



The progressive place paradox: Status-based health inequalities are magnified in more economically progressive Swiss localities

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ABSTRACT

Low socioeconomic status (measured both objectively and subjectively) is systematically associated with worse health. Amid renewed interest in contextual influences on health inequalities, we ask whether variation in the prevailing ideological climate moderates the size of the health gap between low and high status individuals. Based on the minority stress hypothesis, we expect that living in an economically progressive place within Switzerland – places where more residents endorse the need for change to the economic status quo – will reduce the magnitude of the health gap. Multilevel modelling of MOSAiCH 2015–2020 data shows the opposite: low status individuals in progressive places report markedly lower subjective health and life satisfaction than similarly low status individuals in conservative places, such that status-based health inequalities are maximised in progressive places. We interpret this apparent progressive place paradox in terms of collective inefficacy and system frustration, which we argue is the corollary of system justification.

1. Introduction

Research on social status and health has systematically demonstrated that lower socio-economic status (SES hereafter) is associated with worse health outcomes (Adler and Ostrove, 1999; Marmot, 2004; Lago et al., 2018). For instance, low SES is associated with increased all-cause mortality (Chapman et al., 2010), cancer outcomes (Du et al., 2007), incident heart failure (Potter et al., 2019), hypertension (Leng et al., 2015), systemic inflammation (Muscatell et al., 2020), as well as aspects of mental wellbeing, such as depression (Hoebel et al., 2017; Rojas-García et al., 2015), schizophrenia (Luo et al., 2019), psychopathology (Peverill et al., 2021), and recovery from stress (Boylan et al., 2018). Low SES is also associated with lower reported subjective wellbeing (Demakakos et al., 2008; Singh-Manoux et al., 2005), which is an important predictor of health outcomes and mortality (Martín-María et al., 2017).

Moreover, researchers have distinguished between objective aspects of SES, such as income, occupation and education level (Muscatell et al.,

2020) and subjective social status (SSS), defined as an “individual’s perception of [their] own position in the social hierarchy” (Jackman and Jackman, 1973). The two seem to capture complementary aspects of social status, with subjective social status being associated with health outcomes over and above objective status (Cundiff and Matthews, 2017; Demakakos et al., 2008; Singh-Manoux et al., 2005; Zell et al., 2018).

Several factors have been shown to impact the strength of the relationship between social status and health. Some of these factors are analysed at the individual level, including demographic factors like gender and ethnicity (Shaked et al., 2016) and the resources associated with higher status (Phelan and Link, 2013), while others are located at the contextual level. To date, research on contextual factors has focused on structural elements, such as relative and absolute poverty levels (Brown et al., 2008; Roy et al., 2016), neighbourhood inequality (Ghaly and Jivraj, 2022), intersectional contexts (Evans, 2019), social expenditure levels (Álvarez-Gálvez and Jaime-Castillo, 2018; Dahl and van der Wel, 2013), and environmental and air pollution (Fuller et al., 2022; Richardson et al., 2011). In this article, we build upon and extend this

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research by exploring the effects of a contextual factor that has so far been overlooked. The contexts in which people reside do not only vary in terms of average wealth, health infrastructure and air quality, but also across normative and ideological dimensions (Huijts et al., 2010) that could plausibly affect the relationship between social status and health.

Green et al. (2018, p. 384) refer to this form of variation as the ideological climate, understood as “shared normative forms of thinking about cultural diversity, and societal order ... within a given context”. They distinguish between conservative and progressive ideological climates: whereas conservative climates endorse anti-egalitarian views and entail rejection of social change, progressive ideological climates endorse social change that promotes equality and social justice.

Such rejection or endorsement of social change has previously been shown to have a material effect on the health and wellbeing of minority groups. Among migrants in Britain for example, Frost (2020) finds that a lower proportion of local support for Brexit in the 2016 European Union membership referendum was associated with lower levels of generalised anxiety disorder and a smaller native-migrant health gap. In a similar vein in Australia, Perales and Todd (2018) show that stronger local support for legalising same sex marriage was associated with superior levels of mental health, general self-reported health and life satisfaction among lesbian, gay and bisexual people.

This pattern, whereby living in a place with a more favourable ideological climate is positively associated with the health and wellbeing of minority group members, is held to reflect the comparative absence of stigma and minority stress in more progressive places (Meyer, 2003). Minority stress, which is stress induced by exposure to social prejudice and stigma against one’s social group and status (Frost and Meyer, 2023), has been linked to psychological distress and other negative mental and physical health outcomes (Corrigan et al., 2009; Flentje et al., 2020; Hatzenbuehler et al., 2013). Recent literature highlights a number of channels through which minority stress can impact health. These include psychological pathways such as increased isolation, hostile attribution and cynicism (Brondolo et al., 2011; Flentje et al., 2020) and biological pathways such as inflammation and changes in endocrine or hormonal function (Flentje et al., 2020).

In this paper, we build upon and extend this recent work by expanding the remit from minority groups to the larger group of individuals with low socioeconomic status. We ask the following research question: how does living in a place with a more economically progressive ideological climate – places in which more people endorse the idea that the economic status quo is unfair and needs to change, and in which the stigma associated with low status is presumably lower – affect the size of the health gap between low and high status individuals? Based on the minority stress literature, we assume that low status individuals who live in more progressive places face less stigma in relation to their social status and therefore experience lower levels of the stress that tends to reduce wellbeing. We advance the following hypothesis:

H: Low SES individuals report higher levels of health and wellbeing in more economically progressive places, leading to smaller status gaps in health and wellbeing

We test this hypothesis in Switzerland, a country that represents an interesting terrain for the study of ideological climates owing to its distinctive political system (Kriesi, 2005). Alongside the usual voting rights accorded to eligible voters in democracies, Swiss citizens over the age of 18 have the right to express their opinion on decisions taken by the Swiss Parliament and to propose amendments or additions to the Federal Constitution. Ballot initiatives and popular referenda are well publicised, with opposing campaigns producing extensive publicity materials and substantial media coverage in advance of the vote (Christin et al., 2002). The results of initiatives are also well publicised at the Commune (local) and Canton (regional) levels, which means that the prevailing ideological climate is both observable to and actively present in the minds of the inhabitants. We follow previous research (Green et al., 2018; Sarrasin et al., 2012) in using the results of a series of

referenda relevant to the group of interest to construct a measure of the local ideological climate.

Our measure of the ideological climate reflects Commune-level votes in favour of three referenda which sought to change the economic status quo in Switzerland: 1) the 2013 vote to cap executive pay at 12 times the salary of the lowest paid worker; 2) the 2014 vote to introduce a national minimum wage; and 3) the 2021 99% initiative which sought to tax capital gains at 1.5 times the rate of labour income. We merge these ideological climate data to individual-level data (N = 9397) from the 2015, 2017, 2018, 2019 and 2020 Measurement and Observation of Social Attitudes in Switzerland (MOSAiCH) surveys, and test our hypothesis by interacting Commune-level economic progressivity with individual social status, which we specify in both subjective (subjective social status) and objective (household income) terms.

Multilevel modelling shows that results do not conform to initial expectations. Against our initial hypothesis, we find that low status individuals in progressive places report markedly lower subjective health and life satisfaction than similarly low status individuals in conservative places, such that status-based health inequalities are maximised in progressive places. This holds irrespective of whether socio-economic status is measured in subjective or objective terms, and whether health and wellbeing is measured as self-reported health or life satisfaction.

What might explain this apparent progressive place paradox? We argue that the wholesale national rejection of the three initiatives we use to construct our measure of the ideological climate is likely to be core to understanding. The contrast between local norms and aspirations in places that were more favourably disposed to these ballot initiatives and national voting patterns may be such that low status individuals in economically progressive places have internalised a sense of anger, frustration and/or hopelessness about the impossibility of structural change in Switzerland that materially affects their health and wellbeing. We term this a system frustration response, and propose that it is a natural complement of system justification in more economically conservative places.

2. Data and method

2.1. Data

Individual-level data are drawn from restricted geocoded versions of the 2015, 2017, 2018, 2019 and 2020 waves of the Measurement and Observation of Social Attitudes in Switzerland (MOSAiCH) survey (Ernst Staehli et al., 2015, 2018, 2019, 2020, 2021). MOSAiCH is a cross-sectional survey of values and attitudes that contains core socio-demographic and health and wellbeing variables, as well as the rotating modules of the cross-national International Social Survey Programme (ISSP) and Swiss-specific questions. Crucially for this analysis, MOSAiCH surveys also collect data on the residential location of households within Switzerland.

Switzerland is governed under a three-level federal system which consists of the Confederation, the 26 Cantons and more than 2000 Communes. The principal spatial units of analysis in this research are the Swiss Communes (Gemeinden in German), local government divisions which are responsible for local service provision, tax collection and the issue, collection and count of ballots in Swiss referenda. Communes vary considerably in territorial extent and in population but hold the same set of statutory responsibilities irrespective of their size¹: in 2022, the Commune-level population ranged from just 28 in Kammersrohr to

¹ In large Communes like Zurich, there may be considerable heterogeneity in the ideological climate between different zones and neighbourhoods. Communes represent the lowest spatial scale for which referenda data are universally available so it is unfortunately not possible to measure or explore the effects of variation in the ideological climate within Communes.

420,000 in Zurich, with an average population of approximately 4000. Communes are selected on the basis of their importance in identity formation and daily life in Switzerland (Sciarini et al., 1997) and because referenda results are widely published at this scale.

Owing to local government re-organisation, Commune boundaries are subject to change over time. We aggregate individual-level data to 2022 boundaries (2148 Communes) and merge-in ideological climate data obtained from the Votations populaires database² and other Commune-level variables obtained from two official Swiss government sources: Portraits régionaux 2021: chiffres-clés de toutes les communes³ and Statistiques sur l'impôt fédéral direct 2020.⁴ To address a possible modifiable areal unit problem, whereby parameter estimates are potentially sensitive to the definition of area boundaries (Fotheringham and Wong, 1991), we run sensitivity analysis using the 143 Swiss Districts (2022) instead of Communes.

2.2. Variables

2.2.1. Dependent variables

We consider two outcomes that measure related aspects of wellbeing: subjective health and life satisfaction. Our two dependent variables comprise responses to MOSAiCH questions that ask respondents to rate their health on a five-point scale, where 1 is excellent and 5 is poor, and to report their life satisfaction on a seven-point scale, where 1 is completely satisfied and 7 is completely dissatisfied. For ease of interpretation (Mijs, 2020; Morris et al., 2022), we first reverse code and then rescale these responses to a 100-point scale, where 0 indicates poor health and complete life dissatisfaction and 100 indicates excellent health and complete life satisfaction.⁵

2.2.2. Independent variables

At the individual-level, we employ two different social status variables that are both measured on a ten-point scale. The first is subjective social status, which reflects responses to a question in which respondents are asked to place themselves on a ladder running from 1 (bottom) to 10 (top) that represents Swiss society. The second is objective social status, which we define as reported household income decile. We further include standard individual-level controls for sex, age, age squared, Swiss nationality, highest qualification in three categories, labour force status and a survey year dummy in all models.

At the Commune-level, we follow Green et al. (2018) in using the results of recent Swiss referenda to construct a measure of economic progressivity.⁶ Our economic progressivity index is a simple average of the percentage of votes in favour of three referenda which sought to

² The Votations populaires (résultats au niveau des communes depuis 1960) database, which contains the results of all Swiss referenda at the Commune-level since 1960, is available at https://www.pxweb.bfs.admin.ch/pxweb/fr/px-x-1703030000_101/-/px-x-1703030000_101.px; accessed 08/01/2024.

³ Data available at <https://www.bfs.admin.ch/bfs/fr/home/statistiques/statistique-regions/portraits-regionaux-chiffres-cles/communes.html>; accessed 08/01/2024.

⁴ Data available at <https://www.estv.admin.ch/estv/fr/accueil/afc/statistiques-fiscales/statistiques-fiscales-general/statistiques-impot-federal-direct.html>; accessed 08/01/2024.

⁵ The full questions are respectively: In general, would you say your health is ... ? All things considered, how satisfied are you with your life as a whole nowadays? In the 2015 wave, respondents were asked to rate their level of satisfaction on a four-point scale ranging from 1 (very satisfied) to 4 (not at all satisfied). We deem these to be equivalent to 2 (very satisfied), 3 (fairly satisfied), 5 (fairly dissatisfied) and 7 (completely dissatisfied) on the 7-point scale used from 2017 onwards.

⁶ Not all residents of Communes are eligible to vote, turnout varies between Communes and overall turnout among eligible voters in referenda is sometimes below 50%. We follow Green et al. (2018) in assuming that Commune-level votes are representative of broader public opinion within that Commune.

change the economic status quo in Switzerland: 1) the introduction of a 1:12 salary cap that would limit executive pay to a maximum of 12 times the salary of the lowest paid worker (2013); 2) the introduction of a national minimum wage (2014); and 3) the so-called 99% initiative which sought to tax capital gains at 1.5 times the rate of labour income (2021). Principal component analysis of Commune-level results for these three federal referenda (which were rejected by the majority of Swiss voters) shows one factor that explains 79.8% of the variance (Cronbach's alpha is 0.870).

Fig. 1 maps differing levels of economic progressivity in Switzerland, with less progressive places illustrated in blue and more progressive places highlighted in red. As Fig. 1 shows, there is substantial variation within Switzerland. The economic progressivity index ranges from 12.6% in Greng (Canton Fribourg) to 56.2% in Lajoux (Canton Jura) against a country-level average of 31.8%, with large clusters of more progressive places in the North West and in Ticino, and islands of economic progressivity in the cities of Basel, Bern, Fribourg, Lucerne, St Gallen, Winterthur and Zurich.

To help ensure that results are driven by than the ideological climate rather than differences in population size, population composition and healthcare infrastructure, we also include controls for Commune-level population (source: Portraits régionaux 2021) and median income (source: Statistiques sur l'impôt fédéral direct 2020) in all models. Since the Meltzer-Richard hypothesis (Meltzer and Richard, 1981) suggests progressive local attitudes could be driven by higher levels of local economic inequality, we run sensitivity analysis that also adjusts for Commune-level income inequality (measured via the Gini coefficient⁷) to reduce the possibility that the effects we are identify are driven by inequality rather than progressivity.

Following listwise deletion, the sample comprises 9397 respondents nested in 1620 Communes, which span the full range (12.6%–56.2%) of economic progressivity values. Descriptive statistics for all variables are displayed in Table 1,⁸ while Figure A1 in the Appendix shows the distribution of these 1620 Communes within Switzerland.

2.3. Approach

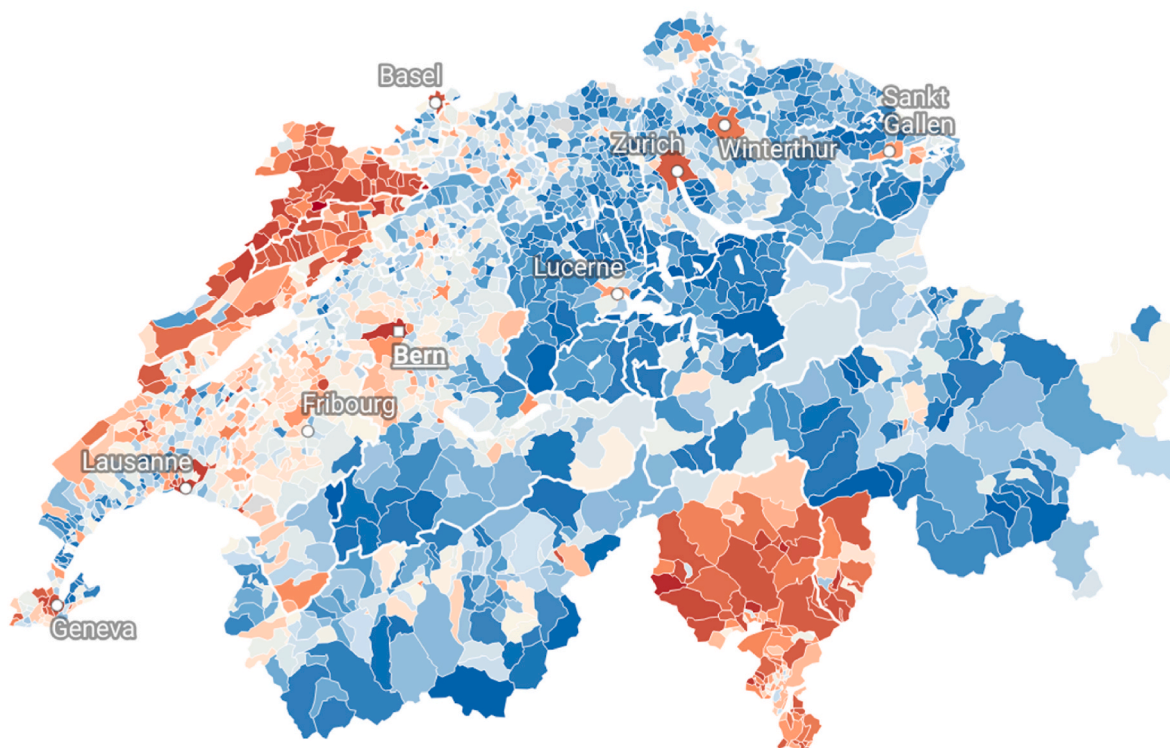
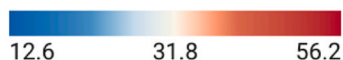
To investigate whether living in a place with a more economically progressive ideological climate affects the size of the health gap between low and high status individuals, we use linear multilevel modelling (estimated using the maximum likelihood estimator). We use multilevel models in order to account for the hierarchical data structure, whereby individuals are nested in Communes. Analysis proceeds in two parts. First, we estimate models with all controls in order to ascertain the existence and size of the expected gaps in health and life satisfaction by social status. Next, we introduce a cross-level interaction between social status and the Commune-level ideological climate to test whether and how much the ideological climate moderates the size of the status-based gaps in health and life satisfaction, incorporating a random slope on the status variable as advised by Heisig and Schaeffer (2019).

To enhance interpretability, we also estimate all models using a collapsed version of the ten-point social status variables, which we use in all graphics. Graphically we present estimates for three social status groups: low (1–3 on the original scale); middle (4–7) and high (8–10) status individuals.

⁷ Swiss Federal Statistical Office data, available via <https://www.estv.admin.ch/estv/fr/accueil/afc/statistiques-fiscales/statistiques-fiscales-general/statistiques-impot-federal-direct/afd-pp-communes-depuis-1983.html>.

⁸ Correlation matrices for all variables are shown in Table A1 in the Appendix.

Economic progressivity index



Map data: Bundesamt für Statistik (BFS), GEOSTAT • Created with Datawrapper

Fig. 1. Economic progressivity at Commune-level in Switzerland.

3. Results

3.1. Main effects

Models I-IV in Table 2 display the results of our multilevel regression model for self-reported health and life satisfaction. As expected, higher status individuals report better health and higher levels of life satisfaction, irrespective of whether status is measured in subjective or objective terms. Figs. 2 and 3 show the predicted difference between low and high status respondents using the collapsed version of the subjective and objective social status variables. All else being equal, there is a 17-point gap in reported health between low and high subjective status individuals, and a 7-point gap between low and high objective status individuals. For life satisfaction, the predicted gaps are 14 points and 7 points for subjective and objective status respectively.

3.2. Moderation: economic progressivity and health

When we introduce the interaction term between economic progressivity and social status in Models V and VI in Table 3, we find that there is a strong moderation effect but in the opposite direction to the

one predicted. Against the expectation that low status individuals would report higher levels of health and wellbeing in more progressive places, we find the opposite for both subjective and objective social status. This can be seen in Fig. 4, which plots variation in predicted health between low, medium and high status individuals in more and less economically progressive places.

When status is measured in subjective terms, Fig. 4A shows that low status individuals on average report health of 49 (on the 100-point scale) in the most economically progressive places within Switzerland, but 61 if they are in the least economically progressive places. When status is measured in objective terms, Fig. 4B shows that low status respondents in the most economically progressive places report average health of 55, compared to an average of 65 in the least economically progressive places. Since the health of high status respondents is unaffected by economic progressivity levels, this means that status-based health gaps are considerably larger in economically progressive places. The health gap between low and high subjective status individuals ranges in magnitude from only 12 points in the economically progressive places to 20 points in the most progressive ones. The gap between low and high income respondents ranges from 5 points to 11 points, in the same direction.

Table 1
Sample descriptive statistics.

Variable	Min	Max	Mean	SD
Subjective health	0	100	64.4	23.1
Life satisfaction	0	100	74.9	14.7
Commune population (000s)	0.8	421.9	45.3	96.2
Commune median net household income (CHF 000s)	9.7	126.6	65.8	126.6
Commune economic progressivity %	12.6	56.2	31.7	8.4
Subjective social status	1	10	6.1	1.70
Objective social status (household income decile)	1	10	5.5	2.72
Sex				
0 = male			0.51	
1 = female			0.49	
Age	19	96	49.1	17.1
Age squared	361	9216	2698.1	1743.2
Swiss				
0 = not Swiss			0.15	
1 = Swiss			0.85	
Education				
1 = lower secondary			0.12	
2 = upper secondary			0.56	
3 = degree			0.31	
Labour force status				
1 = employed			0.64	
2 = unemployed			0.03	
3 = student			0.06	
1 = inactive			0.27	
Survey year				
1 = 2015			0.11	
2 = 2017			0.09	
3 = 2018			0.18	
4 = 2019			0.26	
5 = 2020			0.35	
Individuals: N = 9397				
Communes: n = 1620				

Sources: Individual-level data from pooled MOSAiCH 2015–2020; Commune-level data from the Votations populaires database; Portraits régionaux 2021 & Statistiques sur l'impôt fédéral direct 2020

3.3. Moderation: economic progressivity and life satisfaction

A very similar set of results emerges when considering the interaction between economic progressivity and life satisfaction (Models VII and VIII in Table 3). Contrary to our initial prediction, Fig. 5A and B shows that the life satisfaction of low status individuals is substantially lower in more economically progressive places, both when status is measured in subjective and objective terms. On average, low subjective status respondents report life satisfaction of 60 in the most economically progressive places, compared to 72 in the least economically progressive places. Among low income respondents, average life satisfaction is 65 the most economically progressive places but 76 in the least economically progressive places. Just as with health, this means that status-based gaps in life satisfaction are markedly larger in economically progressive ideological climates. The life satisfaction gap between low and high subjective status respondents is just 11 points in the least economically progressive Communes but 18 points in the most progressive ones. Among low and high income respondents, the gap is 5 points in the least economically progressive Communes but 10 points in the most progressive ones.

3.4. Sensitivity analysis

We run a number of additional analyses to test the robustness of our findings. Given the large literature on income inequality and health (Pickett and Wilkinson, 2015; Wilkinson and Pickett, 2006) and the fact

that progressive local attitudes could potentially follow on from higher levels of local economic inequality (Meltzer and Richard, 1981; Schmidt-Catran, 2016), we first check the correlation between for Commune-level economic progressivity and income inequality, measured via the Gini coefficient. In our sample, these two variables are weakly negatively correlated (-0.075), which already indicates that income inequality is unlikely to be a major factor driving our results. This is confirmed when we re-run the interaction models incorporating an additional control for Commune-level income inequality: Table A2 in the Appendix shows that results remain substantively identical when we also adjust for the Commune-level Gini coefficient.

To address a possible modifiable areal unit problem (Fotheringham and Wong, 1991) and the fact that the majority (71%) of Swiss residents do not live and work in the same Commune,⁹ we also re-run the interaction analysis using the 143 Swiss Districts (2022) instead of Communes. Since Districts are considerably larger than Communes, the magnitude of variation in the ideological climate is somewhat lower: the District-level economic progressivity index ranges from 15.6% in Höfe (Canton Schwyz) to 46.7% in Les Franches-Montagnes (Canton Jura). As before, we report results using the original ten-point subjective and objective status scales in tables, but present estimates for low (1–3); middle (4–7) and high (8–10) status individuals in graphics, using the same X-axis scale in order to facilitate direct comparison with Commune-level analysis.

Results, displayed in Table A3 in the Appendix and Figures A2 and A3, are entirely consistent with those obtained at Commune-level. Figures A2 and A3 show that low status individuals report markedly lower levels of health and life satisfaction in more economically progressive Districts, irrespective of whether status is measured in subjective or objective terms. This net effect of this pattern, combined with unchanging levels of health and life satisfaction among high status individuals, is that status-based health gaps are minimised in economically conservative Districts and maximised in economically progressive Districts, just as they are at Commune-level.

4. Discussion

Inspired by recent work which suggests progressive ideological climates can have a positive material effect on the health and wellbeing of minority groups, we test whether the same applies to the larger group of low status individuals in Switzerland. Against the expectation that living in a place in which more people endorse the idea that the economic status quo is unfair would reduce the size of the health gap between low and high status individuals, we find the opposite. There is a consistent pattern whereby low status respondents in more economically progressively places report lower levels of health and life satisfaction, irrespective of whether status is measured in subjective or objective terms. These effects are large in real-terms: the difference between low status individuals in the most and least progressive Communes is always at least 10 points on the 100-point health and life satisfaction scales, which is roughly equivalent to the predicted difference between employed and unemployed respondents across the different models. Results also hold when we scale up and use Districts rather than Communes as our spatial unit. In other words, while our results do not corroborate our initial hypothesis, the negative association between economic progressivity and the health and wellbeing of low status individuals is worthy of both attention and interpretation.

Why might living in a more economically progressive ideological climate – places where a greater proportion of people endorse the idea that the economic status quo is in need of change – depress rather than enhance levels of health and wellbeing among low status individuals?

⁹ Swiss Federal Statistical Office data, available via <https://www.bfs.admin.ch/bfs/en/home/statistics/mobility-transport/passenger-transport/commuting.html>.

Table 2
Multilevel model of subjective health and life satisfaction – main effect.

	1) HEALTH		2) LIFE SATISFACTION	
	(I) Subjective status	(II) Objective status	(III) Subjective status	(IV) Objective status
Fixed Effects				
Commune-level				
Commune population (000)	0.003 (-0.004 - 0.009)	0.006 (-0.001 - 0.012)	0.004 (-0.002 - 0.010)	0.007** (0.000–0.013)
Commune median income (CHF 000)	0.024 (-0.020 - 0.068)	0.016 (-0.029 - 0.061)	-0.030** (-0.059 to -0.001)	-0.038** (-0.068 to -0.008)
Commune economic progressivity %	-0.136*** (-0.204 to -0.069)	-0.164*** (-0.233 to -0.094)	-0.196*** (-0.243 to -0.150)	-0.221*** (-0.269 to -0.172)
Individual-level				
Social status	3.068*** (2.798–3.338)	1.189*** (1.012–1.367)	2.746*** (2.573–2.919)	1.092*** (0.977–1.208)
Female (ref: male)	0.401 (-0.459 - 1.261)	0.358 (-0.518 - 1.234)	1.249*** (0.698–1.800)	1.220*** (0.650–1.789)
Age	-0.524*** (-0.687 to -0.361)	-0.597*** (-0.763 to -0.431)	-0.233*** (-0.337 to -0.129)	-0.300*** (-0.408 to -0.192)
Age squared	0.002*** (0.001–0.004)	0.003*** (0.001–0.005)	0.003*** (0.002–0.004)	0.004*** (0.003–0.005)
Swiss (ref: not Swiss)	2.429*** (1.205–3.654)	2.825*** (1.580–4.070)	2.792*** (2.007–3.578)	3.133*** (2.323–3.943)
Education (ref: Lower secondary)				
Upper secondary	3.767*** (2.387–5.147)	4.629*** (3.229–6.030)	1.458*** (0.574–2.342)	2.209*** (1.298–3.119)
Degree	6.725*** (5.176–8.274)	8.946*** (7.385–10.507)	2.188*** (1.195–3.181)	4.120*** (3.105–5.136)
Labour force status (ref: employed)				
Unemployed	-7.576*** (-10.115 to -5.037)	-7.654*** (-10.251 to -5.057)	-8.660*** (-10.287 to -7.033)	-8.670*** (-10.358 to -6.981)
Student	0.433 (-1.687 - 2.553)	1.959* (-0.202 - 4.119)	-1.322* (-2.681 - 0.036)	0.066 (-1.339 - 1.470)
Inactive	-5.244*** (-6.538 to -3.951)	-4.559*** (-5.888 to -3.230)	-1.714*** (-2.543 to -0.885)	-1.071** (-1.935 to -0.207)
Year dummy	YES	YES	YES	YES
Constant	63.519	77.420	63.521	75.876
Random Effects				
Commune (constant)	0.607	0.920	1.437	1.437
Residual	440.308	454.950	191.378	191.378
Observations	9397	9397	9397	9397
Number of groups	1620	1620	1620	1620

Notes: Confidence intervals in parenthesis; ***p < 0.001, **p < 0.01, *p < 0.05.

We argue that it is noteworthy that all three referenda used to construct the economic progressivity measure failed by some margin: the 2013 executive pay, 2014 national minimum wage and 2021 99% initiatives were rejected by 65.3%, 76.3% and 64.9% of the Swiss electorate respectively. One plausible explanation is that the repeated national rejection of initiatives that aimed to reduce social inequalities has created (or sustained) a particularly enduring sense of frustration and disillusionment among low status individuals in local milieu that were more favourably disposed to these ballot initiatives. The contrast between local norms, hopes, and expectations, and the magnitude of the

national defeat of each change-oriented initiative may be a source of individual anger, frustration and/or hopelessness and of collective inefficacy, understood as the perceived inability to effect social change through unified action (Fernández-Ballesteros et al., 2002). Existing research suggests low collective efficacy is a disempowering psychosocial stressor that can impact health and contribute to status-based health inequalities (Ahern and Galea, 2011; Browning and Cagney, 2002; Butel and Braun, 2019; Lampropoulos et al., 2023). Here, we maintain that the seeming the impossibility of structural change in Switzerland is an important source of collective inefficacy that materially affects the

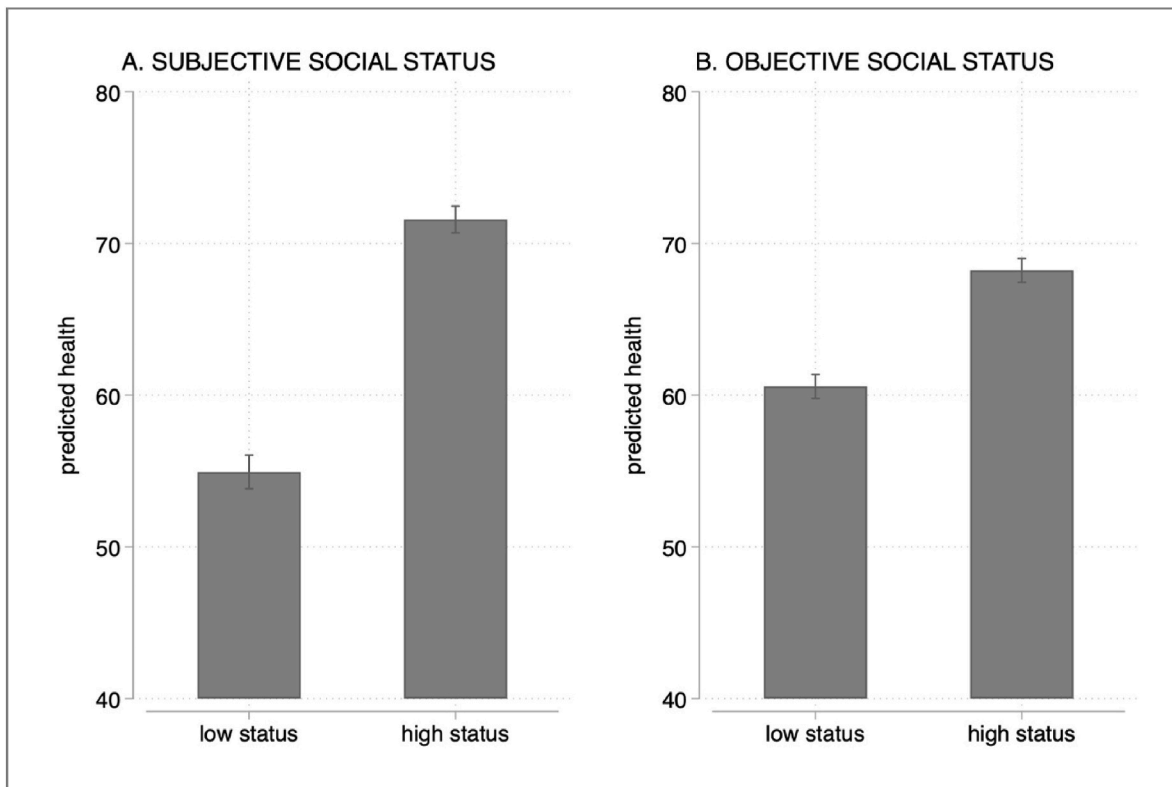


Fig. 2. Predicted health by social status group.

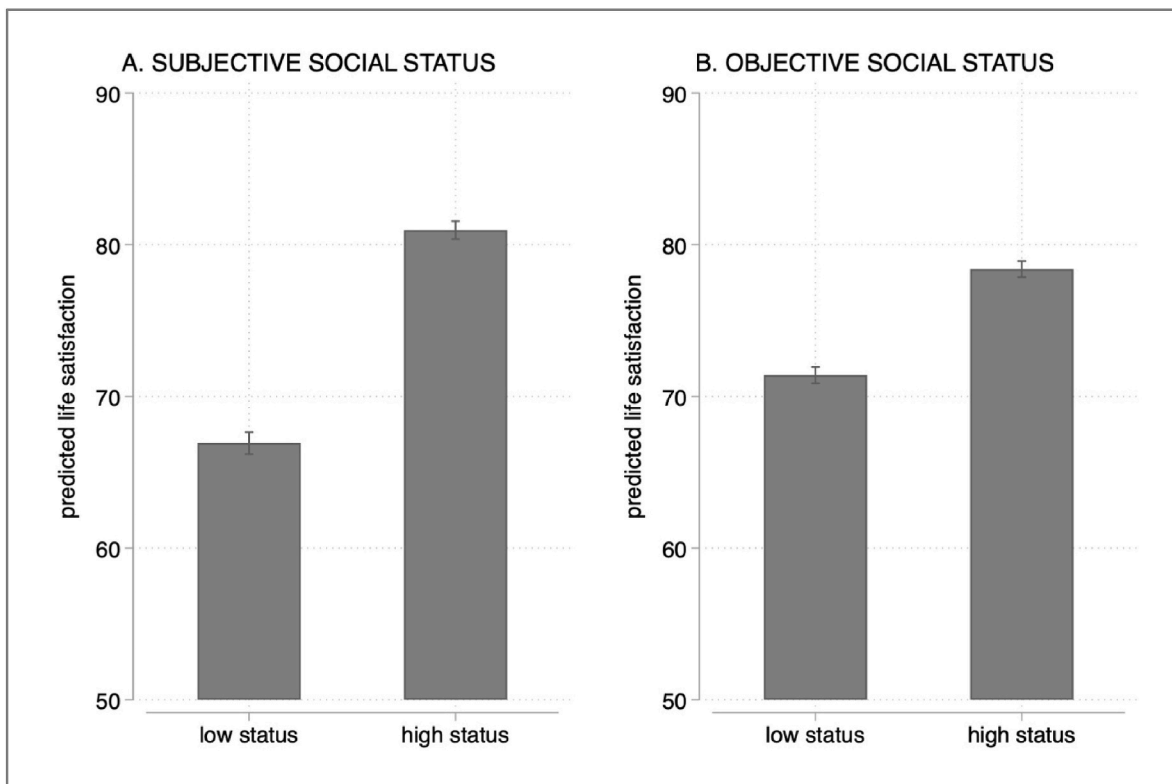


Fig. 3. Predicted life satisfaction by social status group.

Table 3
Multilevel model of subjective health and life satisfaction – interaction effect.

	3) HEALTH		4) LIFE SATISFACTION	
	(V) Subjective status	(VI) Objective status	(VII) Subjective status	(VIII) Objective status
Fixed Effects				
Commune-level				
Commune population (000)	0.002 (-0.004 - 0.008)	0.005 (-0.002 - 0.012)	0.003 (-0.003 - 0.009)	0.006* (-0.000 - 0.012)
Commune median income (CHF 000)	0.030 (-0.014 - 0.074)	0.022 (-0.023 - 0.067)	-0.025* (-0.054 - 0.003)	-0.030* (-0.060 - 0.000)
Commune economic progressivity %	-0.357*** (-0.546 to -0.168)	-0.266*** (-0.388 to -0.145)	-0.378*** (-0.501 to -0.256)	-0.348*** (-0.429 to -0.267)
Cross-Level Interaction				
Commune progressivity * social status	0.037** (0.007–0.067)	0.019** (0.000–0.038)	0.031*** (0.012–0.050)	0.024*** (0.012–0.036)
Individual-level				
Social status	1.874*** (0.882–2.866)	0.570* (-0.061 - 1.201)	1.765*** (1.129–2.400)	0.321 (-0.090 - 0.731)
Female (ref: male)	0.409 (-0.451 - 1.269)	0.350 (-0.526 - 1.226)	1.255*** (0.704–1.806)	1.210*** (0.641–1.779)
Age	-0.520*** (-0.683 to -0.357)	-0.597*** (-0.763 to -0.431)	-0.230*** (-0.334 to -0.125)	-0.301*** (-0.408 to -0.193)
Age squared	0.002*** (0.001–0.004)	0.003*** (0.001–0.005)	0.003*** (0.002–0.004)	0.004*** (0.003–0.005)
Swiss (ref: not Swiss)	2.376*** (1.152–3.601)	2.784*** (1.539–4.029)	2.753*** (1.968–3.539)	3.083*** (2.273–3.893)
Education (ref: Lower secondary)				
Upper secondary	3.758*** (2.379–5.138)	4.624*** (3.224–6.025)	1.451*** (0.567–2.335)	2.202*** (1.293–3.112)
Degree	6.667*** (5.118–8.217)	8.914*** (7.353–10.475)	2.140*** (1.147–3.133)	4.080*** (3.065–5.095)
Labour force status (ref: employed)				
Unemployed	-7.468*** (-10.008 to -4.929)	-7.615*** (-10.212 to -5.018)	-8.572*** (-10.199 to -6.946)	-8.621*** (-10.308 to -6.933)
Student	0.484 (-1.635 - 2.604)	1.983* (-0.177 - 4.144)	-1.283* (-2.641 - 0.076)	0.095 (-1.309 - 1.499)
Inactive	-5.230*** (-6.523 to -3.937)	-4.566*** (-5.895 to -3.237)	-1.702*** (-2.531 to -0.873)	-1.080** (-1.943 to -0.216)
Year dummy	YES	YES	YES	YES
Constant	70.277	80.398	69.079	79.574
Random Effects				
Social status	0.001	0.001	0.001	0.001
Commune (constant)	0.509	0.936	1.283	1.430
Residual	440.120	454.729	179.707	191.081
Observations	9397	9397	9397	9397
Number of groups	1620	1620	1620	1620

Notes: Confidence intervals in parenthesis; ***p < 0.001, **p < 0.01, *p < 0.05.

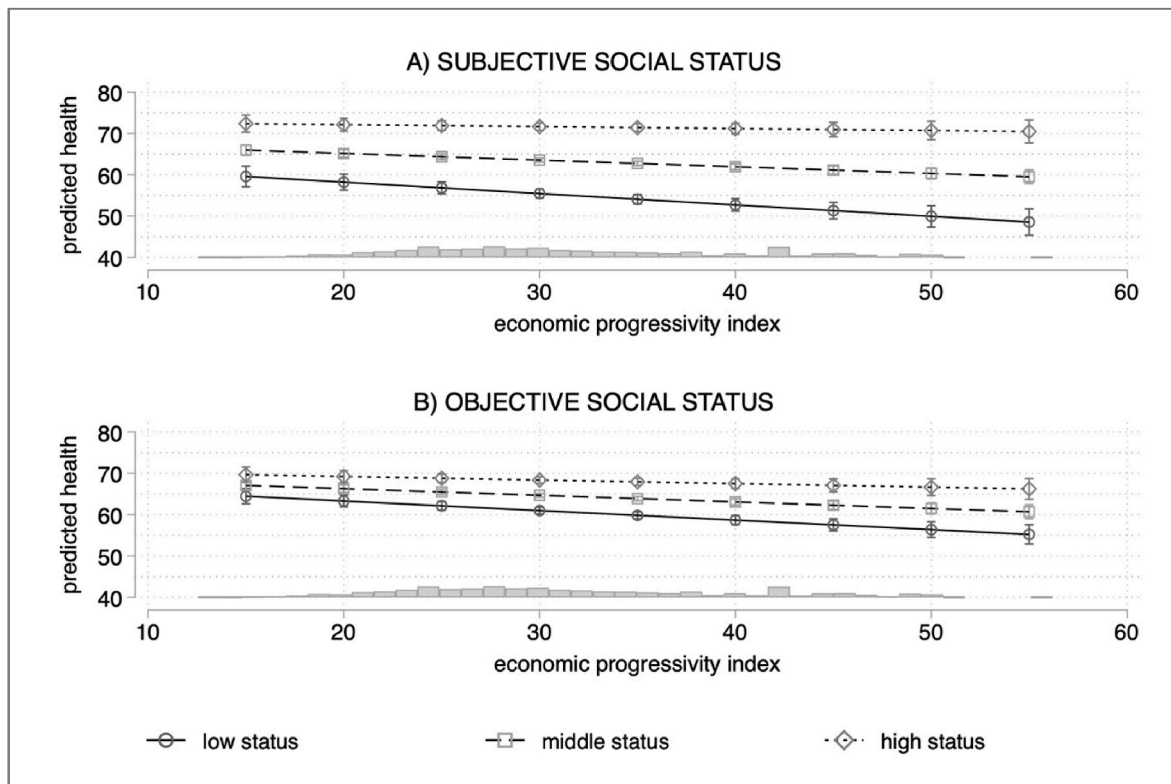


Fig. 4. Predicted health by social status and Commune-level economic progressivity.

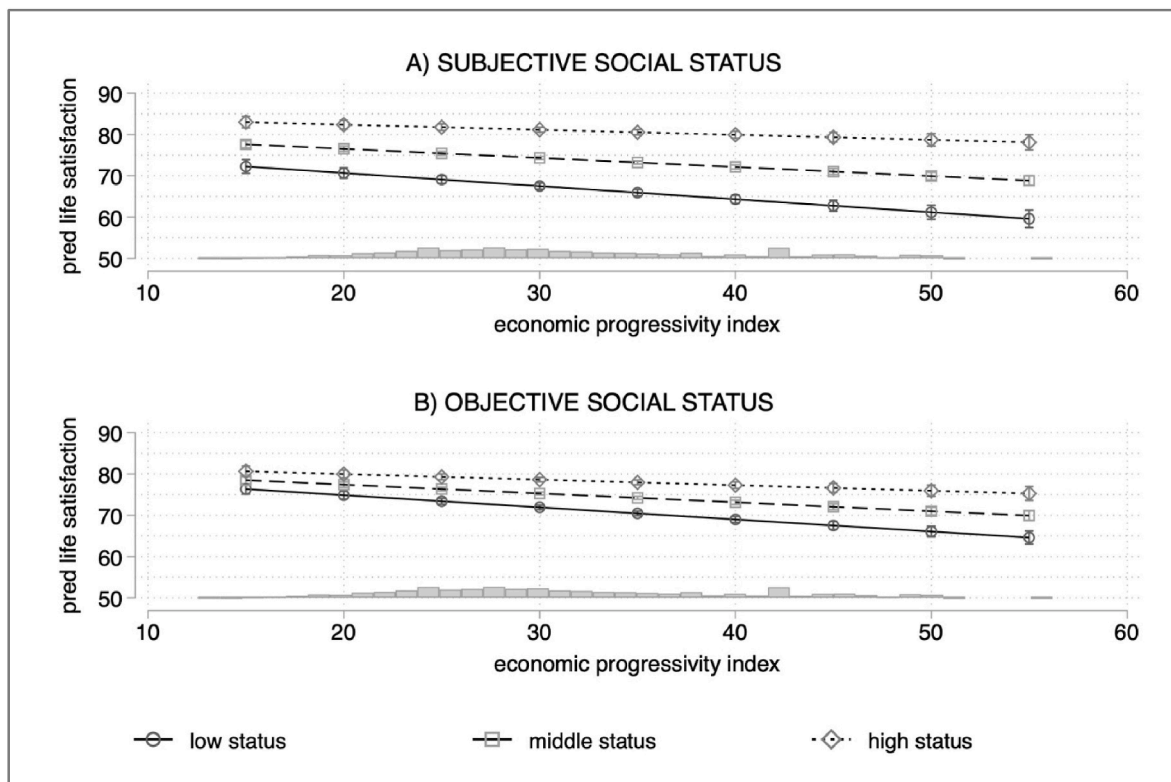


Fig. 5. Predicted life satisfaction by social status and Commune-level economic progressivity.

health and wellbeing of low status individuals in more progressive localities.

The collective inefficacy and system frustration argument can be seen as the direct corollary of system justification, the most likely explanation of the equal and opposite question of why low status individuals in more economically conservative places report markedly higher levels of health and wellbeing. System justification theory (Jost and Banaji, 1994; Jost and Hunyady, 2003; Jost, 2020) maintains that people have an inherent sub-conscious need 'to imbue the status quo with legitimacy and to see it as good, fair, natural, desirable' (Jost et al. 2004, 887), even when the status quo is personally disadvantageous.

Previous research has shown that the adoption of conservative ideologies at the individual-level can enhance individual wellbeing (Vargas-Salfate et al., 2018) and reduce status-based health inequalities (Vargas-Salfate et al., 2018; Bahamondes et al., 2019; Jost, 2019). In the Swiss context, our results provide new and noteworthy evidence of the palliative effect of contextual conservatism on health and wellbeing among people of lower status. Whereas previous contextual research that focussed on the "direct" consequences of conservative policies in terms social spending tended to find negative effects on the health and wellbeing of low status individuals (Oishi et al., 2012; Okulicz-Kozaryn et al., 2014), our results suggest conservative ideological climates may have a surprisingly positive "indirect" effect.

4.1. Limitations and future research

While our findings highlight the potential importance of contextual ideological factors that are often overlooked in health and wellbeing research, there remain a number of limitations. These extend beyond the fact that subjective health and life satisfaction are just two dimensions of health and wellbeing, that all results are associational, and that we do not know whether low status individuals personally supported the three referenda used to construct our measure of economic progressivity. For example, while we control for Commune-level median income to reduce the possibility that our results reflect systematic differences in the quality of healthcare infrastructure within Switzerland, we cannot entirely exclude this possibility. Our approach also implicitly assumes that individuals always live in the same Commune and that the Commune-level ideological climate is fixed in nature, when in reality individuals can and do move and the ideological climate it is likely to fluctuate in response to demographic change, policy change and external shocks. Future research could usefully use Swiss panel data (Tillmann et al., 2021) to investigate both the effects of moving between different ideological climates on health and wellbeing, and whether and how much changes in the ideological climate induce changes in individual health and wellbeing among the majority who continue living in the same Commune.

We hope that future research will also provide answers to the important broader question of whether and how far our results generalise beyond the very specific context studied. While ideological climates exist everywhere, the Swiss system of direct democracy renders them unusually observable and salient for individuals in Switzerland and unusually measurable for researchers interested in the effects of

different types of ideological climates. It remains to be seen whether the same paradox of progressive places will emerge in other countries where the ideological preferences of local communities are less directly knowable to individual residents, and more difficult to accurately measure for researchers.

5. Conclusion

In the context of renewed interest in whether and how much contextual factors moderate the established relationship between social status and health and wellbeing, we explore the role of lesser-noted variation across ideological dimensions. Drawing on recent research which indicates progressive ideological climates have a positive effect on the health and wellbeing of minority groups, we investigate whether the same applies to the larger group of low status individuals in Switzerland.

Against expectations derived from the minority stress hypothesis, we find that living in a place in which more people endorse the idea that the economic status quo is unfair is associated with markedly lower subjective health and life satisfaction among low status individuals. This progressive place paradox exists irrespective of whether social status is measured in subjective or objective terms or whether we measure the ideological climate at Commune or District level, and the effects on health and wellbeing are large in real terms.

We seek to explain the progressive place paradox by recognising that living in a more economically progressive place within Switzerland may have created hopes and expectations that were subsequently crushed by the weight of national rejection of each and every change-oriented ballot initiative. We argue that the combination of local desire for and national stymying of change is the most plausible source of reduced health and wellbeing for low status individuals in more progressive localities, via the mechanism of collective inefficacy. We maintain that this explanation is the corollary of the system justification explanation of why low status respondents in more economically conservative localities report higher levels of health and wellbeing, levels that sometimes approach those of middle and high status individuals. Our results thus provide new and noteworthy evidence of the potential impacts of contextual ideologies on health and health inequalities.

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CRedit authorship contribution statement

Katy Morris: Conceptualization, Writing – original draft. **Dimitrios Lampropoulos:** Conceptualization, Writing – original draft.

Appendix

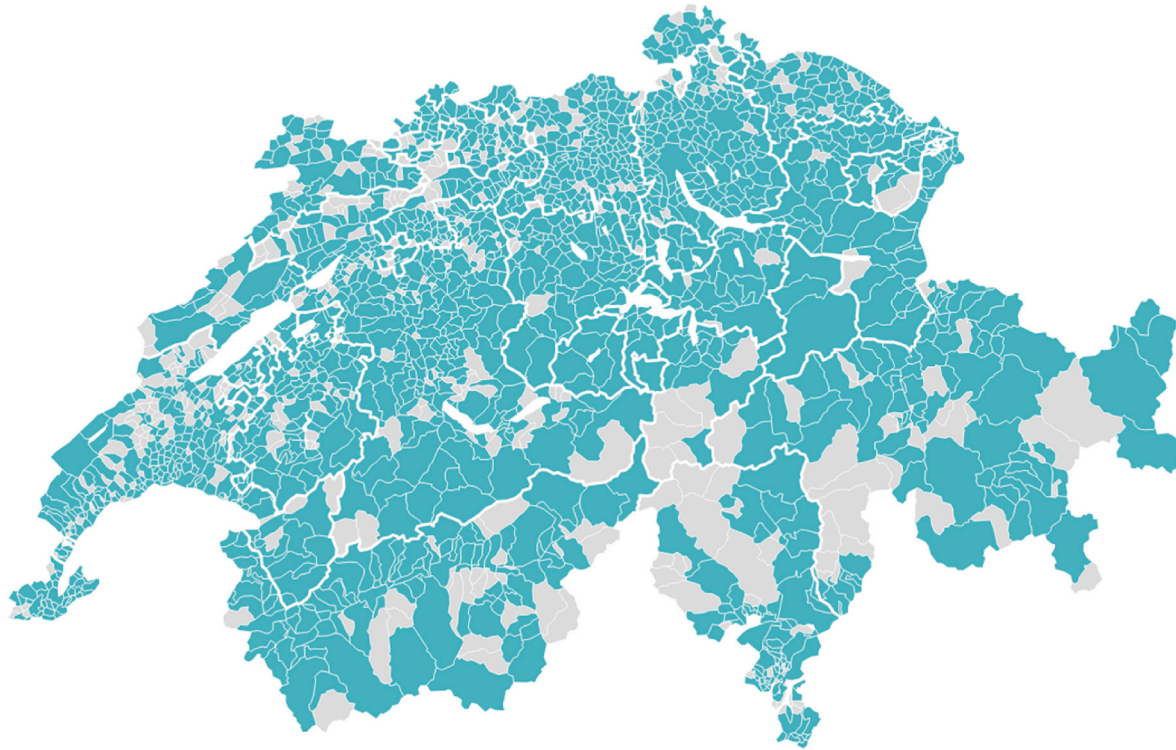
Table A1

Correlation matrices for all variables

	Health	Commune population	Commune median income	Commune progressivity	Social status	Sex	Age	Age squared	Swiss	Education	Labour force status	Year
Health	1.000											
Commune population	0.029	1.000										
Commune median income	0.058	0.016	1.000									
Commune progressivity	-0.027	0.540	-0.293	1.000								
Subjective social status	0.279	0.068	0.132	-0.028	1.000							
Sex	-0.003	0.004	0.004	0.014	-0.067	1.000						
Age	-0.285	-0.062	0.038	-0.072	-0.045	-0.060	1.000					
Age squared	-0.283	-0.062	0.034	-0.069	-0.051	-0.060	0.984	1.000				
Swiss	0.025	-0.089	-0.003	-0.118	0.055	0.022	0.128	0.137	1.000			
Education	0.199	0.161	0.121	0.125	0.316	-0.054	-0.123	-0.144	-0.020	1.000		
Labour force status	-0.210	-0.065	0.001	-0.044	-0.100	0.055	0.436	0.509	0.086	-0.208	1.000	
Year	-0.025	0.012	0.011	0.016	-0.008	-0.018	0.032	0.028	0.043	0.039	0.008	1.000
Health	1.000											
Commune population	0.029	1.000										
Commune median income	0.058	0.016	1.000									
Commune progressivity	-0.027	0.540	-0.293	1.000								
Objective social status	0.224	0.045	0.195	-0.045	1.000							
Sex	-0.003	0.004	0.004	0.014	-0.093	1.000						
Age	-0.285	-0.062	0.038	-0.072	-0.105	-0.060	1.000					
Age squared	-0.283	-0.062	0.034	-0.069	-0.137	-0.060	0.984	1.000				
Swiss	0.025	-0.089	-0.003	-0.118	0.041	0.022	0.128	0.137	1.000			
Education	0.199	0.161	0.121	0.125	0.319	-0.054	-0.123	-0.144	-0.020	1.000		
Labour force status	-0.210	-0.065	0.001	-0.044	-0.279	0.055	0.436	0.509	0.086	-0.208	1.000	
Year	-0.025	0.012	0.011	0.016	0.035	-0.018	0.032	0.028	0.043	0.039	0.008	1.000
Health	1.000											
Commune population	-0.009	1.000										
Commune median income	0.064	0.016	1.000									
Commune progressivity	-0.107	0.540	-0.293	1.000								
Subjective social status	0.342	0.068	0.132	-0.028	1.000							
Sex	0.011	0.004	0.004	0.014	-0.067	1.000						
Age	0.057	-0.062	0.038	-0.072	-0.045	-0.060	1.000					
Age squared	0.061	-0.062	0.034	-0.069	-0.051	-0.060	0.984	1.000				
Swiss	0.120	-0.089	-0.003	-0.118	0.055	0.022	0.128	0.137	1.000			
Education	0.127	0.161	0.121	0.125	0.316	-0.054	-0.123	-0.144	-0.020	1.000		
Labour force status	-0.019	-0.065	0.001	-0.044	-0.100	0.055	0.436	0.509	0.086	-0.208	1.000	
Year	0.006	0.012	0.011	0.016	-0.008	-0.018	0.032	0.028	0.043	0.039	0.008	1.000
Health	1.000											
Commune population	-0.009	1.000										
Commune median income	0.064	0.016	1.000									
Commune progressivity	-0.107	0.540	-0.293	1.000								
Objective social status	0.225	0.045	0.195	-0.045	1.000							
Sex	0.011	0.004	0.004	0.014	-0.093	1.000						
Age	0.057	-0.062	0.038	-0.072	-0.105	-0.060	1.000					
Age squared	0.061	-0.062	0.034	-0.069	-0.137	-0.060	0.984	1.000				
Swiss	0.120	-0.089	-0.003	-0.118	0.041	0.022	0.128	0.137	1.000			
Education	0.127	0.161	0.121	0.125	0.319	-0.054	-0.123	-0.144	-0.020	1.000		
Labour force status	-0.019	-0.065	0.001	-0.044	-0.279	0.055	0.436	0.509	0.086	-0.208	1.000	
Year	0.006	0.012	0.011	0.016	0.035	-0.018	0.032	0.028	0.043	0.039	0.008	1.000

Communes represented in pooled MOSAiCH sample

Green = represented



Map data: Bundesamt für Statistik (BFS), GEOSTAT • Created with Datawrapper

Fig. A1. Distribution of sampled Communes within Switzerland.

Table A2
Multilevel model of subjective health and life satisfaction, additional income inequality control

	3) HEALTH		4) LIFE SATISFACTION	
	(V) Subjective status	(VI) Objective status	(VII) Subjective status	(VIII) Objective status
Fixed Effects				
Commune-level				
Commune population (000)	0.002 (-0.005 - 0.008)	0.004 (-0.003 - 0.011)	0.005* (-0.000 - 0.011)	0.008** (0.002–0.014)
Commune median income (CHF 000)	0.026 (-0.022 - 0.073)	0.015 (-0.034 - 0.064)	-0.005 (-0.036 - 0.027)	-0.013 (-0.046 - 0.020)
Commune income inequality (Gini)	1.670 (-5.906 - 9.246)	2.965 (-4.812 - 10.741)	-8.178*** (-13.215 to -3.142)	-6.794** (-12.038 to -1.550)
Commune economic progressivity %	-0.357*** (-0.546 to -0.168)	-0.266*** (-0.387 to -0.144)	-0.379*** (-0.501 to -0.257)	-0.350*** (-0.430 to -0.269)
Cross-Level Interaction				
Commune progressivity * status	0.037** (0.008–0.067)	0.020** (0.001–0.039)	0.029*** (0.010–0.048)	0.023*** (0.011–0.035)
Individual-level				
Social status	1.863*** (0.870–2.856)	0.554* (-0.078 - 1.187)	1.805*** (1.169–2.441)	0.354* (-0.056 - 0.765)
Other individual-level controls	YES	YES	YES	YES
Year dummy	YES	YES	YES	YES
Constant	69.934	79.757	70.759	81.024

(continued on next page)

Table A2 (continued)

	3) HEALTH		4) LIFE SATISFACTION	
	(V) Subjective status	(VI) Objective status	(VII) Subjective status	(VIII) Objective status
Random Effects				
Social status	0.001	0.001	0.001	0.001
Commune (constant)	0.483	0.801	0.964	1.259
Residual	440.180	454.829	179.791	190.095
Observations	9397	9397	9397	9397
Number of groups	1620	1620	1620	1620

Notes: Confidence intervals in parenthesis; ***p < 0.001, **p < 0.01, *p < 0.05.

Table A3

District-level multilevel model of subjective health and life satisfaction – interaction effect

	3) HEALTH		4) LIFE SATISFACTION	
	(V) Subjective status	(VI) Objective status	(VII) Subjective status	(VIII) Objective status
Fixed Effects				
District-level				
District population (000)	0.003 (-0.002 - 0.007)	0.002 (-0.002 - 0.006)	0.002 (-0.003 - 0.007)	0.002 (-0.003 - 0.007)
District median income (CHF 000)	-0.002 (-0.063 - 0.058)	-0.011 (-0.073 - 0.051)	-0.036 (-0.087 - 0.015)	-0.047* (-0.100 - 0.006)
District economic progressivity %	-0.365*** (-0.601 to -0.129)	-0.306*** (-0.456 to -0.157)	-0.367*** (-0.525 to -0.209)	-0.324*** (-0.433 to -0.215)
Cross-Level Interaction				
District progressivity * social status	0.037** (0.000-0.073)	0.029** (0.006-0.052)	0.028** (0.005-0.052)	0.021*** (0.006-0.036)
Individual-level				
Social status	1.941*** (0.754-3.128)	0.388 (-0.489 - 1.265)	1.882*** (1.118-2.645)	0.468* (-0.023 - 0.959)
Female (ref: male)	0.427 (-0.433 - 1.288)	0.388 (-0.489 - 1.265)	1.231*** (0.680-1.782)	1.211*** (0.642-1.781)
Age	-0.514*** (-0.677 to -0.351)	-0.593*** (-0.759 to -0.427)	-0.226*** (-0.330 to -0.121)	-0.297*** (-0.404 to -0.189)
Age squared	0.002*** (0.001-0.004)	0.003*** (0.001-0.005)	0.003*** (0.002-0.004)	0.004*** (0.003-0.005)
Swiss (ref: not Swiss)	2.499*** (1.275-3.723)	2.852*** (1.607-4.097)	2.731*** (1.943-3.518)	3.036*** (2.223-3.848)
Education (ref: Lower secondary)				
Upper secondary	3.767*** (2.387-5.147)	4.609*** (3.208-6.010)	1.465*** (0.581-2.350)	2.215*** (1.305-3.126)
Degree	6.658*** (5.113-8.204)	8.927*** (7.371-10.482)	2.088*** (1.098-3.078)	4.059*** (3.047-5.070)
Labour force status (ref: employed)				
Unemployed	-7.521*** (-10.061 to -4.980)	-7.621*** (-10.219 to -5.023)	-8.463*** (-10.090 to -6.837)	-8.458*** (-10.145 to -6.770)
Student	0.586 (-1.534 - 2.706)	2.153* (-0.007 - 4.313)	-1.157* (-2.516 - 0.201)	0.288 (-1.116 - 1.692)
Inactive	-5.209*** (-6.504 to -3.914)	-4.543*** (-5.873 to -3.213)	-1.655*** (-2.484 to -0.826)	-1.022** (-1.886 to -0.159)
Year dummy	YES	YES	YES	YES
Constant	71.637	83.119	68.784	79.404
Random Effects				
Social status	0.001	0.001	0.001	0.001
District (constant)	0.001	0.001	1.759	1.911
Residual	441.166	456.047	179.828	191.333
Observations	9397	9397	9397	9397
Number of groups	142	142	142	142

Notes: Confidence intervals in parenthesis; ***p < 0.001, **p < 0.01, *p < 0.05.

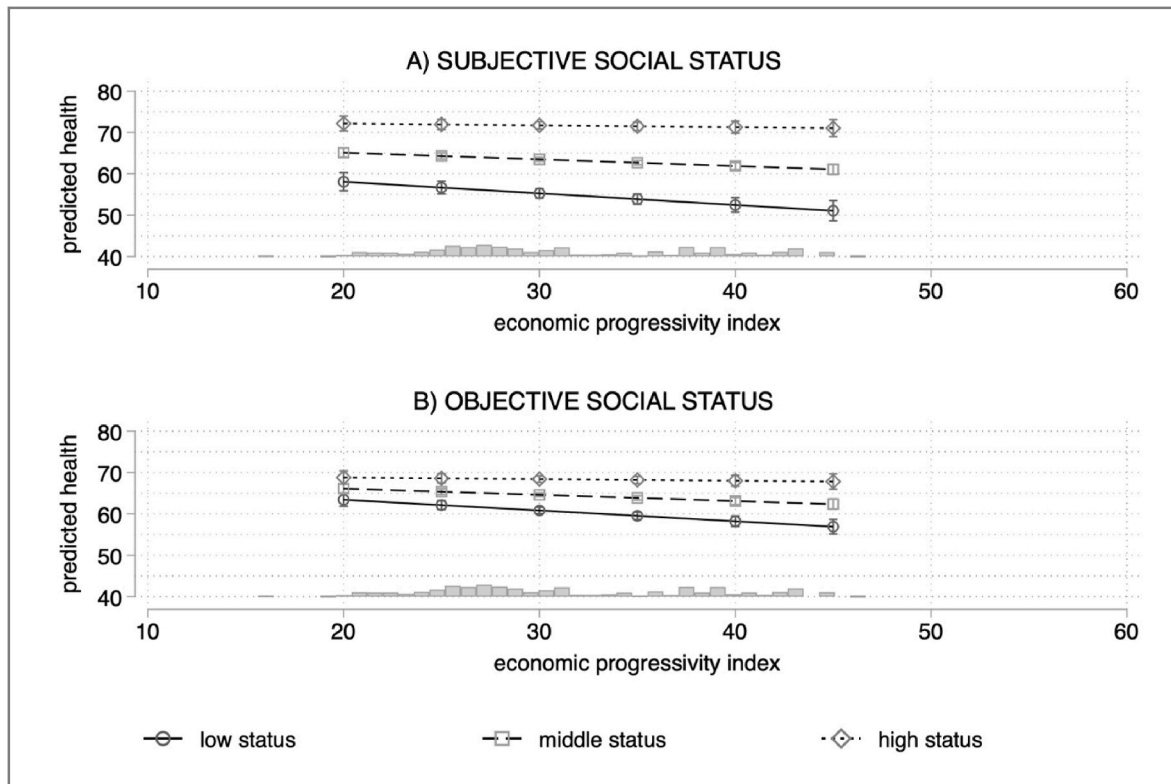


Fig. A2. Predicted health by social status and District-level economic progressivity.

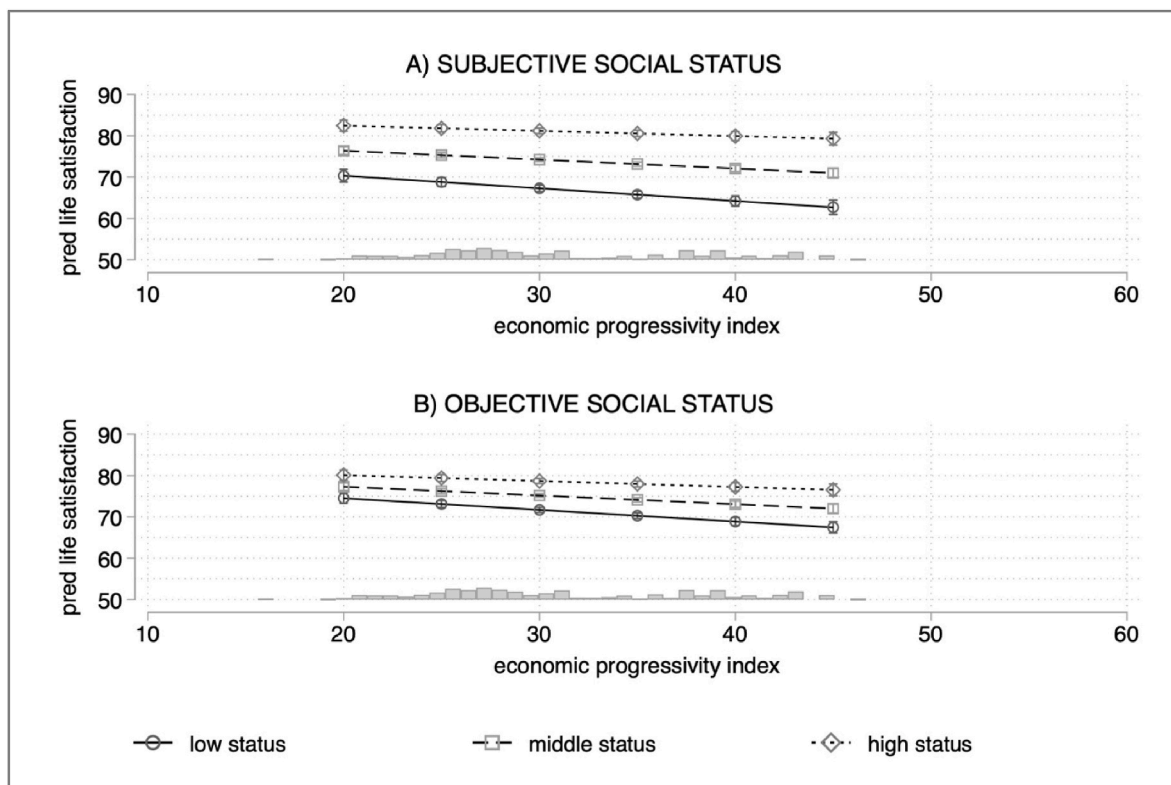


Fig. A3. Predicted life satisfaction by social status and District-level economic progressivity.

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