More than This: The Occupational Share of Foreigners and Attitudes to Equal Opportunities

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Abstract

In most Western democracies, immigrant populations have grown rapidly. Some individuals have followed these developments with unease and have negative attitudes towards immigrants and foreign citizens. Hainmuller and Hopkins (2014) highlight sociotropic concerns about the cultural and – to a lesser extent economic – impact of immigration, suggesting that the individual economic situation is less important for attitudes towards foreigners. By relying on levels of education or skills, existing studies, however, do not adequately take into consideration the fact that not all occupations are equally exposed to economic competition with foreigners. We use data from the Swiss Household Panel 2004 to 2006, and look at occupational concentration – the share of foreigners that is more relevant for labour force competition than regional distributions. With some 250 occupations considered, a detailed and realistic picture of labour force competition is provided. Here we use random effects models to show that there is a negative association between the share of foreigners in one’s occupation and positive attitudes to equal opportunities for foreigners. At the same time, we observe a positive association between the share of recently arrived foreigners and positive attitudes to equal opportunities. This suggests that workers are at the same time wary of competition with foreigners and welcome their contribution to overcome labour shortages. All results are robust to endogeneity and attrition concerns. By examining the role of the occupational share of foreigners, this paper is able to ascertain the importance of labour force competition alongside sociotropic concerns and fears of cultural threat well-established in the literature.

Keywords: Immigration, attitudes towards foreigners, labour market, occupational classification, ethnic concentration, wages, panel data analysis, instrumental variables

JEL Codes: F22, J24, J31, J61
1 Introduction

Migration has been a constant in the history of mankind (Goldin et al., 2011), but recent years have seen a concentration in the receiving countries (Czaika and de Haas, 2014). This has led to a rapid growth of immigrants in Western countries often portrayed in dramatic terms (compare Pecoraro and Ruedin, 2013; van der Brug et al., 2014). Indeed, some individuals have followed the growth in the share of immigrants with unease, and parties politicizing against immigration have received significant support across Western Europe. Policies continue to exclude a significant part of the resident population from full membership in social and political life, which can lead to conflict as recent riots remind us, such as in Paris in 2005 and Sweden in 2013.

Researchers from fields as diverse as economics, sociology, political science, psychology, and migration studies have examined the covariates of negative attitudes towards immigrants and foreigners (see Hainmueller and Hopkins, 2014; Rustenbach, 2010; Dancygier and Laitin, 2014; Zamora-Kapoor et al., 2013; Hatton, 2014 for recent reviews). A naive economic model often serves as the basis, assuming that opposition towards immigrants and foreigners is a direct consequence of unwanted competition in the labour market (Ceobanu and Escandell, 2010; Billiet et al., 2014). The different contributions seek to refine, extend, even refute this basic model with various success. In their recent review Hainmueller and Hopkins (2014) highlight that sociotropic concerns seem to offer the best explanation for negative attitudes towards immigrants and foreigners. Such sociotropic concerns are an expression of unwanted competition, but – crucially – under pressure is the group (nation) rather than the individual. Put differently, individuals do not oppose immigration and foreigners because they are competing with immigrants and foreigners directly, but because they are worried about the competition from immigrants and foreigners in general. While sociotropic concerns are substantially important, it is difficult to ascertain they are not merely expressions of other concerns and perceived threats – possibly actively mobilized by certain parties (Carvalho, 2013; Biggs and Knauss, 2012; Lucassen and Lubbers, 2012; Dülmer and Klein, 2005; Lubbers et al., 2002) and the mass media (van der Brug et al., 2014; Birrell, 2013; Vliegenthart et al., 2012).

By focusing on a naive economic model, much of the literature does not pay adequate attention to the segmented nature of the labour market. The reduction of the labour market into highly-skilled and low-skilled workers in many existing studies renders these unable to make valid inferences about actual labour force competition and its impact on attitudes towards immi-
Here we argue that labour force competition is real – for certain segments of the labour market – and that this labour force competition has real consequences on individual attitudes towards immigrants and foreigners. Individuals oppose immigrants when they constitute (unwanted) competition in the labour market, but not when there is a significant labour shortage.

2 Attitudes towards Immigrants and Foreigners

When different groups meet, it is common to reject the other and tread carefully when dealing with members of the other group. This is a universal phenomenon that applies to different ethnic and racial groups, social groups, as well as immigrants and foreigners (e.g. McLaren, 2003; Pasek et al., 2014; Helbling, 2014). It is important to note, however, that individuals differ in their tendency to reject the other. Different reasons have been proposed for this, ranging from simple conservatism to personalities and indeed genetic influence (e.g. Gallego and Pardos-Prado, 2014; Hatemi, 2013; Hatemi et al., 2013).

Blumer (1958) provided an important step in the study of attitudes towards different groups by shifting the focus from individual feelings to relations between groups. Today, this position is generally included in group threat theory: prejudice towards other groups and inter-group hostility are primarily regarded as reactions to (perceived) threats by subordinate groups. Empirical studies often draw on a naive economic model focusing on labour force competition, but group threat theory is formulated without reference to specific threats and can therefore equally be applied to economic threats as to cultural or symbolic threats. In the naive economic model, immigrants threaten the economic position of natives by potentially undercutting wages or ‘taking away’ the jobs of natives.

In their recent review of the literature Hainmueller and Hopkins (2014) distinguish between egotropic (=egocentric) and sociotropic concerns. Implicit in this distinction is the common finding that actual ‘threats’ – commonly approached in the form of a larger number of (visible) immigrants – are only to a limited extent associated with perceived threats, if at all (compare Kilpi, 2008; Semyonov et al., 2004; Schneider, 2008; Valdez, 2014). The question is then not forcedly on who opposes immigrants and foreign-

1 To make matters worse, for reasons of data availability, frequently the level of education is used as a proxy of skills level (Ceobanu and Escandell, 2010).
ers more than others, but in reaction to which threat opposition occurs. Egotropic concerns cover threats to the individual: the job of the individual, the cultural practices of the individual, etc. Sociotropic concerns, by contrast, refer to threats to the group: the jobs of the natives, the economy of the country, etc. Hainmueller and Hopkins (2014) highlight that sociotropic concerns dominate and suggest that this undermines the (naive) economic model. This is true to the extent that economic concerns are conceived as individual concerns.

What the studies reviewed in Hainmueller and Hopkins (2014) tend to downplay is that individuals are indeed able to differentiate between immigrant groups (Blinder, 2013; Ruedin, 2013). While there are clear degrees in the extents to which individuals opposed immigrants and foreigners, different groups elicit different responses. In studies where different immigrant groups are systematically considered, it comes to the fore that cultural difference matters, and with that cultural threats. The importance of cultural threats can be understood as support for the importance of sociotropic concerns, but importantly refers to aspects of immigration where political parties and the mass media play an important role in framing the debate and mobilizing sentiments against immigrants and foreigners (Biggs and Knauss, 2012; Lucassen and Lubbers, 2012; van der Brug et al., 2014).

While initial contact with new groups is often accompanied by rejection and opposition, it is also a common finding that contact between groups reduces tensions and opposition (Tausch and Hewstone, 2010; Allport, 1954; Ford, 2008). Attitudes towards immigrants and foreigners are therefore necessarily a dynamic phenomenon (DeWaard, 2014; Dancygier and Laitin, 2014), and matters are made more difficult for researchers by the fact that there are new inflows of immigrants at the same time as contact with immigrants takes place. It is particularly at the local level and at times of sudden inflows that attitudes towards immigrants and foreigners seem to be affected (Hopkins, 2010; 2011; Dancygier, 2010). While a focus on the local is surely valuable, we argue that more attention should be paid on the labour market given that the workplace is a place where immigrants and natives often come into contact.

3 Theory and Expectations

As is common in the literature (Ceobanu and Escandell, 2010), this paper draws on competitive threat theory. Attitudes towards foreigners are regarded as a reaction to unwanted competition in the labour market where skills of foreign and native workers are substitutable (Borjas, 2001). The in-
termediate step – the perception of threat – is not modelled, both because no adequate variable is available in the data used, and so as to give preference to (relatively) parsimonious models. The intuition behind competitive threat in our case is that a higher concentration of foreign workers potentially lowers wages in the sector an individual works in, and could increase the risk of unemployment. This is an economic threat, and the assumption is that this threat is expressed in terms of negative attitudes.

Throughout the paper we use the following notation to allow formal statements of the hypotheses. The dependent variable $y_{it}$ captures the attitudes towards (equal opportunities for) foreigners of individual $i$ at time $t$. We consider two groups of variables of interest. $R_{jt}$ refers to the composition of foreigners in occupation $j$ of individual $i$. The corresponding regression coefficient is $\alpha$. A derived measure is $\tilde{R}_{it}$: the share of foreigners who have recently arrived in the country, with a corresponding regression coefficient of $\tilde{\alpha}$.

**Hypothesis 1**

If attitudes towards foreigners are a reaction to competition in the labour market, it is necessary to take into consideration the segmented nature of the labour market. We expect that a larger share of foreigners in an occupation is associated with more negative attitudes towards foreigners, formally: $\alpha < 0$.

**Hypothesis 2**

Even with a focus on labour market segments, not all foreign workers constitute unwanted competition: In segments where immigrant and native skills are complementary, foreign workers do not constitute competitors. This is particularly relevant in sectors with labour shortage, in which case employers frequently resort to immigrant workers (e.g. [Huth, 2004]). We assume that the share of recently arrived foreigners working in a sector is indicative of a sector with labour shortages. In this situation, a larger share of foreign workers is beneficial for the native workers, and attitudes are expected to be positive. Formally, we expect $\tilde{\alpha} > 0$.

Arguably, approaching competition solely in terms of ethnic concentration by occupation provides an incomplete test of labour-market competition. Indeed, following the contact hypothesis, it can be expected that interpersonal contact between groups reduces negative feelings. Because competitive threat and contact are likely to occur concurrently, they are empirically difficult to disentangle ([Wagner et al., 2006]). It follows that in models with attitudes towards foreigners as the dependent variable, estimates of $\alpha$ are probably biased downwards while estimates of $\tilde{\alpha}$ are likely to be biased up-
wards. To address this, we also estimate models with the logarithm of gross hourly wages from salaried employment, $\ln w_t$, as the dependent variable.

**Hypothesis 3**

Assuming that a higher share of foreign workers induces more pressure on earnings while workers in occupations with labour shortages gain from immigration, the formal test of the labour-market competition hypothesis is as follows: $\alpha < 0$ and $\tilde{\alpha} > 0$.

4 Data and Methods

4.1 Swiss Household Panel

The empirical analysis in this study is based on data from the Swiss Household Panel (SHP) survey. This data set is an unbalanced panel where respondents may leave the sample due to attrition. Data collection started in 1999 with a random sample of about 5,000 households (SHP_I sample) and a refreshment sample of about 2,500 households has been added since 2004 (SHP_II sample) in order to compensate for attrition in the initial sample. The SHP data are complemented by aggregate/contextual data on foreign workers derived from the Swiss Labour Force Survey (SLFS). Since 2003, it includes an additional sample of 15,000 immigrant individuals, turning the SHP into the only Swiss survey capable of providing reliable information on the labour market outcomes of immigrants.

For the analyses in this paper, we retain individuals from the initial and refreshment samples (i.e. SHP_I and SHP_II) who were interviewed since 2004. The final sample includes Swiss of voting age who are employed. We only include respondents with valid information for the variables of interest, namely opinion on equal opportunities for foreigners, occupation, and wages. Given the high attrition among selected individuals over time, only three successive waves of the panel, i.e. 2004, 2005 and 2006, are retained. We demonstrate below that all results are robust against sample attrition.

4.2 Analytical approach

Our modelling strategy is built on [Dustmann and Preston(2001)] who studied the relationship between attitudes and local (geographical) concentration of ethnic minorities. We modify the baseline model proposed by [Dustmann and Preston] to capture the effects of the concentration of foreigners within
occupational categories:

\[ y_{it} = \alpha R_{jt} + X_{it}\beta + c_i + u_{it} \]  

(1)

where \( y_{it} \) is a binary response variable capturing positive attitudes towards foreigners of individual \( i \) at time \( t \), \( R_{jt} \) the occupational composition of foreigners, \( X_{it} \) a vector of observed personal characteristics that includes a constant term, years of actual education (see Table 5 in the appendix for more details), a dummy for gender, age, age squared, dummies for father’s nationality origin, dummies for mother’s nationality origin, canton and year dummies (all the explanatory variables are presented in Table 4 in the appendix).

The occupational composition of foreigners variable is calculated as the share of foreign citizens by occupation \( j \) in which individual \( i \) works. Occupations are classified by the 4-digit International Standard Classification of Occupations (ISCO), considering all occupations with at least 10 foreign individuals in a year (\( \sum j \approx 250 \) occupation levels). Using this finely disaggregated level of occupation allows us to classify workers into specific skill segments. Equation (1) is a linear probability model of attitude determination with unobserved heterogeneity \( c_i \) and an independent, identically distributed error \( u_{it} \).

An extended model is also considered in which the occupational concentration of recently arrived foreigners, denoted \( \tilde{R}_{jt} \), is added to the baseline model:

\[ y_{it} = \alpha R_{jt} + \tilde{\alpha} \tilde{R}_{jt} + X_{it}\beta + c_i + u_{it}. \]  

(2)

\( \tilde{R}_{jt} \) corresponds to the share of those residing in Switzerland for less than a given number of years – for example five – among the foreign worker population by occupation \( j \). Given that residence permits in Switzerland are generally granted to immigrants with a valid employment contract, accounting for the share of recent foreigners (among all foreigners) by occupational level allows us to identify jobs characterized by labour market shortages. Put differently, recent immigration to Switzerland stems from the insufficient supply of native workers in some professional fields.

2 Respondents were asked ‘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?’ on a 1 to 3 scale, where 1 is ‘in favour of equal opportunities’, 2 is ‘neither of them’ and 3 is ‘in favour of better opportunities for Swiss citizens’. When constructing the dependent variable for positive attitudes, we consider two binary indicators: \( y_{1it} = 1 \) if \( i \) is in favour of equal opportunities (\( = 0 \) otherwise) and \( y_{2it} = 1 \) if \( i \) is in favour of equal opportunities or neither of them (\( = 0 \) otherwise), see [Pecoraro and Ruedin 2013] for a more extensive description. All results can be replicated with both variables.
The regression analysis is based on the random effects method. Ordinary random effects results are likely to be biased if Swiss citizens who oppose foreigners choose to work in occupations with few foreigners. As shown by Dustmann and Preston (2001) in terms of location choice, ignoring this simultaneity problem may lead to biased estimates of the attitudinal effects associated with the concentration of foreign citizens. Instrumental variables can account for such potential self-selection into occupations with few foreigners. We assume that occupational mobility is limited within a specific job; in other words, foreigner concentrations of more aggregated occupation levels are considered to be beyond the control of individuals – i.e. Swiss citizens do not sort into more aggregated levels of occupation based on their attitudes towards foreigners. At the same time, foreigner concentrations in more aggregated levels of occupation are expected to be a significant predictor of foreigner composition within a specific job and can be regarded as a valid instrument.

5 Results

5.1 Negative Attitudes with More Foreigners

Table 1 shows the results of ordinary random effects models with attitudes and the logarithm of hourly wages as the dependent variable. Estimation results from equation (1), presented in the two first columns, indicate that working in occupations with a higher share of foreigners is associated with more negative attitudes. The dependent variables \( y_1 \) and \( y_2 \) differ only in the cut-off at which positive and negative attitudes were distinguished. Irrespective of the dependent variable of attitudes used, an increase in the occupational concentration of foreigners of ten percentage points reduces the probability of positive attitudes by at least 3 percentage points. This finding is in line with the labour market competition hypothesis: Swiss workers who are more exposed to foreigners’ competition in their occupation are more likely to express negative sentiments towards foreigners. In line with most existing studies, we find a positive relationship between years of education and positive attitudes towards foreigners (coefficient not shown).

The third model uses the logarithm of hourly wages as the dependent

\(^3\) While random effects allow coefficients of time-constant explanatory variables to be identified, the main shortcoming is the strong assumption that unobserved heterogeneity is independent from covariates. Fixed effects would be more appropriate since this allows for correlation between unobserved heterogeneity and covariates. However, there is insufficient within-variation in \( R_{jt} \) and \( \tilde{R}_{jt} \) for identification which leads to unreliable results.
Table 1: Baseline model: Random Effects results

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>$y_1$</th>
<th>$y_2$</th>
<th>ln $w$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R$: Share of foreigners</td>
<td>-0.355**</td>
<td>-0.332**</td>
<td>-0.424**</td>
</tr>
<tr>
<td></td>
<td>(0.088)</td>
<td>(0.083)</td>
<td>(0.080)</td>
</tr>
</tbody>
</table>

Control variables: yes
Canton and year dummies: yes

Observations: 4900
Number of $i$: 1784
Overall $R^2$: 0.0653
Wald $\chi^2$: 163.8**

$t$ test for attrition bias: 0.010
$s_{it+1}$: Lead of selection indicator: 0.005

Overall $R^2$: 0.0572
Wald $\chi^2$: 140.2**

Overall $R^2$: 0.377
Wald $\chi^2$: 1644.6**

$t$ test for attrition bias: -0.006


Notes: Coefficient estimates, standard errors in parentheses, ** $p < 0.05$, * $p < 0.10$, data are unweighted. $y$: positive attitudes towards equal opportunity for foreigners. ln $w$: logarithm of gross hourly wage.

A variable to assess the effects of labour market competition. We find the same kind of association as in the previous two models: a larger share of foreigners in one’s occupation is associated with lower wages. In fact, the magnitude of the coefficient is higher, suggesting that the coefficients in the first two models – with attitudes as the dependent variable – are biased downwards. What is more, the first two models are plagued by the possibility that interpersonal contact with foreigners reduces prejudice. The results presented in Table 1 nonetheless indicate that individuals who work in occupations with a higher concentration of foreigners have relatively lower earnings. This is consistent with Hansen et al. (2010) who showed a negative relationship between wages and immigrant occupational composition in Sweden. A higher share of foreign workers is also associated with more negative attitudes towards foreigners.

5.2 Positive Attitudes with More Recent Foreigners

Table 2 presents the random effects estimates of the extended models. The models are identical to those presented in Table 1 but include a variable with the share of recently arrived foreigners in each occupation considered. Shown in the table are results where ‘recent’ means arrived in the past 5 years, but equivalent results can be obtained with different definitions of what ‘recent’
stands for.

The results for the occupational share of foreigners in the first row of Table 2 are broadly similar to those presented in Table 1. Both the sign and magnitude of the coefficient correspond for all three models: the larger the share of foreigners in their occupation, the more likely individuals are to express negative attitudes towards foreigners. The second row shows that in occupations with a higher share of recent foreign workers (relative to all foreigners), attitudes towards foreigners are relatively more positive. We argued that these are occupations with labour shortages. A ten percentage points increase in the share of recent foreigners raises the probability of positive attitudes by about 2 percentage points. This finding confirms the complementary nature of recent labour migration to Switzerland in the sense that the influx of new workers can be considered as a way to overcome labour shortages.

Table 2: Extended models: Random Effects results

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>$y_1$</th>
<th>$y_2$</th>
<th>$\ln w$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R$: Share of foreigners</td>
<td>-0.351**</td>
<td>-0.329**</td>
<td>-0.420**</td>
</tr>
<tr>
<td></td>
<td>(0.088)</td>
<td>(0.083)</td>
<td>(0.080)</td>
</tr>
<tr>
<td>$\tilde{R}$: Share of recent foreigners</td>
<td>0.198**</td>
<td>0.173**</td>
<td>0.177**</td>
</tr>
<tr>
<td></td>
<td>(0.056)</td>
<td>(0.053)</td>
<td>(0.051)</td>
</tr>
</tbody>
</table>

Control variables: yes yes yes
Canton and year dummies: yes yes yes
Observations: 4900 4900 4900
Number of $i$: 1784 1784 1784
Overall $R^2$: 0.0721 0.0637 0.382
Wald $\chi^2$: 178.1** 152.6** 1674.5**
$t$ test for attrition bias: 0.012 0.008 -0.003

Notes: Coefficient estimates, standard errors in parentheses, ** p<0.05, * p<0.10, data are unweighted. Recent migrants are those residing in Switzerland for less than 5 years. $y$: positive attitudes towards equal opportunity for foreigners. $\ln w$: logarithm of gross hourly wage.

Similarly, considering the impact of recent foreign workers on wages, we find that wages in occupations with a higher share of recent immigrants are characterized by relatively higher wages. This is consistent with our interpretation of these occupations as those where labour shortages occur.
Were it not for labour shortages, we would expect an increase in foreign workers to be associated with lower wages – if there is an effect on wages at all. Taken together, our results are consistent with labour competition theory: where individuals are exposed to increased competition with foreign workers, their attitudes are relatively more negative; where there are labour shortages and native workers benefit from immigrant workers, attitudes are relatively more positive.

5.3 Causality and Robustness

In this final section, we carry out additional tests to ascertain the robustness of the findings reported above. To address possible self-selection by native workers into occupations with a share of foreign workers that corresponds to their attitudes towards foreigners, we use an instrumental variable. The assumption is that such self-selection occurs at the level of specific occupations, but individuals exert little control over the competition of the larger sector in which the occupation is contained.

All estimates from instrumental variables random effects regressions (Table 3 and Table 6 in the appendix) are broadly similar to those obtained on the basis of the ordinary random effects model above. As expected, the magnitude of the coefficients is somewhat larger, and the differences in magnitude between the coefficients for the models with attitudes as the dependent variable and the model with the logarithm of hourly wages as the dependent variable largely disappears. This is equally the case whether our instruments are derived from the 3-digit ISCO codes (Table 3) or the 2-digit ISCO codes (Table 6 in the appendix).

Given that our random effects estimates are based on an unbalanced panel data set, it is important to determine if sample selection due to attrition is present. As the longitudinal sample is set up in a way such that attrition is an absorbing state, one way to test for attrition bias is to add a lead of selection indicator \((s_{i,t+1})\) as an additional regressor in the fixed effects analysis and test for significance using a \(t\) test (Wooldridge 2010). The result of this procedure (presented at the bottom of Tables 1, 2, 3 and 6) shows that the lead variable is never significant, meaning there is no evidence of attrition bias. Therefore, it is reasonable to conclude that sample selection is not an issue in our random effects regression. Additional tests, not shown here, indicate that attrition becomes a real concern when more than three or four waves of the panel are combined. Taken together, the additional analyses in

\[4\] Let \(s_{it}\) be a binary selection indicator for individual \(i\) at wave \(t\): \(s_{it} = 1\) if data on anyone in the population are available, and zero otherwise.
this section support the findings outlined above and suggest that they are robust.
Table 3: Baseline and extended models: Instrumental Variables Random Effects results (3-digit ISCO)

<table>
<thead>
<tr>
<th>Model</th>
<th>Baseline</th>
<th>Extended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable</td>
<td>$y_1$</td>
<td>$y_2$</td>
</tr>
<tr>
<td>$R$: Share of foreigners</td>
<td>-0.540**</td>
<td>-0.505**</td>
</tr>
<tr>
<td></td>
<td>(0.103)</td>
<td>(0.098)</td>
</tr>
<tr>
<td>$R$: Share of recent foreigners</td>
<td>0.287**</td>
<td>0.252**</td>
</tr>
<tr>
<td></td>
<td>(0.067)</td>
<td>(0.063)</td>
</tr>
<tr>
<td>Control variables</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Canton dummies</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Observations</td>
<td>4900</td>
<td>4900</td>
</tr>
<tr>
<td>Number of $i$</td>
<td>1784</td>
<td>1784</td>
</tr>
<tr>
<td>Overall $R^2$</td>
<td>0.0661</td>
<td>0.0580</td>
</tr>
<tr>
<td>Wald $\chi^2$</td>
<td>176.0**</td>
<td>151.4**</td>
</tr>
<tr>
<td>Test for attrition bias</td>
<td>$s_{it+1}$: Lead of selection indicator</td>
<td>0.011</td>
</tr>
</tbody>
</table>


Notes: Coefficient estimates, standard errors in parentheses, ** p<0.05, * p<0.10, data are unweighted. Recent migrants are those residing in Switzerland for less than 5 years. $y$: positive attitudes towards equal opportunity for foreigners. $\ln w$: logarithm of gross hourly wage. Level of occupational aggregation is 3-digit for instruments i.e. share of (recent) foreigners. The null hypothesis of weak instruments is always rejected using the $F$ test on excluded instruments.
6 Discussion

There is a significant literature on inter-group relations and attitudes towards foreigners and immigrants. In recent years there were many advances, most of which extending on a naive model of economic competition between groups. In so doing, evidence against the simple economic model is often mistaken as evidence against the notion that economic competition has a (direct) effect on attitudes. Instead, alternative explanations are touted as more convincing. In this paper we do not wish to challenge these extension – like those who find that perceptions of cultural threat play an important role – but our aim is to pay closer attention to economic competition. To do so, we examine the role of occupational concentration of foreigners, arguing that labour force competition is better captured at this explicit level than inferred from very broad groups like foreigners in general, visible foreigners, or low-skilled foreigners.

Drawing on multivariate regression models, we show that the share of all foreigners in one’s occupation is associated with more negative attitudes towards foreigners. We also demonstrate that there is a wage disadvantage for Swiss workers in occupations with a higher concentration of foreign workers. In this sense, there is evidence for competition in the labour market, and more negative attitudes towards foreigners. These results are in line with most existing studies that draw for instance in the level of education or the share of foreigners in a country (Ostapczuk et al. 2009; Ceobanu and Escandell 2010). With the data available, we are unfortunately unable to capture the perceived threat that is assumed to result from increased economic competition. While Hainmueller and Hopkins (2014) suggests that generally sociotropic concerns are dominant over egotropic concerns, we suspect that at this level of analysis, there is strong evidence for egotropic concerns: Individuals who are more exposed to labour force competition with foreign workers are more likely to perceive these foreign workers as a threat. Further research is necessary to trace the suggested mechanism.

To capture labour force competition more adequately, we paid attention to the fact that in cases of labour shortages, foreigners are actively sought for. We suspect that there are strong sorting effects that may superficially look like labour force competition. This is the case because occupations with a high proportion of foreigners tend to be lower skilled and less productive than other occupations. By contrast, occupations with high proportions of recent immigrants tend to require high skills and are more productive. According to skills sorting, it is possible that highly-skilled workers are sorted into jobs with high proportions of recent foreigners (whereas low-skilled workers are sorted into jobs with high proportions of immigrants who arrived earlier). Negative attitudes may thus be a reflection of being less productive, not because of direct competition. Similarly, we expect significant gender differences with regard to labour market participation.
and can have a positive impact on the economic situation of native workers. Using the share of recent foreign workers as an indication of labour shortages, we were able to show that in these situations, the wages of native workers were relatively higher. This is a strong indication of the positive economic impact foreign workers can have. In these situations, attitudes towards foreigners were also relatively more positive. This suggests that individuals react to the situation—positive towards immigrants where this is beneficial to their personal situation, negative where they are exposed to (unwanted) competition. Further research is necessary to understand how these effects of labour force competition interact with sociotropic concerns and perceived cultural and symbolic threats.

The findings in this paper suggest that the level of analysis is important when examining attitudes towards foreigners and immigrants—and by extension inter-group relations. Just like research has demonstrated that the composition of the population at the local level is an important factor (Hopkins 2011; Dancygier 2010), here we demonstrate that labour force competition is associated with attitudes towards foreigners when taking a more realistic approach: considering the segmented nature of labour markets into individual occupations. Labour force competition as an explanation for attitudes towards foreigners is far from ‘dead’ when one moves beyond a naïve economic model, irrespective what certain other contributions seem to suggest. Rather than trying to identify a single influence to explain differences in attitudes towards foreigners, immigrants, or ethnic/racial minorities, in our view future research should focus on the different paths by which attitudes can be shaped, the relative importance of each, and especially on the interaction between paths. Here, the role of political parties, economic lobbies, and the mass media may play an important role, but we suspect only in relation to individual-level competition.

7 Conclusion

This paper examined individual attitudes towards (equal opportunities for) foreigners, focusing on the occupational composition of foreigners. By so doing, the segmented nature of the labour market is taken into consideration, and we were able to adequately capture labour market competition. Using wage models we could demonstrate that the presence of foreign workers is not always detrimental for native workers; the impact depends on whether an occupation is marked by labour shortages or not. Our results suggest that workers respond to labour force competition in a nuanced way. On the one hand, they are wary of competition with foreigners, and we observe
more negative attitudes towards foreigners where the share of all foreigners is higher. On the other hand, in occupations where the presence of immigrants is associated with relatively higher wages – we assume due to labour shortages – attitudes towards foreigners are relatively more positive. These findings indicate that labour force competition has a direct influence on attitudes towards foreigners.

Despite what some contributions seem to suggest, this paper demonstrated that labour force competition is associated with attitudes towards foreigners when the nature of the labour market is adequately captured. We fully acknowledge that there are other factors that influence attitudes towards foreigners, such as sociotropic concerns and fears of cultural threat well-established in the literature. The reasons why individuals oppose foreigners are likely to be multifaceted and interacting with one another, and in our view any attempt to reduce them to a single factor is bound to fail.

8 Acknowledgements and Author Contributions

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References


## 9 Appendix

Table 4: Explanatory variables included in the empirical analysis

<table>
<thead>
<tr>
<th>Continuous variables</th>
<th>Dummy variables</th>
<th>Ref.</th>
</tr>
</thead>
</table>
| Years of education \( (S) \)                                | Gender \[
| Age in year of interview                                    | Male                                                 |      |
| Age squared                                                   | Female                                               |      |
| Share of foreign citizens by level of occupation \( (R) \)   | Father: nationality at birth \[
| Share of recently arrived foreigners among the foreign worker population by level of occupation \( (\tilde{R}) \) | Foreign nationality                                 |      |
|                                                               | Missing value                                        |      |
|                                                               | Swiss nationality                                    |      |
|                                                               | Dual nationality                                     |      |
|                                                               | Foreign nationality                                 |      |
|                                                               | Missing value                                        |      |
|                                                               | Mother: nationality at birth \[
|                                                               | Swiss nationality                                    |      |
|                                                               | Dual nationality                                     |      |
|                                                               | Foreign nationality                                 |      |
|                                                               | Missing value                                        |      |
|                                                               | Sample \[
|                                                               | SHP_1                                                |      |
|                                                               | SHP_II                                               |      |
|                                                               | Year \[
<p>|                                                               | 2004                                                 |      |
|                                                               | 2005                                                 |      |
|                                                               | 2006                                                 |      |</p>
<table>
<thead>
<tr>
<th>Description</th>
<th>Years of schooling</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary and lower secondary level</strong></td>
<td></td>
</tr>
<tr>
<td>Compulsory school, elementary vocational training</td>
<td>9</td>
</tr>
<tr>
<td>Domestic science course, 1 year school of commerce</td>
<td>10</td>
</tr>
<tr>
<td><strong>Upper secondary level</strong></td>
<td></td>
</tr>
<tr>
<td>General training school</td>
<td>12</td>
</tr>
<tr>
<td>Apprenticeship</td>
<td>12</td>
</tr>
<tr>
<td>Full-time vocational school</td>
<td>12</td>
</tr>
<tr>
<td>Maturity (high school)</td>
<td>12</td>
</tr>
<tr>
<td><strong>Tertiary level</strong></td>
<td></td>
</tr>
<tr>
<td>Technical or vocational school</td>
<td>15</td>
</tr>
<tr>
<td>Higher vocational college</td>
<td>15</td>
</tr>
<tr>
<td>University</td>
<td>18</td>
</tr>
<tr>
<td>PhD</td>
<td>21</td>
</tr>
</tbody>
</table>

*Source:* Codebook for CNEF variables in the SHP (Lipps and Kuhn, 2009).
### Table 6: Baseline and extended models: Instrumental Variables Random Effects results (2-digit ISCO)

<table>
<thead>
<tr>
<th>Model</th>
<th>Baseline</th>
<th>Extended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable</td>
<td>$y_1$</td>
<td>$y_2$</td>
</tr>
<tr>
<td>$R$: Share of foreigners</td>
<td>-0.779***</td>
<td>-0.729***</td>
</tr>
<tr>
<td></td>
<td>(0.156)</td>
<td>(0.148)</td>
</tr>
<tr>
<td>$\tilde{R}$: Share of recent foreigners</td>
<td>0.429**</td>
<td>0.362**</td>
</tr>
<tr>
<td>Control variables</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Canton dummies</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Observations</td>
<td>4900</td>
<td>4900</td>
</tr>
<tr>
<td>Number of $i$</td>
<td>1784</td>
<td>1784</td>
</tr>
<tr>
<td>Overall $R^2$</td>
<td>0.0639</td>
<td>0.0560</td>
</tr>
<tr>
<td>Wald $\chi^2$</td>
<td>172.5**</td>
<td>147.9**</td>
</tr>
<tr>
<td>Test for attrition bias</td>
<td>$s_{it+1}$: Lead of selection indicator</td>
<td>0.012</td>
</tr>
</tbody>
</table>

**Source:** Swiss Household Panel 2004-2006.

**Notes:** Coefficient estimates, standard errors in parentheses, ** p < 0.05, * p < 0.10, data are unweighted.

Recent migrants are those residing in Switzerland for less than 5 years.

$y$: positive attitudes towards equal opportunity for foreigners. $\ln w$: logarithm of gross hourly wage.

Level of occupational aggregation is 2-digit for instruments i.e. share of (recent) foreigners.

The null hypothesis of weak instruments is always rejected using the $F$ test on excluded instruments.