

A good foreigner is a foreigner who doesn't steal my job: the attitudinal role of skills, unemployment risk and values

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Abstract

Over the past three decades, immigration has become systematically politicized by parties on the right, and opposed by many individuals in society. Different hypotheses have been proposed to explain variation in the opposition to immigration among the population. Economic arguments highlight the competition between native workers and immigrants over limited resources. Sociological arguments underline additional factors like values and beliefs. Using cross-sectional data from the Swiss Household Panel, we account for nonlinearity in educational attainment, and consider relative risk to unemployment—and how these two variables interact. We examine individual attitudes toward equal opportunities for foreigners and Swiss citizens. Here we show that individuals with low levels of education tend to oppose equal opportunities for foreigners, while for individuals with high levels of education such opposition can be observed with increasing unemployment risk. Our analysis demonstrates that values and beliefs can account for the negative attitudes of individuals with low levels of education. The association with unemployment risk for individuals with high levels of education, by contrast, is robust to this control for values and beliefs. It becomes clear that attitudes toward equal opportunities for immigrants are not a simple reaction to changes in the demographic composition of the labour force. Both values and economic factors play a central role.

Keywords: Attitudes toward foreigners, labour market competition, unemployment risk, Switzerland

1 Introduction

Over the past three decades, immigration has become one of the most prominent topics in election campaigns, systematically politicized by parties on the right. Across Western Europe, there appears to be growing support for anti-immigrant policies and organizations associated with anti-immigrant sentiments. The most common and perhaps most basic explanation for attitudes toward foreigners revolves around the idea of economic competition. Following this approach, negative attitudes toward foreigners and immigrants are seen as a direct reaction against unwanted competition in the labour market. Despite a growing literature on the attitudes of the mainstream society toward foreigners and immigrants, the exact role of education remains poorly understood. While an association between low levels of education and negative sentiments toward immigrants can be found across countries, the underlying mechanism remains poorly specified. In this study, we assess to which extent the labour market competition hypothesis is relevant in shaping attitudes toward foreign citizens in Switzerland. We focus on Switzerland for various reasons. With more than a fifth of the population being foreign citizens, and a concentration of immigrants in both low-skilled and high-skilled occupations, Switzerland offers an ideal case to increase our understanding of the role of education in attitudes toward immigrants. The high level of economic prosperity would lead us to expect low levels of grievances against foreigners, but Switzerland has seen the electoral success of the right-wing Swiss People's Party drawing heavily on a rhetoric that depicts immigration as a negative influence on Swiss citizens. They take it for granted that more immigration leads to wage dumping and job displacement through increased competition in the labour market among native workers. Given these circumstances, we find it surprising why there are so few studies on the Swiss case.

Most studies on individual attitudes toward immigrants draw on competitive threat theory, implicitly assuming or accepting that individuals are fundamentally self-interested. The basic premise is that attitudes are negative toward immigrants because immigrants are unwanted competitors (Borjas, 2011). Competitive threat theory can be considered the staple in research on attitudes to immigrants (Ceobanu and Escandell, 2010), probably because it is a theory that allows the formulation of clear hypotheses (Coenders and Scheepers, 1998). Whilst there is

some empirical support for the basic premise of economic competition (e.g. Scheve and Slaughter, 2001; Mayda, 2006; Ortega and Polavieja, 2012), both economists and sociologists have refined the argument. In particular, non-economic explanations have been formulated, such as the role of identities or cultural values and beliefs (e.g. Hainmueller and Hiscox, 2007; Sides and Citrin, 2007; Mueller and Tai, 2010). According to this strand of the literature, the labour market channel plays a less significant role in shaping attitudes toward immigration when cultural values and beliefs are accounted for. In contrast, Facchini et al. (2013) argue that economic and non-economic determinants play a complementary role in explaining attitudes toward immigration.

Previous literature reveals two significant shortcomings. First, existing studies assume that the immigrants in a receiving country are either unskilled or skilled. Put differently, the immigrant population is always assumed to be either unskilled or skilled relative to natives. In reality, however, the skill distribution of immigration tends to be somewhat bimodal, with peaks at both the high-skill and low-skill ends of the distribution (e.g. Borjas et al., 1997; Kahn, 2004; Felbermayr and Kohler, 2007). Second, as stressed by Ortega and Polavieja (2012), defining skills solely in terms of educational attainment constitutes a very narrow definition of the human-capital resources that characterize native-foreigner competition in the labour market and hence provides an incomplete test for the labour-market exposure hypothesis (compare Malhotra et al., 2013).

For a better understanding of the role of education, we assess the relevance of the labour market competition hypothesis in explaining individual attitudes toward equal opportunities for foreign and Swiss citizens. To fulfil this objective, we first verify to what extent *education* and labour-market skills correspond, rather than making assumptions. We control for non-economic factors such as opinion on Swiss tradition and trust in organisations for the defence of human rights to further establish if attitudinal effects of education are not driven by a sorting by cultural values and beliefs. To check the robustness of our results, skills are defined not only in terms of educational attainment but also in terms of occupational level. In the empirical analysis, we depart from most existing studies in two important aspects. First of all, we account for nonlinearity in educational attainment since foreigners are over-represented at both the bottom and the top of the education distribution. While labour market competition is commonly operationalized by

education, we additionally allow for interaction between education and *unemployment risk* in order to better assess exposure to competition from foreigners. This means we circumvent the assumption that only workers in low-skilled occupations are exposed to economic pressure from immigrants.

Using these more sophisticated measures of exposure to market competition, we find no evidence that Swiss workers with a low level of education hold a priori negative attitudes toward foreigners. This finding contrasts with most prior research. Moreover, we show that even if Swiss workers with a tertiary education robustly appear to have more positive attitudes toward foreigners than their counterparts with an upper secondary education, a higher risk of unemployment is found to be negatively associated with pro-foreigner attitudes only among those highly educated.

2 A brief look at the Swiss immigration policy and labour market

As in many Western European countries, the post-war period in Switzerland was characterized by strong economic growth and the gradual liberalization of international trade. Immigration policy served as a useful macroeconomic instrument allowing Swiss firms to temporarily resort to the pro-cyclical exploitation of a low-skilled foreign labour force in order to meet the needs of the economy. This kind of guest-worker immigration was characterized by state control and corporatist agreements, and both settlement and contact with the indigenous population was actively discouraged. Following pressure from the public and international organizations, as well as competition from other Western European countries offering a ‘better’ deal for labour migrants, this approach underwent some changes during the 1960s toward a model of immigration (Skenderovic and D’Amato, 2008). As elsewhere, the political debate on immigration came to be dominated by two opposing movements: one side highlighted economic growth, the other side voiced concerns of overpopulation, wage dumping, and a threat to local culture. The German concept of (*Überfremdung* combines these concerns, with concurrent connotations of too many immigrants and immigrants that are too foreign.

The Swiss People’s party (UDC/SVP) is the main vehicle for mobilizing anti-immigrant sentiments. Between 1987 and 2007, the national vote share of this

Figure 1: Propaganda posters of the Swiss People’s Party highlighting the purported impact of immigration on local wages and jobs, given both in French (left) and German (right). “That’s enough! Stop mass immigration. To ensure that your salary does not drop and you do not lose your job!” The picture was alleged to connote an invasion by Nazi-Germans (Honegger, 2011)



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conservative party in parliament has increased from 11 per cent to 29 per cent.¹ During the same period, there were over 20 referendums and popular initiatives on immigration-related topics. Until recently, most attempts to introduce a more restrictive immigration regime using direct democratic means were defeated at the polls, such as in 2000 when voters rejected an initiative to limit the number of foreign citizens to 18 per cent. More recently, however, a ban on the building of new minarets was introduced in Switzerland using a popular initiative (in 2009), or a law on the automatic expulsion of foreigners guilty of crimes is awaiting enactment. The posters in Figure 1 are recent examples of propaganda from the

¹The party’s growth seems to have slowed, and in the most recent national election in 2011, it was unable to increase its vote share, although it remains the largest party in parliament with 27 per cent of the vote.

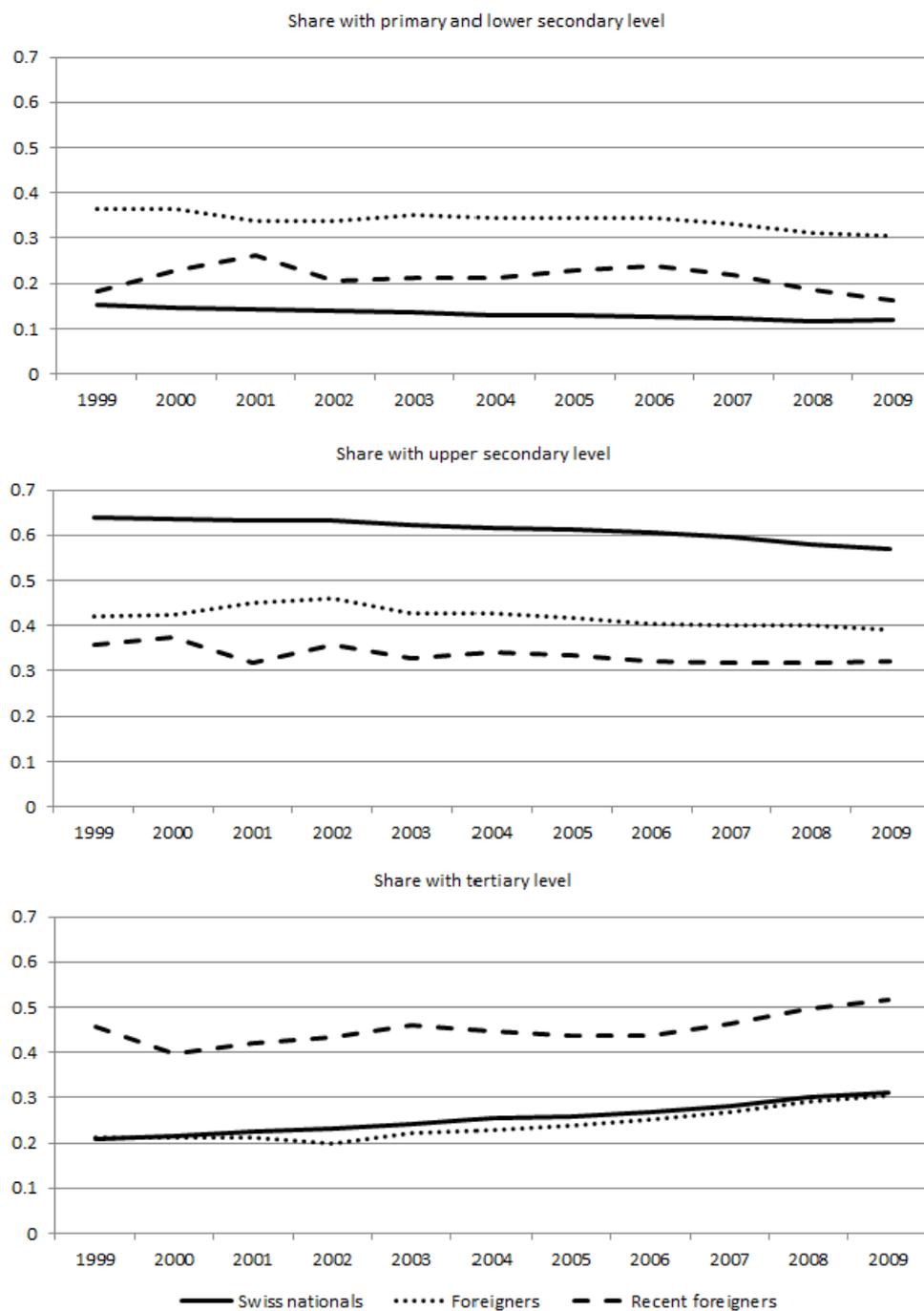
Swiss People's party according to which immigration induces wage dumping and job displacement. Whilst there appears to be growing support for anti-immigrant policies and organizations associated with anti-immigrant sentiments in some sort, it is not the case that all Swiss voters have become more hostile to immigrants and or blindly followed the propaganda messages of the Swiss People's Party.

Since the 1990s, Swiss policy increasingly favoured European immigrants and introduced restrictive policies for so-called third-country nationals. With asylum seekers and family reunion, immigrant categories beyond labour immigration gained prominence, but the Swiss economy continued to struggle with a shortage of qualified labour (e.g. Huth, 2004; Zimmerli et al., 2009; Schellenbauer et al., 2010). Gradually working toward free mobility with the EU/EEA countries, Swiss employers were advised to fill their needs with migrants from Western European countries since 1991 and particularly since 1998. It remains possible to recruit skilled workers from outside the EU/EEA, but quotas are in place. Non-European workers are only admitted if no Swiss or European worker can be recruited to fill the vacant job.² As a result of this focus on EU/EEA immigrants, the nature of migration flows has evolved from a mainly low-educated labour force to one favour highly qualified labour Pecoraro (2005).

Figure 2 illustrates the result of this change in the nature of migration flows to Switzerland. It shows the distribution of educational attainment across the working-age population by different national groups (Swiss nationals, all foreigners, and foreigners settled in Switzerland within the previous five years). Among the workers with the lowest levels of education, foreign residents clearly dominate (top panel). On the one hand, this is a legacy of immigrant recruitment before the 1990s, where manual workers were actively sought. On the other hand, we note that recent immigrants are slightly more common in this category than Swiss citizens. This reflects the fact that the prioritizing of European immigration continues to attract immigrants with low levels of education—mostly from Italy and Portugal. The middle panel includes workers with upper secondary education. In this category, Swiss workers are dominant (around 60 per cent of Swiss workers fall into this category). By contrast, recent immigrants clearly dominate in the

²There are some exceptions with regard to intra-firm transfer and family regrouping. Until 2004, priority was given to Swiss workers over EU-15/EFTA workers, but these restrictions have been removed.

Figure 2: Educational levels by nationality for all individuals aged 18-65



Source: Swiss Labour Force Survey 1999-2009.
 Note: Recent foreigners are those residing in Switzerland for less than 5 years.

lower panel, where the distributions of workers with tertiary education are shown. Among tertiary-educated workers, the proportion of recent foreigners always exceeds those of other groups. Put differently, we observe a clear *bipolarity* in terms of educational attainment among foreigners. This concentration of immigrants at the high and low end reflects labour market shortages. The immigration policies in place seem successful in counteracting these shortages by means of immigration. Historically, this first meant a focus on low-skilled labour, and since the 1990s a focus on immigration of high-skilled labour. Immigration for other reasons than work (e.g. family reunification or asylum) along with continued immigration from countries like Italy and Portugal ensure a supply of low-skilled labour.

The increased focus on immigrants from European countries, however, did not abate concerns about immigration among the population. Immigration is consistently among the most mentioned ‘most important problems’ in opinion surveys (Bornschiefer, 2010), and the continuing success of the Swiss People’s Party can be understood as an indication governmental policy does not sufficiently address concerns over immigration.

3 Theory and evidence of attitudes toward immigration

Anti-immigrant sentiments may be abundant in Western Europe, but it is not the case that everyone shared negative feelings toward foreigners. A common explanation is that individuals who directly compete against immigrants in the labour market are more likely to oppose immigrants. The Heckscher-Ohlin approach “predicts that immigrants pressure the wages of similarly skilled natives nationwide” (Scheve and Slaughter, 2001). It suggests that immigration leads to lower wages for native workers whose skills are substituted by immigrants (i.e. a negative wage effect). At the same time, wages are expected to increase for native workers with complementary skills to the immigrants (i.e. positive wage effect). It follows that if immigration increases the supply of unskilled labour relative to skilled labour, then the wages of skilled individuals are expected to rise, and the wages of unskilled individuals are expected to fall. The expectation is the opposite if immigrants are predominantly more skilled than the native workers. The implication on attitudes toward immigrants is that native workers who are more exposed to competition

from immigrants are expected to have more negative attitudes, because it is in their rational self-interest to protect their wages.

Empirical research has generally supported this hypothesis, in particular that the relative skill composition of natives to immigrants in the receiving country determines the sign of correlations between education/skills and attitudes to immigration. In the US context, where it is often posited that highly skilled labour is the abundant factor and thus immigrants are less skilled than natives on average, individuals with lower levels of education are more likely to be against immigration (e.g. Espenshade and Hempstead, 1996; Scheve and Slaughter, 2001; Kessler, 2001). Low levels of education are also a consistent factor for studies covering Europe (e.g. Dülmer and Klein, 2005; Schneider, 2008; Ceobanu and Escandell, 2010). On the basis of cross-country survey data, Mayda (2006) and O'Rourke and Sinnott (2006) have confirmed this result. Moreover, they have shown that in countries where native workers are generally *less* skilled than immigrants, natives with lower levels of education tend to favour immigration. Using a more comprehensive measure of skills, Ortega and Polavieja (2012) have also provided support for the labour market competition hypothesis according to which individuals employed in jobs less exposed to competition from immigrants are relatively more pro-immigration.

Only few studies reject the labour market competition hypothesis outright. For instance, Hainmueller and Hiscox (2007) have found that individuals with higher levels of education are more favourable to both skilled and unskilled immigrants. According to the authors, this result stems from the fact that education is a proxy for cultural values and beliefs, suggesting that a different mechanism may be dominant rather than competitive threat. Malhotra et al. (2013) use a survey experiment to underline this explanation: cultural and economic threat are different phenomena. It should be noted that most of the aforementioned studies have tried to handle the association between education and cultural values and beliefs by estimating specifications that account for indicators of individual values and beliefs. Despite these additional controls being often jointly significant, the relationship between education and attitudes toward foreigners remains strong. This finding suggests that the significant correlation between education and attitudes toward immigration is not primarily driven by differences in cultural values and beliefs, reinforcing the relevance of the labour market competition hypothesis.

Few studies have examined the relationship between labour-market considerations and anti-immigration attitudes in Switzerland specifically. This relative lack of studies is surprising because a number of authors have used cross-country data from the *European Social Survey* (ESS) or the *World Value Survey* (WVS), which include a sub-sample for Switzerland. Few of these cross-national studies, however, have presented their results per country or only for Switzerland. Exceptions are the studies from Hainmueller and Hiscox (2007) and Green et al. (2010). While Green et al. focus on how diversity in immigration influences attitudes across Swiss municipalities—drawing on contact theory and a perspective of cultural threat—, Hainmueller and Hiscox have demonstrated that, contrary to predictions by the labour market competition hypothesis, higher levels of education mean greater support for all types of immigration (i.e. both low- and high-skilled). To our knowledge, only Helbling (2011) has relied on data from a survey of Swiss citizens living in the city of Zürich. Investigating whether Swiss-Germans perceive German migrants as cultural and economic threats, Helbling claims to find support for the labour market competition hypothesis, in particular: negative attitudes toward ex-Yugoslavians (who are more likely to have low levels of education) decrease with Swiss-Germans’ level of education but there is no significant relationship between the level of education and the Swiss-Germans’ dislike of German migrants.

4 Data

We use data from the *Swiss Household Panel* (SHP), a yearly panel following a random sample of households and their members in Switzerland since 1999. The SHP dataset provides useful information on various aspects of professional life as well as an indicator on whether respondents are in favour of Switzerland offering foreigners the same opportunities as those offered to Swiss citizens, or whether they favour better opportunities for Swiss citizens. Here we understand attitudes toward equal opportunities for foreigners as a case of attitudes toward foreigners more generally, at use the two terms interchangeably.

The empirical analysis is based on the first wave of the panel, used as a cross-section. Accordingly, cross-sectional individual weights are used to produce repre-

sentative estimates of the population in Switzerland.³ The sample size in the first wave of the SHP is the highest, with the smallest amount of missing values. This allows us to circumvent complications associated with sample selection/attrition. More importantly, while the dependent variable capturing attitudes toward equal opportunities for foreigners uses an ordered response with three categories in all waves (where 1 is ‘in favour of equal opportunities for foreigners’, 2 is ‘neither of them’ and 3 is ‘in favour of better opportunities for Swiss citizens’), only in 1999 can it be coded as $\{1, 2, 3, 4, 5\}$, given that individuals responding 1 or 3 were also asked ‘Are you rather in favour or strongly in favour?’. Put differently, the first wave allows us to capture attitudes in a more fine-grained way. Moreover, two important variables of individual values and beliefs are only available at the first wave, namely opinions on Swiss tradition and trust in organisations for the defence of human rights.

Our sample consists of Swiss voters who are employed, and we only keep respondents who reported valid information for the variables of interest (i.e. attitudes toward foreigners and risk of unemployment). In order to check whether education reflects non-labour-market considerations, we additionally rely on the subsamples of individuals not in the labour force, both the total subsample and only the retirees, i.e. those age 65 and older. Table 6 in Appendix A gives more details on the sample selection procedure.

5 Methods

To explain attitudes toward equal opportunities for foreigners, we estimate the following baseline equations broadly similar to the specification adopted in the literature analyzing the determinants of attitudes toward immigration:

$$y_i^* = \alpha_S S_i + \mathbf{X}_i \boldsymbol{\beta} + \epsilon_i \tag{1}$$

³The SHP dataset includes cross-sectional weights to adjust for non-response at the individual and household level. See Graf (2009) for a detailed description of the procedures implemented for computing weights in the SHP. Using Stata’s `svy` command, all regression analyses incorporate cross-sectional individual weights to take into account the sampling design of the SHP and obtain reliable estimates concerning the population of interest. Stata calculates robust standard errors using the ‘linearization’ variance estimator based on a first order Taylor series linear approximation.

$$y_i^* = \alpha_1 L_{1i} + \alpha_3 L_{3i} + \mathbf{X}_i \boldsymbol{\beta} + \epsilon_i \quad (2)$$

where the dependent variable y_i^* is the unobserved latent variable for attitudes toward foreigners, \mathbf{X}_i is a vector of observed personal characteristics, including a dummy for gender, age, age squared, dummies for father's national origin, and dummies for mother's national origin. Equation (1) incorporates years of schooling S_i , the latter being replaced by levels of schooling L_{hi} (with $h \in \{1, 2, 3\}$) in equation (2). According to the second specification, individuals with primary or lower secondary education ($h = 1$) and individuals with tertiary education ($h = 3$) are compared to those with upper secondary education ($h = 2$). Years and levels of schooling are both derived from the highest level of education achieved, consisting of 10 levels classified in an increasing hierarchical order. While Table 7 shows how each educational level is translated into the total number of years of schooling,⁴ Table 8 presents all explanatory variables included in the regression analyses, and descriptive sample statistics are shown in Table 9 (see Appendix A).

In order to account for the ordinal nature of the observed dependent variable y_i , we use ordered probit estimations where

$$\epsilon_i | \text{covariates} \sim \text{Normal}(0, 1).$$

The continuous latent variable y_i^* can be thought of as the *propensity* to exhibit positive attitudes toward foreigners. The observed response categories are tied to the latent variable as follows:

$$y_i = \begin{cases} 1 & \text{(Strongly in favour of better opportunities for Swiss citizens)} & \text{if } y_i^* \leq \mu_1 \\ 2 & \text{(Rather in favour of better opportunities for Swiss citizens)} & \text{if } \mu_1 < y_i^* \leq \mu_2 \\ 3 & \text{(Neither of them)} & \text{if } \mu_2 < y_i^* \leq \mu_3 \\ 4 & \text{(Rather in favour of equal opportunities for foreigners)} & \text{if } \mu_3 < y_i^* \leq \mu_4 \\ 5 & \text{(Strongly in favour of equal opportunities for foreigners)} & \text{if } \mu_4 < y_i^* \end{cases}$$

⁴Following Flückiger and Ramirez (2000) and de Coulon et al. (2003), a duration of 7 years has been attributed to workers with incomplete compulsory school; in terms of levels of schooling completed, these individuals have been included among those with primary or lower secondary education ($h = 1$).

Given that foreigners recently settled in Switzerland are over-represented at both the bottom and particularly the top of the education distribution (compare figure 2), we expect low- and high-educated Swiss workers to be opposed by the equivalent educational category (following labour market competition theory). Accordingly, we formulate the following formal test of the labour market competition thesis:

$$\hat{\alpha}_1 < 0 \quad \text{and} \quad \hat{\alpha}_3 < 0.$$

As recognized by an increasing number of scholars (e.g. Scheve and Slaughter, 2001; Hainmueller and Hiscox, 2007), if education is highly correlated to individual values and beliefs, the relationship between the educational attributes of workers and their attitudes toward foreigners should have very little, if anything, to do with fears about labour market competition:

$$\hat{\alpha}_1 = 0 \quad \text{and} \quad \hat{\alpha}_3 = 0.$$

Scheve and Slaughter (2001) propose two procedures to test whether education affects attitudes through non-economic factors. First, the baseline models are also estimated for the not-in-labour-force subsample; if the estimates associated with education deliver the same conclusion than those computed on the basis of the workers' sample, years or levels of schooling are probably unsatisfactory measures of labour-market skills. Another check consist in extending the baseline models to account for indicators of individual values and beliefs such as opinions on Swiss tradition and trust in organisations for the defence of human rights. We also perform sensitivity analysis in which we replace levels of education by levels of occupation using the 1-digit ISCO code condensed into four categories:⁵

$$y_i^* = \tilde{\alpha}_0 \tilde{L}_{0i} + \tilde{\alpha}_1 \tilde{L}_{1i} + \tilde{\alpha}_3 \tilde{L}_{3i} + \mathbf{X}_i \boldsymbol{\beta} + \epsilon_i \quad (3)$$

where \tilde{L}_{0i} is a dummy variable for missing values, \tilde{L}_{1i} is a dummy variable for jobs demanding low skills (= 1 for ISCO category 9), \tilde{L}_{2i} is a dummy variable for jobs demanding intermediate skills (= 1 for ISCO categories 4 to 8) and \tilde{L}_{3i} is a dummy variable for jobs demanding high skills (= 1 for ISCO categories 1 to 3).

In the spirit of Ortega and Polavieja (2012), we furthermore rely on an extended model to understand if *unemployment risk* induce more exposure to labour

⁵We use the same grouping procedure proposed by Dumont and Monso (2007).

market competition from foreigners (or if there is a positive relationship between unemployment risk and anti-foreigner attitudes):

$$y_i^* = \alpha_1 L_{1i} + \alpha_3 L_{3i} + \gamma U_i + \mathbf{X}_i \boldsymbol{\beta} + \epsilon_i \quad (2')$$

$$y_i^* = \tilde{\alpha}_0 \tilde{L}_{0i} + \tilde{\alpha}_1 \tilde{L}_{1i} + \tilde{\alpha}_3 \tilde{L}_{3i} + \gamma U_i + \mathbf{X}_i \boldsymbol{\beta} + \epsilon_i \quad (3')$$

where the self-assessed risk of unemployment in the next 12 months U_i , based on a 0 (i.e. no risk at all) to 10 (i.e. a real risk) scale, is added as a additional regressor to equation (2) and equation (3). In order to investigate possible interactions between unemployment risk and education, we also estimate the model on three subsamples: (i) individuals with (in)complete primary or lower secondary level education, (ii) those with upper secondary level education, and (iii) those with tertiary level education. As an additional robustness check, we furthermore provide estimates by level of occupation rather than education.

It is important to keep in mind that the risk of unemployment may not be randomly determined; in other words, this variable is likely to be endogenous in our equations and thus to be correlated with ϵ_i . Ignoring this endogeneity problem may lead to biased estimates of the attitudinal effects associated with the risk of unemployment. We test for endogeneity of U_i using a similar version of the two-step approach developed by Rivers and Vuong (1988). Following Wooldridge (2010), we run the OLS regression U_i on our control variables and the variable *unemployment occurrence in the last 12 months* used as an instrument,⁶ save the residuals, run the ordered probit y_i on our control variables, U_i and the residuals from the first step, the t statistic on the latter being a valid test of the null hypothesis that U_i is exogenous. Our choice of instrument is motivated by the well-documented *scarring* effects of unemployment experience on subsequent employment outcomes (e.g. Arulampalam et al., 2000, 2001). Accordingly, we expect a significant impact of unemployment occurrences in the previous year on the future risk of unemployment at work.

⁶Based on ordinal values of the variable 'unemployment occurrence in the last 12 months', we construct the following dummy (after omitting non-response items, i.e. $n = 5$): no occurrence (reference category) vs. once or several times.

6 Findings

6.1 Skills and Attitudes

In a first step, we examine the relationship between education and attitudes toward immigration. Ordered probit estimates from the baseline models are presented in Table 1. In line with prior research on the determinants of attitudes toward immigration, estimates from equation (1) in the first column show that the coefficient associated with years of education is significantly positive; this result is confirmed by estimates from equation (2) in the second column where low-educated workers exhibit anti-foreigner attitudes ($\hat{\alpha}_1 < 0$) while those high-educated hold positive attitudes ($\hat{\alpha}_3 > 0$). Most of the other estimates have the expected sign, in particular: having a mother or a father of foreign origin increases the propensity to exhibit positive attitudes toward foreigners.

The negative relationship obtained between education and anti-foreigner attitudes may be attributed to the fact that individuals with low education are more likely to be conservative in the sense of greater ties to Swiss tradition and lower trust in humanitarianism (compare Kam, 2012; Hatemi et al., 2011, for potential underlying mechanisms). When running the ordered probit regression on the subsample of those out of the labour force, we get substantively the same results as those from the baseline models, regardless of whether the entire subsample of only retired people are considered. Indeed, as shown in Table 2, all estimates associated with years of schooling are significantly positive and those derived from equation (2) provide the same pattern of results. According to this initial set of checks, the education variables seem to measure non-labour-market considerations.

In a second series of check procedures, we control for individual indicators of cultural values and beliefs when estimating the baseline models. F tests, reported in the last row of Table 3, indicate that their inclusion is jointly significant.⁷ As presented in the fourth column of the same table, the estimated coefficient associated with years of education is still significant but decreases in magnitude with respect to the previous estimate of equation (1) in which cultural values and beliefs are not taken into account (cf. the first column in Table 3, also corresponding to the first column in Table 1). In contrast, when nonlinearity in educational attainment is considered, the significant relationship between a low level of education and atti-

⁷As noted by Hainmueller and Hiscox (2007) and Ortega and Polavieja (2012) among others, the indicators of individual values and beliefs might be endogenous, in the sense that the relationship between the latter and education may result from concerns about labour market competition. To deal with this issue, we follow a procedure suggested by Hainmueller and Hiscox which consists in estimating levels of (a) trust in organisations for the defence of human rights and (b) attachment to Swiss custom using education as a predictor. If the indicators of individual values and beliefs are endogenous to labour market concerns, the relationship between these indicators and education should be significant among employed individuals and insignificant among those out of the labour force. Table 12 in Appendix A presents significant estimates of the same sign for the education variable among both subsamples, meaning that the association between values and education is not driven by labour market concerns. The same conclusion follows when education is replaced by occupation.

tudes vanishes ($\hat{\alpha}_1 = 0$), while the coefficient estimate associated with a high level of education remains significantly positive. Replacing levels of schooling by levels of occupation does not change the previous statement, in particular: only workers in jobs demanding high skills exhibit positive attitudes toward foreigners, whether or not we control for cultural values or beliefs.

All in all, these findings indicate that the labour market competition hypothesis is rejected since the strong relationship between a low level of education and anti-foreigner attitudes is mainly due to the omission of cultural values and beliefs. This finding is in line with Malhotra et al. (2013) and their limited meta analysis. The insignificant attitudinal effects for the low-educated workers and those in low-skilled jobs are consistent with results from recent studies on the wage impact of immigration in Switzerland (Gerfin and Kaiser, 2010; Favre, 2011) showing no evidence for negative wage effects in low-skilled occupations. Favre argues that there is little room for downward adjustment of wages in low skill occupations since most of the latter are covered by collective agreements ensuring minimum wage protection. Put differently, immigration flows to Switzerland may simply not put native workers under pressure.

With respect to the remaining significant positive association between a high level of education/skills and positive attitudes, recall that our proxies are only able to capture some aspects of relevant cultural values and beliefs. For instance, workers with higher education may be more prone to have friends from different countries, a characteristic that we are not able to proxy on the basis of our data. On the other hand, it could be in the interest of skilled natives to ensure equal access of legally admitted migrants to the labour market. Recent research has stressed the role of skilled migration in generating benefits for destination countries (e.g. Chiswick, 1999; Hunt and Gauthier-Loiselle, 2010; Kerr and Lincoln, 2010; Stuen et al., 2012). This is particularly relevant in the Swiss case where some professional fields are regularly experiencing a shortage of qualified labour, despite the increasing levels of highly-skilled immigrants (e.g. Huth, 2004; Zimmerli et al., 2009; Schellenbauer et al., 2010).

Table 1: Ordered probit model: Baseline models with education

Equation	(1)	(2)
<i>S</i> : Years of schooling	0.086** (0.007)	
<i>L</i> ₂ (base)		
<i>L</i> ₁ : Compulsory education		-0.199** (0.054)
<i>L</i> ₃ : Tertiary education		0.349** (0.040)
Male (base)		
Female	0.003 (0.035)	0.003 (0.035)
Age	0.015* (0.009)	0.017* (0.009)
Age ²	-0.000** (0.000)	-0.000** (0.000)
Father: Swiss (base)		
Father: dual nationality	0.306** (0.135)	0.318** (0.136)
Father: foreign nationality	0.171** (0.074)	0.183** (0.073)
Father: missing nationality	0.256 (0.167)	0.244 (0.165)
Mother: Swiss (base)		
Mother: dual nationality	0.130 (0.082)	0.132 (0.082)
Mother: foreign nationality	0.191** (0.076)	0.200** (0.075)
Mother: missing nationality	0.088 (0.172)	0.079 (0.171)
Canton dummies	yes	yes
Observations	4222	4222
Percentage correctly predicted	33.59%	33.63%

Linearized standard errors in parentheses, ** $p < 0.05$, * $p < 0.10$

Source: Swiss Household Panel, first wave in the *SHP_I* sample (1999).

Notes: Coefficient estimates, data are weighted.

Dependent variable: attitudes toward equal opportunity for foreigners; the label ‘compulsory education’ captures primary and lower secondary education.

Table 2: Ordered probit model: Employed (baseline models) vs. Out of the labour force

Equation	Employed		Out of the labour force			
	(1)	(2)	Total sample		65 years old & more	
			(1)	(2)	(1)	(2)
<i>S</i> : Years of schooling	0.086** (0.007)		0.061** (0.010)		0.059** (0.015)	
<i>L</i> ₁ : Compulsory education		-0.199** (0.054)		-0.198** (0.061)		-0.250** (0.095)
<i>L</i> ₃ : Tertiary education		0.349** (0.040)		0.281** (0.075)		0.253** (0.109)
Control variables	yes	yes	yes	yes	yes	yes
Canton dummies	yes	yes	yes	yes	yes	yes
Observations	4,222	4,222	1,877	1,877	776	776
Percentage correctly predicted	33.59%	33.63%	32.98%	33.03%	33.76%	33.89%

Linearized standard errors in parentheses, ** p<0.05, * p<0.10

Source: Swiss Household Panel, first wave in the *SHP_I* sample (1999).

Notes: Coefficient estimates, data are weighted.

Dependent variable: attitudes toward equal opportunity for foreigners; the label ‘compulsory education’ captures primary and lower secondary education.

Table 3: Ordered probit model: Adding individual values and beliefs

Equation	No proxies for values and beliefs			Proxies for values and beliefs		
	(1)	(2)	(3)	(1)	(2)	(3)
S : Years of schooling	0.086** (0.007)			0.054** (0.007)		
L_1 : Compulsory education		-0.199** (0.054)			-0.057 (0.055)	
L_3 : Tertiary education		0.349** (0.040)			0.222** (0.041)	
\tilde{L}_0 : Missing			0.011 (0.100)			-0.064 (0.102)
\tilde{L}_1 : Low skills			-0.005 (0.079)			-0.007 (0.080)
\tilde{L}_3 : High skills			0.470** (0.036)			0.307** (0.038)
Control variables	yes	yes	yes	yes	yes	yes
Canton dummies	yes	yes	yes	yes	yes	yes
Observations	4,222	4,222	4,222	4,222	4,222	4,222
Percentage correctly predicted	33.59%	33.63%	33.92%	40.50%	40.67%	40.67%
Test for joint significance of values and beliefs $\succ F(16,4200)$				34.02**	35.70**	34.10**

Linearized standard errors in parentheses, ** $p < 0.05$, * $p < 0.10$

Source: Swiss Household Panel, first wave in the *SHP_I* sample (1999).

Notes: Coefficient estimates, data are weighted.

Dependent variable: attitudes toward equal opportunity for foreigners; the label ‘compulsory education’ captures primary and lower secondary education.

6.2 Risk of Unemployment

Only relying on education or occupation variables provides an incomplete picture of the labour market exposure to foreign competitors. Accordingly, we go a step further by including the risk of unemployment in equations (2) and (3). As shown in the first columns of Table 4 and Table 5, previous findings remain valid: only the workers with a tertiary education or in high-skilled occupations have significantly more positive attitudes toward foreigners. Moreover, the risk of unemployment does not seem to be relevant in explaining attitudes toward foreigners since its coefficient estimates are found to be statistically insignificant. However, estimating separately the ordered probit model by education or occupation level (cf. second, third and fourth columns in Table 4 and Table 5, respectively) shows that the propensity to hold positive attitudes toward foreigners decreases with an increasing risk of unemployment only among high-educated workers or those in jobs demanding high skills. Put differently, among highly educated workers, attitudes toward foreigners become more negative with higher risk of unemployment. This result is independent of whether cultural values and beliefs are controlled for (cf. Table 10 and Table 11 in Appendix A).

This pattern is highlighted in Figure 3 and Figure 4 where predicted probabilities for $y_i = 1$ (i.e. strongly against equal opportunities) and $y_i = 5$ (i.e. strongly in favour of equal opportunities) are plotted as a function of unemployment risk by education or occupation level, respectively. All explanatory variables in X_i are set to their mean. While the highest change in predicted probabilities—visible by the steepest curve—is found among high-educated workers or those in jobs demanding high skills, there is no significant change with an increasing risk of unemployment when considering other levels of education/skills. As illustrated in Figure 3, for a ten-unit increase in unemployment risk (from 0 to 10), the highly educated see the predicted probability of being strongly against equal opportunities doubling from 0.05 to 0.1 whereas their predicted probability of being strongly in favour of equal opportunities decreases by more than 10 percentage points. The predicted probabilities by occupation level shown in Figure 4 lead to the same conclusion.

Table 4: Ordered probit model: Adding unemployment risk in (2)

Equation	All	Education level		
		L_1	L_2	L_3
L_1 : Compulsory education	-0.055 (0.056)			
L_3 : Tertiary education	0.212** (0.041)			
U : Unemployment risk	-0.008 (0.007)	0.009 (0.019)	-0.002 (0.009)	-0.037** (0.016)
Control variables	yes	yes	yes	yes
Canton dummies	yes	yes	yes	yes
Proxies for values and beliefs	yes	yes	yes	yes
Observations	4,090	537	2,412	1,141
Percentage correctly predicted	40.78%	40.97%	39.34%	45.66%
Test for joint significance of the excluded instruments in the first stage				
$\succ F$ statistic	46.24**	6.82**	29.59**	12.36**
Test for exogeneity of U_i				
$\succ t$ statistic	-0.64	-0.17	-1.10	0.18

Linearized standard errors in parentheses, ** $p < 0.05$, * $p < 0.10$

Notes: Coefficient estimates, data are weighted.

Source: Swiss Household Panel, first wave in the *SHP_I* sample (1999).

Table 5: Ordered probit model: Adding unemployment risk in (3)

Equation	All	Occupation level		
		\tilde{L}_0 & \tilde{L}_1	\tilde{L}_2	\tilde{L}_3
\tilde{L}_0 : Missing	-0.058 (0.112)			
\tilde{L}_1 : Low skills	-0.004 (0.081)			
\tilde{L}_3 : High skills	0.288** (0.038)			
U : Unemployment risk	-0.008 (0.007)	-0.006 (0.029)	0.011 (0.010)	-0.037** (0.011)
Control variables	yes	yes	yes	yes
Canton dummies	yes	yes	yes	yes
Proxies for values and beliefs	yes	yes	yes	yes
Observations	4,090	305	1,651	2,134
Percentage correctly predicted	40.86%	40.66%	37.19%	43.91%
Test for joint significance of the excluded instruments in the first stage				
γ F statistic	45.67**	6.28**	24.07**	18.31**
Test for exogeneity of U_i				
γ t statistic	-1.18	-0.28	0.62	-1.30

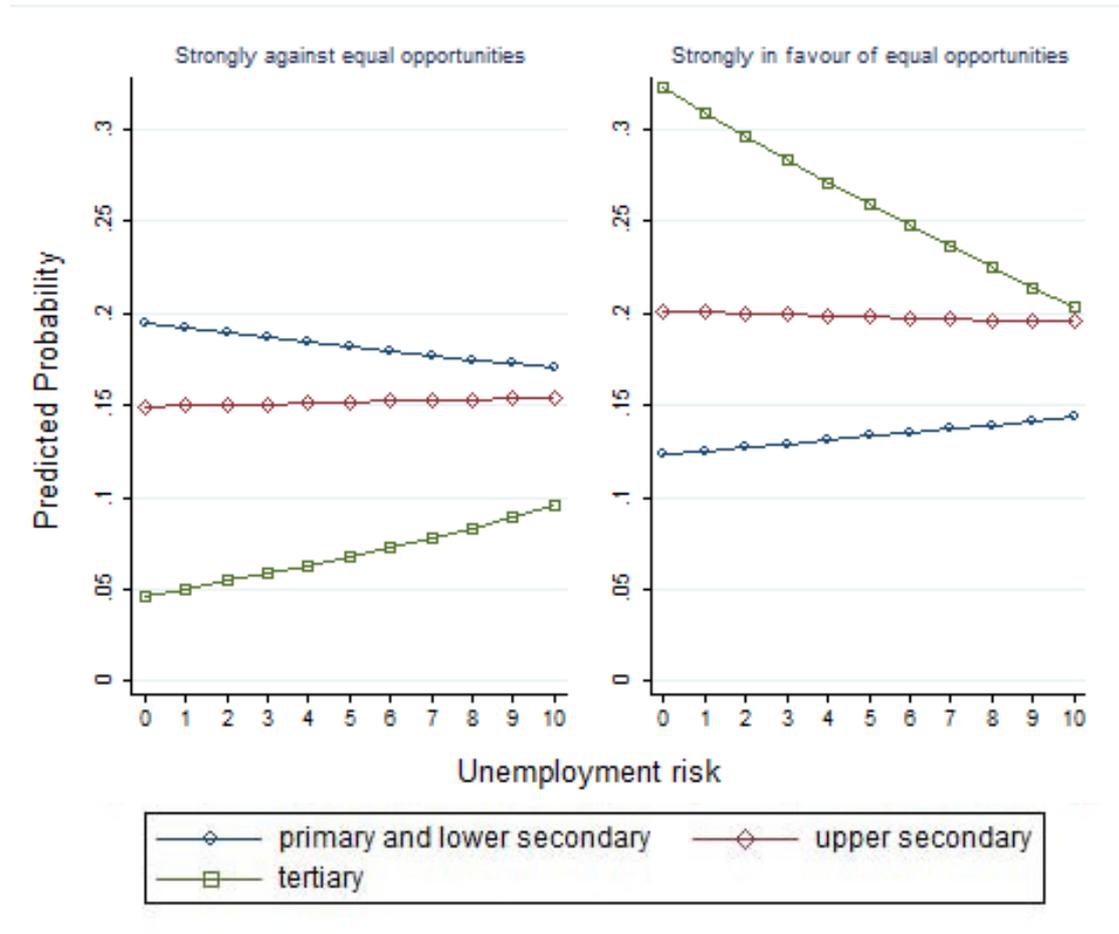
Dependent variable: attitudes toward equal opportunity for foreigners

Linearized standard errors in parentheses, ** $p < 0.05$, * $p < 0.10$

Notes: Coefficient estimates, data are weighted.

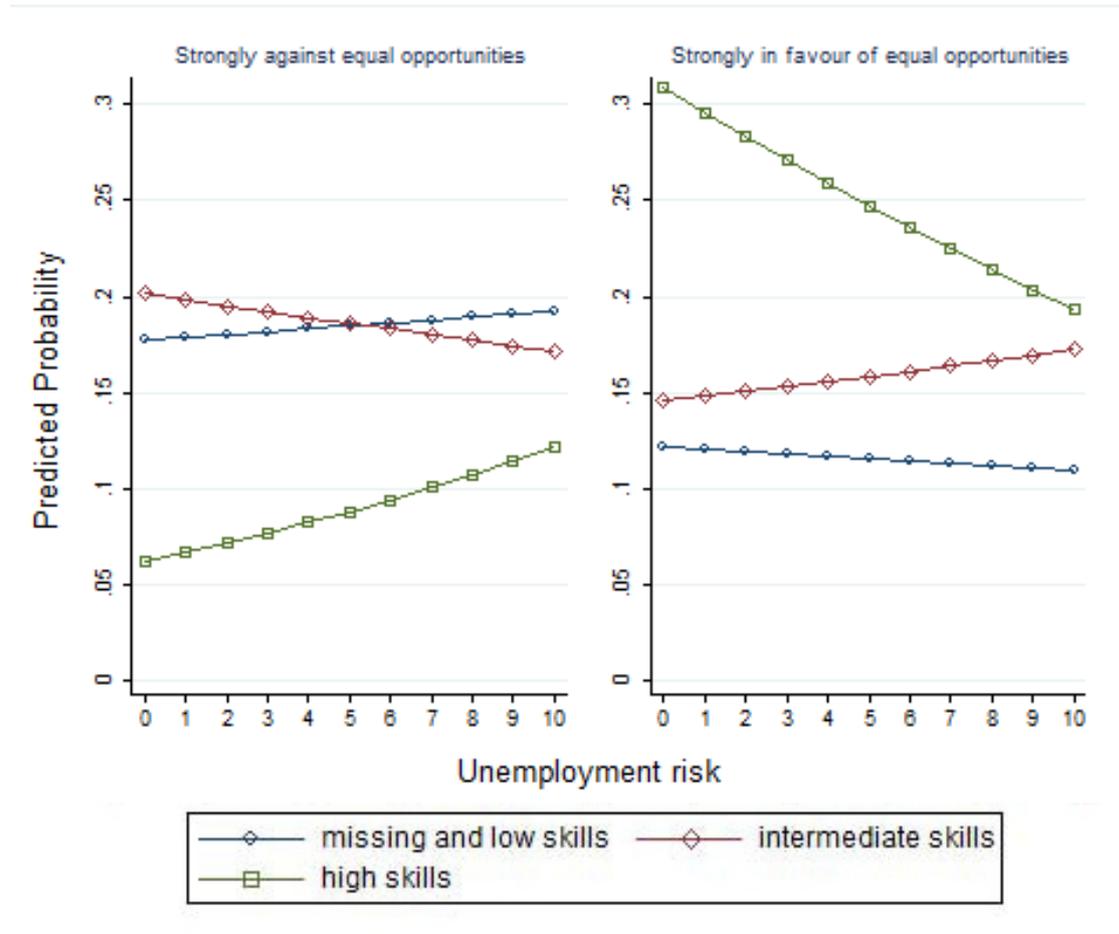
Source: Swiss Household Panel, first wave in the *SHP_I* sample (1999).

Figure 3: Predicted probabilities by education level



Note: Predicted probabilities for $y_i = 1$ ('strongly in favour of better opportunities for Swiss citizens') and $y_i = 5$ ('strongly in favour of equal opportunities for foreigners') based on estimates from Table 4 (2nd, 3rd & 4th columns) when all explanatory variables in X_i are set to their mean values.

Figure 4: Predicted probabilities by occupation level



Note: Predicted probabilities for $y_i = 1$ ('strongly in favour of better opportunities for Swiss citizens') and $y_i = 5$ ('strongly in favour of equal opportunities for foreigners') based on estimates from Table 5 (2nd, 3rd & 4th columns) when all explanatory variables in X_i are set to their mean values.

To test for endogeneity bias, we use an instrumental variable. The result of the exogeneity test is presented at the bottom of Table 4 and Table 5. It should be emphasized that our instrument is a significant predictor of U_i in the first-stage equation, most values of the F statistic exceeding 10 (cf. penultimate rows).⁸ In addition, low values of the t statistic indicate that the residuals in the second stage are never significant at a level of 10% (cf. last rows), meaning the null hypothesis of exogeneity is not rejected in all samples. Thus, there is no evidence of endogeneity bias in the estimated coefficients of U_i .

7 Conclusion

This paper has examined the labour-markets determinants of attitudes toward equal opportunities for foreigners, using data from the first wave of the Swiss Household Panel survey. The case of Switzerland was chosen because of its high share of foreign citizens and a clear concentration of immigrants in both low-skilled and high-skilled occupations. This makes Switzerland an ideal case to study the labour market competition hypothesis. Most existing studies use educational attainment to measure labour-market skills. It is increasingly acknowledged that such an approach is likely to lead to wrong conclusions since education may reflect non-economic unobservables rather than actual skill endowment. Here we control for proxies of cultural values and beliefs—opinions on Swiss tradition and trust in organisations for the defence of human rights—when estimating the attitudinal effects of education. Moreover, unlike most earlier studies, we account for nonlinearity in the relationship between education and attitudes since foreign workers are over-represented at both the bottom and the top of the education distribution. In a further step, the self-assessed risk of unemployment in the next 12 months is included in the baseline models as an additional measure of exposure to competition from foreigners. An additional contribution of this empirical analysis is to interact this variable with education in order to relax the assumption that the attitudinal impact of unemployment risk is the same for different educational levels. To assess the robustness of our findings, we have also tested the labour market competition

⁸Stock and Watson (2003) suggest a simple rule of thumb according to which a first-stage F statistic less than 10 indicates weak instruments, i.e. instruments in first-stage linear regression are weakly correlated with the included endogenous variables.

hypothesis replacing levels of education by levels of occupation.

Based on the strong assumption that education is uncorrelated with cultural values and beliefs, estimating the attitudinal effects of education by ordered probit produces results in line with the literature on the determinants of attitudes toward immigration: education is positively related to pro-foreigner attitudes. Put differently, low-educated workers are least in favour of equal opportunities for foreigners, while we find the opposite direction for highly educated workers. These results, however, are consistent with omitted variable bias, because once indicators for cultural values and beliefs are taken into account, the impact of having a low level of education on anti-foreigner attitudes is no more significant: low-educated workers do not exhibit anti-foreigner attitudes as predicted by the labour market competition hypothesis. With regard to highly educated workers, they are more likely to express positive views toward foreigners than their counterparts with an upper secondary education. However, they are the only group where having anti-foreigner attitudes increase with risk of unemployment. Accordingly, the labour market competition hypothesis holds only for Swiss workers with a tertiary education or in high-skilled occupations.

On the whole, these findings reveal that attitudes toward equal opportunities for foreigners cannot be entirely attributable to the skill composition of the foreign workforce within the Swiss labour market. Indeed, we have found that the strong negative link between holding a low level of education and pro-foreigner attitudes is driven by differences in cultural values and beliefs. On the other hand, the positive link between holding a high level of education and pro-foreigner attitudes hides a more complex picture, in which more risk of unemployment leads to less positive attitudes toward foreigners. Therefore, both values and economic factors should be considered in future research.

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MP and DR designed research; MP performed research; MP and DR wrote the paper.

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A Appendix

Table 6: Individuals retained in the empirical analysis

Selection criteria	Sample/Year					
	<i>Employed</i>		<i>SHP_I/1999</i>			
	No. of <i>i</i>	%	<i>Out of the labour force</i>		<i>65 & more</i>	
Total sample No. of <i>i</i>			%	No. of <i>i</i>	%	
Individual interview completed	5,172	100.0	2,498	100.0	845	100.0
Swiss voters	4,378	84.6	1,958	78.4	804	95.1
Valid information on						
▷ attitudes toward foreigners	4,222	81.6	1,877	75.1	776	91.8
▷ unemployment risk	4,090	79.1				

Source : Swiss Household Panel, first wave in the *SHP_I* sample, data are unweighted.

Table 7: Conversion scale between levels and years of schooling

Description	Years of schooling
Primary and lower secondary levels	
Compulsory school, elementary vocational training	9
Domestic science course, 1 year school of commerce	10
Upper secondary level	
General training school	12
Apprenticeship	12
Full-time vocational school	12
Maturity (high school)	12
Tertiary level	
Technical or vocational school	15
Higher vocational college	15
University	18
PhD	21

Source: Codebook for CNEF variables in the SHP (Lipps and Kuhn, 2009).

Table 8: Explanatory variables included in the empirical analysis

Ccontinuous variables	Dummy variables	Ref.
Years of education (S)	Gender <i>Male</i>	×
Age in year of interview	Female	
Age squared	Levels of education (In)complete primary and lower secondary (L_1) <i>Upper secondary</i> (L_2) Tertiary (L_3)	×
Risk of unemployment in the next 12 months ($0, 1, \dots, 10$)	Levels of occupation Missing occupation (\tilde{L}_0) Jobs demanding low skills (\tilde{L}_1) <i>Jobs demanding intermediate skills</i> (\tilde{L}_2) Jobs demanding high skills (\tilde{L}_3)	×
	Father: nationality at birth <i>Swiss nationality</i> Dual nationality Foreign nationality Missing value	×
	Mother: nationality at birth <i>Swiss nationality</i> Dual nationality Foreign nationality Missing value	×
	Opinion on Swiss traditions <i>Strongly in favour of defending traditions</i> Rather in favour of defending traditions Rather open toward other countries Strongly open toward other countries Neither of them Missing value	×
	Trust in organisations defending human rights 0 (<i>no confidence</i>) 1 2 3 4 5 6 7 8 9 10 (<i>full confidence</i>) Missing value	×

Table 9: Summary statistics

Variables	Mean	Linearized S.E.	95% C.I.	
			Lower	Upper
$y_i = 1$	0.1608761	0.0057755	0.1495531	0.1721992
$y_i = 2$	0.1784	0.0060009	0.1666351	0.190165
$y_i = 3$	0.0971861	0.0046759	0.0880188	0.1063534
$y_i = 4$	0.3166985	0.0073206	0.3023463	0.3310508
$y_i = 5$	0.2468392	0.0067239	0.2336567	0.2600216
S_i : Years of schooling	12.90623	0.0416415	12.82459	12.98787
L_{1i} : Compulsory education	0.135282	0.0053964	0.1247022	0.1458617
L_{2i} : Upper secondary education	0.5826827	0.0077678	0.5674537	0.5979118
L_{3i} : Tertiary education	0.2820353	0.0071061	0.2681036	0.295967
\tilde{L}_{0i} : Missing occupation	0.0332058	0.0028549	0.0276088	0.0388028
\tilde{L}_{1i} : Low skills	0.0477776	0.0033813	0.0411484	0.0544068
\tilde{L}_{2i} : Intermediate skills	0.4034345	0.0076877	0.3883626	0.4185064
\tilde{L}_{3i} : High skills	0.5155822	0.007825	0.5002411	0.5309232
Female	0.4561178	0.0077708	0.440883	0.4713526
Age	42.3076	0.2129871	41.89003	42.72517
Father: Swiss nationality	0.8423333	0.0056971	0.831164	0.8535027
Father: dual nationality	0.0207178	0.0022695	0.0162684	0.0251672
Father: foreign nationality	0.1072982	0.0048472	0.0977952	0.1168012
Father: missing nationality	0.0296506	0.0025951	0.0245629	0.0347384
Mother: Swiss nationality	0.8083484	0.0061339	0.7963228	0.820374
Mother: dual nationality	0.051101	0.0034551	0.0443271	0.0578748
Mother: foreign nationality	0.1134897	0.0049382	0.1038082	0.1231713
Mother: missing nationality	0.0270609	0.0024736	0.0222114	0.0319104
U_i : Unemployment risk	1.701035	0.0394802	1.623633	1.778438

Source: Swiss Household Panel, first wave in the *SHP_I* sample (1999).

Notes: Data are weighted; all mean values are calculated based on $N = 4,222$, except for U_i (based on $N = 4,090$).

Table 10: Ordered probit model: Adding unemployment risk in (2)

Equation	All	Education level		
		L_1	L_2	L_3
L_1 : Compulsory education	-0.196** (0.055)			
L_3 : Tertiary education	0.344** (0.040)			
U : Unemployment risk	-0.010 (0.007)	-0.008 (0.017)	-0.003 (0.009)	-0.032** (0.015)
Control variables	yes	yes	yes	yes
Canton dummies	yes	yes	yes	yes
Proxies for values and beliefs	no	no	no	no
Observations	4,090	537	2,412	1,141
Percentage correctly predicted	33.69%	32.59%	31.18%	40.67%
Test for joint significance of the excluded instruments in the first stage				
$\succ F$ statistic	46.49**	7.29**	28.62**	11.98**
Test for exogeneity of U_i				
$\succ t$ statistic	-0.38	0.30	-0.78	0.34

Linearized standard errors in parentheses, ** $p < 0.05$, * $p < 0.10$

Notes: Coefficient estimates, data are weighted.

Source: Swiss Household Panel, first wave in the *SHP_I* sample (1999).

Table 11: Ordered probit model: Adding unemployment risk in (3)

Equation	All	Occupation level		
		\tilde{L}_0 & \tilde{L}_1	\tilde{L}_2	\tilde{L}_3
\tilde{L}_0 : Missing	0.006 (0.110)			
\tilde{L}_1 : Low skills	-0.007 (0.079)			
\tilde{L}_3 : High skills	0.455** (0.037)			
U : Unemployment risk	-0.010 (0.007)	-0.001 (0.028)	0.008 (0.010)	-0.035** (0.010)
Control variables	yes	yes	yes	yes
Canton dummies	yes	yes	yes	yes
Proxies for values and beliefs	no	no	no	no
Observations	4,090	305	1,651	2,134
Percentage correctly predicted	34.11%	35.41%	28.41%	38.19%
Test for joint significance of the excluded instruments in the first stage				
$\succ F$ statistic	45.99**	4.26**	25.19**	18.05**
Test for exogeneity of U_i				
$\succ t$ statistic	-1.59	0.21	0.70	-1.08

Linearized standard errors in parentheses, ** p<0.05, * p<0.10

Notes: Coefficient estimates, data are weighted.

Source: Swiss Household Panel, first wave in the *SHP_I* sample (1999).

Table 12: Endogenous values? Ordered probit model: Employed vs. Out of the labour force

Dependent variables	Employed				Out of the labour force			
	Trust in humanitarianism		Attachment to Swiss custom		Trust in humanitarianism		Attachment to Swiss custom	
S : Years of schooling	0.045** (0.006)		-0.093** (0.007)		0.022** (0.011)		-0.058** (0.011)	
\tilde{L}_0 : Missing		0.147 (0.106)		-0.164* (0.097)		-		-
\tilde{L}_1 : Low skills		0.023 (0.093)		0.058 (0.083)		-0.044 (0.122)		0.209* (0.115)
\tilde{L}_3 : High skills		0.240** (0.035)		-0.441** (0.036)		0.114** (0.055)		-0.300** (0.057)
Control variables	yes	yes	yes	yes	yes	yes	yes	yes
Canton dummies	yes	yes	yes	yes	yes	yes	yes	yes
Observations	4,265	4,265	4,272	4,272	1,847	1,847	1,890	1,890

Linearized standard errors in parentheses, ** $p < 0.05$, * $p < 0.10$

Source: Swiss Household Panel, first wave in the *SHP_I* sample (1999).

Notes: Coefficient estimates, data are weighted.