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RESEARCH NOTE

Does Survey Respondents' Immigrant Background Affect the Measurement and Prediction of Immigration Attitudes? An Illustration in Two Steps

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Over the past few decades, Western societies have become highly diverse, with an increasing share of the population having foreign roots. Just like the native population, defined here as national citizens with national ancestry and no foreign roots (up to the third generation), individuals with an immigrant background have opinions on newcomers to the country. Yet, most research on attitudes toward immigration using large-scale survey data routinely excludes their responses, without verifying whether their inclusion actually affects the findings. We argue here that it is crucial to examine whether methodological considerations actually justify exclusion. To illustrate how to do so, we define two necessary steps for evaluating the impact of respondents' immigrant background and apply them to data from a Swiss survey.

Immigration Attitudes and Sample Selection

Most large-scale research on immigration attitudes relies on secondary data from international social surveys. In these surveys, respondents are generally invited to provide an evaluative judgment of immigrants or immigration in general (e.g., "The government spends too much money assisting immigrants"; International Social Survey Programme, 2003) or to immigrants from regions with different economic conditions (e.g., "people from the poorer countries in Europe"; European Social Survey, 2002). Because no specific group is mentioned, it is often argued that respondents with an immigrant background could have their own national

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group in mind when answering such questions, which would presumably lead them to adopt more positive attitudes (Hjerm, 2009). It has also been suggested that the reasons for adopting negative immigration attitudes differ as a function of immigrant background (Herda, 2010).

Consequently, responses from respondents with an immigrant background are often excluded. To do so, various criteria have been used, such as not having the citizenship of the host country (e.g, Green, Sarrasin, Fasel, & Staerklé, 2011) and being born outside the country (e.g., Mayda, 2006). Less frequently, some studies have included all respondents in the analyses, and immigrant background was used as a control variable (e.g., foreign born, Hainmueller & Hiscox, 2007; second-generation immigrants, Hjerm, 2009). Despite these precautions, little is known as to whether the inclusion of respondents with an immigrant background actually affects immigration attitudes and their prediction. To fill this gap, the present study illustrates how to evaluate, in two steps, whether methodological requirements for inclusion are fulfilled.

Step 1: Testing for the Invariance of Measurement

When using data from distinct groups, researchers should always ensure that the differences (or the absence of differences) in scores reflect "true" differences in the concepts underlying the items and are not biased by methodological artifacts (e.g., inappropriate translation; Heath, Martin, & Spreckelsen, 2009). Before cross-group comparisons or pooling the data of the different groups, they are advised to verify, most often using multigroup confirmatory factor analysis (MGCFA), whether the measurement of the concepts of interest is *invariant* across the groups under consideration (Steenkamp & Baumgartner, 1998). Measurement invariance methods have been applied to test the similarity of a broad array of concepts, such as immigration attitudes (e.g., Davidov, Meuleman, Billiet, & Schmidt, 2008; Sarrasin, Green, Berchtold, & Davidov, 2013). In contrast, whether the respondents' immigrant background affects the invariance of social and political attitudes has hardly received empirical attention (for an exception see Kankaras & Moors, 2012). Furthermore, to our knowledge, the current study is the first to test whether the measurement of immigration attitudes differed between natives and individuals with an immigrant background.

To examine this, we will rely on a series of hierarchical and increasingly stricter tests. *Configural* invariance (Horn, McArdle, & Mason, 1983)—the least strict level—requires a similar number of factors and a similar pattern of salient and nonsalient item loadings across groups. The second level, *metric* invariance, examines whether items in one group behave similarly in the other group(s) (Selig, Card, & Little, 2008). This is done by constraining the item loadings to equality across groups. Because metric invariance relies on covariations between items, it is possible, at this level, to test whether concepts relate to each other in a similar way across groups (Brown, 2006; Van de Vijver & Leung, 1997). A meaningful comparison of factor latent means across groups requires an even stricter level of invariance—*scalar* invariance—in which item intercepts are additionally constrained to equality. Finally, note that because of their strictness, full metric or scalar invariant models are hard to achieve (Steenkamp & Baumgartner, 1998). If a few parameters (loadings or

intercepts) are noninvariant, researchers have the possibility to rely on *partially* invariant scores.[1] At least two items per factor should be invariant to allow a comparison of the constructs across the groups or the data to be pooled (Byrne, Shavelson, & Muthén, 1989).

Step 2: Testing for Differences in Means and Relationships

Although invariance testing is mostly used to ensure that measurement issues do not bias analyses performed in later stages, researchers can also rely on multigroup analyses to test for group differences in structural parameters such as means or relationships between concepts once scalar or metric invariance (partial or full) has been established. Thus, in this second step, we examine first whether the means of immigration attitudes differ between natives and individuals with an immigrant background. Then, akin to exploring nomological validity as defined by Cronbach and Meehl (1955), we test whether the relationship between nationalism and immigration attitudes varies across these groups.

Individuals with an immigrant background are generally found to express more positive stances toward immigration than natives (e.g., Hjerm, 2009). Furthermore, the higher the integration of immigrants, the closer their attitudes toward immigration are to those of natives (Valentova & Berzosa, 2012). In a similar vein, longer-established immigrants from neighboring culturally close countries resemble native citizens in their political attitudes, whereas the attitudes of immigrants from more distant countries are similar to those of their fellow citizens living in their home country (Kankaras & Moors, 2012). Based on these results, we expect individuals with an immigrant background, and especially recent immigrants from distant countries, to be more positive toward immigration than natives (H1). However, such possible differences should not prevent researchers from pooling the data as long as they display sufficient levels of invariance and immigrant background is accounted for in the model.

In contrast, when differences (in the strength and/or direction) of the operating mechanisms underlying the formation of immigration attitudes occur, the inclusion of individuals with an immigrant background requires more thorough theoretical and empirical consideration. Researchers have two alternatives. They may focus on one group (e.g., natives) and discard responses from the other groups (e.g., individuals with an immigrant background). Alternatively, they may theoretically and empirically consider both groups, while including the variable differentiating the two groups (e.g., immigrant background) as a moderator in their models.

To illustrate this point, we examine how a blind and uncritical attachment to the nation (or *nationalism*) relates to immigration attitudes among natives and individuals with an immigrant background. Among natives, nationalism is generally related to negative immigration attitudes (e.g., Blank & Schmidt, 2003). Among individuals with an immigrant background, a blind attachment may reflect a strong desire to belong to

[1]Note that the use of partially invariant scores has been contested on the ground that they may deliver biased comparisons of latent means or relationships between concepts (De Beuckelaer & Swinnen, 2011; Steinmetz, 2011; Van de Vijver & Leung, 1997).

the receiving country. Because of that, if negative attitudes toward immigrants are widespread among natives, they may be "transferred to immigrant groups who are seeking acceptance from the majority group" (Verkuyten & Martinovic, 2012, p. 99). This should be stronger among longer-established immigrants from neighboring countries, as they are more likely to be influenced by the values of the receiving country (Schiefer, 2013). Thus, we expect that among both natives and individuals with an immigration background, and especially those that are longer established, nationalism relates to anti-immigration attitudes (H2).

The Current Study

The present study uses data from Switzerland to illustrate how to evaluate whether excluding the opinions of individuals with an immigrant background is justifiable. More than 30% of the population in Switzerland has foreign roots (Swiss Federal Statistical Office, 2012a). The largest immigrant groups (i.e., individuals who do not possess Swiss citizenship) are former Yugoslavs (all countries considered together; 20.2% of the immigrant population), Italians (15.6%), Germans (15.2%), and Portuguese (12.7%; Swiss Federal Statistical Office, 2012b). In such a context, it is crucial to examine whether respondents with an immigrant background can be included in the analysis, as their exclusion with no further consideration would lead to disregarding the opinion of a considerable share of the society.

We analyzed data from the Swiss survey "Monitoring Misanthropy and Rightwing Extremist Attitudes 2005" (hereafter, Monitoring; Cattacin, Gerber, Sardi, & Wegener, 2006) from the German-speaking part of Switzerland.[2] In this survey, the two largest immigrant groups living in Switzerland were oversampled: While Italians represent a longer-established immigrant group, former Yugoslavs represent recent immigrants who are generally perceived by the Swiss native population as culturally more distant (Wimmer, 2004). Thus, these data enabled us to perform more fine-grained comparisons instead of assessing the impact of having a generic immigrant background.[3]

[2]We did not include data from the three Swiss linguistic minorities (French, Italian, Rumantsch). Studying the interaction between living in a majority versus minority region and having immigrant background could be of interest, particularly in Switzerland where both nationalism and immigration attitudes vary greatly across regions (e.g., Green et al., 2011). However, for the sake of simplicity and to avoid confounding effects (i.e., the use of different languages is known to bias measurement invariance; Davidov & De Beuckelaer, 2010; in Switzerland, Sarrasin et al., 2013), we restrained our analysis to the German-speaking region.

[3]Individuals of 12 other (not oversampled) nationalities took part in the Monitoring 2005, with an average number of 20 respondents per nationality (ranging from 1 Sri Lankan to 65 French; in addition, 72 respondents are classified in "others"). Although none of these groups is large enough to perform reliable MGCFA, the grouping of all respondents with an immigrant background would have been possible. However, to provide a clear and more detailed illustration, we restricted our analyses to Italian and former Yugoslav respondents. For readers interested in pooling different immigrant groups, analyses performed on another survey are available on request.

Method

Respondents

Among the respondents ($N = 1{,}099$), we distinguished between three groups: Natives (born in Switzerland, parents and grandparents born in Switzerland, no dual citizenship; $N = 720$), Italians ($N = 148$), and former Yugoslavs (from Serbia, Kosovo, Croatia, the Former Republic of Macedonia, and Bosnia; $N = 231$). For the two groups with an immigrant background, we included respondents who not only had the citizenship of the country of origin but whose parents *and* grandparents also did. In the resulting subsamples, the majority of respondents were born abroad (Italians: 62.16%; former Yugoslavs: 89.61%), and only few possessed Swiss citizenship in addition to their primary citizenship (Italians: 12.16%; former Yugoslavs: 3.03%).[4]

Both Italian ($M_{age} = 39.11$, $SD = 14.69$; $t(866) = 7.83$, $p < .001$) and former Yugoslav ($M_{age} = 28.33$, $SD = 11.02$; $t(949) = 18.87$, $p < .001$) respondents were younger than natives ($M_{age} = 50.89$, $SD = 17.06$). In addition, there was a greater percentage of men in the Italian (51.35%) and former Yugoslav (52.38%) samples than in the native sample (42.08%; $\chi^2(2) = 9.84$, $p = .007$). Finally, a greater proportion of natives (36.81%) reported having at least a high school diploma compared with Italian (18.92%) and former Yugoslav respondents (14.72%; $\chi^2(2) = 50.43$, $p < .001$).

Measures

Six items were selected to tap the concept of immigration attitudes (please note that although they address various and debated aspects of immigration, they cannot represent all items usually used to measure immigration attitudes in surveys). In addition, one item was used to measure nationalism (for exact item wording, see Appendix). In all cases, respondents indicated their opinion on scales ranging from 1 (*totally agree*) to 4 (*totally disagree*), and scores were reversed so that higher scores would indicate more negative immigration attitudes or a blind attachment to Switzerland. Means, standard deviations, and correlations between all items are displayed in Table 1.

Results

Strategy of Analysis

The invariance of the measurement and structure was examined using MGCFAs and multigroup structural equation modeling (MGSEM: Bollen, 1989; Jöreskog, 1971). All analyses were performed with Mplus 5.1 (Muthén & Muthén, 2008). Confirmatory factor analysis and structural equation modeling models are usually considered to fit the data adequately when the comparative fit index (CFI) is $> .95$ and the root mean square error of approximation (RMSEA) is $< .06$ (Hu & Bentler, 1999), although values between .05 and .08 are usually considered acceptable

[4]Additional analyses excluding Italian ($N = 18$) and former Yugoslav ($N = 7$) immigrants who possess Swiss citizenship revealed similar findings (with one exception: Swiss natives' immigration attitudes were not significantly more negative than Italians' attitudes; Model 1e-Model 1i, $\Delta\chi 2$, $p = .228$).

Table 1
Means, Standard Deviations, and Correlations for Immigration Attitudes and National Attachment Items by Group

Groups Items	M (SD)	Social benefits	Security	Unemployment	School	Limits	Environment
Natives							
Social benefits	2.9 (0.89)						
Security	2.12 (1.01)	0.42***					
Unemployment	2.56 (1.01)	0.44***	0.37***				
School	2.70 (1.00)	0.46***	0.40***	0.41***			
Limits	3.05 (0.97)	0.59***	0.38***	0.44***	0.47***		
Environment	2.29 (0.94)	0.44***	0.41***	0.30***	0.43***	0.40***	
Citizen	3.40 (0.88)	0.28***	0.24***	0.19***	0.20***	0.26***	0.23***
Italians							
Social benefits	2.61 (0.97)						
Security	2.11 (1.02)	0.38***					
Unemployment	2.45 (1.03)	0.40***	0.43***				
School	2.15 (0.99)	0.25**	0.21*	0.22*			
Limits	2.85 (1.02)	0.49***	0.45***	0.36***	0.14		
Environment	2.10 (0.95)	0.37***	0.32***	0.30***	0.29***	0.32***	
Citizen	2.43 (1.00)	0.02	0.13	0.00	0.13	0.08	0.28**
Former Yugoslavs							
Social benefits	2.20 (1.00)						
Security	1.68 (0.91)	0.35***					
Unemployment	2.19 (0.96)	0.26***	0.32***				
School	1.65 (0.92)	0.26***	0.40***	0.25***			
Limits	2.40 (1.08)	0.29***	0.39***	0.34***	0.22**		
Environment	1.89 (0.92)	0.42***	0.33***	0.31***	0.23***	0.22**	
Citizen	2.73 (1.12)	−0.01	0.13#	−0.04	0.06	0.24***	0.05

Note. ***$p < .001$, **$p < .01$, *$p < .05$, #$p < .10$.

(Schermelleh-Engel, Moosbrugger, & Müller, 2003). The chi-square and the other fit indices for each model are presented in Table 2.

These indices provide information on whether the model fits the data well, but not whether a stricter level of invariance is reached. To do so, it is advisable to rely on both a nonsignificant chi-square difference test[5] and on small changes in other fit indices. Regarding the latter, we followed recommendations by Chen (2007), who proposed that a decrease up to .010 in CFI coupled with an increase up to .015 in RMSEA indicates that a stricter level of invariance is reached. Changes exceeding

[5]Because chi-square values are sensitive to large sample sizes (Meade & Lautenschlager, 2004), some authors recommend to not to rely on the chi-square difference test (Cheung & Rensvold, 2002). However, the smallest sample in our study (e.g., $N = 148$) hardly qualifies as large (Kline, 2011). Moreover, if changes in fit indices were acceptable but the chi-square difference was significant, we followed Brown's (2006) recommendations and carefully examined whether the increase in chi-square was mostly due to one parameter, which strongly differed across groups, or rather due to several negligible differences. If the former was the case, we relaxed the equality constraint of that parameter.

Table 2
Chi-Square Value and Fit Indices (CFI and RMSEA) of All Models

Model	*df*	chi-square	CFI	RMSEA
Immigration attitudes (six items)				
1a Configural	27	54.61, $p = .001$	.981	.053
1b Full metric	37	68.93, $p = .001$	.978	.049
1c Full scalar	47	148.16, $p < .001$	.931	.077
1d Partial scalar 1 (school item)	45	90.24, $p < .001$	.969	.052
1e Partial scalar 2 (school and social benefits items)	44	78.61, $p < .001$	.977	.046
1f Latent means	46	153.21, $p < .001$	.927	.080
1g Latent means, Swiss mean = free	45	100.22, $p < .001$	.963	.058
1h Latent means, Italian mean = free	45	153.21, $p < .001$	.927	.081
1i Latent means, former Yugoslav mean = free	45	82.96, $p < .001$	.974	.048
Immigration attitudes (six items) and nationalism (one item)				
2a Full metric	52	96.76, $p < .001$	.971	.049
2b Full metric and relationship	54	113.17, $p < .001$	.962	.055
2c Full metric and relationship, Swiss = free	53	96.94, $p < .001$	.972	.048
2d Full metric and relationship, Italian = free	53	111.12, $p < .001$	.963	.055
2e Full metric and relationship, former Yugoslav = free	53	102.06, $p < .001$	.969	.050

these recommended cutoff values indicate that one or several parameters differ across the groups. To identify these parameters and allow them to vary across groups, we examined the modification indices (MIs), which indicate the parameters that contribute to the largest increase in chi-square.

Step 1: Invariance of Measurement

We first examined whether the measurement of immigration attitudes was invariant across natives and the two groups with an immigrant background. We tested for configural, metric, and scalar invariance. Although two noninvariant items are sufficient to consider partial invariance, we examined, in addition, whether specific noninvariant parameters affected the comparison of latent means or relationships between concepts (as performed in Step 2). In other words, we verified whether the means and relationships between nationalism and immigration attitudes ranked in the same order across the groups (e.g., most negative attitudes among natives) in both the full invariant and the partial invariant models (see Chen, 2008). If the cross-group rank order differed, the noninvariant items were discarded.

The model testing for the configural invariance of the six immigration attitude items had an acceptable fit to the data (Model 1a). A nonsignificant chi-square difference test ($p = .159$) and small changes in fit indices indicate that metric invariance (Model 1b) was reached. In contrast, a sharp increase in the chi-square value ($p < .001$) and large changes in fit indices indicated that full scalar invariance (Model 1c) was not reached. One MI—related to the intercept of the School item—was considerably larger than the others. Thus, we released the cross-group

equality constraint on this factor intercept in the Italian and former Yugoslav groups. The resulting partial scalar model (Model 1d) was, however, still significantly different from the full metric model ($\Delta\chi^2$, $p = .006$). MIs further indicated that the intercept of the Social benefits item, similar in the Italian and former Yugoslav groups, differed considerably from the native group. Thus, our second partial scalar invariance model (Model 1e) allowed this intercept to vary between the immigrant background and the native groups. This model was supported by the data ($\Delta\chi^2$, $p = .207$). Additional analyses (not presented here) revealed that the rank order of latent means is similar in the full scalar model and Model 1e. We thus retained these two items for Step 2 analyses.

Step 2: Invariance of Structural Parameters

In the second step, we compared the latent means of immigration attitudes and the impact of nationalism on these attitudes across natives and respondents from the two immigrant background groups. We followed the recommended procedure in the literature, which suggests testing mean differences on a full or partial scalar invariant model (e.g., Steenkamp & Baumgartner, 1998) and constraining the latent means to be equal across the groups. Latent means were considered invariant if the differences between the partial scalar invariance model (Model 1e) and the model that additionally included a cross-group equality constraint on the latent means fell within the recommended criteria (Model 1f). Results indicated that this was not the case ($\Delta\chi^2$, $p < .001$). Next, we tested three different models, each of which constrained the latent variable to equality across a different pair of samples, while allowing the mean to vary in the third sample. All three models were rejected (Model 1g: $\Delta\chi^2$, $p < .001$; Model 1h: $\Delta\chi^2$, $p < .001$; Model 1i: $\Delta\chi^2$, $p = .037$): The means could not be considered invariant between any of the groups. Confirming H1, Swiss natives expressed the most negative attitudes toward immigration ($\kappa = 2.14$), followed by the Italian group ($\kappa = 2.01$), with the former Yugoslav group displaying the lowest scores ($\kappa = 1.68$).

To examine whether the direct impact of nationalism on attitudes toward immigration attitudes was similar across groups, the nationalism item was added to the metric invariance model (Model 2a). We then constrained its impact to be equal across groups (Model 2b) and again compared the fit of the two models. A significant chi-square difference ($p < .001$) indicated that the impact of nationalism differed across the groups. Next, we tested three consecutive models where this relationship was constrained to equality in two samples but was freely estimated in the third sample. The model (2c) constraining the relationship to be equal in the two immigrant background groups did not differ significantly from Model 2a ($p = .671$). In contrast, the models constraining the relationship to be equal between the Swiss and former Yugoslav groups (Model 2d; $p < .001$) and between the Swiss and Italian groups (Model 2e; $p = .021$) were significantly worse. In line with our prediction (H2), nationalism was related to negative immigration attitudes in all groups. However, its impact was stronger in the Swiss group ($b = 0.27$, $SE = 0.03$, $p < .001$) than in the two other groups ($b = 0.08$, $SE = 0.04$, $p = .022$).

Controls

Finally, we examined whether similar conclusions were reached when controlling for gender, age, and education (dummy variable, 1 = high school diploma). When socio-demographic information was controlled for, both the immigration attitudes' latent means ($p = .374$) and the relationship between nationalism and immigration attitudes ($p = .279$) did not significantly differ between Swiss natives and Italian respondents. In contrast, the differences between natives and former Yugoslav respondents remained significant.

Discussion

Most research on immigration attitudes using large-scale survey data routinely excludes respondents with an immigrant background without first testing whether this decision is empirically justified. In the present study, we argued that these respondents can be included, provided that they do not substantially affect the measurement and prediction of immigration attitudes. With this aim in mind, we outlined and illustrated, with Swiss data, a two-step analytic strategy. We found that, in the present case, the measurement of immigration attitudes was sufficiently invariant to include respondents with an immigrant background. In contrast, slight differences in latent means and predictions of immigration attitudes need to be discussed to determine whether they call for excluding these respondents.

How to Deal with Differences in Means and Relationships across Groups

Confirming our expectations and in line with prior research, respondents with an immigrant background expressed more positive immigration attitudes than natives (H1), and nationalism was related to negative immigration attitudes in all groups (H2), albeit more strongly among the natives. This may indicate that in the present case, despite differences in levels of attitudes, similar mechanisms (e.g., the willingness to protect the nation/host country from outsiders) underlie negative reactions to immigrants across both native and immigrant groups. These results cannot, however, be generalized to all receiving countries, all groups of immigrants, or all immigration attitude scales. Instead, we recommend to researchers who wish to include respondents with an immigrant background to follow the two-step procedure described in the present study. If they were to find similar patterns among groups, as in the present case, including respondents with an immigrant background in further analyses is warranted. Moreover, to adequately account for slight differences in means and predictions, "immigrant background" should also be used as a moderating variable. For instance, in regression analyses, not only nationalism but also immigrant background and the interaction between the two should be used as predictors. In contrast, if the procedure described in this study were to reveal strong variations in the relationships between attitudes and other theoretical constructs of interest (e.g., a positive relationship in one group and a negative in the other), in addition to controlling for the

immigrant background of the respondent, one could consider substantive explanations for such differences.

How to Define Immigrant Background

In line with past research, we found more pronounced differences between natives and recent immigrant groups than between natives and longer-established immigrants. Moreover, these latter differences disappeared when sociodemographic factors were controlled for, indicating that the immigrant background as such may not have caused these differences in the first place. This underlines the importance of considering more fine-grained subcategorizations instead of a broad "immigrant background" category. However, this may not be possible with data from most large-scale surveys, as immigrant groups are rarely oversampled, despite immigrants, and especially those from distant countries, being often both underrepresented and misrepresented (Lagana, Elcheroth, Penic, Kleiner, & Fasel, 2013). Researchers should thus deliberate not only on the "broadness" of the general "immigrant background" category in the data they are analyzing but, when subdividing it into specific immigrant groups, also inquire whether the respondents accurately represent the migrant population of the host country.

Conclusion

To sum up, we presented a two-step procedure on how to verify whether the inclusion of individuals with an immigrant background affects the measurement and prediction of immigration attitudes. Although the conclusions drawn from the present example cannot be generalized to the entire body of research on immigration attitudes, they provide empirical guidance on (1) how to examine whether immigrant background affects the measurement and prediction of immigration attitudes and (2) how researchers can try to avoid such potential bias without drastically reducing the sample size. When studying a highly salient societal phenomenon such as immigration, it is crucial to try to include all members of society and to avoid a priori unjustified exclusion.

Supplementary Data

Supplementary data are available at *IJPOR* online.

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