

Educated Preferences or Selection Effects? A Longitudinal Analysis of the Impact of Educational Attainment on Attitudes Towards Immigrants

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Submitted November 2013; revised December 2014; accepted January 2015

Abstract

While previous studies unequivocally show that education and attitudes towards immigrants correlate, the underlying mechanisms remain debated. The liberalization effect claims that education fosters egalitarian values and analytic skills, which translate into positive attitudes. Additionally, the higher educated are less likely to face economic competition from immigrants. However, research on socialization shows that political attitudes develop early in life. Thus, there may be self-selection into education. While there is reason to expect both education and selection effects, previous work has relied exclusively on cross-sectional analyses, thus confounding the two mechanisms. Drawing on the Swiss Household Panel, we find that virtually all variation in education disappears when only within-individual variance is modelled. While we find strong differences in attitudes towards immigrants between individuals, we observe little change in attitudes as individuals pass through education. Furthermore, our findings show that when entering the labour market, higher educated individuals also become more likely to oppose immigrants. This suggests that differences between educational groups are mostly due to selection effects, and not to the alleged liberalizing effect of education. We conclude that future research on attitudes towards immigrants would greatly benefit from addressing selection into education.

Introduction

Education is one of the, if not *the*, strongest and most consistent predictor of host country citizens' attitudes towards immigrants: Higher educated individuals have consistently been found to hold more tolerant attitudes towards immigrants than lower educated individuals (for a review, see Ceobanu and Escandell, 2010). This effect appears to be stable over time (Semyonov,

Raijman and Gorodzeisky, 2006) and exists in various national settings, although more strongly in long-established democracies (Coenders and Scheepers, 2003; Meuleman, Davidov and Billiet, 2009).

While the positive impact of education is undisputed, its mechanisms have been much debated. The studies dedicated to the topic (Jenssen and Engesbak, 1994; Hello *et al.*, 2004; Hello, Scheepers and Slegers, 2006;

Hainmueller and Hiscox, 2007; Meeusen, de Vroome and Hooghe, 2013) have highlighted two main mechanisms. On the one hand, the liberalization hypothesis assumes that, because educational institutions transmit norms of tolerance and equality, acquiring education fosters tolerant and egalitarian attitudes towards immigrants.

On the other hand, the ethnic competition hypothesis posits that individuals with higher levels of education (who are, as a consequence, generally higher skilled too) are less likely to compete with immigrants for the same job, because most immigrants occupy low-skilled positions. Consequently, higher educated individuals feel less threatened, and are less likely to oppose immigrants.

Despite diverging theoretical grounds, both hypotheses share the idea that it is getting an education that reduces anti-immigrant sentiment. Most empirical work on the topic, however, relies exclusively on cross-sectional analyses, which does not inform us about the impact of *acquiring* an education. As Hooghe, Meeusen and Quintelier (2013: p. 1110) state: ‘Despite the fact that some of the research stresses the role of education [...] in explaining trends in ethnocentrism, it is striking to observe that most of the research is based on purely cross-sectional observations’. To test the assumption that it is indeed educational attainment that impacts individuals’ attitudes towards immigrants, research needs to examine changes *within* young adults as they pass through educational levels and make the transition to the labour market. Such an examination is crucial, because intergroup attitudes develop during the adolescent years (Barrett and Oppenheimer, 2011; Bekhuis, Ruiter and Coenders, 2013). This study examined changes in the attitudes towards immigrants of Swiss adolescents and young adults (13–30 years old) as they pass through education. To do so, we estimated hybrid models and fixed-effects models on data from the Swiss Household Panel (SHP, 1999–2011).

The Liberalizing Effect of Education

Values

Education is often assumed to reduce prejudice because the educational system contributes to the formation of individual values (Coenders and Scheepers, 2003: p. 319). The educational system in most Western countries is based on values such as freedom, equality of treatment, and tolerance for non-conformity (Stubager, 2008). Exposure to such values is then assumed to impact more concrete social and political attitudes (Selznick and Steinberg, 1969; Hyman and Wright,

1979). The school period is especially formative, because individuals’ transition from child to young adult is often characterized by a shift from feelings of ‘duty’ (e.g. to the parents, to the teacher) to reasoning in terms of human values (Marcia, 1980).

When it comes to ethnocentrism and attitudes towards immigrants, abstract values such as democracy, multiculturalism, and equal rights are most likely to play a role because they explicitly refer to intergroup relations (Hjerm, 2001). This explains, for instance, why a particularly wide educational gap was found when it came to support for equal rights between citizens and immigrants (Jenssen and Engesbak, 1994). As suggested by Hooghe, Meeusen and Quintelier (2013: p. 1110), the more individuals study, the more their reactions towards immigration are affected: ‘The effect of education is so pervasive [...] that it will continue to reduce levels of ethnocentrism throughout the observation period as the adolescents are further socialized into a culture that is congruent with the attitudes that prevail within the school system’.

In addition to values, education increases open-mindedness and consequently reduces prejudice because students learn about different aspects of the world, which reduces fear of the unknown and of strangers (Pascarella *et al.*, 1996; Vogt, 1997). Similarly, because education broadens one’s social perspective, higher educated individuals are less likely to express an unconditional faith in authorities, a crucial component of authoritarianism (Hello, Scheepers and Slegers, 2006: p. 963). All of these aspects—values, open-mindedness, and reduced authoritarianism—constitute well-established antecedents of positive stances towards immigrants (Hello, Scheepers and Slegers, 2006; Davidov and Meuleman, 2012).

Capacities

Besides changing values, education also impacts attitudes towards immigrants because it improves analytical skills, such as the capacity to learn about out-groups (Gaasholt and Togeby, 1995). Ethnic stereotyping being characterized by oversimplifications, this may explain why higher educated individuals tend to hold less stereotypical representations of immigrants (Jenssen and Engesbak, 1994). In a similar vein, education helps students to reach higher levels of cognitive sophistication (Bobo and Licari, 1989). Thus, higher educated individuals are better equipped both to develop the capacities to reflect on the causes of societal inequalities and to understand that other social divides underlie differences between ethnic and racial groups. As a result, they are

less likely to adopt negative attitudes towards minorities (Lopez, Gurin and Nagda, 1998).

To sum up, the ‘liberalizing effect of education’ assumes that as individuals pass through education, their values and capacities change, which in turn make them less prejudiced. The above-cited studies compared individuals with different levels of education and showed that there are differences in anti-immigrant sentiment *between* educational groups. However, these studies do not provide direct empirical evidence that individuals *become* more positive towards immigrants as they pass through education. Thus, to accurately test the ‘liberalizing effect’ of education, one needs to examine differences *within* individuals.

Observing Changes during Education

When comparing attitudes *across* educational groups, the effect of having a high education is likely to be confounded with factors related to but not caused by education. For instance, the education effect reported in cross-sectional analyses may (at least partly) represent selection into education (Hout, 2012). Indeed, children of parents that are highly educated are more likely to have a high education themselves (De Graaf, De Graaf and Kraaykamp, 2000). Furthermore, there is ample evidence that parents pass on political attitudes to their children (Dinas, 2013; Jennings, Stoker and Bowers, 2009). Finally, selection into education might be caused by other factors such as extended family (Jæger, 2012), neighbourhoods (Ainsworth, 2002), or cognitive abilities (Bobo and Licari, 1989), all of which are known predictors of attitudes towards immigrants. Thus, it may not be *acquiring* an education that has an impact on attitudes. Rather, individuals attend (higher) education for reasons that also correlate with attitudes towards immigrants.

Despite this concern, almost none of the studies arguing that education reduces anti-immigrant attitudes separate the impact of education from selection effects. Some included measures of social background such as household income or occupational status (e.g. Coenders and Scheepers, 2003; Hainmueller and Hiscox, 2007; Meeusen, de Vroome and Hooghe, 2013), but did not consider the parents’ status or attitudes. An exception is Hello and colleagues (2004), who focused on the influence of parental background in explaining the education effect. While they concluded that only a small part of the education effect was explained by parental background, they could not compare it with the impact of acquiring education, as they did not analyse changes in attitudes within individuals.

To find out whether *acquiring* an education impacts attitudes, one needs longitudinal data. To our

knowledge, only Hooghe and colleagues (2013) used longitudinal data in their study of changes in anti-immigrant sentiment during late adolescence and early adulthood in Belgium (at 16, 18, and 21 years old). They found that 16-year old adolescents in higher levels of education had more positive initial attitudes towards immigrants, and the gap with lower educated individuals widened as they grew older. However, these findings support both a selection and a liberalizing effect of education. Despite the incontestable contribution of their study, the estimation technique used by Hooghe and colleagues is not ideal to observe change *within* individuals. Indeed, Hooghe *et al.* estimated random effects models, in which coefficients are partly based on *between*-person variation. Hence, the study cannot exclude bias due to selection into education. Another disadvantage of the study is that the window of observation was relatively short (16–21 years), and did not capture the completion of education.

To conduct a more precise examination of the liberalizing effect of education, we analyse changes within young adults and include a longer time span (13–30 years). We expect that if education fosters egalitarian values and capacities, individuals develop more positive attitudes towards immigrants as they pass through education. In other words, the ‘liberalization hypothesis’ implies that there is a positive effect of education on attitudes towards immigrants when relying on within-individual variance only (H1).

Education and Intergroup Competition

Ethnic Competition Theory

In addition to influencing individuals’ values and capacities, education is an ‘important means of acquiring high status and material affluence’ (Jenssen and Engesbak, 1994: p. 36). According to ethnic competition theory (Blalock, 1967), higher educated individuals are less likely to be, or to perceive to be, in competition with immigrants over jobs, housing, or social benefits. Therefore, individuals with higher education generally tend to express lower feelings of threat (Halperin, Pedahzur and Canetti-Nisim, 2007) and, consequently, more positive attitudes towards immigrants (Scheepers, Gijsberts and Coenders, 2002; Schneider, 2008; Lancee and Pardo-Prado, 2013).

Although ethnic competition theory is omnipresent in the literature, it is limited in explaining the effect of education. First, if competition explains negative feelings toward immigrants, lower educated citizens should oppose low-skilled immigrants, and higher educated citizens should oppose high-skilled immigrants. This does

not seem to be the case: studies that investigated this question showed that highly educated natives express more positive attitudes towards immigrants, and low-skilled immigrants are generally more disliked than high-skilled immigrants (see also O'Connell, 2011). However, these phenomena may be most apparent in contexts where the majority of immigrants is unskilled (Mayda, 2006), or if there is little competition for highly skilled positions (Malhotra, Margalit and Mo, 2013).

Moreover, ethnic competition theory postulates that individuals' attitudes change when threat increases (i.e. when they enter the labour market), but not necessarily when people gain more education. However, studies that interpreted the effect of education as evidence for ethnic competition theory almost all relied on cross-sectional data. Thus, it is not possible to know whether entering the labour market after education affects young adults' attitudes.

Labour Market Entry

If competition was to motivate anti-immigrant attitudes, we should observe changes in attitudes when individuals make the transition from school to work. When making this transition, individuals face, or perceive, greater competition with immigrants for goods such as jobs or housing, and are consequently more likely to express anti-immigrant attitudes. To our knowledge, no study has examined how entry into the labour market of lower and higher educated young adults affects their attitudes towards immigrants. Thus, based on ethnic competition theory, we formulate the following hypothesis: Entry into the labour market results in more negative attitudes towards immigrants (H2).

However, this effect is likely to vary across educational groups. First, according to ethnic competition theory, lower educated young adults are more likely to compete with immigrants for jobs. Thus, a 'labour entry' effect should be most apparent among them. Second, if the higher educated are indeed most 'liberalized', they are more likely to be immune from the negative effects that competition may have on attitudes. For these two reasons, we expect the 'labour entry' effect to be most apparent among young adults with lower levels of education (H2a).

Finally, the fact that adolescents and young adults in vocational tracks already enter the labour market when they begin their apprenticeship is also assumed to play a role. Indeed, those in vocational training are likely to compete with immigrants for jobs at early stages, and, in a turn, to develop anti-immigrant attitudes (Ljujic, Vedder and Dekker, 2012; Hooghe, Meeusen and

Quintelier, 2013). Therefore, we expect attitudes of vocational students to become more negative towards immigrants during their apprenticeship (H2b).

The Swiss Case

We examined changes in attitudes towards immigrants of Swiss adolescents and young adults aged between 13 and 30 years. Given that 20% of the population do not hold Swiss citizenship, immigration and cultural diversity have become highly salient and strongly debated issues in Switzerland (Freitag and Rapp, 2013). While immigrants tend to be less skilled than Swiss citizens, there is also a growing proportion of highly skilled individuals migrating to Switzerland (Afonso, 2004). Overall, anti-immigration attitudes are widespread in Switzerland, as is apparent in the backing of immigration quotas in February 2014.

In addition to the tense climate surrounding immigration issues, Switzerland is particularly suitable for the study of the alleged liberalizing impact of education because apprenticeship, during which young people work most of the week, is by far the most frequent study track (Swiss Federal Statistical Office, 2013b). Thus, already at a young age many students are likely to face or perceive competition with immigrants for jobs. For this reason, we expect to observe sizable differences between educational groups as Swiss adolescents and young adults pass through education and enter the labour market. Indeed, Swiss citizens who studied longer were found to express more positive attitudes towards immigrants (Sarrasin *et al.*, 2012). In addition, the few studies that compared types of education in Switzerland found that individuals with secondary vocational education (i.e. apprenticeship) hold more negative attitudes than university students (e.g. toward the Muslim veil, Fasel, Green and Sarrasin, 2013; towards open foreign and immigration policies Sciarini and Tresch, 2009).

Data and Methods

This study was realized using the data collected by the SHP (1999–2011).¹ The SHP interviews respondents as young as 13 years old, and each subsequent year after that. We restrict our analysis to people aged between 13 and 30 years because beyond age 30 years the number of educational transitions is low and most respondents have been on the labour market for some years. This age range means we capture a substantial part of individuals' educational trajectory in Switzerland. We furthermore restrict our sample to those Swiss citizens born in Switzerland. Our analytic sample contains 4,339

Table 1. Descriptive statistics sample

	Proportion/mean	Standard deviation	Range
Educational attainment			
Primary	42		0–1
Secondary without Matura	1		0–1
Secondary with Matura	14		0–1
Secondary vocational	28		0–1
Tertiary vocational	8		0–1
University	7		0–1
Employed	68		0–1
Leaving parental home	24		0–1
Female	50		0–1
Life satisfaction	8.15	1.24	0–10
Satisfaction with financial situation	7.31	1.93	0–10
Political interest	4.82	2.71	0–10
Age	21.38	4.84	13–30
Unemployment rate	2.91	1.22	0.30–7.37
Percentage of immigrants	20.46	6.04	7.87–39.35

Source: SHP 1999–2011.

individuals and 16,571 person-year observations (see Table 1).

Dependent Variable

To measure individuals' attitudes, we rely on their opinion towards equal opportunities between citizens and immigrants. The item, repeated each year, is phrased as follows: 'Are you in favour of Switzerland offering foreigners the same opportunities as those offered to Swiss citizens, or in favour of Switzerland offering Swiss citizens better opportunities?' The answering categories were: 1—'in favour of equality of opportunities', 2—'Neither', and 3—'In favour of better opportunities for Swiss citizens'. For the analyses, we constructed a dichotomous variable (1 = in favour of better opportunities for Swiss citizens, 28% of the person-year observations; 0 = otherwise, 72%; see Coffé and Voorpostel 2010 for a similar coding scheme). To ensure that our findings are not affected by the coding scheme, we performed additional analyses with other solutions. Results obtained with these solutions were similar (see the Supplementary Appendix).

Because favouring the national in-group (i.e. by refusing equal opportunities) automatically entails derogating immigrant out-groups, this question adequately taps anti-immigrant attitudes. In addition, this measure is likely to elicit marked differences between educational groups. First, lower and higher educated individuals are known to differ significantly more in their support of equal rights than in other measures of attitudes towards immigrants, presumably because respect of democratic

rights is a value transmitted by most Western educational systems (Jenssen and Engesbak, 1994). Second, particularly citizens who feel threatened by immigration, for instance, those that are in competition with immigrants over jobs, may use opposition to equality to maintain immigrants' lower status.

Independent Variables

Each year, respondents are asked to indicate, in a 17-category scheme, the highest level of education they have achieved. We adopted the coding scheme developed by Bergman *et al.* (2009), which identifies the six main educational levels in Switzerland: Primary education, secondary without Matura (i.e. Swiss high school diploma), secondary with Matura, secondary vocational, tertiary vocational, and university. To test the impact of entry into the labour market, we use a dichotomous variable for employment status. Because there is virtually no part-time employment in our sample, we collapsed these cases with full-time employment.

Control Variables

Besides entering the labour market, the end of education is often marked by leaving the parental home. The resulting increased financial responsibilities, and sometimes difficulties (Aassve *et al.*, 2007), are likely to exacerbate perceptions of competition, as anxieties regarding negative changes in one's financial situations are known to bolster anti-immigrant sentiment (Scheepers, Gijsberts and Coenders, 2002). We therefore control for leaving the parental home and satisfaction with the

financial situation of the household. Furthermore, to separate the education effect from an age effect, we also control for age. In the same vein, as young people grow older and pass through important steps in their life, their satisfaction with life, known to impact attitudes towards immigrants (McLaren, 2003) is likely to be affected. We thus control for life satisfaction. Finally, as political interest is generally related to anti-immigrant attitudes, we also include interest in politics.

Last, more positive attitudes were found in Swiss municipalities with a low unemployment rate and a high proportion of immigrant minorities (Fasel, Green and Sarrasin, 2013). Moreover, cross-national research has shown that attitudes towards immigration are affected by changes in unemployment or the proportion of immigrants (Meuleman, Davidov and Billiet, 2009). We therefore include year- and canton-specific unemployment and immigrant percentages (Swiss Federal Statistical Office, 2013a).

Analytic Strategy

When researchers examine differences *between* individuals to evaluate the impact of education on anti-immigrant attitudes, effects may be owing to education itself, but also to selection processes. To conduct a more precise test of the impact of acquiring education, we compared between-person differences (as is done in cross-sectional analyses) to within-person differences (as is done in longitudinal analyses).

To this end, we relied on hybrid models (Allison, 2009), following the procedure described by Schunck (2013). Hybrid models are random effects models to which fixed effects (FE) are added. The great advantage of hybrid models is that they estimate two coefficients for each variable: a within-individual effect (equal to the FE estimator), and a between-individual effect (equal to the between-estimator, or BE).

The FE estimator uses only within-person variation to estimate coefficients, which makes it suitable for analysing changes over time. The FE estimator has the advantage of being unbiased and consistent, even when the assumption that unit effects are uncorrelated with the explanatory variable is violated. In other words, all time-constant unobserved heterogeneity is eliminated because the FE estimator controls for all differences between individuals by cancelling out the idiosyncratic error term (Halaby, 2004). Significant effects of education in FE models are strong evidence in favour of a liberalizing effect of education, as this is proof that individuals' attitudes change as they pass through education.

The BE estimator mimics conventional cross-sectional analysis by analysing only variance between

individuals. The BE estimator is equivalent to the person-specific mean of each variable across time and estimating a regression on the collapsed data set of means. A disadvantage of between-effects is that covariates and the error terms are assumed to be exogenous. Correlation of the independent variables with the error term (endogeneity) results in biased estimates, for example, due to self-selection. Hence, BE-estimates might be biased by unobserved heterogeneity. By comparing between- and within-effects, we can better understand how education affects attitudes towards immigrants.

Results

Descriptive Results: Differences across Educational Groups Over Time

Figure 1 shows the percentage of young Swiss people that are in favour of offering better opportunities to Swiss people than to immigrants, by age and educational level. Three educational groups are considered: Secondary vocational, tertiary vocational, and university. Two lines are plotted: The dashed lines represent the attitudes of individuals who have already obtained the respective degree. The solid lines describe the attitudes of young people who have not yet obtained a degree, but will obtain one at a later age.

In line with previous findings, there are clear differences in anti-immigrant attitudes *between* the three educational groups. Yet, these differences appear to be both present at a young age and fairly stable. This does not support a liberalizing effect of education: Differences across educational groups do not seem to result from passing through education, but already exist before education. In other words, Figure 1 suggests that there is substantial selection into education. However, to better test how attitudes change as individuals pass through education and enter the labour market, we proceed with a multivariate analysis.

Multivariate Analysis

In Table 2, we present the results of the multivariate analysis. The bottom part of the model presents the between-individual effects, similar to cross-sectional analysis. In line with previous research, higher educated individuals are less likely to favour Swiss citizens over immigrants. An individual with tertiary vocational education is less than half as likely to favour Swiss citizens over immigrants compared with people with only primary education; for university graduates, the odds are even lower (0.083). The attitudes of young people with secondary vocational education, however, do not differ

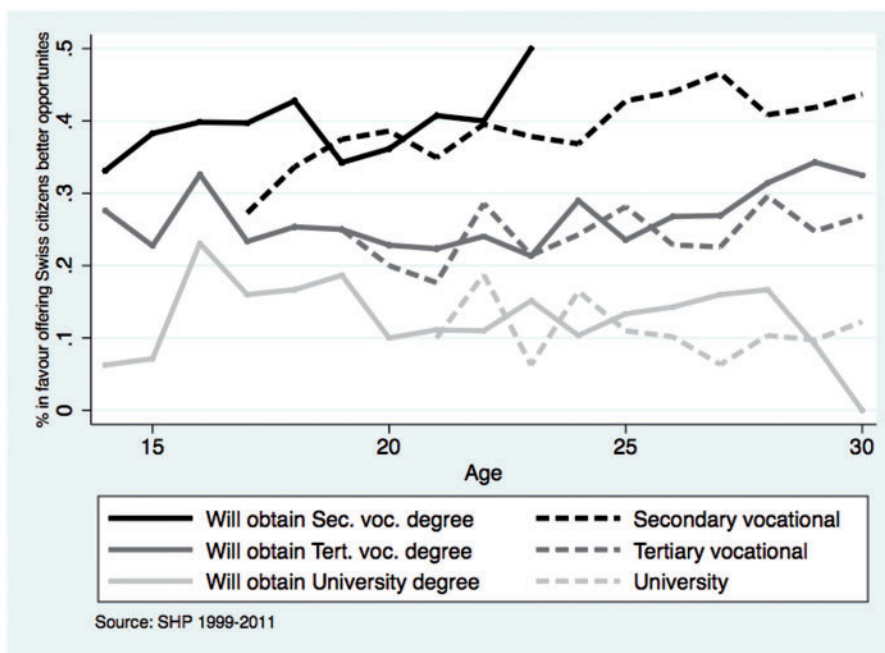


Figure 1. The favouring of Swiss citizens over immigrants in percent, by age, and educational level.

from individuals with primary level education. We will return to this in the discussion.

Several results are in line with assumptions of ethnic competition theory. First, employed persons are more likely to favour Swiss citizens over immigrants. Second, cantons with a lower proportion of immigrants are related to a higher likelihood of favouring Swiss citizens over immigrants, which is in line with previous research (Schneider, 2008; Fasel, Green and Sarrasin, 2013).

The upper panel of Table 2 shows the within-effect, thus only including variance within individuals. All education effects, except that of tertiary vocational, are no longer significant. It thus appears that once we rely solely on within-person variance, the educational effect is no longer statistically significant, indicating that the between-effects are confounded. A Hausman test ($P < 0.001$) indicates that the within-effects are preferred from a statistical point of view.

These findings are in line with the descriptive statistics presented in Figure 1: Differences in attitudes vary mostly between individuals, and not necessarily within individuals. Thus, H1 is not confirmed. In addition, we observe that those who have left the parental home, or those who become less satisfied with the household finances are less likely to offer immigrants the same opportunities as Swiss citizens. Furthermore, changing

unemployment rates are related to changing attitudes towards immigrants (see also Meuleman, Davidov and Billiet, 2009).

In Table 2, the effect of education is estimated against the reference category of primary education. While a hybrid model is ideal to compare within- and between-effects, we also want to test the impact of making transitions. For instance, we want to know whether individuals change their attitudes after completing tertiary education. That is, we are interested in the transition ‘Secondary education with Matura → University’, and not in the effect of tertiary education against primary education. In addition, the model in Table 2 cannot differentiate between origin and destination categories. For example, we are interested in the effect of the completion of vocational education followed by entry into the labour market, and not the other way round. Modelling transitions allow us to separate origin and destination, and consequently to better capture the longitudinal process assumed in our hypotheses. Thus, following the procedure used by Lancee and Radl (2014), we construct a variable per transition and estimate an FE model.

Model 1 in Table 3 shows that none of the educational transitions is statistically significant. In other words, when we explicitly model the transitions that occur while passing through education, we do not find

Table 2. Logistic hybrid model predicting the favouring Swiss citizens, odds ratios

	OR	se
Within effects		
Educational attainment		
Primary	ref.	
Secondary without Matura	0.872	(0.322)
Secondary with Matura	0.808	(0.121)
Secondary vocational	0.942	(0.117)
Tertiary vocational	0.614*	(0.138)
University	0.610	(0.170)
Employed	1.050	(0.084)
Leaving parental home	1.381**	(0.161)
Life satisfaction	0.979	(0.030)
Satisfaction with financial situation	0.959*	(0.019)
Political interest	1.016	(0.018)
Age	0.962*	(0.016)
Percentage of immigrants	0.974	(0.021)
Unemployment rate	1.216***	(0.050)
Between effects		
Educational attainment		
Primary	ref.	
Secondary without Matura	0.684	(0.362)
Secondary with Matura	0.167***	(0.040)
Secondary vocational	1.352	(0.284)
Tertiary vocational	0.375**	(0.112)
University	0.083***	(0.029)
Employed	2.624***	(0.444)
Leaving parental home	1.332	(0.233)
Life satisfaction	1.076	(0.054)
Satisfaction with financial situation	0.929*	(0.030)
Political interest	0.812***	(0.018)
Age	1.013	(0.021)
Percentage of immigrants	0.946***	(0.014)
Unemployment rate	1.072	(0.084)
Female	0.819	(0.086)
Log likelihood	-7,556.43	
N observations	1,6571	
N subjects	4,339	

Source: SHP 1999–2011.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$, two-tailed tests of significance.

any effect on anti-immigrant attitudes. This contradicts the assumption of a liberalizing effect of education (H1). Moreover, in contrast to our expectation (H2b), secondary vocational students do not become more negative when they start their apprenticeship.

We add the school-to-work transitions in Model 2. In line with the ethnic competition hypothesis (H2), individuals with a secondary or tertiary degree who become employed are significantly more likely to favour Swiss citizens over immigrants. That is, employed university graduates are more than three times as likely to favour

better opportunities for Swiss citizens compared with when they were in school. For tertiary and secondary vocational graduates, the odds are 2.4 and 1.5, respectively. Contrary to our expectations (H2a), individuals with lower levels of education who start working do not express more negative attitudes towards immigrants.

Additional Analyses

The findings suggest that there is a substantial selection effect in education. Although it is not the primary goal of the present study, a remaining question is what explains this selection. Previous research suggests that a likely explanation for selection is parental background (Hello *et al.*, 2004; Jaspers, Lubbers and De Vries, 2008; Coffé and Voorpostel, 2010). Unfortunately, our data do not allow us to explore this in much detail (there is only limited information about the respondents' parents, and many missing values). As a robustness check, we estimated models including parental education (see Supplementary Appendix). The between-effects of the respondent's educational attainment change only slightly, which is in line with the study by Hello and colleagues (2004), which concluded that the influence of parental background is small (by definition, within-effects do not change when between-individual variation is added).

We carried out several other robustness checks (see Supplementary Appendix): We tried different coding schemes for the dependent variable, interactions with unemployment, and percent foreigners, analysing only individuals who make an educational transition, leaving out the parental home variable. None of the checks substantially altered our findings.

Discussion

The objective of this study was to analyse to what extent young people's attitudes change as they pass through education. If there is a liberalizing effect of education, adolescents and young adults should gradually become more positive towards immigrants. Our findings indicate that, in line with previous research (e.g. Hainmueller and Hiscox, 2007), there are sizeable differences *between* educational groups. However, these effects largely disappear once we examine changes *within* individuals. This suggests that at least part of the education effect reported in cross-sectional analyses is owing to self-selection. Thus, the liberalizing effect of education might not be as large as is suggested by previous research. Rather, it indicates that much of the differences across educational categories already exist before the start of secondary education.

Table 3. Transitions in education and labour market status that predict favouring Swiss citizens (FE estimation), odds ratios

	Model 1		Model 2	
	OR	se	OR	se
Educational transitions				
Primary →_Secondary w/o Matura	0.910	(0.420)	0.950	(0.445)
Primary →_Secondary with Matura	0.787	(0.134)	0.866	(0.159)
Primary → Secondary vocational	1.015	(0.128)	0.962	(0.127)
Secondary with Matura → Tertiary voc.	0.727	(0.231)	0.575	(0.195)
Secondary vocational → Tertiary voc.	1.018	(0.298)	0.905	(0.269)
Secondary with Matura → University	0.800	(0.215)	0.499*	(0.162)
Labour market transitions				
University → Employed			3.678**	(1.640)
Tertiary vocational → Employed			2.426*	(0.928)
Secondary vocational → Employed			1.504*	(0.293)
Secondary → Employed			0.827	(0.165)
Primary → Employed			0.968	(0.135)
Leaving parental home	1.372**	(0.161)	1.355*	(0.160)
Age	0.957**	(0.015)	0.950**	(0.016)
Life satisfaction	0.978	(0.030)	0.977	(0.030)
Satisfaction with financial situation	0.959*	(0.019)	0.961*	(0.019)
Political interest	1.016	(0.018)	1.016	(0.018)
Unemployment rate	1.213***	(0.050)	1.207***	(0.050)
Percentage of immigrants	0.971	(0.021)	0.973	(0.021)
Log likelihood	-2,517.36		-2,507.61	
N observations	6,712		6,712	
N subjects	1,243		1,243	

Source: SHP 1999–2011.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$, two-tailed tests of significance.

Additional analyses reveal that differences between educational groups are in part driven by parental background, here tapped with parents' education. This is in line with the extensive body of research on the transmission of social and political attitudes from the parents to their children (Hello *et al.*, 2004; Jaspers, Lubbers, and De Vries, 2008; Coffé and Voorpostel, 2010). However, both our results and previous findings suggest that factors other than parental influences matter too. Thus, research on the impact of education should turn its attention to the different mechanisms that may impact attitudes towards immigrants very early in life (i.e. before secondary school). These sources may, for instance, take the form of egalitarian and engaged primary school teachers, or peers and friends from a different ethnic or social background.

While the analyses reveal no impact of transitions between educational levels, we find that young adults who make the transition from school to work become more negative towards immigrants. This is in line with ethnic competition theory: individuals become more negative towards immigrants when they face or perceive

competition, such as for jobs in the labour market. Yet, we find this predominantly for higher educated individuals. An explanation might be that, compared with the higher educated, individuals with a secondary vocational education have more experience with the actual and/or perceived competition in the labour market, which they entered at a young age (i.e. when they began their apprenticeship). It is therefore likely that vocational students do not suddenly face a new reality and experience an unexpected increase of competition, as the tertiary vocational or university students may do.

In addition, the feelings of competition expressed by higher educated Swiss individuals may be provoked by the growing proportion of highly skilled immigrants present in the Swiss labour market. Evidence in this regard is mixed: On the one hand, high-skilled Swiss citizens were found not to resent immigrants with similar skills (Helbling and Kriesi, 2014). On the other hand, among Swiss citizens living in Zurich, highly educated individuals or individuals in higher positions held attitudes towards Germans—potential competitors on the labour market—comparable with those of lower educated

citizens (Helbling, 2011). Similarly, in Germany, Lancee and Pardos-Prado (2013) found that the effect of losing one's job on anti-immigrant attitudes is independent of social class. While the results of these two last studies suggest that ethnic threat owing to (perceived) competition might depend more on labour market conditions than the individual's skill level, further research is needed to fully capture what underpins the attitudes of highly educated citizens living in places characterized by a strong presence of highly skilled immigrants.

Limitations

Several limitations of the present study should be acknowledged. First, it is well known that students differ in prejudice as a function of their field of study. For example, law students were found to hold more negative attitudes towards ethnic minorities than psychology students (Guimond *et al.*, 2003). These differences might be explained by selection into education, but it could also be that liberal and egalitarian values are more central in certain curriculums. In our data it was not possible to obtain information about the educational track. Thus, the effects we observe are average effects: some fields may influence the educational effect downwards, while other fields may do so upwards. However, it should be noted that the liberalization hypothesis not only refers to teaching specific values but also entails the development of general analytical skills, which takes place in all curriculums.

A second limitation is that, although we were able to observe respondents as early as 13 years old, this is not when children start their education. We can therefore only estimate the effects of secondary and tertiary education. While this encompasses a majority of the educational trajectory and certainly constitutes an improvement on previous studies, this is by no means ideal. Indeed, as discussed above, it is essential to know more about the different influences on children's social and political attitudes at an early age, as the gaps between educational groups seem to appear before secondary education.

Conclusion

While this study supports the established finding that education is the strongest cross-sectional predictor of attitudes towards immigrants, it suggests that this effect is mostly owing to social and attitudinal differences that are already present before secondary education. What our results clearly indicate is that in Switzerland, while some individuals become more negative towards immigrants when they enter the labour market, attitudinal

differences between educational groups are mostly owing to selection effects, and not to the alleged liberalizing effect of education. This conclusion also resonates in the words of Hainmueller and Hiscox: (2007: p. 438): 'The educational differences we can observe between those individuals holding more pro- and anti-outsider views of the world may be more of a symptom of the cultural divide between the two groups than they are a cause'. This suggests that future research on the effect of education on attitudes towards immigrants would benefit from addressing the consequences of selection into education explicitly, by comparing, for instance, different sources of influence on children's attitudes. Generally, it seems that research on prejudice should be more explicit about the theoretical underpinnings of the 'education' variable: Is educational attainment a form of social stratification, regardless of its cause, or does it refer to processes that occur while being educated, such as learning?

Note

- 1 The SHP is based at the Swiss Centre of Expertise in the Social Sciences (FORS) and financed by the Swiss National Science Foundation.

Funding

This research project was supported by the Alexander von Humboldt Foundation, the Netherlands Organisation for Scientific Research (NWO, grant number 451-13-10), and the Swiss National Science Foundation (PA00P1_13960).

Supplementary Data

Supplementary data are available at *ESR* online.

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