 1980"))

}

table(sampleGf4sCOM$cohort)

table(sampleGf4sCOM$cohort,sampleGf4sCOM$BIRTHY)



seqIplot(seqAllLAf4, sortv="from.start", cex.legend=0.8,

        cpal=c("forestgreen","gold","green3","blue"),

        xtlab =-24:24,

        group=sampleGf4sCOM$cohort)


seqdplot(seqAllLAf4, cex.legend=0.8,

        cpal=c("forestgreen","gold","green3","darkorange","blue"),

        xtlab =-24:24,

        group=sampleGf4sCOM$cohort)
```

```
#5#

a <- 1970

b <- 1980

for (i in 1:length(sampleGf5sCOM[,1])){

  sampleGf5sCOM$cohort[i] <-   ifelse(sampleGf5sCOM$BIRTHY[i]<b &
sampleGf5sCOM$BIRTHY[i]>=a,"1970-1979",

                              ifelse(sampleGf5sCOM$BIRTHY[i]<a,"before 1970",

                                  "after 1980"))

}

table(sampleGf5sCOM$cohort)

table(sampleGf5sCOM$cohort,sampleGf5sCOM$BIRTHY)



seqIplot(seqAllLAf5, sortv="from.start", cex.legend=0.8,

        cpal=c("forestgreen","green3"),

        xtlab =-24:24,

        group=sampleGf5sCOM$cohort)


seqdplot(seqAllLAf5, cex.legend=0.8,

        cpal=c("forestgreen","green3"),

        xtlab =-24:24,

        group=sampleGf5sCOM$cohort)
```

```
#6#

a <- 1970

b <- 1980

for (i in 1:length(sampleGf6sCOM[,1])){

  sampleGf6sCOM$cohort[i] <-   ifelse(sampleGf6sCOM$BIRTHY[i]<b &
sampleGf6sCOM$BIRTHY[i]>=a,"1970-1979",

                              ifelse(sampleGf6sCOM$BIRTHY[i]<a,"before 1970",

                                  "after 1980"))

}

table(sampleGf6sCOM$cohort)

table(sampleGf6sCOM$cohort,sampleGf6sCOM$BIRTHY)

seqIplot(seqAllLAf6, sortv="from.start", cex.legend=0.8,

       cpal=c("forestgreen","gold","green3"),

       xtlab =-24:24,

       group=sampleGf6sCOM$cohort)

seqdplot(seqAllLAf6, cex.legend=0.8,

       cpal=c("forestgreen","gold","green3"),

       xtlab =-24:24,

       group=sampleGf6sCOM$cohort)
```

#7# no sequences

#8# no sequences

divisione per nazionalita

```
table(sampleGf1sCOM$REG_1_99)

#1#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf1sCOM)=="REG_1_99")
a[2,1] <- which(names(sampleGf1sCOM)=="REG_1_00")
a[3,1] <- which(names(sampleGf1sCOM)=="REG_1_01")
a[4,1] <- which(names(sampleGf1sCOM)=="REG_1_02")
a[5,1] <- which(names(sampleGf1sCOM)=="REG_1_03")
a[6,1] <- which(names(sampleGf1sCOM)=="REG_1_04")
a[7,1] <- which(names(sampleGf1sCOM)=="REG_1_05")
a[8,1] <- which(names(sampleGf1sCOM)=="REG_1_06")
a[9,1] <- which(names(sampleGf1sCOM)=="REG_1_07")
a[10,1] <- which(names(sampleGf1sCOM)=="REG_1_08")
a[11,1] <- which(names(sampleGf1sCOM)=="REG_1_09")
a[12,1] <- which(names(sampleGf1sCOM)=="REG_1_10")
a[13,1] <- which(names(sampleGf1sCOM)=="REG_1_11")
a[14,1] <- which(names(sampleGf1sCOM)=="REG_1_12")
a[15,1] <- which(names(sampleGf1sCOM)=="REG_1_13")
```

```
a[16,1] <- which(names(sampleGf1sCOM)=="REG_1_14")

sampleGf1sCOM$Vpos <- NA

for (i in 1:length(sampleGf1sCOM$child1y)){
  b <- sampleGf1sCOM$child1y[i] - 1998
  for (j in 1:length(a)){
    sampleGf1sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf1sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf1sCOM$Vpos)){
  b <- sampleGf1sCOM$Vpos[i]
  sampleGf1sCOM$nat[i] <- as.character(sampleGf1sCOM[i,b])
}

table(sampleGf1sCOM$nat)

sampleGf1sCOM$nat2 <- ifelse(sampleGf1sCOM$nat=="Switzerland", "Swiss",
"Foreign")
table(sampleGf1sCOM$nat2)

seqIplot(seqAllLAf1, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf1sCOM$nat2)

seqdplot(seqAllLAf1, cex.legend=0.8,
```

```
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf1sCOM$nat2)


#2#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf2sCOM)=="REG_1_99")
a[2,1] <- which(names(sampleGf2sCOM)=="REG_1_00")
a[3,1] <- which(names(sampleGf2sCOM)=="REG_1_01")
a[4,1] <- which(names(sampleGf2sCOM)=="REG_1_02")
a[5,1] <- which(names(sampleGf2sCOM)=="REG_1_03")
a[6,1] <- which(names(sampleGf2sCOM)=="REG_1_04")
a[7,1] <- which(names(sampleGf2sCOM)=="REG_1_05")
a[8,1] <- which(names(sampleGf2sCOM)=="REG_1_06")
a[9,1] <- which(names(sampleGf2sCOM)=="REG_1_07")
a[10,1] <- which(names(sampleGf2sCOM)=="REG_1_08")
a[11,1] <- which(names(sampleGf2sCOM)=="REG_1_09")
a[12,1] <- which(names(sampleGf2sCOM)=="REG_1_10")
a[13,1] <- which(names(sampleGf2sCOM)=="REG_1_11")
a[14,1] <- which(names(sampleGf2sCOM)=="REG_1_12")
a[15,1] <- which(names(sampleGf2sCOM)=="REG_1_13")
a[16,1] <- which(names(sampleGf2sCOM)=="REG_1_14")

sampleGf2sCOM$Vpos <- NA
```

```
for (i in 1:length(sampleGf2sCOM$child2y)){
  b <- sampleGf2sCOM$child2y[i] - 1998
  for (j in 1:length(a)){
    sampleGf2sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf2sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf2sCOM$Vpos)){
  b <- sampleGf2sCOM$Vpos[i]
  sampleGf2sCOM$nat[i] <- as.character(sampleGf2sCOM[i,b])
}

table(sampleGf2sCOM$nat)

sampleGf2sCOM$nat2 <- ifelse(sampleGf2sCOM$nat=="Switzerland", "Swiss",
"Foreign")
table(sampleGf2sCOM$nat2)

seqIplot(seqAllLAf2, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf2sCOM$nat2)

seqdplot(seqAllLAf2, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf2sCOM$nat2)
```

```
#3#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf3sCOM)=="REG_1_99")
a[2,1] <- which(names(sampleGf3sCOM)=="REG_1_00")
a[3,1] <- which(names(sampleGf3sCOM)=="REG_1_01")
a[4,1] <- which(names(sampleGf3sCOM)=="REG_1_02")
a[5,1] <- which(names(sampleGf3sCOM)=="REG_1_03")
a[6,1] <- which(names(sampleGf3sCOM)=="REG_1_04")
a[7,1] <- which(names(sampleGf3sCOM)=="REG_1_05")
a[8,1] <- which(names(sampleGf3sCOM)=="REG_1_06")
a[9,1] <- which(names(sampleGf3sCOM)=="REG_1_07")
a[10,1] <- which(names(sampleGf3sCOM)=="REG_1_08")
a[11,1] <- which(names(sampleGf3sCOM)=="REG_1_09")
a[12,1] <- which(names(sampleGf3sCOM)=="REG_1_10")
a[13,1] <- which(names(sampleGf3sCOM)=="REG_1_11")
a[14,1] <- which(names(sampleGf3sCOM)=="REG_1_12")
a[15,1] <- which(names(sampleGf3sCOM)=="REG_1_13")
a[16,1] <- which(names(sampleGf3sCOM)=="REG_1_14")

sampleGf3sCOM$Vpos <- NA

for (i in 1:length(sampleGf3sCOM$child3y)){
  b <- sampleGf3sCOM$child3y[i] - 1998
  for (j in 1:length(a)){
    sampleGf3sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf3sCOM$Vpos[i])
```

```
  }}

for (i in 1:length(sampleGf3sCOM$Vpos)){
  b <- sampleGf3sCOM$Vpos[i]
  sampleGf3sCOM$nat[i] <- as.character(sampleGf3sCOM[i,b])
}

table(sampleGf3sCOM$nat)

sampleGf3sCOM$nat2 <- ifelse(sampleGf3sCOM$nat=="Switzerland", "Swiss",
"Foreign")
table(sampleGf3sCOM$nat2)

seqIplot(seqAllLAf3, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf3sCOM$nat2)

seqdplot(seqAllLAf3, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf3sCOM$nat2)


#4#
a <- matrix(ncol=1,nrow=16,NA)
```

```
a[1,1] <- which(names(sampleGf4sCOM)=="REG_1_99")
a[2,1] <- which(names(sampleGf4sCOM)=="REG_1_00")
a[3,1] <- which(names(sampleGf4sCOM)=="REG_1_01")
a[4,1] <- which(names(sampleGf4sCOM)=="REG_1_02")
a[5,1] <- which(names(sampleGf4sCOM)=="REG_1_03")
a[6,1] <- which(names(sampleGf4sCOM)=="REG_1_04")
a[7,1] <- which(names(sampleGf4sCOM)=="REG_1_05")
a[8,1] <- which(names(sampleGf4sCOM)=="REG_1_06")
a[9,1] <- which(names(sampleGf4sCOM)=="REG_1_07")
a[10,1] <- which(names(sampleGf4sCOM)=="REG_1_08")
a[11,1] <- which(names(sampleGf4sCOM)=="REG_1_09")
a[12,1] <- which(names(sampleGf4sCOM)=="REG_1_10")
a[13,1] <- which(names(sampleGf4sCOM)=="REG_1_11")
a[14,1] <- which(names(sampleGf4sCOM)=="REG_1_12")
a[15,1] <- which(names(sampleGf4sCOM)=="REG_1_13")
a[16,1] <- which(names(sampleGf4sCOM)=="REG_1_14")

sampleGf4sCOM$Vpos <- NA

for (i in 1:length(sampleGf4sCOM$child4y)){
  b <- sampleGf4sCOM$child4y[i] - 1998
  for (j in 1:length(a)){
    sampleGf4sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf4sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf4sCOM$Vpos)){
  b <- sampleGf4sCOM$Vpos[i]
```

```
  sampleGf4sCOM$nat[i] <- as.character(sampleGf4sCOM[i,b])
}

table(sampleGf4sCOM$nat)

sampleGf4sCOM$nat2 <- ifelse(sampleGf4sCOM$nat=="Switzerland", "Swiss",
"Foreign")
table(sampleGf4sCOM$nat2)

seqIplot(seqAllLAf4, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf4sCOM$nat2)

seqdplot(seqAllLAf4, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf4sCOM$nat2)




#5# solo svizzeri
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf5sCOM)=="REG_1_99")
a[2,1] <- which(names(sampleGf5sCOM)=="REG_1_00")
```

```
a[3,1] <- which(names(sampleGf5sCOM)=="REG_1_01")
a[4,1] <- which(names(sampleGf5sCOM)=="REG_1_02")
a[5,1] <- which(names(sampleGf5sCOM)=="REG_1_03")
a[6,1] <- which(names(sampleGf5sCOM)=="REG_1_04")
a[7,1] <- which(names(sampleGf5sCOM)=="REG_1_05")
a[8,1] <- which(names(sampleGf5sCOM)=="REG_1_06")
a[9,1] <- which(names(sampleGf5sCOM)=="REG_1_07")
a[10,1] <- which(names(sampleGf5sCOM)=="REG_1_08")
a[11,1] <- which(names(sampleGf5sCOM)=="REG_1_09")
a[12,1] <- which(names(sampleGf5sCOM)=="REG_1_10")
a[13,1] <- which(names(sampleGf5sCOM)=="REG_1_11")
a[14,1] <- which(names(sampleGf5sCOM)=="REG_1_12")
a[15,1] <- which(names(sampleGf5sCOM)=="REG_1_13")
a[16,1] <- which(names(sampleGf5sCOM)=="REG_1_14")

sampleGf5sCOM$Vpos <- NA

for (i in 1:length(sampleGf5sCOM$child5y)){
  b <- sampleGf5sCOM$child5y[i] - 1998
  for (j in 1:length(a)){
    sampleGf5sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf5sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf5sCOM$Vpos)){
  b <- sampleGf5sCOM$Vpos[i]
  sampleGf5sCOM$nat[i] <- as.character(sampleGf5sCOM[i,b])
}
```

```
table(sampleGf5sCOM$nat)

sampleGf5sCOM$nat2 <- ifelse(sampleGf5sCOM$nat=="Switzerland", "Swiss",
"Foreign")
table(sampleGf5sCOM$nat2)

seqIplot(seqAllLAf5, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","green3"),
        xtlab =-24:24,
        group=sampleGf5sCOM$nat2)

seqdplot(seqAllLAf5, cex.legend=0.8,
        cpal=c("forestgreen","green3"),
        xtlab =-24:24,
        group=sampleGf5sCOM$nat2)



#6#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf6sCOM)=="REG_1_99")
a[2,1] <- which(names(sampleGf6sCOM)=="REG_1_00")
a[3,1] <- which(names(sampleGf6sCOM)=="REG_1_01")
a[4,1] <- which(names(sampleGf6sCOM)=="REG_1_02")
a[5,1] <- which(names(sampleGf6sCOM)=="REG_1_03")
```

```
a[6,1] <- which(names(sampleGf6sCOM)=="REG_1_04")
a[7,1] <- which(names(sampleGf6sCOM)=="REG_1_05")
a[8,1] <- which(names(sampleGf6sCOM)=="REG_1_06")
a[9,1] <- which(names(sampleGf6sCOM)=="REG_1_07")
a[10,1] <- which(names(sampleGf6sCOM)=="REG_1_08")
a[11,1] <- which(names(sampleGf6sCOM)=="REG_1_09")
a[12,1] <- which(names(sampleGf6sCOM)=="REG_1_10")
a[13,1] <- which(names(sampleGf6sCOM)=="REG_1_11")
a[14,1] <- which(names(sampleGf6sCOM)=="REG_1_12")
a[15,1] <- which(names(sampleGf6sCOM)=="REG_1_13")
a[16,1] <- which(names(sampleGf6sCOM)=="REG_1_14")

sampleGf6sCOM$Vpos <- NA

for (i in 1:length(sampleGf6sCOM$child6y)){
  b <- sampleGf6sCOM$child6y[i] - 1998
  for (j in 1:length(a)){
    sampleGf6sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf6sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf6sCOM$Vpos)){
  b <- sampleGf6sCOM$Vpos[i]
  sampleGf6sCOM$nat[i] <- as.character(sampleGf6sCOM[i,b])
}

table(sampleGf6sCOM$nat)
```

```
sampleGf6sCOM$nat2 <- ifelse(sampleGf6sCOM$nat=="Switzerland", "Swiss",
"Foreign")
table(sampleGf6sCOM$nat2)

seqIplot(seqAllLAf6, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3"),
        xtlab =-24:24,
        group=sampleGf6sCOM$nat2)

seqdplot(seqAllLAf6, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3"),
        xtlab =-24:24,
        group=sampleGf6sCOM$nat2)



#7# no sequences

#8# no sequences




### divisione per educazione ###
#1#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf1sCOM)=="ISCED99")
a[2,1] <- which(names(sampleGf1sCOM)=="ISCED00")
```

```
a[3,1] <- which(names(sampleGf1sCOM)=="ISCED01")
a[4,1] <- which(names(sampleGf1sCOM)=="ISCED02")
a[5,1] <- which(names(sampleGf1sCOM)=="ISCED03")
a[6,1] <- which(names(sampleGf1sCOM)=="ISCED04")
a[7,1] <- which(names(sampleGf1sCOM)=="ISCED05")
a[8,1] <- which(names(sampleGf1sCOM)=="ISCED06")
a[9,1] <- which(names(sampleGf1sCOM)=="ISCED07")
a[10,1] <- which(names(sampleGf1sCOM)=="ISCED08")
a[11,1] <- which(names(sampleGf1sCOM)=="ISCED09")
a[12,1] <- which(names(sampleGf1sCOM)=="ISCED10")
a[13,1] <- which(names(sampleGf1sCOM)=="ISCED11")
a[14,1] <- which(names(sampleGf1sCOM)=="ISCED12")
a[15,1] <- which(names(sampleGf1sCOM)=="ISCED13")
a[16,1] <- which(names(sampleGf1sCOM)=="ISCED14")

sampleGf1sCOM$Vpos <- NA

for (i in 1:length(sampleGf1sCOM$child1y)){
  b <- sampleGf1sCOM$child1y[i] - 1998
  for (j in 1:length(a)){
    sampleGf1sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf1sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf1sCOM$Vpos)){
  b <- sampleGf1sCOM$Vpos[i]
  sampleGf1sCOM$edu[i] <- as.character(sampleGf1sCOM[i,b])
}
```

```
table(sampleGf1sCOM$edu)


sampleGf1sCOM$edu2 <- ifelse(sampleGf1sCOM$edu=="1: Primary or first stage of basic education"|
                               sampleGf1sCOM$edu=="2: Lower secondary or Second stage of basic education",
                             "pre-university",
                             ifelse(sampleGf1sCOM$edu=="3A: Upper secondary education (preparation for tertiary education)"|
                                      sampleGf1sCOM$edu=="3B: Upper secondary education (preparation for further prof. education)"|
                                      sampleGf1sCOM$edu=="3C: Upper secondary education (entrance into the labor market)",
                                    "pre-university",
                                    ifelse(sampleGf1sCOM$edu=="4A: Post-secondary education non tertiary (preparation for an institution for higher education)"|
                                             sampleGf1sCOM$edu=="5A: First stage of tertiary education (general education)"|
                                             sampleGf1sCOM$edu=="5B: First stage of tertiary education (professional education)",
                                           "post-university",
                                           "post-university")))


table(sampleGf1sCOM$edu2)


seqIplot(seqAllLAf1, sortv="from.start", cex.legend=0.8,
       cpal=c("forestgreen","gold","green3","darkorange","blue"),
```

```
        xtlab =-24:24,
        group=sampleGf1sCOM$edu2)

seqdplot(seqAllLAf1, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf1sCOM$edu2)



#2#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf2sCOM)=="ISCED99")
a[2,1] <- which(names(sampleGf2sCOM)=="ISCED00")
a[3,1] <- which(names(sampleGf2sCOM)=="ISCED01")
a[4,1] <- which(names(sampleGf2sCOM)=="ISCED02")
a[5,1] <- which(names(sampleGf2sCOM)=="ISCED03")
a[6,1] <- which(names(sampleGf2sCOM)=="ISCED04")
a[7,1] <- which(names(sampleGf2sCOM)=="ISCED05")
a[8,1] <- which(names(sampleGf2sCOM)=="ISCED06")
a[9,1] <- which(names(sampleGf2sCOM)=="ISCED07")
a[10,1] <- which(names(sampleGf2sCOM)=="ISCED08")
a[11,1] <- which(names(sampleGf2sCOM)=="ISCED09")
a[12,1] <- which(names(sampleGf2sCOM)=="ISCED10")
a[13,1] <- which(names(sampleGf2sCOM)=="ISCED11")
a[14,1] <- which(names(sampleGf2sCOM)=="ISCED12")
```

```
a[15,1] <- which(names(sampleGf2sCOM)=="ISCED13")
a[16,1] <- which(names(sampleGf2sCOM)=="ISCED14")

sampleGf2sCOM$Vpos <- NA

for (i in 1:length(sampleGf2sCOM$child2y)){
  b <- sampleGf2sCOM$child2y[i] - 1998
  for (j in 1:length(a)){
    sampleGf2sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf2sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf2sCOM$Vpos)){
  b <- sampleGf2sCOM$Vpos[i]
  sampleGf2sCOM$edu[i] <- as.character(sampleGf2sCOM[i,b])
}

table(sampleGf2sCOM$edu)

sampleGf2sCOM$edu2 <- ifelse(sampleGf2sCOM$edu=="1: Primary or first stage of
basic education"|
                               sampleGf2sCOM$edu=="2: Lower secondary or Second stage of
basic education",
                             "pre-university",
                             ifelse(sampleGf2sCOM$edu=="3A: Upper secondary education
(preparation for tertiary education)"|
                                      sampleGf2sCOM$edu=="3B: Upper secondary education
(preparation for further prof. education)"|
```

```
                        sampleGf2sCOM$edu=="3C: Upper secondary education
(entrance into the labor market)",
                      "pre-university",
                      ifelse(sampleGf2sCOM$edu=="4A: Post-secondary education
non tertiary (preparation for an institution for higher education)"|
                        sampleGf2sCOM$edu=="5A: First stage of tertiary
education (general education)"|
                        sampleGf2sCOM$edu=="5B: First stage of tertiary
education (professional education)",
                      "post-university",
                      "post-university")))
table(sampleGf2sCOM$edu2)

seqIplot(seqAllLAf2, sortv="from.start", cex.legend=0.8,
      cpal=c("forestgreen","gold","green3","blue"),
      xtlab =-24:24,
      group=sampleGf2sCOM$edu2)

seqdplot(seqAllLAf2, cex.legend=0.8,
      cpal=c("forestgreen","gold","green3","blue"),
      xtlab =-24:24,
      group=sampleGf2sCOM$edu2)



#3#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf3sCOM)=="ISCED99")
```

```
a[2,1] <- which(names(sampleGf3sCOM)=="ISCED00")
a[3,1] <- which(names(sampleGf3sCOM)=="ISCED01")
a[4,1] <- which(names(sampleGf3sCOM)=="ISCED02")
a[5,1] <- which(names(sampleGf3sCOM)=="ISCED03")
a[6,1] <- which(names(sampleGf3sCOM)=="ISCED04")
a[7,1] <- which(names(sampleGf3sCOM)=="ISCED05")
a[8,1] <- which(names(sampleGf3sCOM)=="ISCED06")
a[9,1] <- which(names(sampleGf3sCOM)=="ISCED07")
a[10,1] <- which(names(sampleGf3sCOM)=="ISCED08")
a[11,1] <- which(names(sampleGf3sCOM)=="ISCED09")
a[12,1] <- which(names(sampleGf3sCOM)=="ISCED10")
a[13,1] <- which(names(sampleGf3sCOM)=="ISCED11")
a[14,1] <- which(names(sampleGf3sCOM)=="ISCED12")
a[15,1] <- which(names(sampleGf3sCOM)=="ISCED13")
a[16,1] <- which(names(sampleGf3sCOM)=="ISCED14")

sampleGf3sCOM$Vpos <- NA

for (i in 1:length(sampleGf3sCOM$child3y)){
  b <- sampleGf3sCOM$child3y[i] - 1998
  for (j in 1:length(a)){
    sampleGf3sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf3sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf3sCOM$Vpos)){
  b <- sampleGf3sCOM$Vpos[i]
  sampleGf3sCOM$edu[i] <- as.character(sampleGf3sCOM[i,b])
```

```
}

table(sampleGf3sCOM$edu)

sampleGf3sCOM$edu2 <- ifelse(sampleGf3sCOM$edu=="1: Primary or first stage of basic education"|
                               sampleGf3sCOM$edu=="2: Lower secondary or Second stage of basic education",
                             "pre-university",
                             ifelse(sampleGf3sCOM$edu=="3A: Upper secondary education (preparation for tertiary education)"|
                                      sampleGf3sCOM$edu=="3B: Upper secondary education (preparation for further prof. education)"|
                                      sampleGf3sCOM$edu=="3C: Upper secondary education (entrance into the labor market)",
                                    "pre-university",
                                    ifelse(sampleGf3sCOM$edu=="4A: Post-secondary education non tertiary (preparation for an institution for higher education)"|
                                             sampleGf3sCOM$edu=="5A: First stage of tertiary education (general education)"|
                                             sampleGf3sCOM$edu=="5B: First stage of tertiary education (professional education)",
                                           "post-university",
                                           "post-university")))
table(sampleGf3sCOM$edu2)

seqIplot(seqAllLAf3, sortv="from.start", cex.legend=0.8,
      cpal=c("forestgreen","gold","green3","darkorange","blue"),
      xtlab =-24:24,
```

```
        group=sampleGf3sCOM$edu2)

seqdplot(seqAllLAf3, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf3sCOM$edu2)



#4#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf4sCOM)=="ISCED99")
a[2,1] <- which(names(sampleGf4sCOM)=="ISCED00")
a[3,1] <- which(names(sampleGf4sCOM)=="ISCED01")
a[4,1] <- which(names(sampleGf4sCOM)=="ISCED02")
a[5,1] <- which(names(sampleGf4sCOM)=="ISCED03")
a[6,1] <- which(names(sampleGf4sCOM)=="ISCED04")
a[7,1] <- which(names(sampleGf4sCOM)=="ISCED05")
a[8,1] <- which(names(sampleGf4sCOM)=="ISCED06")
a[9,1] <- which(names(sampleGf4sCOM)=="ISCED07")
a[10,1] <- which(names(sampleGf4sCOM)=="ISCED08")
a[11,1] <- which(names(sampleGf4sCOM)=="ISCED09")
a[12,1] <- which(names(sampleGf4sCOM)=="ISCED10")
a[13,1] <- which(names(sampleGf4sCOM)=="ISCED11")
a[14,1] <- which(names(sampleGf4sCOM)=="ISCED12")
a[15,1] <- which(names(sampleGf4sCOM)=="ISCED13")
a[16,1] <- which(names(sampleGf4sCOM)=="ISCED14")
```

```
sampleGf4sCOM$Vpos <- NA

for (i in 1:length(sampleGf4sCOM$child4y)){
  b <- sampleGf4sCOM$child4y[i] - 1998
  for (j in 1:length(a)){
    sampleGf4sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf4sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf4sCOM$Vpos)){
  b <- sampleGf4sCOM$Vpos[i]
  sampleGf4sCOM$edu[i] <- as.character(sampleGf4sCOM[i,b])
}

table(sampleGf4sCOM$edu)

sampleGf4sCOM$edu2 <- ifelse(sampleGf4sCOM$edu=="1: Primary or first stage of
basic education"|
                               sampleGf4sCOM$edu=="2: Lower secondary or Second stage of
basic education",
                             "pre-university",
                             ifelse(sampleGf4sCOM$edu=="3A: Upper secondary education
(preparation for tertiary education)"|
                                      sampleGf4sCOM$edu=="3B: Upper secondary education
(preparation for further prof. education)"|
                                      sampleGf4sCOM$edu=="3C: Upper secondary education
(entrance into the labor market)",
                                    "pre-university",
```

```
                    ifelse(sampleGf4sCOM$edu=="4A: Post-secondary education non tertiary (preparation for an institution for higher education)"|
                           sampleGf4sCOM$edu=="5A: First stage of tertiary education (general education)"|
                           sampleGf4sCOM$edu=="5B: First stage of tertiary education (professional education)",
                           "post-university",
                           "post-university")))


table(sampleGf4sCOM$edu2)


seqIplot(seqAllLAf4, sortv="from.start", cex.legend=0.8,
      cpal=c("forestgreen","gold","green3","blue"),
      xtlab =-24:24,
      group=sampleGf4sCOM$edu2)


seqdplot(seqAllLAf4, cex.legend=0.8,
      cpal=c("forestgreen","gold","green3","blue"),
      xtlab =-24:24,
      group=sampleGf4sCOM$edu2)




#5#
a <- matrix(ncol=1,nrow=16,NA)


a[1,1] <- which(names(sampleGf5sCOM)=="ISCED99")
a[2,1] <- which(names(sampleGf5sCOM)=="ISCED00")
```

```
a[3,1] <- which(names(sampleGf5sCOM)=="ISCED01")
a[4,1] <- which(names(sampleGf5sCOM)=="ISCED02")
a[5,1] <- which(names(sampleGf5sCOM)=="ISCED03")
a[6,1] <- which(names(sampleGf5sCOM)=="ISCED04")
a[7,1] <- which(names(sampleGf5sCOM)=="ISCED05")
a[8,1] <- which(names(sampleGf5sCOM)=="ISCED06")
a[9,1] <- which(names(sampleGf5sCOM)=="ISCED07")
a[10,1] <- which(names(sampleGf5sCOM)=="ISCED08")
a[11,1] <- which(names(sampleGf5sCOM)=="ISCED09")
a[12,1] <- which(names(sampleGf5sCOM)=="ISCED10")
a[13,1] <- which(names(sampleGf5sCOM)=="ISCED11")
a[14,1] <- which(names(sampleGf5sCOM)=="ISCED12")
a[15,1] <- which(names(sampleGf5sCOM)=="ISCED13")
a[16,1] <- which(names(sampleGf5sCOM)=="ISCED14")

sampleGf5sCOM$Vpos <- NA

for (i in 1:length(sampleGf5sCOM$child5y)){
  b <- sampleGf5sCOM$child5y[i] - 1998
  for (j in 1:length(a)){
    sampleGf5sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf5sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf5sCOM$Vpos)){
  b <- sampleGf5sCOM$Vpos[i]
  sampleGf5sCOM$edu[i] <- as.character(sampleGf5sCOM[i,b])
}
```

```
table(sampleGf5sCOM$edu)


sampleGf5sCOM$edu2 <- ifelse(sampleGf5sCOM$edu=="1: Primary or first stage of basic education"|
                               sampleGf5sCOM$edu=="2: Lower secondary or Second stage of basic education",
                             "pre-university",
                             ifelse(sampleGf5sCOM$edu=="3A: Upper secondary education (preparation for tertiary education)"|
                                      sampleGf5sCOM$edu=="3B: Upper secondary education (preparation for further prof. education)"|
                                      sampleGf5sCOM$edu=="3C: Upper secondary education (entrance into the labor market)",
                                    "pre-university",
                                    ifelse(sampleGf5sCOM$edu=="4A: Post-secondary education non tertiary (preparation for an institution for higher education)"|
                                             sampleGf5sCOM$edu=="5A: First stage of tertiary education (general education)"|
                                             sampleGf5sCOM$edu=="5B: First stage of tertiary education (professional education)",
                                           "post-university",
                                           "post-university")))
table(sampleGf5sCOM$edu2)


seqIplot(seqAllLAf5, sortv="from.start", cex.legend=0.8,
      cpal=c("forestgreen","green3"),
      xtlab =-24:24,
      group=sampleGf5sCOM$edu2)
```

```
seqdplot(seqAllLAf5, cex.legend=0.8,
        cpal=c("forestgreen","green3"),
        xtlab =-24:24,
        group=sampleGf5sCOM$edu2)



#6#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf6sCOM)=="ISCED99")
a[2,1] <- which(names(sampleGf6sCOM)=="ISCED00")
a[3,1] <- which(names(sampleGf6sCOM)=="ISCED01")
a[4,1] <- which(names(sampleGf6sCOM)=="ISCED02")
a[5,1] <- which(names(sampleGf6sCOM)=="ISCED03")
a[6,1] <- which(names(sampleGf6sCOM)=="ISCED04")
a[7,1] <- which(names(sampleGf6sCOM)=="ISCED05")
a[8,1] <- which(names(sampleGf6sCOM)=="ISCED06")
a[9,1] <- which(names(sampleGf6sCOM)=="ISCED07")
a[10,1] <- which(names(sampleGf6sCOM)=="ISCED08")
a[11,1] <- which(names(sampleGf6sCOM)=="ISCED09")
a[12,1] <- which(names(sampleGf6sCOM)=="ISCED10")
a[13,1] <- which(names(sampleGf6sCOM)=="ISCED11")
a[14,1] <- which(names(sampleGf6sCOM)=="ISCED12")
a[15,1] <- which(names(sampleGf6sCOM)=="ISCED13")
a[16,1] <- which(names(sampleGf6sCOM)=="ISCED14")
```

```
sampleGf6sCOM$Vpos <- NA

for (i in 1:length(sampleGf6sCOM$child6y)){
  b <- sampleGf6sCOM$child6y[i] - 1998
  for (j in 1:length(a)){
    sampleGf6sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf6sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf6sCOM$Vpos)){
  b <- sampleGf6sCOM$Vpos[i]
  sampleGf6sCOM$edu[i] <- as.character(sampleGf6sCOM[i,b])
}

table(sampleGf6sCOM$edu)

sampleGf6sCOM$edu2 <- ifelse(sampleGf6sCOM$edu=="1: Primary or first stage of basic education"|
                               sampleGf6sCOM$edu=="2: Lower secondary or Second stage of basic education",
                             "pre-university",
                             ifelse(sampleGf6sCOM$edu=="3A: Upper secondary education (preparation for tertiary education)"|
                                      sampleGf6sCOM$edu=="3B: Upper secondary education (preparation for further prof. education)"|
                                      sampleGf6sCOM$edu=="3C: Upper secondary education (entrance into the labor market)",
                                    "pre-university",
```

```
                    ifelse(sampleGf6sCOM$edu=="4A: Post-secondary education
non tertiary (preparation for an institution for higher education)"|
                           sampleGf6sCOM$edu=="5A: First stage of tertiary
education (general education)"|
                           sampleGf6sCOM$edu=="5B: First stage of tertiary
education (professional education)",
                          "post-university",
                          "post-university")))
table(sampleGf6sCOM$edu2)

seqIplot(seqAllLAf6, sortv="from.start", cex.legend=0.8,
      cpal=c("forestgreen","gold","green3"),
      xtlab =-24:24,
      group=sampleGf6sCOM$edu2)

seqdplot(seqAllLAf6, cex.legend=0.8,
      cpal=c("forestgreen","gold","green3"),
      xtlab =-24:24,
      group=sampleGf6sCOM$edu2)
```

#7# no sequences

#8# no sequences

divisione per permesso di soggiorno

#1#

NON FACCIO PERMESSO PERCHè POCHI STRANIERI

divisione per tipo fertilità forward

#1#

```
for (i in 1:length(sampleGf1sCOM[,1])){
  sampleGf1sCOM$diff[i] <- ifelse(is.na(sampleGf1sCOM$child2GSP999[i])==T, NA,
                                  sampleGf1sCOM$child2GSP999[i] -
sampleGf1sCOM$child1GSP999[i])
  sampleGf1sCOM$diff[i] <- ifelse(is.na(sampleGf1sCOM$diff[i])==T &
is.na(sampleGf1sCOM$child3GSP999[i])==F,
                                  sampleGf1sCOM$child3GSP999[i] -
sampleGf1sCOM$child1GSP999[i],
                                  sampleGf1sCOM$diff[i]) #correzione per gemelli#
}

for (i in 1:length(sampleGf1sCOM[,1])){
  sampleGf1sCOM$Ccat[i] <- ifelse(is.na(sampleGf1sCOM$diff[i])==T,"no further
(known)",
                                  ifelse(sampleGf1sCOM$diff[i]<25, "back to back",
                                      "far children"))
```

```
}

table(sampleGf1sCOM$Ccat)

seqIplot(seqAllLAf1, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf1sCOM$Ccat)

seqdplot(seqAllLAf1, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf1sCOM$Ccat)

#2#

for (i in 1:length(sampleGf2sCOM[,1])){
  sampleGf2sCOM$diff[i] <- ifelse(is.na(sampleGf2sCOM$child3GSP999[i])==T, NA,
                                  sampleGf2sCOM$child3GSP999[i] -
sampleGf2sCOM$child2GSP999[i])
  sampleGf2sCOM$diff[i] <- ifelse(is.na(sampleGf2sCOM$diff[i])==T &
is.na(sampleGf2sCOM$child4GSP999[i])==F,
                                  sampleGf2sCOM$child4GSP999[i] -
sampleGf2sCOM$child2GSP999[i],
                                  sampleGf2sCOM$diff[i]) #correzione per gemelli#
}
```

```
for (i in 1:length(sampleGf2sCOM[,1])){
  sampleGf2sCOM$Ccat[i] <- ifelse(is.na(sampleGf2sCOM$diff[i])==T,"no further (known)",
                                  ifelse(sampleGf2sCOM$diff[i]<25, "back to back",
                                         "far children"))
}

table(sampleGf2sCOM$Ccat)

seqIplot(seqAllLAf2, sortv="from.start", cex.legend=0.8,
         cpal=c("forestgreen","gold","green3","blue"),
         xtlab =-24:24,
         group=sampleGf2sCOM$Ccat)

seqdplot(seqAllLAf2, cex.legend=0.8,
         cpal=c("forestgreen","gold","green3","blue"),
         xtlab =-24:24,
         group=sampleGf2sCOM$Ccat)


#3#

for (i in 1:length(sampleGf3sCOM[,1])){
  sampleGf3sCOM$diff[i] <- ifelse(is.na(sampleGf3sCOM$child4GSP999[i])==T, NA,
                                  sampleGf3sCOM$child4GSP999[i] - sampleGf3sCOM$child3GSP999[i])
  sampleGf3sCOM$diff[i] <- ifelse(is.na(sampleGf3sCOM$diff[i])==T & is.na(sampleGf3sCOM$child5GSP999[i])==F,
```

```
                    sampleGf3sCOM$child5GSP999[i] -
sampleGf3sCOM$child3GSP999[i],
                    sampleGf3sCOM$diff[i]) #correzione per gemelli#
}

for (i in 1:length(sampleGf3sCOM[,1])){
  sampleGf3sCOM$Ccat[i] <- ifelse(is.na(sampleGf3sCOM$diff[i])==T,"no further
(known)",
                    ifelse(sampleGf3sCOM$diff[i]<25, "back to back",
                        "far children"))
}

table(sampleGf3sCOM$Ccat)

seqIplot(seqAllLAf3, sortv="from.start", cex.legend=0.8,
      cpal=c("forestgreen","gold","green3","darkorange","blue"),
      xtlab =-24:24,
      group=sampleGf3sCOM$Ccat)

seqdplot(seqAllLAf3, cex.legend=0.8,
      cpal=c("forestgreen","gold","green3","darkorange","blue"),
      xtlab =-24:24,
      group=sampleGf3sCOM$Ccat)

#4#
```

```
for (i in 1:length(sampleGf4sCOM[,1])){
  sampleGf4sCOM$diff[i] <- ifelse(is.na(sampleGf4sCOM$child5GSP999[i])==T, NA,
                                  sampleGf4sCOM$child5GSP999[i] -
sampleGf4sCOM$child4GSP999[i])
  sampleGf4sCOM$diff[i] <- ifelse(is.na(sampleGf4sCOM$diff[i])==T &
is.na(sampleGf4sCOM$child6GSP999[i])==F,
                                  sampleGf4sCOM$child6GSP999[i] -
sampleGf4sCOM$child4GSP999[i],
                                  sampleGf4sCOM$diff[i]) #correzione per gemelli#
}

for (i in 1:length(sampleGf4sCOM[,1])){
  sampleGf4sCOM$Ccat[i] <- ifelse(is.na(sampleGf4sCOM$diff[i])==T,"no further
(known)",
                                  ifelse(sampleGf4sCOM$diff[i]<25, "back to back",
                                      "far children"))
}

table(sampleGf4sCOM$Ccat)

seqIplot(seqAllLAf4, sortv="from.start", cex.legend=0.8,
         cpal=c("forestgreen","gold","green3","blue"),
         xtlab =-24:24,
         group=sampleGf4sCOM$Ccat)

seqdplot(seqAllLAf4, cex.legend=0.8,
         cpal=c("forestgreen","gold","green3","blue"),
         xtlab =-24:24,
```

```
      group=sampleGf4sCOM$Ccat)



#5#


for (i in 1:length(sampleGf5sCOM[,1])){
  sampleGf5sCOM$diff[i] <- ifelse(is.na(sampleGf5sCOM$child5GSP999[i])==T, NA,
                                  sampleGf5sCOM$child6GSP999[i] -
sampleGf5sCOM$child5GSP999[i])
  sampleGf5sCOM$diff[i] <- ifelse(is.na(sampleGf5sCOM$diff[i])==T &
is.na(sampleGf5sCOM$child7GSP999[i])==F,
                                  sampleGf5sCOM$child7GSP999[i] -
sampleGf5sCOM$child5GSP999[i],
                                  sampleGf5sCOM$diff[i]) #correzione per gemelli#
}


for (i in 1:length(sampleGf5sCOM[,1])){
  sampleGf5sCOM$Ccat[i] <- ifelse(is.na(sampleGf5sCOM$diff[i])==T,"no further
(known)",
                                  ifelse(sampleGf5sCOM$diff[i]<25, "back to back",
                                         "far children"))
}


table(sampleGf5sCOM$Ccat)


seqIplot(seqAllLAf5, sortv="from.start", cex.legend=0.8,
      cpal=c("forestgreen","green3"),
```

```
        xtlab =-24:24,
        group=sampleGf5sCOM$Ccat)

seqdplot(seqAllLAf5, cex.legend=0.8,
        cpal=c("forestgreen","green3"),
        xtlab =-24:24,
        group=sampleGf5sCOM$Ccat)



#6#


for (i in 1:length(sampleGf6sCOM[,1])){
  sampleGf6sCOM$diff[i] <- ifelse(is.na(sampleGf6sCOM$child6GSP999[i])==T, NA,
                          sampleGf6sCOM$child7GSP999[i] -
sampleGf6sCOM$child6GSP999[i])
  sampleGf6sCOM$diff[i] <- ifelse(is.na(sampleGf6sCOM$diff[i])==T &
is.na(sampleGf6sCOM$child8GSP999[i])==F,
                          sampleGf6sCOM$child8GSP999[i] -
sampleGf6sCOM$child6GSP999[i],
                          sampleGf6sCOM$diff[i]) #correzione per gemelli#
}


for (i in 1:length(sampleGf6sCOM[,1])){
  sampleGf6sCOM$Ccat[i] <- ifelse(is.na(sampleGf6sCOM$diff[i])==T,"no further
(known)",
                          ifelse(sampleGf6sCOM$diff[i]<25, "back to back",
                              "far children"))
}
```

```
table(sampleGf6sCOM$Ccat)

seqIplot(seqAllLAf6, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3"),
        xtlab =-24:24,
        group=sampleGf6sCOM$Ccat)

seqdplot(seqAllLAf6, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3"),
        xtlab =-24:24,
        group=sampleGf6sCOM$Ccat)




#7# no sequences

#8# no sequences


### divisione per tipo fertilità backward ###

#1# non applicabile

#2#
```

```
for (i in 1:length(sampleGf2sCOM[,1])){
  sampleGf2sCOM$diff[i] <- ifelse(is.na(sampleGf2sCOM$child1GSP999[i])==T, NA,
                                  sampleGf2sCOM$child2GSP999[i] -
sampleGf2sCOM$child1GSP999[i])
  sampleGf2sCOM$diff[i] <- ifelse(is.na(sampleGf2sCOM$diff[i])==T &
is.na(sampleGf2sCOM$child1GSP999[i])==F,
                                  sampleGf2sCOM$child2GSP999[i] - 0,
                                  sampleGf2sCOM$diff[i]) #correzione per gemelli#
}

for (i in 1:length(sampleGf2sCOM[,1])){
  sampleGf2sCOM$Ccat2[i] <- ifelse(is.na(sampleGf2sCOM$diff[i])==T,"missing",
                                   ifelse(sampleGf2sCOM$diff[i]<25, "back to back",
                                          "far children"))
}

table(sampleGf2sCOM$Ccat2)

seqIplot(seqAllLAf2, sortv="from.start", cex.legend=0.8,
         cpal=c("forestgreen","gold","green3","blue"),
         xtlab =-24:24,
         group=sampleGf2sCOM$Ccat2)

seqdplot(seqAllLAf2, cex.legend=0.8,
         cpal=c("forestgreen","gold","green3","blue"),
         xtlab =-24:24,
         group=sampleGf2sCOM$Ccat2)
```

#3#

```
for (i in 1:length(sampleGf3sCOM[,1])){
  sampleGf3sCOM$diff[i] <- ifelse(is.na(sampleGf2sCOM$child2GSP999[i])==T, NA,
                          sampleGf3sCOM$child3GSP999[i] -
sampleGf3sCOM$child2GSP999[i])
  sampleGf3sCOM$diff[i] <- ifelse(is.na(sampleGf3sCOM$diff[i])==T &
is.na(sampleGf3sCOM$child2GSP999[i])==F,
                          sampleGf3sCOM$child3GSP999[i] -
sampleGf3sCOM$child1GSP999[i],
                          sampleGf3sCOM$diff[i]) #correzione per gemelli#
}

for (i in 1:length(sampleGf3sCOM[,1])){
  sampleGf3sCOM$Ccat2[i] <- ifelse(is.na(sampleGf3sCOM$diff[i])==T,"missing",
                           ifelse(sampleGf3sCOM$diff[i]<25, "back to back",
                                "far children"))
}

table(sampleGf3sCOM$Ccat2)

seqIplot(seqAllLAf3, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf3sCOM$Ccat2)
```

```
seqdplot(seqAllLAf3, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf3sCOM$Ccat2)



#4#


for (i in 1:length(sampleGf4sCOM[,1])){
  sampleGf4sCOM$diff[i] <- ifelse(is.na(sampleGf4sCOM$child3GSP999[i])==T, NA,
                          sampleGf4sCOM$child4GSP999[i] -
sampleGf4sCOM$child3GSP999[i])
  sampleGf4sCOM$diff[i] <- ifelse(is.na(sampleGf4sCOM$diff[i])==T &
is.na(sampleGf4sCOM$child3GSP999[i])==F,
                          sampleGf4sCOM$child4GSP999[i] -
sampleGf4sCOM$child2GSP999[i],
                          sampleGf4sCOM$diff[i]) #correzione per gemelli#
}


for (i in 1:length(sampleGf4sCOM[,1])){
  sampleGf4sCOM$Ccat2[i] <- ifelse(is.na(sampleGf4sCOM$diff[i])==T,"no further
(known)",
                           ifelse(sampleGf4sCOM$diff[i]<25, "back to back",
                                "far children"))
}


table(sampleGf4sCOM$Ccat2)
```

```
seqIplot(seqAllLAf4, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf4sCOM$Ccat2)


seqdplot(seqAllLAf4, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf4sCOM$Ccat2)




#5#


for (i in 1:length(sampleGf5sCOM[,1])){
  sampleGf5sCOM$diff[i] <- ifelse(is.na(sampleGf5sCOM$child4GSP999[i])==T, NA,
                          sampleGf5sCOM$child5GSP999[i] -
sampleGf5sCOM$child4GSP999[i])
  sampleGf5sCOM$diff[i] <- ifelse(is.na(sampleGf5sCOM$diff[i])==T &
is.na(sampleGf5sCOM$child4GSP999[i])==F,
                          sampleGf5sCOM$child5GSP999[i] -
sampleGf5sCOM$child3GSP999[i],
                          sampleGf5sCOM$diff[i]) #correzione per gemelli#
}


for (i in 1:length(sampleGf5sCOM[,1])){
  sampleGf5sCOM$Ccat2[i] <- ifelse(is.na(sampleGf5sCOM$diff[i])==T,"no further
(known)",
```

```
                        ifelse(sampleGf5sCOM$diff[i]<25, "back to back",
                            "far children"))
}

table(sampleGf5sCOM$Ccat2)

seqIplot(seqAllLAf5, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","green3"),
        xtlab =-24:24,
        group=sampleGf5sCOM$Ccat2)

seqdplot(seqAllLAf5, cex.legend=0.8,
        cpal=c("forestgreen","green3"),
        xtlab =-24:24,
        group=sampleGf5sCOM$Ccat2)



#6#

for (i in 1:length(sampleGf6sCOM[,1])){
  sampleGf6sCOM$diff[i] <- ifelse(is.na(sampleGf6sCOM$child5GSP999[i])==T, NA,
                        sampleGf6sCOM$child6GSP999[i] -
sampleGf6sCOM$child5GSP999[i])
  sampleGf6sCOM$diff[i] <- ifelse(is.na(sampleGf6sCOM$diff[i])==T &
is.na(sampleGf6sCOM$child5GSP999[i])==F,
                        sampleGf6sCOM$child6GSP999[i] -
sampleGf6sCOM$child4GSP999[i],
                        sampleGf6sCOM$diff[i]) #correzione per gemelli#
```

```
}

for (i in 1:length(sampleGf6sCOM[,1])){
  sampleGf6sCOM$Ccat2[i] <- ifelse(is.na(sampleGf6sCOM$diff[i])==T,"no further (known)",
                                   ifelse(sampleGf6sCOM$diff[i]<25, "back to back",
                                          "far children"))
}

table(sampleGf6sCOM$Ccat2)

seqIplot(seqAllLAf6, sortv="from.start", cex.legend=0.8,
         cpal=c("forestgreen","gold","green3"),
         xtlab =-24:24,
         group=sampleGf6sCOM$Ccat2)

seqdplot(seqAllLAf6, cex.legend=0.8,
         cpal=c("forestgreen","gold","green3"),
         xtlab =-24:24,
         group=sampleGf6sCOM$Ccat2)



### divisione per area ###
library (TraMineR)
#1#
a <- matrix(ncol=1,nrow=16,NA)
```

```
a[1,1] <- which(names(sampleGf1sCOM)=="CANTON99")
a[2,1] <- which(names(sampleGf1sCOM)=="CANTON00")
a[3,1] <- which(names(sampleGf1sCOM)=="CANTON01")
a[4,1] <- which(names(sampleGf1sCOM)=="CANTON02")
a[5,1] <- which(names(sampleGf1sCOM)=="CANTON03")
a[6,1] <- which(names(sampleGf1sCOM)=="CANTON04")
a[7,1] <- which(names(sampleGf1sCOM)=="CANTON05")
a[8,1] <- which(names(sampleGf1sCOM)=="CANTON06")
a[9,1] <- which(names(sampleGf1sCOM)=="CANTON07")
a[10,1] <- which(names(sampleGf1sCOM)=="CANTON08")
a[11,1] <- which(names(sampleGf1sCOM)=="CANTON09")
a[12,1] <- which(names(sampleGf1sCOM)=="CANTON10")
a[13,1] <- which(names(sampleGf1sCOM)=="CANTON11")
a[14,1] <- which(names(sampleGf1sCOM)=="CANTON12")
a[15,1] <- which(names(sampleGf1sCOM)=="CANTON13")
a[16,1] <- which(names(sampleGf1sCOM)=="CANTON14")

sampleGf1sCOM$Vpos <- NA

for (i in 1:length(sampleGf1sCOM$child1y)){
  b <- sampleGf1sCOM$child1y[i] - 1998
  for (j in 1:length(a)){
    sampleGf1sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf1sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf1sCOM$Vpos)){
```

```
  b <- sampleGf1sCOM$Vpos[i]
  sampleGf1sCOM$area[i] <- as.character(sampleGf1sCOM[i,b])
}

table(sampleGf1sCOM$area)

library(car)
sampleGf1sCOM$area2 <- recode(sampleGf1sCOM$area,
                        "c('AG  Argovia',
                        'BE  Berne',
                        'BL  Basle-Country',
                        'NE  Neuchatel',
                        'SG  St. Gall',
                        'SH  Schaffhausen',
                        'TI  Ticino',
                        'VD  Vaud')='multicenter';
                        c('AI  Appenzell Inner-Rhodes',
                        'AR  Appenzell Outer-Rhodes',
                        'FR  Fribourg',
                        'GL  Glarus',
                        'GR  Grisons',
                        'JU  Jura',
                        'LU  Lucerne',
                        'NW  Nidwalden',
                        'OW  Obwalden',
                        'SO  Solothurn',
                        'SZ  Schwyz',
```

```
                    'TG Thurgovia',
                    'UR Uri',
                    'VS  Valais')='marginal';
                    else='central'
                    ")


table(sampleGf1sCOM$area2)
table(sampleGf1sCOM$area,sampleGf1sCOM$area2)

seqIplot(seqAllLAf1, sortv="from.start", cex.legend=0.8,
      cpal=c("forestgreen","gold","green3","darkorange","blue"),
      xtlab =-24:24,
      group=sampleGf1sCOM$area2)

seqdplot(seqAllLAf1, cex.legend=0.8,
      cpal=c("forestgreen","gold","green3","darkorange","blue"),
      xtlab =-24:24,
      group=sampleGf1sCOM$area2)




#2#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf2sCOM)=="CANTON99")
```

```
a[2,1] <- which(names(sampleGf2sCOM)=="CANTON00")
a[3,1] <- which(names(sampleGf2sCOM)=="CANTON01")
a[4,1] <- which(names(sampleGf2sCOM)=="CANTON02")
a[5,1] <- which(names(sampleGf2sCOM)=="CANTON03")
a[6,1] <- which(names(sampleGf2sCOM)=="CANTON04")
a[7,1] <- which(names(sampleGf2sCOM)=="CANTON05")
a[8,1] <- which(names(sampleGf2sCOM)=="CANTON06")
a[9,1] <- which(names(sampleGf2sCOM)=="CANTON07")
a[10,1] <- which(names(sampleGf2sCOM)=="CANTON08")
a[11,1] <- which(names(sampleGf2sCOM)=="CANTON09")
a[12,1] <- which(names(sampleGf2sCOM)=="CANTON10")
a[13,1] <- which(names(sampleGf2sCOM)=="CANTON11")
a[14,1] <- which(names(sampleGf2sCOM)=="CANTON12")
a[15,1] <- which(names(sampleGf2sCOM)=="CANTON13")
a[16,1] <- which(names(sampleGf2sCOM)=="CANTON14")

sampleGf2sCOM$Vpos <- NA

for (i in 1:length(sampleGf2sCOM$child2y)){
  b <- sampleGf2sCOM$child2y[i] - 1998
  for (j in 1:length(a)){
    sampleGf2sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf2sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf2sCOM$Vpos)){
  b <- sampleGf2sCOM$Vpos[i]
  sampleGf2sCOM$area[i] <- as.character(sampleGf2sCOM[i,b])
```

```
}

table(sampleGf2sCOM$area)

library(car)
sampleGf2sCOM$area2 <- recode(sampleGf2sCOM$area,
                        "c('AG  Argovia',
                        'BE  Berne',
                        'BL  Basle-Country',
                        'NE  Neuchatel',
                        'SG  St. Gall',
                        'SH  Schaffhausen',
                        'TI  Ticino',
                        'VD  Vaud')='multicenter';
                        c('AI  Appenzell Inner-Rhodes',
                        'AR  Appenzell Outer-Rhodes',
                        'FR  Fribourg',
                        'GL  Glarus',
                        'GR  Grisons',
                        'JU  Jura',
                        'LU  Lucerne',
                        'NW  Nidwalden',
                        'OW  Obwalden',
                        'SO  Solothurn',
                        'SZ  Schwyz',
                        'TG Thurgovia',
                        'UR Uri',
```

```
                    'VS  Valais')='marginal';
                    else='central'
                    ")


table(sampleGf2sCOM$area2)
table(sampleGf2sCOM$area,sampleGf2sCOM$area2)

seqIplot(seqAllLAf2, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf2sCOM$area2)

seqdplot(seqAllLAf2, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf2sCOM$area2)



#3#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf3sCOM)=="CANTON99")
a[2,1] <- which(names(sampleGf3sCOM)=="CANTON00")
a[3,1] <- which(names(sampleGf3sCOM)=="CANTON01")
a[4,1] <- which(names(sampleGf3sCOM)=="CANTON02")
```

```
a[5,1] <- which(names(sampleGf3sCOM)=="CANTON03")
a[6,1] <- which(names(sampleGf3sCOM)=="CANTON04")
a[7,1] <- which(names(sampleGf3sCOM)=="CANTON05")
a[8,1] <- which(names(sampleGf3sCOM)=="CANTON06")
a[9,1] <- which(names(sampleGf3sCOM)=="CANTON07")
a[10,1] <- which(names(sampleGf3sCOM)=="CANTON08")
a[11,1] <- which(names(sampleGf3sCOM)=="CANTON09")
a[12,1] <- which(names(sampleGf3sCOM)=="CANTON10")
a[13,1] <- which(names(sampleGf3sCOM)=="CANTON11")
a[14,1] <- which(names(sampleGf3sCOM)=="CANTON12")
a[15,1] <- which(names(sampleGf3sCOM)=="CANTON13")
a[16,1] <- which(names(sampleGf3sCOM)=="CANTON14")

sampleGf3sCOM$Vpos <- NA

for (i in 1:length(sampleGf3sCOM$child3y)){
  b <- sampleGf3sCOM$child3y[i] - 1998
  for (j in 1:length(a)){
    sampleGf3sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf3sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf3sCOM$Vpos)){
  b <- sampleGf3sCOM$Vpos[i]
  sampleGf3sCOM$area[i] <- as.character(sampleGf3sCOM[i,b])
}

table(sampleGf3sCOM$area)
```

```
library(car)
sampleGf3sCOM$area2 <- recode(sampleGf3sCOM$area,
                    "c('AG  Argovia',
                    'BE  Berne',
                    'BL  Basle-Country',
                    'NE  Neuchatel',
                    'SG  St. Gall',
                    'SH  Schaffhausen',
                    'TI  Ticino',
                    'VD  Vaud')='multicenter';
                    c('AI  Appenzell Inner-Rhodes',
                    'AR  Appenzell Outer-Rhodes',
                    'FR  Fribourg',
                    'GL  Glarus',
                    'GR  Grisons',
                    'JU  Jura',
                    'LU  Lucerne',
                    'NW  Nidwalden',
                    'OW  Obwalden',
                    'SO  Solothurn',
                    'SZ  Schwyz',
                    'TG Thurgovia',
                    'UR Uri',
                    'VS  Valais')='marginal';
                    else='central'
                    ")
```

```
table(sampleGf3sCOM$area2)
table(sampleGf3sCOM$area,sampleGf3sCOM$area2)

seqIplot(seqAllLAf3, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf3sCOM$area2)

seqdplot(seqAllLAf3, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf3sCOM$area2)



#4#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf4sCOM)=="CANTON99")
a[2,1] <- which(names(sampleGf4sCOM)=="CANTON00")
a[3,1] <- which(names(sampleGf4sCOM)=="CANTON01")
a[4,1] <- which(names(sampleGf4sCOM)=="CANTON02")
a[5,1] <- which(names(sampleGf4sCOM)=="CANTON03")
a[6,1] <- which(names(sampleGf4sCOM)=="CANTON04")
a[7,1] <- which(names(sampleGf4sCOM)=="CANTON05")
```

```
a[8,1] <- which(names(sampleGf4sCOM)=="CANTON06")
a[9,1] <- which(names(sampleGf4sCOM)=="CANTON07")
a[10,1] <- which(names(sampleGf4sCOM)=="CANTON08")
a[11,1] <- which(names(sampleGf4sCOM)=="CANTON09")
a[12,1] <- which(names(sampleGf4sCOM)=="CANTON10")
a[13,1] <- which(names(sampleGf4sCOM)=="CANTON11")
a[14,1] <- which(names(sampleGf4sCOM)=="CANTON12")
a[15,1] <- which(names(sampleGf4sCOM)=="CANTON13")
a[16,1] <- which(names(sampleGf4sCOM)=="CANTON14")

sampleGf4sCOM$Vpos <- NA

for (i in 1:length(sampleGf4sCOM$child4y)){
  b <- sampleGf4sCOM$child4y[i] - 1998
  for (j in 1:length(a)){
    sampleGf4sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf4sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf4sCOM$Vpos)){
  b <- sampleGf4sCOM$Vpos[i]
  sampleGf4sCOM$area[i] <- as.character(sampleGf4sCOM[i,b])
}

table(sampleGf4sCOM$area)

library(car)
sampleGf4sCOM$area2 <- recode(sampleGf4sCOM$area,
```

```
"c('AG  Argovia',
'BE  Berne',
'BL  Basle-Country',
'NE  Neuchatel',
'SG  St. Gall',
'SH  Schaffhausen',
'TI  Ticino',
'VD  Vaud')='multicenter';
c('AI  Appenzell Inner-Rhodes',
'AR  Appenzell Outer-Rhodes',
'FR  Fribourg',
'GL  Glarus',
'GR  Grisons',
'JU  Jura',
'LU  Lucerne',
'NW  Nidwalden',
'OW  Obwalden',
'SO  Solothurn',
'SZ  Schwyz',
'TG Thurgovia',
'UR Uri',
'VS  Valais')='marginal';
else='central'
")
```

```
table(sampleGf4sCOM$area2)
```

```
table(sampleGf4sCOM$area,sampleGf4sCOM$area2)

seqIplot(seqAllLAf4, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf4sCOM$area2)

seqdplot(seqAllLAf4, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf4sCOM$area2)


#5#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf5sCOM)=="CANTON99")
a[2,1] <- which(names(sampleGf5sCOM)=="CANTON00")
a[3,1] <- which(names(sampleGf5sCOM)=="CANTON01")
a[4,1] <- which(names(sampleGf5sCOM)=="CANTON02")
a[5,1] <- which(names(sampleGf5sCOM)=="CANTON03")
a[6,1] <- which(names(sampleGf5sCOM)=="CANTON04")
a[7,1] <- which(names(sampleGf5sCOM)=="CANTON05")
a[8,1] <- which(names(sampleGf5sCOM)=="CANTON06")
a[9,1] <- which(names(sampleGf5sCOM)=="CANTON07")
a[10,1] <- which(names(sampleGf5sCOM)=="CANTON08")
a[11,1] <- which(names(sampleGf5sCOM)=="CANTON09")
```

```
a[12,1] <- which(names(sampleGf5sCOM)=="CANTON10")
a[13,1] <- which(names(sampleGf5sCOM)=="CANTON11")
a[14,1] <- which(names(sampleGf5sCOM)=="CANTON12")
a[15,1] <- which(names(sampleGf5sCOM)=="CANTON13")
a[16,1] <- which(names(sampleGf5sCOM)=="CANTON14")

sampleGf5sCOM$Vpos <- NA

for (i in 1:length(sampleGf5sCOM$child5y)){
  b <- sampleGf5sCOM$child5y[i] - 1998
  for (j in 1:length(a)){
    sampleGf5sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf5sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf5sCOM$Vpos)){
  b <- sampleGf5sCOM$Vpos[i]
  sampleGf5sCOM$area[i] <- as.character(sampleGf5sCOM[i,b])
}

table(sampleGf5sCOM$area)

library(car)
sampleGf5sCOM$area2 <- recode(sampleGf5sCOM$area,
                        "c('AG  Argovia',
                        'BE  Berne',
                        'BL  Basle-Country',
                        'NE  Neuchatel',
```

```
                    'SG  St. Gall',
                    'SH  Schaffhausen',
                    'TI  Ticino',
                    'VD  Vaud')='multicenter';
                    c('AI  Appenzell Inner-Rhodes',
                    'AR  Appenzell Outer-Rhodes',
                    'FR  Fribourg',
                    'GL  Glarus',
                    'GR  Grisons',
                    'JU  Jura',
                    'LU  Lucerne',
                    'NW  Nidwalden',
                    'OW  Obwalden',
                    'SO  Solothurn',
                    'SZ  Schwyz',
                    'TG Thurgovia',
                    'UR Uri',
                    'VS  Valais')='marginal';
                    else='central'
                    ")


table(sampleGf5sCOM$area2)
table(sampleGf5sCOM$area,sampleGf5sCOM$area2)

seqIplot(seqAllLAf5, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","green3"),
```

```
        xtlab =-24:24,
        group=sampleGf5sCOM$area2)

seqdplot(seqAllLAf5, cex.legend=0.8,
        cpal=c("forestgreen","green3"),
        xtlab =-24:24,
        group=sampleGf5sCOM$area2)



#6#
a <- matrix(ncol=1,nrow=16,NA)

a[1,1] <- which(names(sampleGf6sCOM)=="CANTON99")
a[2,1] <- which(names(sampleGf6sCOM)=="CANTON00")
a[3,1] <- which(names(sampleGf6sCOM)=="CANTON01")
a[4,1] <- which(names(sampleGf6sCOM)=="CANTON02")
a[5,1] <- which(names(sampleGf6sCOM)=="CANTON03")
a[6,1] <- which(names(sampleGf6sCOM)=="CANTON04")
a[7,1] <- which(names(sampleGf6sCOM)=="CANTON05")
a[8,1] <- which(names(sampleGf6sCOM)=="CANTON06")
a[9,1] <- which(names(sampleGf6sCOM)=="CANTON07")
a[10,1] <- which(names(sampleGf6sCOM)=="CANTON08")
a[11,1] <- which(names(sampleGf6sCOM)=="CANTON09")
a[12,1] <- which(names(sampleGf6sCOM)=="CANTON10")
a[13,1] <- which(names(sampleGf6sCOM)=="CANTON11")
a[14,1] <- which(names(sampleGf6sCOM)=="CANTON12")
```

```
a[15,1] <- which(names(sampleGf6sCOM)=="CANTON13")
a[16,1] <- which(names(sampleGf6sCOM)=="CANTON14")

sampleGf6sCOM$Vpos <- NA

for (i in 1:length(sampleGf6sCOM$child6y)){
  b <- sampleGf6sCOM$child6y[i] - 1998
  for (j in 1:length(a)){
    sampleGf6sCOM$Vpos[i] <- ifelse( b==j, a[j,1],sampleGf6sCOM$Vpos[i])
  }}

for (i in 1:length(sampleGf6sCOM$Vpos)){
  b <- sampleGf6sCOM$Vpos[i]
  sampleGf6sCOM$area[i] <- as.character(sampleGf6sCOM[i,b])
}

table(sampleGf6sCOM$area)

library(car)
sampleGf6sCOM$area2 <- recode(sampleGf6sCOM$area,
                        "c('AG  Argovia',
                        'BE  Berne',
                        'BL  Basle-Country',
                        'NE  Neuchatel',
                        'SG  St. Gall',
                        'SH  Schaffhausen',
                        'TI  Ticino',
```

```
                    'VD  Vaud')='multicenter';
                    c('AI  Appenzell Inner-Rhodes',
                    'AR  Appenzell Outer-Rhodes',
                    'FR  Fribourg',
                    'GL  Glarus',
                    'GR  Grisons',
                    'JU  Jura',
                    'LU  Lucerne',
                    'NW  Nidwalden',
                    'OW  Obwalden',
                    'SO  Solothurn',
                    'SZ  Schwyz',
                    'TG Thurgovia',
                    'UR Uri',
                    'VS  Valais')='marginal';
                    else='central'
                    ")


table(sampleGf6sCOM$area2)
table(sampleGf6sCOM$area,sampleGf6sCOM$area2)

seqIplot(seqAllLAf6, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3"),
        xtlab =-24:24,
        group=sampleGf6sCOM$area2)
```

```
seqdplot(seqAllLAf6, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3"),
        xtlab =-24:24,
        group=sampleGf6sCOM$area2)
```

#7# no sequences

#8# no sequences

4- Database merging

unire i databases con 2+ figli

creare variabili di riconoscimento numero figli e variabili per unione

```
sampleGf1sCOM$NC1 <- "F1"  #escluso da unificazione

sampleGf2sCOM$NC2 <- "F2"  #escluso da unificazione

sampleGf3sCOM$NC3 <- "F3"

sampleGf4sCOM$NC4 <- "F4"

sampleGf5sCOM$NC5 <- "F5"

sampleGf6sCOM$NC6 <- "F6"

sampleGf7sCOM$NC7 <- "F7"  #vuoto

sampleGf8sCOM$NC8 <- "F8"  #vuoto


sampleGf1sCOM$IDtuo <- paste0(sampleGf1sCOM$IDPERS,sampleGf1sCOM$NC1) #escluso da unificazione

sampleGf2sCOM$IDtuo <- paste0(sampleGf2sCOM$IDPERS,sampleGf2sCOM$NC2) #escluso da unificazione

sampleGf3sCOM$IDtuo <- paste0(sampleGf3sCOM$IDPERS,sampleGf3sCOM$NC3)

sampleGf4sCOM$IDtuo <- paste0(sampleGf4sCOM$IDPERS,sampleGf4sCOM$NC4)

sampleGf5sCOM$IDtuo <- paste0(sampleGf5sCOM$IDPERS,sampleGf5sCOM$NC5)

sampleGf6sCOM$IDtuo <- paste0(sampleGf6sCOM$IDPERS,sampleGf6sCOM$NC6)

sampleGf7sCOM$IDtuo <- paste0(sampleGf7sCOM$IDPERS,sampleGf7sCOM$NC7) #vuoto

sampleGf8sCOM$IDtuo <- paste0(sampleGf8sCOM$IDPERS,sampleGf8sCOM$NC8) #vuoto
```

```
prova <- matrix(nrow=length(names(sampleGf3sCOM)),ncol=1,NA)

for (i in 1:length(names(sampleGf3sCOM))){
  prova[i,1] <- ifelse(names(sampleGf3sCOM)[i]==names(sampleGf4sCOM)[i],
                       0,1)
}



a <- which(prova==1)



sampleGf3sCOMb <- sampleGf3sCOM
sampleGf4sCOMb <- sampleGf4sCOM
sampleGf5sCOMb <- sampleGf5sCOM
sampleGf6sCOMb <- sampleGf6sCOM

names(sampleGf3sCOMb)[a] <- c("childGSP999M24","NC")
names(sampleGf4sCOMb)[a] <- c("childGSP999M24","NC")
names(sampleGf5sCOMb)[a] <- c("childGSP999M24","NC")
names(sampleGf6sCOMb)[a] <- c("childGSP999M24","NC")

sampleGfMOREsCOM <- rbind(sampleGf3sCOMb,
                          sampleGf4sCOMb,
                          sampleGf5sCOMb,
                          sampleGf6sCOMb)

#length(sampleGf3sCOMb[,1])
```

```
#length(sampleGf4sCOMb[,1])
#length(sampleGf5sCOMb[,1])
#length(sampleGf6sCOMb[,1])

rm(sampleGf3sCOMb)
rm(sampleGf4sCOMb)
rm(sampleGf5sCOMb)
rm(sampleGf6sCOMb)
```

5- Descriptive analyses with united databases

```
library(TraMineR)
library(TraMineRextras)

# sequenze allineate #
a <- which(names(sampleGfMOREsCOM)=="SEP99")
b <- which(names(sampleGfMOREsCOM)=="MAR15")

perAllLAfT <- seqstart(sampleGfMOREsCOM[,a:b], data.start=1,
                  new.start=(sampleGfMOREsCOM$childGSP999M24),tmax=49)

seqAllLAfT <- seqdef(perAllLAfT)

seqIplot(seqAllLAfT, sortv="from.start", cex.legend=0.5,  xtlab =-24:24,
       cpal=c("forestgreen","gold","green3","darkorange","blue"))

### divisione per sesso ###

#T#
seqIplot(seqAllLAfT, sortv="from.start", cex.legend=0.8,
       cpal=c("forestgreen","gold","green3","darkorange","blue"),
       xtlab =-24:24,
       group=sampleGfMOREsCOM$SEX)

seqdplot(seqAllLAfT, cex.legend=0.8,
       cpal=c("forestgreen","gold","green3","darkorange","blue"),
```

```
        xtlab =-24:24,
        group=sampleGfMOREsCOM$SEX)


### divisione per età ###

#T#

seqIplot(seqAllLAfT, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGfMOREsCOM$CLeta)

seqdplot(seqAllLAfT, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGfMOREsCOM$CLeta)




### divisione per coorte ###

#T#

seqIplot(seqAllLAfT, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
```

```
        xtlab =-24:24,
        group=sampleGfMOREsCOM$cohort)

seqdplot(seqAllLAfT, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGfMOREsCOM$cohort)




### divisione per nazionalita ###

#T#
seqIplot(seqAllLAfT, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGfMOREsCOM$nat2)

seqdplot(seqAllLAfT, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGfMOREsCOM$nat2)
```

```
### divisione per educazione ###
#T#

seqIplot(seqAllLAfT, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGfMOREsCOM$edu2)

seqdplot(seqAllLAfT, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGfMOREsCOM$edu2)



### divisione per permesso di soggiorno ###
#T#

## NON FACCIO PERMESSO PERCHè POCHI STRANIERI ##



### divisione per tipo fertilità forward###
#T#
```

```
table(sampleGfMOREsCOM$Ccat)

seqIplot(seqAllLAfT, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGfMOREsCOM$Ccat)

seqdplot(seqAllLAfT, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGfMOREsCOM$Ccat)


### divisione per tipo fertilità backward###
#T#

table(sampleGfMOREsCOM$Ccat)

seqIplot(seqAllLAfT, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGfMOREsCOM$Ccat2)

seqdplot(seqAllLAfT, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGfMOREsCOM$Ccat2)
```

```
### divisione per area ###
library (TraMineR)
#T#

seqIplot(seqAllLAfT, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGfMOREsCOM$area2)

seqdplot(seqAllLAfT, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGfMOREsCOM$area2)
```

6- Group characteristics

```
library (descr)



### 1 figlio ###


# per fare tabelle #
sampleGf1sCOM$UNO <- 1


## sesso ##
CrossTable(sampleGf1sCOM$SEX,sampleGf1sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)
## eta ##
CrossTable(sampleGf1sCOM$CLeta,sampleGf1sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)
## coorte ##
CrossTable(sampleGf1sCOM$cohort,sampleGf1sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)
## nazionalità ##
CrossTable(sampleGf1sCOM$nat2,sampleGf1sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)
## educazione ##
CrossTable(sampleGf1sCOM$edu2,sampleGf1sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)
## tipo fertilità forward ##
```

```
CrossTable(sampleGf1sCOM$Ccat,sampleGf1sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)

## tipo fertilità backward ##

CrossTable(sampleGf1sCOM$Ccat2,sampleGf1sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)

## area ##

CrossTable(sampleGf1sCOM$area2,sampleGf1sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)



### 2 figlio ###


# per fare tabelle #

sampleGf2sCOM$UNO <- 1


## sesso ##

CrossTable(sampleGf2sCOM$SEX,sampleGf2sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)

## eta ##

CrossTable(sampleGf2sCOM$CLeta,sampleGf2sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)

## coorte ##

CrossTable(sampleGf2sCOM$cohort,sampleGf2sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)

## nazionalità ##

CrossTable(sampleGf2sCOM$nat2,sampleGf2sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)

## educazione ##
```

```
CrossTable(sampleGf2sCOM$edu2,sampleGf2sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)

## tipo fertilità ##

CrossTable(sampleGf2sCOM$Ccat,sampleGf2sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)

## area ##

CrossTable(sampleGf2sCOM$area2,sampleGf2sCOM$UNO, prop.r = F, prop.c = F,
prop.t = T, missing.include = T)



### 3+ figlio ###


# per fare tabelle #

sampleGfMOREsCOM$UNO <- 1


## sesso ##

CrossTable(sampleGfMOREsCOM$SEX,sampleGfMOREsCOM$UNO, prop.r = F,
prop.c = F, prop.t = T, missing.include = T)

## eta ##

CrossTable(sampleGfMOREsCOM$CLeta,sampleGfMOREsCOM$UNO, prop.r = F,
prop.c = F, prop.t = T, missing.include = T)

## coorte ##

CrossTable(sampleGfMOREsCOM$cohort,sampleGfMOREsCOM$UNO, prop.r = F,
prop.c = F, prop.t = T, missing.include = T)

## nazionalità ##

CrossTable(sampleGfMOREsCOM$nat2,sampleGfMOREsCOM$UNO, prop.r = F,
prop.c = F, prop.t = T, missing.include = T)

## educazione ##
```

```
CrossTable(sampleGfMOREsCOM$edu2,sampleGfMOREsCOM$UNO, prop.r = F,
prop.c = F, prop.t = T, missing.include = T)

## tipo fertilità ##

CrossTable(sampleGfMOREsCOM$Ccat,sampleGfMOREsCOM$UNO, prop.r = F,
prop.c = F, prop.t = T, missing.include = T)

## area ##

CrossTable(sampleGfMOREsCOM$area2,sampleGfMOREsCOM$UNO, prop.r = F,
prop.c = F, prop.t = T, missing.include = T)
```

7- Sequence analysis

```
### PRIMO FIGLIO ###
library(TraMineR)

## matching ##
#matrice distanze (dist=constant)#
disUNO <- seqdist(seqAllLAf1, method = "OM", sm="CONSTANT",
full.matrix=F,with.missing=TRUE)

###clustering###

#clustering Ward#

WardUNO <-  hclust(as.dist(disUNO), method = "ward.D2")

#analisi silouette e HC#
library(WeightedCluster)
Silouette <- as.clustrange(WardUNO, diss = as.dist(disUNO), ncluster = 20)
plot(Silouette, stat = c("ASWw", "HC"))
        # la migliore tecnica è a 6 ma il sesto non ha tanto senso ed è piccolissimo

#k=5#
sampleGf1sCOM$wardUNO <- cutree(WardUNO, k=5)

seqIplot(seqAllLAf1, sortv="from.start", cex.legend=0.8,
      cpal=c("forestgreen","gold","green3","darkorange","blue"),
```

```
        xtlab =-24:24,
        group=sampleGf1sCOM$wardUNO)

seqdplot(seqAllLAf1, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf1sCOM$wardUNO)



#PAM clustering #
#K=5
perPamUNO <- wcKMedoids(disUNO, k = 5, initialclust =
sampleGf1sCOM$wardUNO)
sampleGf1sCOM$pamUNO <- perPamUNO$clustering

seqIplot(seqAllLAf1, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf1sCOM$pamUNO)

seqdplot(seqAllLAf1, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf1sCOM$pamUNO)
```

```
### SECONDO FIGLIO ###


## matching ##

#matrice distanze (dist=constant)#

disDUE <- seqdist(seqAllLAf2, method = "OM", sm="CONSTANT",
full.matrix=F,with.missing=TRUE)


###clustering###


#clustering Ward#


WardDUE <-  hclust(as.dist(disDUE), method = "ward.D2")


#analisi silouette e HC#

library(WeightedCluster)

Silouette <- as.clustrange(WardDUE, diss = as.dist(disDUE), ncluster = 20)

plot(Silouette, stat = c("ASWw", "HC"))



#k=3#

sampleGf2sCOM$wardDUE <- cutree(WardDUE, k=3)


seqIplot(seqAllLAf2, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf2sCOM$wardDUE)
```

```
seqdplot(seqAllLAf2, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","darkorange","blue"),
        xtlab =-24:24,
        group=sampleGf2sCOM$wardDUE)



#WC PAM clustering #
#K=3
perPamDUE <- wcKMedoids(disDUE, k = 3, initialclust = sampleGf2sCOM$wardDUE)
sampleGf2sCOM$pamDUE <- perPamDUE$clustering

seqIplot(seqAllLAf2, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf2sCOM$pamDUE)

seqdplot(seqAllLAf2, cex.legend=0.8,
        cpal=c("forestgreen","gold","green3","blue"),
        xtlab =-24:24,
        group=sampleGf2sCOM$pamDUE)



### TERZO o più FIGLIO ###

## matching ##
```

```
#matrice distanze (dist=constant)#
disMORE <- seqdist(seqAllLAfT, method = "OM", sm="CONSTANT",
full.matrix=F,with.missing=TRUE)

###clustering###

#clustering Ward#

WardMORE <-  hclust(as.dist(disMORE), method = "ward.D2")

#analisi silouette e HC#
library(WeightedCluster)
Silouette <- as.clustrange(WardMORE, diss = as.dist(disMORE), ncluster = 20)
plot(Silouette, stat = c("ASWw", "HC"))



#k=3#
sampleGfMOREsCOM$wardMORE <- cutree(WardMORE, k=3)

seqIplot(seqAllLAfT, sortv="from.start", cex.legend=0.8,
      cpal=c("forestgreen","gold","green3","darkorange","blue"),
      xtlab =-24:24,
      group=sampleGfMOREsCOM$wardMORE)

seqdplot(seqAllLAfT, cex.legend=0.8,
      cpal=c("forestgreen","gold","green3","darkorange","blue"),
      xtlab =-24:24,
```

```
        group=sampleGfMOREsCOM$wardMORE)



#WC PAM clustering #

#K=3

perPamMORE <- wcKMedoids(disMORE, k = 3, initialclust =
sampleGfMOREsCOM$wardMORE)

sampleGfMOREsCOM$pamMORE <- perPamMORE$clustering


seqIplot(seqAllLAfT, sortv="from.start", cex.legend=0.8,

        cpal=c("forestgreen","gold","green3","darkorange","blue"),

        xtlab =-24:24,

        group=sampleGfMOREsCOM$pamMORE)


seqdplot(seqAllLAfT, cex.legend=1,

        cpal=c("forestgreen","gold","green3","darkorange","blue"),

        xtlab =-24:24,

        group=sampleGfMOREsCOM$pamMORE)


---------


library (descr)



### 1 figlio ###
```

sesso

CrossTable(sampleGf1sCOM$SEX,sampleGf1sCOM$pamUNO, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

eta

CrossTable(sampleGf1sCOM$CLeta,sampleGf1sCOM$pamUNO, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

coorte

CrossTable(sampleGf1sCOM$cohort,sampleGf1sCOM$pamUNO, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

nazionalità

CrossTable(sampleGf1sCOM$nat2,sampleGf1sCOM$pamUNO, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

educazione

CrossTable(sampleGf1sCOM$edu2,sampleGf1sCOM$pamUNO, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

tipo fertilità forward##

CrossTable(sampleGf1sCOM$Ccat,sampleGf1sCOM$pamUNO, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

tipo fertilità backward##

#non applicabile

area

CrossTable(sampleGf1sCOM$area2,sampleGf1sCOM$pamUNO, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

riforma ## tabella inversa

CrossTable(sampleGf1sCOM$riforma,sampleGf1sCOM$pamUNO, prop.r = T, prop.c = F, prop.t = F, missing.include = T, prop.chisq = F)

riforma più 9 mesi## tabella inversa

CrossTable(sampleGf1sCOM$riformaP9,sampleGf1sCOM$pamUNO, prop.r = T, prop.c = F, prop.t = F, missing.include = T, prop.chisq = F)

2 figlio

sesso

```
CrossTable(sampleGf2sCOM$SEX,sampleGf2sCOM$pamDUE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

eta

```
CrossTable(sampleGf2sCOM$CLeta,sampleGf2sCOM$pamDUE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

coorte

```
CrossTable(sampleGf2sCOM$cohort,sampleGf2sCOM$pamDUE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

nazionalità

```
CrossTable(sampleGf2sCOM$nat2,sampleGf2sCOM$pamDUE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

educazione

```
CrossTable(sampleGf2sCOM$edu2,sampleGf2sCOM$pamDUE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

tipo fertilità forward##

```
CrossTable(sampleGf2sCOM$Ccat,sampleGf2sCOM$pamDUE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

tipo fertilità backward##

```
CrossTable(sampleGf2sCOM$Ccat2,sampleGf2sCOM$pamDUE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

area

```
CrossTable(sampleGf2sCOM$area2,sampleGf2sCOM$pamDUE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

riforma ## tabella inversa

CrossTable(sampleGf2sCOM$riforma,sampleGf2sCOM$pamDUE, prop.r = T, prop.c = F, prop.t = F, missing.include = T, prop.chisq = F)

riforma più 9 mesi## tabella inversa

CrossTable(sampleGf2sCOM$riformaP9,sampleGf2sCOM$pamDUE, prop.r = T, prop.c = F, prop.t = F, missing.include = T, prop.chisq = F)

3+ figlio

sesso

CrossTable(sampleGfMOREsCOM$SEX,sampleGfMOREsCOM$pamMORE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

eta

CrossTable(sampleGfMOREsCOM$CLeta,sampleGfMOREsCOM$pamMORE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

coorte

CrossTable(sampleGfMOREsCOM$cohort,sampleGfMOREsCOM$pamMORE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

nazionalità

CrossTable(sampleGfMOREsCOM$nat2,sampleGfMOREsCOM$pamMORE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

educazione

CrossTable(sampleGfMOREsCOM$edu2,sampleGfMOREsCOM$pamMORE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

tipo fertilità forward##

CrossTable(sampleGfMOREsCOM$Ccat,sampleGfMOREsCOM$pamMORE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

tipo fertilità backward##

CrossTable(sampleGfMOREsCOM$Ccat2,sampleGfMOREsCOM$pamMORE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

area

CrossTable(sampleGfMOREsCOM$area2,sampleGfMOREsCOM$pamMORE, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

riforma ## tabella inversa

CrossTable(sampleGfMOREsCOM$riforma,sampleGfMOREsCOM$pamMORE, prop.r = T, prop.c = F, prop.t = F, missing.include = T, prop.chisq = F)

riforma più 9 mesi## tabella inversa

CrossTable(sampleGfMOREsCOM$riformaP9,sampleGfMOREsCOM$pamMORE, prop.r = T, prop.c = F, prop.t = F, missing.include = T, prop.chisq = F)

8- Preparations for analyses on the reform

```
### preparazione variable pre/post riforma ###

## figlio 1 ##

for (i in 1:length(sampleGf1sCOM[,1])){
sampleGf1sCOM$riforma[i] <- ifelse(sampleGf1sCOM$child1GSP999[i]>70,1,0)
} # luglio 2005 è il mese 71

table(sampleGf1sCOM$riforma)

for (i in 1:length(sampleGf1sCOM[,1])){
  sampleGf1sCOM$riformaP9[i] <- ifelse(sampleGf1sCOM$child1GSP999[i]>79,1,0)
} # luglio 2005 + 9 mesi

table(sampleGf1sCOM$riformaP9)


## figlio 2 ##

for (i in 1:length(sampleGf2sCOM[,1])){
  sampleGf2sCOM$riforma[i] <- ifelse(sampleGf2sCOM$child2GSP999[i]>70,1,0)
} # luglio 2005 è il mese 71

table(sampleGf2sCOM$riforma)
```

```
for (i in 1:length(sampleGf2sCOM[,1])){
  sampleGf2sCOM$riformaP9[i] <- ifelse(sampleGf2sCOM$child2GSP999[i]>79,1,0)
} # luglio 2005 + 9 mesi

table(sampleGf2sCOM$riformaP9)



## figlio 3 o più ##
table(sampleGfMOREsCOM$NC)

for (i in 1:length(sampleGfMOREsCOM[,1])){
sampleGfMOREsCOM$childXGSP999[i] <- ifelse(sampleGfMOREsCOM$NC[i]=="F3",
                                sampleGfMOREsCOM$child3GSP999[i],
                                ifelse(sampleGfMOREsCOM$NC[i]=="F4",
                                     sampleGfMOREsCOM$child4GSP999[i],
                                     ifelse(sampleGfMOREsCOM$NC[i]=="F5",
                                          sampleGfMOREsCOM$child5GSP999[i],
                                          ifelse(sampleGfMOREsCOM$NC[i]=="F6",
                                               sampleGfMOREsCOM$child6GSP999[i],
                                               "error"))))
}
table(sampleGfMOREsCOM$childXGSP999)



for (i in 1:length(sampleGfMOREsCOM[,1])){
```

```
  sampleGfMOREsCOM$riforma[i] <-
ifelse(sampleGfMOREsCOM$childXGSP999[i]>70,1,0)
} # luglio 2005 è il mese 71

table(sampleGfMOREsCOM$riforma)

for (i in 1:length(sampleGfMOREsCOM[,1])){
  sampleGfMOREsCOM$riformaP9[i] <-
ifelse(sampleGfMOREsCOM$childXGSP999[i]>79,1,0)
} # luglio 2005 + 9 mesi

table(sampleGfMOREsCOM$riformaP9)
```

9- Analisis of the reform

```
library (descr)



### 1 figlio ###


## sesso ##

CrossTable(sampleGf1sCOM$SEX,sampleGf1sCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

## eta ##

CrossTable(sampleGf1sCOM$CLeta,sampleGf1sCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

## coorte ##

CrossTable(sampleGf1sCOM$cohort,sampleGf1sCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

## nazionalità ##

CrossTable(sampleGf1sCOM$nat2,sampleGf1sCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

## educazione ##

CrossTable(sampleGf1sCOM$edu2,sampleGf1sCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

## area ##

CrossTable(sampleGf1sCOM$area2,sampleGf1sCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

sesso

```
CrossTable(sampleGf1sCOM$SEX,sampleGf1sCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

eta

```
CrossTable(sampleGf1sCOM$CLeta,sampleGf1sCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

coorte

```
CrossTable(sampleGf1sCOM$cohort,sampleGf1sCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

nazionalità

```
CrossTable(sampleGf1sCOM$nat2,sampleGf1sCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

educazione

```
CrossTable(sampleGf1sCOM$edu2,sampleGf1sCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

area

```
CrossTable(sampleGf1sCOM$area2,sampleGf1sCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

2 figlio

sesso

```
CrossTable(sampleGf2sCOM$SEX,sampleGf2sCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

eta

```
CrossTable(sampleGf2sCOM$CLeta,sampleGf2sCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

## coorte ##

CrossTable(sampleGf2sCOM$cohort,sampleGf2sCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

## nazionalità ##

CrossTable(sampleGf2sCOM$nat2,sampleGf2sCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

## educazione ##

CrossTable(sampleGf2sCOM$edu2,sampleGf2sCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

## area ##

CrossTable(sampleGf2sCOM$area2,sampleGf2sCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)



## sesso ##

CrossTable(sampleGf2sCOM$SEX,sampleGf2sCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

## eta ##

CrossTable(sampleGf2sCOM$CLeta,sampleGf2sCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

## coorte ##

CrossTable(sampleGf2sCOM$cohort,sampleGf2sCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

## nazionalità ##

CrossTable(sampleGf2sCOM$nat2,sampleGf2sCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)
```

educazione

CrossTable(sampleGf2sCOM$edu2,sampleGf2sCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

area

CrossTable(sampleGf2sCOM$area2,sampleGf2sCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

3+ figlio

sesso

CrossTable(sampleGfMOREsCOM$SEX,sampleGfMOREsCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

eta

CrossTable(sampleGfMOREsCOM$CLeta,sampleGfMOREsCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

coorte

CrossTable(sampleGfMOREsCOM$cohort,sampleGfMOREsCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

nazionalità

CrossTable(sampleGfMOREsCOM$nat2,sampleGfMOREsCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

educazione

CrossTable(sampleGfMOREsCOM$edu2,sampleGfMOREsCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

area

CrossTable(sampleGfMOREsCOM$area2,sampleGfMOREsCOM$riforma, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

sesso

CrossTable(sampleGfMOREsCOM$SEX,sampleGfMOREsCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

eta

CrossTable(sampleGfMOREsCOM$CLeta,sampleGfMOREsCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

coorte

CrossTable(sampleGfMOREsCOM$cohort,sampleGfMOREsCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

nazionalità

CrossTable(sampleGfMOREsCOM$nat2,sampleGfMOREsCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

educazione

CrossTable(sampleGfMOREsCOM$edu2,sampleGfMOREsCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

area

CrossTable(sampleGfMOREsCOM$area2,sampleGfMOREsCOM$riformaP9, prop.r = F, prop.c = T, prop.t = F, missing.include = T, prop.chisq = F)

```
### mese 0 riforma ### tutta la preparazione è nel vecchio file


## figlio 1 ##


## modelli binomilai logistici (logit)##
library(stats)


# 1 # CH1-1
rm(a)
a <- glm(pamUNO1 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="woman"),])


summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD


# 225 # CH1-2
rm(a)
a <- glm(pamUNO225 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="woman"),])


summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD
```

```
# 229 # CH1-3
rm(a)
a <- glm(pamUNO229 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="woman"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 233 # CH1-4
rm(a)
a <- glm(pamUNO233 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="woman"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 285 # CH1-5
rm(a)
a <- glm(pamUNO285 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="woman"),])

summary(a)
```

```
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD



## figlio 2 ##

## modelli binomilai logistici (logit) ##
library(stats)

# 2 # CH2-1
rm(a)
a <- glm(pamDUE2 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf2sCOM[which(sampleGf2sCOM$SEX=="woman"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 108 # CH2-2
rm(a)
a <- glm(pamDUE108 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf2sCOM[which(sampleGf2sCOM$SEX=="woman"),])

summary(a)
```

```
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 306 # CH2-3
rm(a)
a <- glm(pamDUE306 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf2sCOM[which(sampleGf2sCOM$SEX=="woman"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD




## figlio 3+ ##

## modelli binomilai logistici (logit) ##
library(stats)

# 1 # CH3-1
rm(a)
a <- glm(pamMORE1 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGfMOREsCOM[which(sampleGfMOREsCOM$SEX=="woman"),])

summary(a)
```

```
exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 2 # CH3-3
rm(a)
a <- glm(pamMORE2 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGfMOREsCOM[which(sampleGfMOREsCOM$SEX=="woman"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 134 # CH3-2
rm(a)
a <- glm(pamMORE134 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGfMOREsCOM[which(sampleGfMOREsCOM$SEX=="woman"),])

summary(a)
exp(a$coefficients)
#summary(a)$coefficients[,2] #SD



### mese +9 riforma ###
```

```
## figlio 1 ##

## modelli binomilai logistici (logit)##
library(stats)

# 1 # CH1-1
rm(a)
a <- glm(pamUNO1 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="woman"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 225 # CH1-2
rm(a)
a <- glm(pamUNO225 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="woman"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 229 # CH1-3
```

```
rm(a)
a <- glm(pamUNO229 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="woman"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 233 # CH1-4
rm(a)
a <- glm(pamUNO233 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="woman"),])

summary(a)
exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 285 # CH1-5
rm(a)
a <- glm(pamUNO285 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="woman"),])

summary(a)
#exp(a$coefficients)
```

```
#summary(a)$coefficients[,2] #SD



## figlio 2 ##

## modelli binomilai logistici (logit) ##
library(stats)

# 2 # CH2-1
rm(a)
a <- glm(pamDUE2 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf2sCOM[which(sampleGf2sCOM$SEX=="woman"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 108 # CH2-2
rm(a)
a <- glm(pamDUE108 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf2sCOM[which(sampleGf2sCOM$SEX=="woman"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD
```

```
# 306 # CH2-3
rm(a)
a <- glm(pamDUE306 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf2sCOM[which(sampleGf2sCOM$SEX=="woman"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD




## figlio 3+ ##

# 1 # CH3-1
rm(a)
a <- glm(pamMORE1 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGfMOREsCOM[which(sampleGfMOREsCOM$SEX=="woman"),])

summary(a)
exp(a$coefficients)
summary(a)$coefficients[,2] #SD

# 2 # CH3-3
rm(a)
```

```
a <- glm(pamMORE2 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGfMOREsCOM[which(sampleGfMOREsCOM$SEX=="woman"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 134 # CH3-2
rm(a)
a <- glm(pamMORE134 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGfMOREsCOM[which(sampleGfMOREsCOM$SEX=="woman"),])

summary(a)
exp(a$coefficients)
summary(a)$coefficients[,2] #SD



--------------------

### mese 0 riforma ### tutta la preparazione è nel vecchio file

## figlio 1 ##

## modelli binomilai logistici (logit)##
library(stats)
```

```
# 1 # CH1-1
rm(a)
a <- glm(pamUNO1 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 225 # CH1-2
rm(a)
a <- glm(pamUNO225 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 229 # CH1-3
rm(a)
a <- glm(pamUNO229 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="man"),])
```

```
summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 233 # CH1-4
rm(a)
a <- glm(pamUNO233 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 285 # CH1-5
rm(a)
a <- glm(pamUNO285 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD



## figlio 2 ##
```

```
## modelli binomilai logistici (logit) ##
library(stats)

# 2 # CH2-1
rm(a)
a <- glm(pamDUE2 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf2sCOM[which(sampleGf2sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 108 # CH2-2
rm(a)
a <- glm(pamDUE108 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf2sCOM[which(sampleGf2sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 306 # CH2-3
rm(a)
a <- glm(pamDUE306 ~ riforma + CLeta + nat2 + edu2,
```

```
        family = binomial(link = "logit"),
        data = sampleGf2sCOM[which(sampleGf2sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD




## figlio 3+ ##

## modelli binomilai logistici (logit) ##
library(stats)

# 1 # CH3-1
rm(a)
a <- glm(pamMORE1 ~ riforma + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGfMOREsCOM[which(sampleGfMOREsCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 2 # CH3-3
rm(a)
a <- glm(pamMORE2 ~ riforma + CLeta + nat2 + edu2,
```

```
      family = binomial(link = "logit"),
      data = sampleGfMOREsCOM[which(sampleGfMOREsCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 134 # CH3-2
rm(a)
a <- glm(pamMORE134 ~ riforma + CLeta + nat2 + edu2,
      family = binomial(link = "logit"),
      data = sampleGfMOREsCOM[which(sampleGfMOREsCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD




### mese +9 riforma ###

## figlio 1 ##

## modelli binomilai logistici (logit)##
library(stats)
```

```
# 1 # CH1-1
rm(a)
a <- glm(pamUNO1 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 225 # CH1-2
rm(a)
a <- glm(pamUNO225 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 229 # CH1-3
rm(a)
a <- glm(pamUNO229 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="man"),])

summary(a)
```

```
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 233 # CH1-4
rm(a)
a <- glm(pamUNO233 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD


# 285 # CH1-5
rm(a)
a <- glm(pamUNO285 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf1sCOM[which(sampleGf1sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD


## figlio 2 ##
```

```
## modelli binomilai logistici (logit) ##
library(stats)

# 2 # CH2-1
rm(a)
a <- glm(pamDUE2 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf2sCOM[which(sampleGf2sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 108 # CH2-2
rm(a)
a <- glm(pamDUE108 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGf2sCOM[which(sampleGf2sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 306 # CH2-3
rm(a)
a <- glm(pamDUE306 ~ riformaP9 + CLeta + nat2 + edu2,
```

```
        family = binomial(link = "logit"),
        data = sampleGf2sCOM[which(sampleGf2sCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD




## figlio 3+ ##

# 1 # CH3-1
rm(a)
a <- glm(pamMORE1 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGfMOREsCOM[which(sampleGfMOREsCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 2 # CH3-3
rm(a)
a <- glm(pamMORE2 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGfMOREsCOM[which(sampleGfMOREsCOM$SEX=="man"),])
```

```
summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 134 # CH3-2
rm(a)
a <- glm(pamMORE134 ~ riformaP9 + CLeta + nat2 + edu2,
        family = binomial(link = "logit"),
        data = sampleGfMOREsCOM[which(sampleGfMOREsCOM$SEX=="man"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD
```

10- Controls

controllo multicollinearity 1 ### correlazione tra varaibili indipendenti ### tutte le regressioni

```
library(vcd)

## figlio 1 ##

assocstats(table(sampleGf1sCOM$riforma,sampleGf1sCOM$SEX))
assocstats(table(sampleGf1sCOM$riforma,sampleGf1sCOM$CLeta))
assocstats(table(sampleGf1sCOM$riforma,sampleGf1sCOM$nat2))
assocstats(table(sampleGf1sCOM$riforma,sampleGf1sCOM$edu2))

assocstats(table(sampleGf1sCOM$SEX,sampleGf1sCOM$CLeta))
assocstats(table(sampleGf1sCOM$SEX,sampleGf1sCOM$nat2))
assocstats(table(sampleGf1sCOM$SEX,sampleGf1sCOM$edu2))

assocstats(table(sampleGf1sCOM$CLeta,sampleGf1sCOM$nat2))
assocstats(table(sampleGf1sCOM$CLeta,sampleGf1sCOM$edu2))

assocstats(table(sampleGf1sCOM$nat2,sampleGf1sCOM$edu2))


## figlio 2 ##

assocstats(table(sampleGf2sCOM$riforma,sampleGf2sCOM$SEX))
```

```
assocstats(table(sampleGf2sCOM$riforma,sampleGf2sCOM$CLeta))
assocstats(table(sampleGf2sCOM$riforma,sampleGf2sCOM$nat2))
assocstats(table(sampleGf2sCOM$riforma,sampleGf2sCOM$edu2))

assocstats(table(sampleGf2sCOM$SEX,sampleGf2sCOM$CLeta))
assocstats(table(sampleGf2sCOM$SEX,sampleGf2sCOM$nat2))
assocstats(table(sampleGf2sCOM$SEX,sampleGf2sCOM$edu2))

assocstats(table(sampleGf2sCOM$CLeta,sampleGf2sCOM$nat2))
assocstats(table(sampleGf2sCOM$CLeta,sampleGf2sCOM$edu2))

assocstats(table(sampleGf2sCOM$nat2,sampleGf2sCOM$edu2))


## figlio 3 e more ##

assocstats(table(sampleGfMOREsCOM$riforma,sampleGfMOREsCOM$SEX))
assocstats(table(sampleGfMOREsCOM$riforma,sampleGfMOREsCOM$CLeta))
assocstats(table(sampleGfMOREsCOM$riforma,sampleGfMOREsCOM$nat2))
assocstats(table(sampleGfMOREsCOM$riforma,sampleGfMOREsCOM$edu2))

assocstats(table(sampleGfMOREsCOM$SEX,sampleGfMOREsCOM$CLeta))
assocstats(table(sampleGfMOREsCOM$SEX,sampleGfMOREsCOM$nat2))
assocstats(table(sampleGfMOREsCOM$SEX,sampleGfMOREsCOM$edu2))

assocstats(table(sampleGfMOREsCOM$CLeta,sampleGfMOREsCOM$nat2))
assocstats(table(sampleGfMOREsCOM$CLeta,sampleGfMOREsCOM$edu2))
```

```
assocstats(table(sampleGfMOREsCOM$nat2,sampleGfMOREsCOM$edu2))

### controllo multicollinearity 2 ###  controllo taglia standard deviation ###

summary(a) # nel file 11 - pre post riforma ci sono tutti i summary


## alrtri controlli non necessari o teorici per glm logit ###

---------------------

# calcolo quante sequenze, non casi, sono escuse per motivi di lunghezza # cfr parte 2

b1 <- which(as.numeric(sampleGf1s$select)>5 & as.numeric(sampleGf1s$select)<24 &
        sampleGf1s$appoggio==0)
length(b1)

b2 <- which(as.numeric(sampleGf2s$select)>5 & as.numeric(sampleGf2s$select)<24 &
        sampleGf2s$appoggio==0)
length(b2)

b3 <- which(as.numeric(sampleGf3s$select)>5 & as.numeric(sampleGf3s$select)<24 &
        sampleGf3s$appoggio==0)
```

```
length(b3)

b4 <- which(as.numeric(sampleGf4s$select)>5 & as.numeric(sampleGf4s$select)<24
&
        sampleGf4s$appoggio==0)
length(b4)

b5 <- which(as.numeric(sampleGf5s$select)>5 & as.numeric(sampleGf5s$select)<24
&
        sampleGf5s$appoggio==0)
length(b5)

b6 <- which(as.numeric(sampleGf6s$select)>5 & as.numeric(sampleGf6s$select)<24
&
        sampleGf6s$appoggio==0)
length(b6)

b7 <- which(as.numeric(sampleGf7s$select)>5 & as.numeric(sampleGf7s$select)<24
&
        sampleGf7s$appoggio==0)
length(b7)

b8 <- which(as.numeric(sampleGf8s$select)>5 & as.numeric(sampleGf8s$select)<24
&
        sampleGf8s$appoggio==0)
length(b8)
```

```
s <- (length(b1)+
  length(b2)+
  length(b3)+
  length(b4)+
  length(b5)+
  length(b6)+
  length(b7)+
  length(b8))

s/(s+916) #916 è il totale delle sequenze in cananda
```

SVIZZERA

1- Database creation

```
## importanzione ##
library(foreign)

cb <- read.dta("D:/Documents/dottorato/daticanada/childbirthdatever12.dta")
emp <-
read.dta("D:/Documents/dottorato/daticanada/employmentstatever12.dta")



### correzioni manuali ###
names(cb)

## correzione valori strani ## queste correzioni vengono da analisi profonda dei dati

a <- matrix(ncol=6, nrow=1, NA)

a[1,1] <- which(cb$idorig==4029)
a[1,2] <- which(cb$idorig==8753)
a[1,3] <- which(cb$idorig==831)
a[1,4] <- which(cb$idorig==6201)
a[1,5] <- which(cb$idorig==951)
a[1,6] <- which(cb$idorig==5588)

cb$sur3_child2[a[1,1]] <- NA
```

```
cb$sur3_child1[a[1,2]] <- NA
cb$sur3_child1[a[1,3]] <- NA
cb$sur3_child1[a[1,4]] <- NA
cb$sur3_child1[a[1,5]] <- NA
cb$sur3_child1[a[1,6]] <- NA


## correzione distanze troppo brevi tra figli ##

a <- matrix(ncol=21, nrow=1, NA)

a[1,1] <- which(cb$idorig==118)
a[1,2] <- which(cb$idorig==534)
a[1,3] <- which(cb$idorig==740)
a[1,4] <- which(cb$idorig==1207)
a[1,5] <- which(cb$idorig==1312)
a[1,6] <- which(cb$idorig==1412)
a[1,7] <- which(cb$idorig==1559)
a[1,8] <- which(cb$idorig==1923)
a[1,9] <- which(cb$idorig==3689)
a[1,10] <- which(cb$idorig==4315)
a[1,11] <- which(cb$idorig==4960)
a[1,12] <- which(cb$idorig==5140)
a[1,13] <- which(cb$idorig==5369)
a[1,14] <- which(cb$idorig==5643)
a[1,15] <- which(cb$idorig==5999)
a[1,16] <- which(cb$idorig==7112)
```

```
a[1,17] <- which(cb$idorig==8200)
a[1,18] <- which(cb$idorig==8228)
a[1,19] <- which(cb$idorig==9009)
a[1,20] <- which(cb$idorig==9155)
a[1,21] <- which(cb$idorig==9327)



cb$sur3_child1[a[1,1]] <- cb$sur2_child1[a[1,1]]
cb$sur3_child2[a[1,1]] <- cb$sur2_child2[a[1,1]]
cb$sur3_child3[a[1,1]] <- cb$sur2_child3[a[1,1]]

cb$sur3_child1[a[1,2]] <- cb$sur2_child1[a[1,2]]
cb$sur3_child2[a[1,2]] <- cb$sur2_child2[a[1,2]]

cb$sur3_child1[a[1,3]] <- cb$sur1_child2[a[1,3]]
cb$sur3_child2[a[1,3]] <- cb$sur1_child1[a[1,3]]

cb$sur2_child1[a[1,4]] <- cb$sur3_child1[a[1,4]]
cb$sur2_child2[a[1,4]] <- cb$sur3_child2[a[1,4]]
cb$sur2_child3[a[1,4]] <- cb$sur3_child3[a[1,4]]

        # I keep the 5 as it is, probably adopted child

cb$sur1_child1[a[1,6]] <- cb$sur3_child3[a[1,6]]
cb$sur1_child2[a[1,6]] <- cb$sur3_child2[a[1,6]]
cb$sur1_child3[a[1,6]] <- cb$sur3_child1[a[1,6]]
```

```
cb$sur2_child1[a[1,7]] <- NA

cb$sur1_child1[a[1,7]] <- cb$sur3_child5[a[1,7]]
cb$sur1_child2[a[1,7]] <- cb$sur3_child4[a[1,7]]


cb$sur2_child1[a[1,8]] <- cb$sur3_child1[a[1,8]]

cb$sur3_child2[a[1,9]] <- 166

cb$sur3_child1[a[1,10]] <- cb$sur2_child1[a[1,10]]
cb$sur3_child2[a[1,10]] <- cb$sur2_child2[a[1,10]]

cb$sur3_child1[a[1,11]] <- cb$sur2_child1[a[1,11]]
cb$sur3_child2[a[1,11]] <- cb$sur2_child2[a[1,11]]
cb$sur3_child3[a[1,11]] <- cb$sur2_child3[a[1,11]]


cb$sur1_child1[a[1,12]] <- cb$sur2_child1[a[1,12]]

cb$sur2_child1[a[1,13]] <- cb$sur3_child1[a[1,13]]
cb$sur2_child2[a[1,13]] <- cb$sur3_child2[a[1,13]]
cb$sur1_child1[a[1,13]] <- cb$sur3_child2[a[1,13]]
cb$sur1_child2[a[1,13]] <- cb$sur3_child1[a[1,13]]

cb$sur2_child1[a[1,14]] <- cb$sur3_child1[a[1,14]]
cb$sur2_child2[a[1,14]] <- cb$sur3_child2[a[1,14]]
```

```
cb$sur1_child1[a[1,14]] <- cb$sur3_child3[a[1,14]]
cb$sur1_child2[a[1,14]] <- cb$sur3_child2[a[1,14]]
cb$sur1_child3[a[1,14]] <- cb$sur3_child1[a[1,14]]

cb$sur2_child1[a[1,15]] <- cb$sur3_child1[a[1,15]]
cb$sur2_child2[a[1,15]] <- cb$sur3_child2[a[1,15]]

cb$sur2_child1[a[1,16]] <- cb$sur3_child1[a[1,16]]
cb$sur2_child2[a[1,16]] <- cb$sur3_child2[a[1,16]]
cb$sur2_child3[a[1,16]] <- cb$sur3_child3[a[1,16]]

cb$sur2_child1[a[1,17]] <- cb$sur3_child1[a[1,17]]

cb$sur1_child1[a[1,18]] <- cb$sur3_child1[a[1,18]]

cb$sur3_child1[a[1,19]] <- cb$sur1_child2[a[1,19]]
cb$sur3_child2[a[1,19]] <- cb$sur1_child1[a[1,19]]

cb$sur2_child1[a[1,20]] <- cb$sur3_child1[a[1,20]]

cb$sur2_child1[a[1,21]] <- cb$sur3_child1[a[1,21]]
```

correzione NA (per diverso modo stata considera i missings)

```
a <- which(names(emp)=="month1")
b <- which(names(emp)=="month262")

for (i in 1:length(emp[,1])){
  for (j in a:b){

    emp[i,j]  <- ifelse(emp[i,j]==6, NA, emp[i,j])

  }}
```

2- Preparations and controls

```
## isolo date figli ##

children <- matrix(nrow=length(cb$sur1_child1), ncol=15,NA)

for (i in 1:length(cb$sur1_child1)) {

  children[i,1] <- cb$sur1_child1[i]
  children[i,2] <- cb$sur1_child2[i]
  children[i,3] <- cb$sur1_child3[i]
  children[i,4] <- cb$sur1_child4[i]
  children[i,5] <- cb$sur1_child5[i]

  children[i,6] <- cb$sur2_child1[i]
  children[i,7] <- cb$sur2_child2[i]
  children[i,8] <- cb$sur2_child3[i]
  children[i,9] <- cb$sur2_child4[i]
  children[i,10] <- cb$sur2_child5[i]

  children[i,11] <- cb$sur3_child1[i]
  children[i,12] <- cb$sur3_child2[i]
  children[i,13] <- cb$sur3_child3[i]
  children[i,14] <- cb$sur3_child4[i]
  children[i,15] <- cb$sur3_child5[i]
```

```
  }

rownames(children) <- cb$idorig
View(children)

# fare backup  (serve per dopo per gemelli)
bck <- children

## cerco date figli e le ordino ##

children2 <- matrix(nrow=length(cb$idorig), ncol=7,NA)



#1
for (i in 1:length(cb$sur1_child1)) {

  children2[i,1] <- min(children[i,], na.rm=T)

}

#2
for (i in 1:length(cb$sur1_child1)) {

  for (j in 1:15) {

  children[i,j] <- ifelse(children[i,j]==children2[i,1], NA, children[i,j])
```

```
}}

for (i in 1:length(cb$sur1_child1)) {

  children2[i,2] <- min(children[i,], na.rm=T)

}

View(children2)



#3
for (i in 1:length(cb$sur1_child1)) {

  for (j in 1:15) {

    children[i,j] <- ifelse(children[i,j]==children2[i,2], NA, children[i,j])

  }}

for (i in 1:length(cb$sur1_child1)) {

  children2[i,3] <- min(children[i,], na.rm=T)

}

View(children2)
```

```
#4
for (i in 1:length(cb$sur1_child1)) {

  for (j in 1:15) {

    children[i,j] <- ifelse(children[i,j]==children2[i,3], NA, children[i,j])

  }}

for (i in 1:length(cb$sur1_child1)) {

  children2[i,4] <- min(children[i,], na.rm=T)

}

View(children2)


#5
for (i in 1:length(cb$sur1_child1)) {

  for (j in 1:15) {

    children[i,j] <- ifelse(children[i,j]==children2[i,4], NA, children[i,j])
```

```
  }}

for (i in 1:length(cb$sur1_child1)) {

  children2[i,5] <- min(children[i,], na.rm=T)

}

View(children2)

#6
for (i in 1:length(cb$sur1_child1)) {

  for (j in 1:15) {

    children[i,j] <- ifelse(children[i,j]==children2[i,5], NA, children[i,j])

  }}

for (i in 1:length(cb$sur1_child1)) {

  children2[i,6] <- min(children[i,], na.rm=T)

}

View(children2)
```

```
#7 (per controllo)
for (i in 1:length(cb$sur1_child1)) {

  for (j in 1:15) {

    children[i,j] <- ifelse(children[i,j]==children2[i,6], NA, children[i,j])

  }}

for (i in 1:length(cb$sur1_child1)) {

  children2[i,7] <- min(children[i,], na.rm=T)

}

View(children2)

table(children2[,7]) #devi avere solo Inf, i.e. missings#



## sistemazione e pulizia ##
library(car)

children2[,7] <- cb$idorig #riscrivo la sei, tanto era un controllo
colnames(children2) <-
c("child1","child2","child3","child4","child5","child6","idorig")
```

```
for (i in 1:length(children2[,1])){
children2[i,] <- recode(children2[i,], "Inf=NA")
}

children2 <- as.data.frame(children2)

View(children2)

## correzione gemelli ##

# cerco i gemelli #
bck2 <- matrix(ncol=12, nrow=length(cb[,1]), NA)

for (i in 1:length(cb[,1])){

  bck2[i,1] <- ifelse(cb$sur1_child1[i]==cb$sur1_child2[i],cb$sur1_child1[i],NA)
  bck2[i,2] <- ifelse(cb$sur1_child2[i]==cb$sur1_child3[i],cb$sur1_child2[i],NA)
  bck2[i,3] <- ifelse(cb$sur1_child3[i]==cb$sur1_child4[i],cb$sur1_child3[i],NA)
  bck2[i,4] <- ifelse(cb$sur1_child4[i]==cb$sur1_child5[i],cb$sur1_child4[i],NA)

  bck2[i,5] <- ifelse(cb$sur2_child1[i]==cb$sur2_child2[i],cb$sur2_child1[i],NA)
  bck2[i,6] <- ifelse(cb$sur2_child2[i]==cb$sur2_child3[i],cb$sur2_child2[i],NA)
  bck2[i,7] <- ifelse(cb$sur2_child3[i]==cb$sur2_child4[i],cb$sur2_child3[i],NA)
  bck2[i,8] <- ifelse(cb$sur2_child4[i]==cb$sur2_child5[i],cb$sur2_child4[i],NA)

  bck2[i,9] <- ifelse(cb$sur3_child1[i]==cb$sur3_child2[i],cb$sur1_child1[i],NA)
  bck2[i,10] <- ifelse(cb$sur3_child2[i]==cb$sur3_child3[i],cb$sur2_child2[i],NA)
```

```
  bck2[i,11] <- ifelse(cb$sur3_child3[i]==cb$sur3_child4[i],cb$sur3_child3[i],NA)
  bck2[i,12] <- ifelse(cb$sur3_child4[i]==cb$sur3_child5[i],cb$sur4_child4[i],NA)

}

# tolgo i doppioni

bck2B <- recode(bck2, "NA=999999")
bck3 <- matrix(ncol=12, nrow=length(cb[,1]), NA)

for (i in 1:length(cb[,1])){

  bck3[i,] <- sort(bck2B[i,])
}

bck3 <- recode(bck3, "999999=NA")
bck4 <- bck3

for (i in 1:length(bck3[,1])){
  for (j in 2:length(bck3[1,])){

    bck4[i,j] <- ifelse(bck3[i,j]==bck3[i,j-1],NA,bck3[i,j])
  }}

#cerco quale figlio sia in ordine giusto

bck5 <- matrix(ncol=2, nrow=length(children2[,1]), NA)
```

```
for (i in 1:length(children2[,1])){


  bck5[i,1] <- ifelse(is.na(bck4[i,1])==T,NA,which(children2[i,]==bck4[i,1]))

  bck5[i,2] <- ifelse(is.na(bck4[i,2])==T,NA,which(children2[i,]==bck4[i,2])) #mi fermo
a due, poi tutto vuoto


}


# faccio scalare il seguente se gemelli presenti


children2B <- children2

colnames(children2B) <-  colnames(children2)

app <- matrix(ncol=2,nrow=nrow(children2B),NA)

colnames(app) <-  c("child7","child8")

children2B <- cbind(children2B[,7],children2B[,1:6],app)

colnames(children2B)[1] <- "idorig"

View(children2B)


children3 <- matrix(ncol=ncol(children2),nrow=nrow(children2),NA)

colnames(children3) <-  colnames(children2)

app <- matrix(ncol=2,nrow=nrow(children2),NA)

colnames(app) <-  c("child7","child8")

children3 <- cbind(children3[,7],children3[,1:6],app)

colnames(children3)[1] <- "idorig"

children3[,1] <- children2B[,1]

View(children3)
```

```
a <- which(colnames(children3)=="child1")
b <- which(colnames(children3)=="child8")

for (i in 1:length(children2[,1])){
  for (j in a:b){

    children3[i,j] <- ifelse(is.na(bck5[i,1])==T,
                             children2B[i,j],
                             ifelse(j-1==(bck5[i,1]+1),NA, #-1 perché parte da 2, +1 perchè p
quello dopo che scala
                                    ifelse(j>(bck5[i,1]+1),children2B[i,j-1],
                                           children2B[i,j])))


  }}

children3 <- as.data.frame(children3)

names(children3)


table(children3$child7) #1
table(children3$child8) #0
```

```
## controlli ## tralascio 8 che è vuoto

# valori strani

a1<- children3$idorig[which(children3$child1>1000)]
a2<- children3$idorig[which(children3$child2>1000)]
a3<- children3$idorig[which(children3$child3>1000)]
a4<- children3$idorig[which(children3$child4>1000)]
a5<- children3$idorig[which(children3$child5>1000)]
a6<- children3$idorig[which(children3$child5>1000)]
a7<- children3$idorig[which(children3$child5>1000)]


# distanze strane tra figli

children4 <- children3

children4$unoMdue <- children4$child2 - children4$child1
b1<- children4$idorig[which(children4$unoMdue<9)]# prob. adozione

children4$treMdue <- children4$child3 - children4$child2
b2<- children4$idorig[which(children4$treMdue<9)]# caso limite o adozione

children4$quatMtre <- children4$child4 - children4$child3
b3<- children4$idorig[which(children4$quatMtre<9)]
```

```
children4$cinqMquat <- children4$child5 - children4$child4
b4<- children4$idorig[which(children4$cinqMquat<9)]

children4$seiMcinq <- children4$child6 - children4$child5
b5<- children4$idorig[which(children4$seiMcinq<9)]

children4$setMsei <- children4$child7 - children4$child6
b6<- children4$idorig[which(children4$setMsei<9)]

# missings (incoerenze tra valori)NON IMPORTANTE (vecchi coding, non so se va ancora)

bckB <- matrix(ncol=1,nrow=nrow(bck),NA) #aggiungo identificativi
bckc <- cbind(bck,bckB)
bckc[,16] <- as.numeric(rownames(bckc))
rownames(bckc) <- NULL
View(bckc)


bck1 <- bck[,1:5] # matrici per wave
bck2 <- bck[,6:10]
bck3 <- bck[,11:15]

library(car)
bck1 <- recode(bck1, "NA=99999")  # matrici per wave ordinate tutte nello stesso modo
bck2 <- recode(bck2, "NA=99999")
```

```
bck3 <- recode(bck3, "NA=99999")

bck1b <- matrix(ncol=ncol(bck1), nrow=nrow(bck1), NA)
bck2b <- matrix(ncol=ncol(bck2), nrow=nrow(bck2), NA)
bck3b <- matrix(ncol=ncol(bck3), nrow=nrow(bck3), NA)

for (i in 1:nrow(bck1)){
  bck1b[i,] <- sort(bck1[i,])
}

for (i in 1:nrow(bck2)){
  bck2b[i,] <- sort(bck2[i,])
}

for (i in 1:nrow(bck3)){
  bck3b[i,] <- sort(bck3[i,])
}



bck1b <- recode(bck1b, "99999=NA")  # rimetto gli NA
bck2b <- recode(bck2b, "99999=NA")
bck3b <- recode(bck3b, "99999=NA")

diff <- matrix(ncol=6, nrow=nrow(bck1b),NA)#controllo differenze

for (i in 1:nrow(bck1b)){
```

```
 diff[i,1] <- ifelse(is.na(bck1b[i,1])==T|is.na(bck2b[i,1])==T|is.na(bck3b[i,1])==T,
                     0,
                     ifelse(bck1b[i,1]==bck2b[i,1] & bck1b[i,1]==bck3b[i,1],
                          0,1))

 diff[i,2] <- ifelse(is.na(bck1b[i,2])==T|is.na(bck2b[i,2])==T|is.na(bck3b[i,2])==T,
                     0,
                     ifelse(bck1b[i,2]==bck2b[i,2] & bck1b[i,2]==bck3b[i,2],
                          0,1))

 diff[i,3] <- ifelse(is.na(bck1b[i,3])==T|is.na(bck2b[i,3])==T|is.na(bck3b[i,3])==T,
                     0,
                     ifelse(bck1b[i,3]==bck2b[i,3] & bck1b[i,3]==bck3b[i,3],
                          0,1))

 diff[i,4] <- ifelse(is.na(bck1b[i,4])==T|is.na(bck2b[i,4])==T|is.na(bck3b[i,4])==T,
                     0,
                     ifelse(bck1b[i,4]==bck2b[i,4] & bck1b[i,4]==bck3b[i,4],
                          0,1))

 diff[i,5] <- ifelse(is.na(bck1b[i,5])==T|is.na(bck2b[i,5])==T|is.na(bck3b[i,5])==T,
                     0,
                     ifelse(bck1b[i,5]==bck2b[i,5] & bck1b[i,5]==bck3b[i,5],
                          0,1))

}
```

diff[,6] <- diff[,1] + diff[,2] + diff[,3] + diff[,4] + diff[,5] # sommo per avere indice unico

View(diff)

c <- bckc[which(diff[,6]>0),16] #chi ha le differenze, mi da gli identificativi

3- Selection and sequence analysis

```
### aggiunta variabili lavoro ###
canada <- merge(children4, emp, by="idorig", all = TRUE)



### selezione ###

child1 <- subset(canada, child1 > 0)
View(child1)

child2 <- subset(canada, child2 > 0)
View(child2)

child3 <- subset(canada, child3 > 0)
View(child3)

child4 <- subset(canada, child4 > 0)
View(child4)

child5 <- subset(canada, child5 > 0)
View(child5)

child6 <- subset(canada, child6 > 0)
View(child6)

child7 <- subset(canada, child7 > 0)
```

```
View(child7)

#8 vuoto#


### creazione child 3+ ###

## creazione idmio ##
# 3 #
Nfiglio <- matrix(ncol=1,nrow=length(child3[,1]),"tre")
idMio  <- matrix(ncol=1,nrow=length(child3[,1]),NA)

child3b <- cbind(child3,Nfiglio,idMio)

child3b$idMio <- paste0(child3b$idorig, child3b$Nfiglio)
names(child3b)

# 4 #
Nfiglio <- matrix(ncol=1,nrow=length(child4[,1]),"quattro")
idMio  <- matrix(ncol=1,nrow=length(child4[,1]),NA)

child4b <- cbind(child4,Nfiglio,idMio)

child4b$idMio <- paste0(child4b$idorig, child4b$Nfiglio)
names(child4b)

# 5 #
```

```
Nfiglio <- matrix(ncol=1,nrow=length(child5[,1]),"cinque")
idMio  <- matrix(ncol=1,nrow=length(child5[,1]),NA)

child5b <- cbind(child5,Nfiglio,idMio)

child5b$idMio <- paste0(child5b$idorig, child5b$Nfiglio)
names(child5b)

# 6 #

Nfiglio <- matrix(ncol=1,nrow=length(child6[,1]),"sei")
idMio  <- matrix(ncol=1,nrow=length(child6[,1]),NA)

child6b <- cbind(child6,Nfiglio,idMio)

child6b$idMio <- paste0(child6b$idorig, child6b$Nfiglio)
names(child6b)


# 7 #

Nfiglio <- matrix(ncol=1,nrow=length(child7[,1]),"cinque")
idMio  <- matrix(ncol=1,nrow=length(child7[,1]),NA)

child7b <- cbind(child7,Nfiglio,idMio)
```

```
child7b$idMio <- paste0(child7b$idorig, child7b$Nfiglio)
names(child7b)

# 8 # vuoto

## unire tre, quattro, cinque, sei e sette ##

child3p <- rbind(child3b, child4b, child5b, child6b, child7b)

names(child3p)

for (i in 1:length(child3p[,1])){

  child3p$child3p[i] <- ifelse(child3p$Nfiglio[i]=="tre", child3p$child3[i],
                        ifelse(child3p$Nfiglio[i]=="quattro", child3p$child4[i],
                            ifelse(child3p$Nfiglio[i]=="cinque", child3p$child5[i],
                                ifelse(child3p$Nfiglio[i]=="sei", child3p$child6[i],
                                    ifelse(child3p$Nfiglio[i]=="sette", child3p$child7[i],
                                "error")))))
}
table(child3p$child3p)

### sequence analysis ###

## primo figlio ##

## selezioni casi con abbastanza tempo prima ##
```

```
names(child1)


child1$child1R <- child1$child1 + 5 #piu 5 perché parto dal mese -5 (-5,-4,-3,-2,-1) (mi sono dimenticato lo 0)
                                    #che aggiungerò sotto, bisogna riallinearlo sulla nuova scala


child1$child1m24 <- child1$child1R - 24

table(child1$child1m24)


child1ls <- subset(child1, child1m24>0) #seleziona solo le sequenze abbastanza lunghe



## aggiungo 5 variabili vuote per consentire la presenza di pochi (max5) missing all'inizio della sequenza##

library(TraMineR)

library(TraMineRextras)

library(WeightedCluster)



app <- matrix(ncol=5,nrow=nrow(child1ls),NA)

colnames(app) <- c("monthM5","monthM4","monthM3","monthM2","monthM1")

a <- which(colnames(child1ls)=="month1") - 1

child1lsB <- cbind(child1ls[,1:a],app,child1ls[,(a+1):ncol(child1ls)])


View(child1lsB)


names(child1lsB)
```

```
## creazione sequenze ##

names(child1ls)

a <- which(names(child1lsB)=="monthM5")
b <- which(names(child1lsB)=="month262")

seqF1 <- seqdef(child1lsB[,a:b])

seqIplot(seqF1, sortv="from.start", cex.legend=0.6)


## sequenze allineate ##

a <- which(names(child1lsB)=="monthM5")
b <- which(names(child1lsB)=="month262")

PERseqF1all <- seqstart(child1lsB[,a:b], data.start=1,
                    new.start=(child1lsB$child1m24),tmax=49)

seqF1all <- seqdef(PERseqF1all)
seqIplot(seqF1all, sortv="from.start", cex.legend=0.6)
```

seleziona solo sequenze complete ## lascio 5 mesi di margine, missing tollerati circa 10,2%.

```
a <- which(names(child1lsB)=="monthM5")-1

limInf <- which(names(child1lsB)=="monthM5")
limSup <- which(names(child1lsB)=="month262")

Nmis <- matrix(ncol=49,nrow=length(child1lsB$child1m24), NA)

child1lsB$select <- NA

for (i in 1:length(child1lsB[,1])){
  for (k in -24:24){

    b <- child1lsB$child1R[i]
    child1lsB$select[i] <- ifelse((a+b+k)>limSup|(a+b+k)<limInf, NA,
                                  as.character(child1lsB[i,a+b+k]))
    l <- k + 24 + 1
    Nmis[i,l] <- ifelse(is.na(child1lsB$select[i])==T,1,0)
  }}

for (i in 1:length(Nmis[,1])){
  child1lsB$select[i] <- sum(Nmis[i,])
}

a <- which(as.numeric(child1lsB$select)<6)
```

```
length(a) #464 sono buone

child1lsBCOM <- child1lsB[a,]

## rifaccio grafici con solo sequenze che hanno pochi missings ##

a <- which(names(child1lsBCOM)=="monthM5")
b <- which(names(child1lsBCOM)=="month262")

PERseqF1allCom <- seqstart(child1lsBCOM[,a:b], data.start=1,
                  new.start=(child1lsBCOM$child1m24),tmax=49)

seqF1allCom <- seqdef(PERseqF1allCom)
seqIplot(seqF1allCom, sortv="from.start", cex.legend=0.6,
       xtlab =-24:24
       , cpal=c("forestgreen","green3","blue","gold","violet"))

seqdplot(seqF1allCom, cex.legend=0.6,
       xtlab =-24:24
       , cpal=c("forestgreen","green3","blue","gold","violet"))




## secondo figlio ##

## selezioni casi con abbastanza tempo prima ##
```

```
names(child2)


child2$child2R <- child2$child2 + 5 #piu 5 perché parto dal mese -5 (-5,-4,-3,-2,-1) (mi sono dimenticato lo 0)
                                    #che aggiungerò sotto, bisogna riallinearlo sulla nuova scala


child2$child2m24 <- child2$child2R - 24
table(child2$child2m24)


child2ls <- subset(child2, child2m24>0) #seleziona solo le sequenze abbastanza lunghe,
                                        # faccio -4 perchè lasci la possibilità di
                                         # massimo 5 missing nella sinistra della sequenza (coerente con dopo)



## aggiungo 5 variabili vuote per consentire la presenza di pochi (max5) missing all'inizio della sequenza##
library(TraMineR)
library(TraMineRextras)
library(WeightedCluster)



app <- matrix(ncol=5,nrow=nrow(child2ls),NA)
colnames(app) <- c("monthM5","monthM4","monthM3","monthM2","monthM1")


a <- which(colnames(child2ls)=="month1") - 1
child2lsB <- cbind(child2ls[,1:a],app,child2ls[,(a+1):ncol(child2ls)])
```

```
View(child2lsB)

names(child2lsB)


## creazione sequenze ##

names(child2lsB)

a <- which(names(child2lsB)=="monthM5")
b <- which(names(child2lsB)=="month262")

seqF2 <- seqdef(child2lsB[,a:b])

seqIplot(seqF2, sortv="from.start", cex.legend=0.6)


## sequenze allineate ##

a <- which(names(child2lsB)=="monthM5")
b <- which(names(child2lsB)=="month262")

PERseqF2all <- seqstart(child2lsB[,a:b], data.start=1,
                        new.start=(child2lsB$child2m24),tmax=49)

seqF2all <- seqdef(PERseqF2all)
```

```
seqIplot(seqF2all, sortv="from.start", cex.legend=0.6)



## seleziona solo sequenze complete ## lascio 5 mesi di margine, missing tollerati circa 10,2%.

a <- which(names(child2lsB)=="monthM5")-1

limInf <- which(names(child2lsB)=="monthM5")
limSup <- which(names(child2lsB)=="month262")

Nmis <- matrix(ncol=49,nrow=length(child2lsB$child2m24), NA)

child2lsB$select <- NA

for (i in 1:length(child2lsB[,1])){
  for (k in -24:24){

    b <- child2lsB$child2R[i]
    child2lsB$select[i] <- ifelse((a+b+k)>limSup|(a+b+k)<limInf, NA,
                                  as.character(child2lsB[i,a+b+k]))
    l <- k + 24 + 1
    Nmis[i,l] <- ifelse(is.na(child2lsB$select[i])==T,1,0)
  }}

for (i in 1:length(Nmis[,1])){
  child2lsB$select[i] <- sum(Nmis[i,])
```

```
}

a <- which(as.numeric(child2lsB$select)<6)
length(a) #323 sono buone

child2lsBCOM <- child2lsB[a,]

## rifaccio grafici con solo sequenze che hanno pochi missings ##

a <- which(names(child2lsBCOM)=="monthM5")
b <- which(names(child2lsBCOM)=="month262")

PERseqF2allCom <- seqstart(child2lsBCOM[,a:b], data.start=1,
                    new.start=(child2lsBCOM$child2m24),tmax=49)

seqF2allCom <- seqdef(PERseqF2allCom)
seqIplot(seqF2allCom, sortv="from.start", cex.legend=0.6,
      xtlab =-24:24
      , cpal=c("forestgreen","green3","blue","gold","violet"))

seqdplot(seqF2allCom, cex.legend=0.6,
      xtlab =-24:24
      , cpal=c("forestgreen","green3","blue","gold","violet"))
```

terzo figlio o più

selezioni casi con abbastanza tempo prima

names(child3p)

child3p$child3pR <- child3p$child3p + 5 #piu 5 perché parto dal mese -5 (-5,-4,-3,-2,-1) (mi sono dimenticato lo 0)

#che aggiungerò sotto, bisogna riallinearlo sulla nuova scala

child3p$child3pm24 <- child3p$child3pR - 24

table(child3p$child3pm24)

child3pls <- subset(child3p, child3pm24>0) #seleziona solo le sequenze abbastanza lunghe,

faccio -4 perchè lasci la possibilità di

massimo 5 missing nella sinistra della sequenza (coerente con dopo)

aggiungo 5 variabili vuote per consentire la presenza di pochi (max5) missing all'inizio della sequenza##

library(TraMineR)

library(TraMineRextras)

library(WeightedCluster)

```
app <- matrix(ncol=5,nrow=nrow(child3pls),NA)
colnames(app) <- c("monthM5","monthM4","monthM3","monthM2","monthM1")

a <- which(colnames(child3pls)=="month1") - 1
child3plsB <- cbind(child3pls[,1:a],app,child3pls[,(a+1):ncol(child3pls)])

View(child3plsB)

names(child3plsB)


## creazione sequenze ##
library(TraMineR)
library(TraMineRextras)
library(WeightedCluster)

names(child3plsB)

a <- which(names(child3plsB)=="monthM5")
b <- which(names(child3plsB)=="month262")

seqF3 <- seqdef(child3plsB[,a:b])

seqIplot(seqF3, sortv="from.start", cex.legend=0.6)


## sequenze allineate ##
```

```
a <- which(names(child3plsB)=="monthM5")
b <- which(names(child3plsB)=="month262")

PERseqF3all <- seqstart(child3plsB[,a:b], data.start=1,
                    new.start=(child3plsB$child3pm24),tmax=49)

seqF3all <- seqdef(PERseqF3all)
seqIplot(seqF3all, sortv="from.start", cex.legend=0.6
      , cpal=c("forestgreen","green3","blue","gold","violet"))



## seleziona solo sequenze complete ## lascio 5 mesi di margine, missing tollerati circa 10,2%.

a <- which(names(child3plsB)=="monthM5")-1 #posizione variabile set99

limInf <- which(names(child3plsB)=="monthM5")
limSup <- which(names(child3plsB)=="month262")

Nmis <- matrix(ncol=49,nrow=length(child3plsB$child3pm24), NA)

child3plsB$select <- NA

for (i in 1:length(child3plsB[,1])){
  for (k in -24:24){
```

```
   b <- child3plsB$child3pR[i]
   child3plsB$select[i] <- ifelse((a+b+k)>limSup|(a+b+k)<limInf, NA,
                          as.character(child3plsB[i,a+b+k]))
   l <- k + 24 + 1
   Nmis[i,l] <- ifelse(is.na(child3plsB$select[i])==T,1,0)
  }}

for (i in 1:length(Nmis[,1])){
  child3plsB$select[i] <- sum(Nmis[i,])
}

a <- which(as.numeric(child3plsB$select)<6)
length(a) #148 sono buone

child3plsBCOM <- child3plsB[a,]

## rifaccio grafici con solo sequenze che hanno pochi missings ##

a <- which(names(child3plsBCOM)=="monthM5")
b <- which(names(child3plsBCOM)=="month262")

PERseqF3allCom <- seqstart(child3plsBCOM[,a:b], data.start=1,
                    new.start=(child3plsBCOM$child3pm24),tmax=49)

seqF3allCom <- seqdef(PERseqF3allCom)
seqIplot(seqF3allCom, sortv="from.start", cex.legend=0.6,
       xtlab =-24:24
```

```
        , cpal=c("forestgreen","green3","blue","gold","violet"))

seqdplot(seqF3allCom, cex.legend=0.6,
        xtlab =-24:24
        , cpal=c("forestgreen","green3","blue","gold","violet"))




### creazione gruppi ###

## primo figlio ##
library(TraMineR)
library(TraMineRextras)

## matching ##
#matrice distanze (dist=constant)#
disUNO <- seqdist(seqF1allCom, method = "OM", sm="CONSTANT",
full.matrix=F,with.missing=TRUE)

###clustering###

#clustering Ward#

WardUNO <-  hclust(as.dist(disUNO), method = "ward.D2")
```

```
#analisi silouette e HC#
library(WeightedCluster)
Silouette <- as.clustrange(WardUNO, diss = as.dist(disUNO), ncluster = 20)
plot(Silouette, stat = c("ASWw", "HC"))

#k=5#
child1lsBCOM$wardUNO <- cutree(WardUNO, k=5)

seqIplot(seqF1allCom, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","green3","blue","gold","violet"),
        xtlab =-24:24,
        group=child1lsBCOM$wardUNO)

seqdplot(seqF1allCom, cex.legend=0.8,
        cpal=c("forestgreen","green3","blue","gold","violet"),
        xtlab =-24:24,
        group=child1lsBCOM$wardUNO)



#PAM clustering #
#K=5
perPamUNO <- wcKMedoids(disUNO, k = 5, initialclust = child1lsBCOM$wardUNO)
child1lsBCOM$pamUNO <- perPamUNO$clustering

seqIplot(seqF1allCom, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","green3","blue","gold","violet"),
        xtlab =-24:24,
```

```
        group=child1lsBCOM$pamUNO)

seqdplot(seqF1allCom, cex.legend=0.8,
        cpal=c("forestgreen","green3","blue","gold","violet"),
        xtlab =-24:24,
        group=child1lsBCOM$pamUNO)




## secondo figlio ##
library(TraMineR)
library(TraMineRextras)

## matching ##
#matrice distanze (dist=constant)#
disDUE <- seqdist(seqF2allCom, method = "OM", sm="CONSTANT",
full.matrix=F,with.missing=TRUE)

###clustering###

#clustering Ward#

WardDUE <-  hclust(as.dist(disDUE), method = "ward.D2")

#analisi silouette e HC#
```

```
library(WeightedCluster)
Silouette <- as.clustrange(WardDUE, diss = as.dist(disDUE), ncluster = 20)
plot(Silouette, stat = c("ASWw", "HC"))



#k=6#
child2lsBCOM$wardDUE <- cutree(WardDUE, k=6)

seqIplot(seqF2allCom, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","green3","blue","gold","violet"),
        xtlab =-24:24,
        group=child2lsBCOM$wardDUE)

seqdplot(seqF2allCom, cex.legend=0.8,
        cpal=c("forestgreen","green3","blue","gold","violet"),
        xtlab =-24:24,
        group=child2lsBCOM$wardDUE)



#PAM clustering #
#K=6
perPamDUE <- wcKMedoids(disDUE, k = 6, initialclust = child2lsBCOM$wardDUE)
child2lsBCOM$pamDUE <- perPamDUE$clustering

seqIplot(seqF2allCom, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","green3","blue","gold","violet"),
        xtlab =-24:24,
```

```
        group=child2lsBCOM$pamDUE)

seqdplot(seqF2allCom, cex.legend=0.8,
        cpal=c("forestgreen","green3","blue","gold","violet"),
        xtlab =-24:24,
        group=child2lsBCOM$pamDUE)




## terzo o piu figlio ##
library(TraMineR)
library(TraMineRextras)

## matching ##
#matrice distanze (dist=constant)#
disTRE <- seqdist(seqF3allCom, method = "OM", sm="CONSTANT",
full.matrix=F,with.missing=TRUE)

###clustering###

#clustering Ward#

WardTRE <-  hclust(as.dist(disTRE), method = "ward.D2")
```

```
#analisi silouette e HC#
library(WeightedCluster)
Silouette <- as.clustrange(WardTRE, diss = as.dist(disTRE), ncluster = 20)
plot(Silouette, stat = c("ASWw", "HC"))

#k=3#
child3plsBCOM$wardTRE <- cutree(WardTRE, k=3)

seqIplot(seqF3allCom, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","green3","blue","gold","violet"),
        xtlab =-24:24,
        group=child3plsBCOM$wardTRE)

seqdplot(seqF3allCom, cex.legend=0.8,
        cpal=c("forestgreen","green3","blue","gold","violet"),
        xtlab =-24:24,
        group=child3plsBCOM$wardTRE)


#PAM clustering #
#K=3
perPamTRE <- wcKMedoids(disTRE, k = 3, initialclust = child3plsBCOM$wardTRE)
child3plsBCOM$pamTRE <- perPamTRE$clustering

seqIplot(seqF3allCom, sortv="from.start", cex.legend=0.8,
        cpal=c("forestgreen","green3","blue","gold","violet"),
        xtlab =-24:24,
```

```
        group=child3plsBCOM$pamTRE)

seqdplot(seqF3allCom, cex.legend=0.8,
        cpal=c("forestgreen","green3","blue","gold","violet"),
        xtlab =-24:24,
        group=child3plsBCOM$pamTRE)




################################################
```

4- Sociodemographic variables

```
### fertility style forward ###
# child 1 #

child1lsBCOM$diff <- child1lsBCOM$unoMdue

for (i in 1:length(child1lsBCOM[,1])){
  child1lsBCOM$Ccat[i] <- ifelse(is.na(child1lsBCOM$diff[i])==T,"no further (known)",
                                 ifelse(child1lsBCOM$diff[i]<25, "back to back",
                                        "far children"))


}

table(child1lsBCOM$Ccat)

# child 2 #

child2lsBCOM$diff<- child2lsBCOM$treMdue

for (i in 1:length(child2lsBCOM[,1])){
  child2lsBCOM$Ccat[i] <- ifelse(is.na(child2lsBCOM$diff[i])==T,"no further (known)",
                                 ifelse(child2lsBCOM$diff[i]<25, "back to back",
                                        "far children"))
```

```
}

table(child2lsBCOM$Ccat)

# child 3+ #

for (i in 1:length(child3plsBCOM[,1])){
  child3plsBCOM$diff[i] <- ifelse(child3plsBCOM$Nfiglio[i]=="tre",

min(child3plsBCOM$quatMtre[i],child3plsBCOM$cinqMquat[i],child3plsBCOM$seiMcinq[i],child3plsBCOM$setMsei[i],na.rm=T),
                          ifelse(child3plsBCOM$Nfiglio[i]=="quattro",

min(child3plsBCOM$cinqMquat[i],child3plsBCOM$seiMcinq[i],child3plsBCOM$setMsei[i],na.rm=T),
                                 ifelse(child3plsBCOM$Nfiglio[i]=="cinque",

min(child3plsBCOM$seiMcinq[i],child3plsBCOM$setMsei[i],na.rm=T),
                                        ifelse(child3plsBCOM$Nfiglio[i]=="sei",
                                               child3plsBCOM$setMsei[i],
                                               NA
                                        ))))
}


for (i in 1:length(child3plsBCOM[,1])){
```

```
  child3plsBCOM$Ccat[i] <-
ifelse(is.na(child3plsBCOM$diff[i])==T|child3plsBCOM$diff[i]==Inf,"no further
(known)",
                          ifelse(child3plsBCOM$diff[i]<25, "back to back",
                              "far children"))



}

table(child3plsBCOM$Ccat)




### fertility style backward ###

# child 1 #

# non applicabile #

# child 2 #

child2lsBCOM$diff2<- child2lsBCOM$unoMdue

for (i in 1:length(child2lsBCOM[,1])){
  child2lsBCOM$Ccat2[i] <- ifelse(is.na(child2lsBCOM$diff2[i])==T,"unknown",
                          ifelse(child2lsBCOM$diff2[i]<25, "back to back",
```

```
                        "far children"))



}

table(child2lsBCOM$Ccat2)

# child 3+ #

for (i in 1:length(child3plsBCOM[,1])){
  child3plsBCOM$diff2[i] <- ifelse(child3plsBCOM$Nfiglio[i]=="tre",
                          max(child3plsBCOM$treMdue[i], child3plsBCOM$unoMdue[i],
na.rm=T),
                         ifelse(child3plsBCOM$Nfiglio[i]=="quattro",
                                max(child3plsBCOM$treMdue[i],
child3plsBCOM$unoMdue[i], child3plsBCOM$quatMtre[i], na.rm=T),
                                ifelse(child3plsBCOM$Nfiglio[i]=="cinque",
                                       max(child3plsBCOM$treMdue[i],
child3plsBCOM$unoMdue[i],
child3plsBCOM$quatMtre[i],child3plsBCOM$cinqMquat[i], na.rm=T),
                                       ifelse(child3plsBCOM$Nfiglio[i]=="sei",
                                              max(child3plsBCOM$treMdue[i],
child3plsBCOM$unoMdue[i],
child3plsBCOM$quatMtre[i],child3plsBCOM$cinqMquat[i],
child3plsBCOM$seiMcinq[i], na.rm=T),
                                              NA
                                       ))))
}
```

```
for (i in 1:length(child3plsBCOM[,1])){
  child3plsBCOM$Ccat2[i] <-
ifelse(is.na(child3plsBCOM$diff2[i])==T|child3plsBCOM$diff2[i]==-Inf,"unknown",
                          ifelse(child3plsBCOM$diff2[i]<25, "back to back",
                                 "far children"))

}

table(child3plsBCOM$Ccat2) #2 sono unknown perchè non abbiamo delle
infromazioni sui figli prima, probabilemnte sono fuori dal periodo considerato

# correzione manuale dovuta per i gemelli
a <- child3plsBCOM$idorig[which(child3plsBCOM$diff2==-Inf)]
which(child3plsBCOM$idorig==a[1])
which(child3plsBCOM$idorig==a[2])

b <- which(children4$idorig==a[1])
c <- which(child3plsBCOM$diff2==-Inf)
child3plsBCOM$diff2[c[1]] <- children4$child3[b] - children4$child1[b]

b <- which(children4$idorig==a[2])
c <- which(child3plsBCOM$diff2==-Inf)
child3plsBCOM$diff2[c[2]] <- children4$child3[b] - children4$child1[b]
```

```
#
for (i in 1:length(child3plsBCOM[,1])){
  child3plsBCOM$Ccat2[i] <-
ifelse(is.na(child3plsBCOM$diff2[i])==T|child3plsBCOM$diff2[i]==-Inf,"unknown",
                          ifelse(child3plsBCOM$diff2[i]<25, "back to back",
                              "far children"))



}

table(child3plsBCOM$Ccat2)



### educazione ###

## importanzione ##
library(foreign)

edu <- read.dta("D:/Documents/dottorato/canada/analisi dati
canada/education.dta")

names(edu)



## unione databases ##
```

```
#1
child1lsBCOMed <- merge(child1lsBCOM,edu, by="idorig", all.x=T)
names(child1lsBCOMed)
table(child1lsBCOMed$edsur4)

#2
child2lsBCOMed <- merge(child2lsBCOM,edu, by="idorig", all.x=T)
names(child2lsBCOMed)
table(child2lsBCOMed$edsur4)

#3
psedu <- matrix(ncol=ncol(edu)-1,nrow=nrow(child3plsBCOM),NA)
colnames(psedu) <- colnames(edu)[2:5]

child3plsBCOMed <- cbind(child3plsBCOM,psedu)

names(child3plsBCOMed)


for (i in 1:length(child3plsBCOMed[,1])){

  b <- which(edu$idorig==child3plsBCOMed$idorig[i])
  child3plsBCOMed$edsur1[i] <- as.character(edu$edsur1[b])
  child3plsBCOMed$edsur2[i] <- as.character(edu$edsur2[b])
  child3plsBCOMed$edsur3[i] <- as.character(edu$edsur3[b])
  child3plsBCOMed$edsur4[i] <- as.character(edu$edsur4[b])
}
```

```
names(child3plsBCOMed)
table(child3plsBCOMed$edsur4)


## ricodifica ##
# figlio 1 #
library(car)
child1lsBCOMed$edu1 <- recode(child1lsBCOMed$edsur1,
                        "'Other'='pre-university';
                        'Apprenticeship'='pre-university';
                        'Certificate'='pre-university';
                        'Diploma'='pre-university';
                        'Associates Degree'='pre-university';
                        'Bachelors Degree'='post-university';
                        'Professional Degree'='post-university';
                        'Professional License'='post-university';
                        'Masters Degree'='post-university';
                        'Doctorate'='post-university';
                        NA='pre-university'")

table(child1lsBCOMed$edu1)


child1lsBCOMed$edu2 <- recode(child1lsBCOMed$edsur2,
                        "'Other'='pre-university';
                        'Apprenticeship'='pre-university';
                        'Certificate'='pre-university';
```

```
                    'Diploma'='pre-university';
                    'Associates Degree'='pre-university';
                    'Bachelors Degree'='post-university';
                    'Professional Degree'='post-university';
                    'Professional License'='post-university';
                    'Masters Degree'='post-university';
                    'Doctorate'='post-university';
                    NA='pre-university'")

table(child1lsBCOMed$edu2)


child1lsBCOMed$edu3 <- recode(child1lsBCOMed$edsur3,
                    "'Other'='pre-university';
                    'Apprenticeship'='pre-university';
                    'Certificate'='pre-university';
                    'Diploma'='pre-university';
                    'Associates Degree'='pre-university';
                    'Bachelors Degree'='post-university';
                    'Professional Degree'='post-university';
                    'Professional License'='post-university';
                    'Masters Degree'='post-university';
                    'Doctorate'='post-university';
                    NA='pre-university'")

table(child1lsBCOMed$edu3)
```

```
child1lsBCOMed$edu4 <- recode(child1lsBCOMed$edsur4,
                    "'Other'='pre-university';
                    'Apprenticeship'='pre-university';
                    'Certificate'='pre-university';
                    'Diploma'='pre-university';
                    'Associates Degree'='pre-university';
                    'Bachelors Degree'='post-university';
                    'Professional Degree'='post-university';
                    'Professional License'='post-university';
                    'Masters Degree'='post-university';
                    'Doctorate'='post-university';
                    NA='pre-university'")

table(child1lsBCOMed$edu4)



# figlio 2 #
library(car)
child2lsBCOMed$edu1 <- recode(child2lsBCOMed$edsur1,
                    "'Other'='pre-university';
                    'Apprenticeship'='pre-university';
                    'Certificate'='pre-university';
                    'Diploma'='pre-university';
                    'Associates Degree'='pre-university';
                    'Bachelors Degree'='post-university';
                    'Professional Degree'='post-university';
```

```
                    'Professional License'='post-university';
                    'Masters Degree'='post-university';
                    'Doctorate'='post-university';
                    NA='pre-university'")

table(child2lsBCOMed$edu1)


child2lsBCOMed$edu2 <- recode(child2lsBCOMed$edsur2,
                    "'Other'='pre-university';
                    'Apprenticeship'='pre-university';
                    'Certificate'='pre-university';
                    'Diploma'='pre-university';
                    'Associates Degree'='pre-university';
                    'Bachelors Degree'='post-university';
                    'Professional Degree'='post-university';
                    'Professional License'='post-university';
                    'Masters Degree'='post-university';
                    'Doctorate'='post-university';
                    NA='pre-university'")

table(child2lsBCOMed$edu2)


child2lsBCOMed$edu3 <- recode(child2lsBCOMed$edsur3,
                    "'Other'='pre-university';
                    'Apprenticeship'='pre-university';
```

```
                    'Certificate'='pre-university';
                    'Diploma'='pre-university';
                    'Associates Degree'='pre-university';
                    'Bachelors Degree'='post-university';
                    'Professional Degree'='post-university';
                    'Professional License'='post-university';
                    'Masters Degree'='post-university';
                    'Doctorate'='post-university';
                    NA='pre-university'")

table(child2lsBCOMed$edu3)


child2lsBCOMed$edu4 <- recode(child2lsBCOMed$edsur4,
                    "'Other'='pre-university';
                    'Apprenticeship'='pre-university';
                    'Certificate'='pre-university';
                    'Diploma'='pre-university';
                    'Associates Degree'='pre-university';
                    'Bachelors Degree'='post-university';
                    'Professional Degree'='post-university';
                    'Professional License'='post-university';
                    'Masters Degree'='post-university';
                    'Doctorate'='post-university';
                    NA='pre-university'")

table(child2lsBCOMed$edu4)
```

```
# figlio 3 o più #
library(car)
child3plsBCOMed$edu1 <- recode(child3plsBCOMed$edsur1,
                        "'Other'='pre-university';
                        'Apprenticeship'='pre-university';
                        'Certificate'='pre-university';
                        'Diploma'='pre-university';
                        'Associates Degree'='pre-university';
                        'Bachelors Degree'='post-university';
                        'Professional Degree'='post-university';
                        'Professional License'='post-university';
                        'Masters Degree'='post-university';
                        'Doctorate'='post-university';
                        NA='pre-university'")

table(child3plsBCOMed$edu1)


child3plsBCOMed$edu2 <- recode(child3plsBCOMed$edsur2,
                        "'Other'='pre-university';
                        'Apprenticeship'='pre-university';
                        'Certificate'='pre-university';
                        'Diploma'='pre-university';
                        'Associates Degree'='pre-university';
                        'Bachelors Degree'='post-university';
```

```
                'Professional Degree'='post-university';
                'Professional License'='post-university';
                'Masters Degree'='post-university';
                'Doctorate'='post-university';
                NA='pre-university'")

table(child3plsBCOMed$edu2)


child3plsBCOMed$edu3 <- recode(child3plsBCOMed$edsur3,
                "'Other'='pre-university';
                'Apprenticeship'='pre-university';
                'Certificate'='pre-university';
                'Diploma'='pre-university';
                'Associates Degree'='pre-university';
                'Bachelors Degree'='post-university';
                'Professional Degree'='post-university';
                'Professional License'='post-university';
                'Masters Degree'='post-university';
                'Doctorate'='post-university';
                NA='pre-university'")

table(child3plsBCOMed$edu3)


child3plsBCOMed$edu4 <- recode(child3plsBCOMed$edsur4,
                "'Other'='pre-university';
```

```
                    'Apprenticeship'='pre-university';
                    'Certificate'='pre-university';
                    'Diploma'='pre-university';
                    'Associates Degree'='pre-university';
                    'Bachelors Degree'='post-university';
                    'Professional Degree'='post-university';
                    'Professional License'='post-university';
                    'Masters Degree'='post-university';
                    'Doctorate'='post-university';
                    NA='pre-university'")

table(child3plsBCOMed$edu4)


## faccio variabile unica educazione ##

# figlio 1 #
for (i in 1:length(child1lsBCOMed[,1])){
  child1lsBCOMed$edu[i] <- ifelse(child1lsBCOMed$child1[i]<65,
as.character(child1lsBCOMed$edu1[i]),
                          ifelse(child1lsBCOMed$child1[i]>64 &
child1lsBCOMed$child1[i]<119, as.character(child1lsBCOMed$edu2[i]),
                                 ifelse(child1lsBCOMed$child1[i]>118 &
child1lsBCOMed$child1[i]<185, as.character(child1lsBCOMed$edu3[i]),
                                        ifelse(child1lsBCOMed$child1[i]>184 &
child1lsBCOMed$child1[i]<263, as.character(child1lsBCOMed$edu4[i]),
                                               "error"
```

```
                                    ))))
}

table(child1lsBCOMed$edu)

# figlio 2 #
for (i in 1:length(child2lsBCOMed[,1])){
  child2lsBCOMed$edu[i] <- ifelse(child2lsBCOMed$child1[i]<65,
as.character(child2lsBCOMed$edu1[i]),
                          ifelse(child2lsBCOMed$child1[i]>64 &
child2lsBCOMed$child1[i]<119, as.character(child2lsBCOMed$edu2[i]),
                                 ifelse(child2lsBCOMed$child1[i]>118 &
child2lsBCOMed$child1[i]<185, as.character(child2lsBCOMed$edu3[i]),
                                        ifelse(child2lsBCOMed$child1[i]>184 &
child2lsBCOMed$child1[i]<263, as.character(child2lsBCOMed$edu4[i]),
                                               "error"

                                    ))))
}

table(child2lsBCOMed$edu)

# figlio 3 o più #

for (i in 1:length(child3plsBCOMed[,1])){
  child3plsBCOMed$edu[i] <- ifelse(child3plsBCOMed$child1[i]<65,
as.character(child3plsBCOMed$edu1[i]),
```

```
                    ifelse(child3plsBCOMed$child1[i]>64 &
child3plsBCOMed$child1[i]<119, as.character(child3plsBCOMed$edu2[i]),

                        ifelse(child3plsBCOMed$child1[i]>118 &
child3plsBCOMed$child1[i]<185, as.character(child3plsBCOMed$edu3[i]),

                            ifelse(child3plsBCOMed$child1[i]>184 &
child3plsBCOMed$child1[i]<263, as.character(child3plsBCOMed$edu4[i]),

                                "error"


                            ))))

}


table(child3plsBCOMed$edu)
```

5- Preparations for the analyses on the reform

```
### preparazione variable pre/post riforma ###

## figlio 1 ##

for (i in 1:length(child1lsBCOMed[,1])){
  child1lsBCOMed$riforma[i] <- ifelse(child1lsBCOMed$child1[i]>151,1,0)
} # mese 152 è mese riforma

table(child1lsBCOMed$riforma)

for (i in 1:length(child1lsBCOMed[,1])){
  child1lsBCOMed$riformaP9[i] <- ifelse(child1lsBCOMed$child1[i]>160,1,0)
} #  mese 152 è mese riforma

table(child1lsBCOMed$riformaP9)




## figlio 2 ##

for (i in 1:length(child2lsBCOMed[,1])){
  child2lsBCOMed$riforma[i] <- ifelse(child2lsBCOMed$child2[i]>151,1,0)
} # mese 152 è mese riforma
```

```
table(child2lsBCOMed$riforma)

for (i in 1:length(child2lsBCOMed[,1])){
  child2lsBCOMed$riformaP9[i] <- ifelse(child2lsBCOMed$child2[i]>160,1,0)
} # mese 152 è mese riforma

table(child2lsBCOMed$riformaP9)




## figlio 3 o più ##
table(child3plsBCOMed$Nfiglio)

for (i in 1:length(child3plsBCOMed[,1])){
  child3plsBCOMed$childX[i] <- ifelse(child3plsBCOMed$Nfiglio[i]=="tre",
                                      child3plsBCOMed$child3[i],
                                       ifelse(child3plsBCOMed$Nfiglio[i]=="quattro",
                                            child3plsBCOMed$child4[i],
                                            ifelse(child3plsBCOMed$Nfiglio[i]=="cinque",
                                                 child3plsBCOMed$child5[i],
                                                 ifelse(child3plsBCOMed$Nfiglio[i]=="sei",
                                                      child3plsBCOMed$child6[i],
                                                      "error"))))
}
table(child3plsBCOMed$childX)
```

```
for (i in 1:length(child3plsBCOMed[,1])){
  child3plsBCOMed$riforma[i] <- ifelse(child3plsBCOMed$childX[i]>151,1,0)
} # mese 152 è mese riforma

table(child3plsBCOMed$riforma)

for (i in 1:length(child3plsBCOMed[,1])){
  child3plsBCOMed$riformaP9[i] <- ifelse(child3plsBCOMed$childX[i]>160,1,0)
} # mese 152 è mese riforma

table(child3plsBCOMed$riformaP9)
```

6- Analyses on the reform

```
### FEMALE ### tutte le preparazioni sono nel vecchio file

## figlio 1 ##
## modelli binomilai logistici (logit)##
library(stats)

# 4 # CA1-3
rm(a)
a <- glm(pamUNO4 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
```

```
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 52 # CA1-5
rm(a)
a <- glm(pamUNO52 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 179 # CA1-1
rm(a)
a <- glm(pamUNO179 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="female"),])

summary(a)
exp(a$coefficients)
summary(a)$coefficients[,2] #SD

# 262 # CA1-2
```

```
rm(a)
a <- glm(pamUNO262 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="female"),])

summary(a)
exp(a$coefficients)
summary(a)$coefficients[,2] #SD

# 452 #  CA1-4
rm(a)
a <- glm(pamUNO452 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD




## figlio 2 ##
## modelli binomilai logistici (logit) ##
library(stats)

# 10 # CA2-1
rm(a)
```

```
a <- glm(pamDUE10 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 22 # CA2-5 # cambia ma è più che bene #
rm(a)
a <- glm(pamDUE22 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="female"),])

summary(a)
exp(a$coefficients)
summary(a)$coefficients[,2] #SD

# 95 # CA2-6
rm(a)
a <- glm(pamDUE95 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD
```

```
# 130 # CA2-2
rm(a)
a <- glm(pamDUE130 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="female"),])

summary(a)
exp(a$coefficients)
summary(a)$coefficients[,2] #SD

# 161 # CA2-3
rm(a)
a <- glm(pamDUE161 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 206 # CA2-4
rm(a)
a <- glm(pamDUE206 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="female"),])
```

```
summary(a)
exp(a$coefficients)
summary(a)$coefficients[,2] #SD


## figlio 3+ ##
## modelli binomilai logistici (logit) ##
library(stats)

# 50 # CA3-2
rm(a)
a <- glm(pamTRE50 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child3plsBCOMed[which(child3plsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 71 # CA3-3
rm(a)
a <- glm(pamTRE71 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child3plsBCOMed[which(child3plsBCOMed$sex=="female"),])

summary(a)
exp(a$coefficients)
```

```
summary(a)$coefficients[,2] #SD

# 145 # CA3-1 # va bene anche se cambia
rm(a)
a <- glm(pamTRE145 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child3plsBCOMed[which(child3plsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

### mese +9 riforma ###

## figlio 1 ##

## modelli binomilai logistici (logit)##
library(stats)

# 4 # CA1-3 # CAMBIA MA OK, CONSIDERA CHE LA LETTERATURA DICE CHE AUMENTA ELEGIBILITà
rm(a)
```

```
a <- glm(pamUNO4 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="female"),])

summary(a)
exp(a$coefficients)
summary(a)$coefficients[,2] #SD

# 52 # CA1-5
rm(a)
a <- glm(pamUNO52 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 179 # CA1-1
rm(a)
a <- glm(pamUNO179 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="female"),])

summary(a)
exp(a$coefficients)
summary(a)$coefficients[,2] #SD
```

```
# 262 # CA1-2
rm(a)
a <- glm(pamUNO262 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="female"),])

summary(a)
exp(a$coefficients)
summary(a)$coefficients[,2] #SD

# 452 # CA1-4
rm(a)
a <- glm(pamUNO452 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD



## figlio 2 ##

## modelli binomilai logistici (logit) ##
library(stats)
```

```
# 10 # CA2-1
rm(a)
a <- glm(pamDUE10 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 22 # CA2-5
rm(a)
a <- glm(pamDUE22 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 95 # CA2-6
rm(a)
a <- glm(pamDUE95 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="female"),])

summary(a)
```

```
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 130 # CA2-2
rm(a)
a <- glm(pamDUE130 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="female"),])

summary(a)
exp(a$coefficients)
summary(a)$coefficients[,2] #SD

# 161 # CA2-3
rm(a)
a <- glm(pamDUE161 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 206 # CA2-4
rm(a)
a <- glm(pamDUE206 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
```

```
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="female"),])

summary(a)
exp(a$coefficients)
summary(a)$coefficients[,2] #SD


## figlio 3+ ##


# 50 # CA3-2
rm(a)
a <- glm(pamTRE50 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child3plsBCOMed[which(child3plsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 71 # CA3-3
rm(a)
a <- glm(pamTRE71 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child3plsBCOMed[which(child3plsBCOMed$sex=="female"),])

summary(a)
```

```
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 145 # CA3-1 # D +T0
rm(a)
a <- glm(pamTRE145 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child3plsBCOMed[which(child3plsBCOMed$sex=="female"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

----------------------

### MALE ### tutte le preparazioni sono nel vecchio file

## figlio 1 ##
## modelli binomilai logistici (logit)##
library(stats)

# 4 # CA1-3
rm(a)
a <- glm(pamUNO4 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="male"),])
```

```
summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD



# 52 # CA1-5
rm(a)
a <- glm(pamUNO52 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 179 # CA1-1
rm(a)
a <- glm(pamUNO179 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 262 # CA1-2
rm(a)
```

```
a <- glm(pamUNO262 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 452 # CA1-4
rm(a)
a <- glm(pamUNO452 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD




## figlio 2 ##
## modelli binomilai logistici (logit) ##
library(stats)

# 10 # CA2-1
rm(a)
a <- glm(pamDUE10 ~ riforma + edu2 + CLeta,
```

```
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 22 # CA2-5
rm(a)
a <- glm(pamDUE22 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 95 # CA2-6
rm(a)
a <- glm(pamDUE95 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD
```

```
# 130 # CA2-2
rm(a)
a <- glm(pamDUE130 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 161 # CA2-3
rm(a)
a <- glm(pamDUE161 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 206 # CA2-4
rm(a)
a <- glm(pamDUE206 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="male"),])

summary(a)
```

```
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD



## figlio 3+ ##
## modelli binomilai logistici (logit) ##
library(stats)

# 50 # CA3-2
rm(a)
a <- glm(pamTRE50 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child3plsBCOMed[which(child3plsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 71 # CA3-3
rm(a)
a <- glm(pamTRE71 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child3plsBCOMed[which(child3plsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD
```

```
# 145 # CA3-1
rm(a)
a <- glm(pamTRE145 ~ riforma + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child3plsBCOMed[which(child3plsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD




### mese +9 riforma ###

## figlio 1 ##

## modelli binomilai logistici (logit)##
library(stats)

# 4 #  CA1-3
rm(a)
a <- glm(pamUNO4 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
```

```
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 52 #  CA1-5
rm(a)
a <- glm(pamUNO52 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 179 #  CA1-1
rm(a)
a <- glm(pamUNO179 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 262 #  CA1-2
```

```
rm(a)
a <- glm(pamUNO262 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 452 #  CA1-4
rm(a)
a <- glm(pamUNO452 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child1lsBCOMed[which(child1lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD



## figlio 2 ##

## modelli binomilai logistici (logit) ##
library(stats)

# 10 #  CA2-1
rm(a)
```

```
a <- glm(pamDUE10 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 22 #   CA2-5 #D -T0
rm(a)
a <- glm(pamDUE22 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 95 #  CA2-6
rm(a)
a <- glm(pamDUE95 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD
```

```
# 130 #  CA2-2
rm(a)
a <- glm(pamDUE130 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 161 #  CA2-3
rm(a)
a <- glm(pamDUE161 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 206 #  CA2-4
rm(a)
a <- glm(pamDUE206 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child2lsBCOMed[which(child2lsBCOMed$sex=="male"),])
```

```
summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD




## figlio 3+ ##



# 50 #  CA3-2
rm(a)
a <- glm(pamTRE50 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child3plsBCOMed[which(child3plsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD

# 71 # CA3-3
rm(a)
a <- glm(pamTRE71 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child3plsBCOMed[which(child3plsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
```

```
#summary(a)$coefficients[,2] #SD

# 145 # CA3-1 # D +T0
rm(a)
a <- glm(pamTRE145 ~ riformaP9 + edu2 + CLeta,
        family = binomial(link = "logit"),
        data = child3plsBCOMed[which(child3plsBCOMed$sex=="male"),])

summary(a)
#exp(a$coefficients)
#summary(a)$coefficients[,2] #SD
```

7- Controls

```
### controllo multicollinearity 1 ### correlazione tra varaibili indipendenti ### tutte le regressioni

library(vcd)

## figlio 1 ##

assocstats(table(child1lsBCOMed$riforma,child1lsBCOMed$sex))
assocstats(table(child1lsBCOMed$riforma,child1lsBCOMed$CLeta))#
assocstats(table(child1lsBCOMed$riforma,child1lsBCOMed$edu2))

assocstats(table(child1lsBCOMed$sex,child1lsBCOMed$CLeta))
assocstats(table(child1lsBCOMed$sex,child1lsBCOMed$edu2))
```

```
assocstats(table(child1lsBCOMed$CLeta,child1lsBCOMed$edu2))
```

figlio 2

```
assocstats(table(child2lsBCOMed$riforma,child2lsBCOMed$sex))
assocstats(table(child2lsBCOMed$riforma,child2lsBCOMed$CLeta))#
assocstats(table(child2lsBCOMed$riforma,child2lsBCOMed$edu2))

assocstats(table(child2lsBCOMed$sex,child2lsBCOMed$CLeta))
assocstats(table(child2lsBCOMed$sex,child2lsBCOMed$edu2))

assocstats(table(child2lsBCOMed$CLeta,child2lsBCOMed$edu2))
```

figlio 3 e more

```
assocstats(table(child3plsBCOMed$riforma,child3plsBCOMed$sex))
assocstats(table(child3plsBCOMed$riforma,child3plsBCOMed$CLeta))
assocstats(table(child3plsBCOMed$riforma,child3plsBCOMed$edu2))

assocstats(table(child3plsBCOMed$sex,child3plsBCOMed$CLeta))
assocstats(table(child3plsBCOMed$sex,child3plsBCOMed$edu2))
```

```
assocstats(table(child3plsBCOMed$CLeta,child3plsBCOMed$edu2))



### controllo multicollinearity 2 ###  controllo taglia standard deviation ###

summary(a) # nel file 11 - pre post riforma ci sono tutti i summary

# da vedere child 3+, gruppi 71 e 50 #

## alrtri controlli non necessari o teorici per glm logit ###
```