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**European Natives' Attitudes Towards High-Skilled and  
Low-Skilled Immigrants: Evidence from the European  
Social Survey**

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# European Natives' Attitudes Towards High-Skilled and Low-Skilled Immigrants: Evidence from the European Social Survey

## **Abstract**

This paper aims to test whether the labor market competition channel and fiscal burden channel can explain European natives' attitudes towards high- and low-skilled immigrants. It addresses the limitations of the existing literature by utilizing the rich data of the seventh round of the European Social Survey (ESS). This survey of 20 European countries allows me to explicitly differentiate between attitudes towards high- and low-skilled immigrants without relying on the respondents' assumptions about the skill level of the immigrants. The labor market competition channel predicts that natives will oppose immigrants with similar skill level to their own. My results suggest that the labor market channel does not have a substantial impact on European natives' attitudes towards immigrants. The fiscal burden hypothesis predicts that, under tax-adjustments, high income natives will oppose low-skilled immigrants and favor high-skilled immigrants. Under transfer-adjustments, low income natives will oppose low-skilled immigrants and favor high-skilled immigrants. My results fail to reject this hypothesis.

## **Acknowledgements**

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I would also like to pay homage to my late uncle Gizachew Abeje, your last words to me has been a source of strength throughout this journey. You are dearly loved and missed.

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# 1. Introduction

Immigration policy has during the last decade been at the top of the political agenda in almost all European countries. Falling economic growth, high unemployment and weak job creation as a result of the recent economic crisis left governments crippled in search of solutions (Cerna, 2016). The political and economical uncertainty was further exacerbated by the recent influx of immigrants from mainly the Middle East and Africa wherein governments responded to the demand for protection of native workers by implementing restrictive immigration policies (Cerna, 2016). Inevitably, the effect of these influxes on immigration policy preferences among the native population would largely depend on the attitudes towards immigrants, which is the topic of this paper.

Although social and cultural factors obviously may yield anti-immigrant sentiment, there is a large body of literature that attributes the attitudes towards immigrants to material self interest among natives (see Scheve & Slaughter, 2001; Mayda, 2006; Facchini & Mayda, 2009; Huber & Oberdabernig, 2016; Haaland & Roth, 2017). Attitudes towards immigrants based on material self interest can manifest itself through two channels: the labor market competition channel and the fiscal burden channel (Hainmueller et al., 2014). The conclusions drawn from previous studies are however not always clear. The empirical research done on the topic has produced conflicting and ambiguous results which has led to a lack of consensus on the impact of material self interest on immigration attitudes. One of the primary sources of ambiguity from previous literature is that a lot of the opinion surveys lacks comprehensive data on the economic characteristics of the respondents and their attitudes towards specific types of immigrants. Particularly, these surveys fail to explicitly distinguish between low- and high-skilled immigrants, a distinction that lies at the core of the expectations formed about the labor market and fiscal burden impact of immigrants. Rather, they tend to ask the respondents about their attitudes towards immigrants in general which in turn forces the researchers to create assumptions about the respondents' beliefs about the skill level of the immigrants. Additionally, the surveys from previous studies are generally quite small in sample size (Hainmueller et al. 2015).

This paper aims to test whether the labor market competition channel and fiscal burden channel can explain European natives' attitudes towards high- and low-skilled immigrants. This is done by testing the effect of years of schooling and household income on immigration attitudes. It addresses the limitations of the existing literature by utilizing the rich data of the seventh round of the European Social Survey (ESS). This survey of 20 European countries

allows me to explicitly differentiate between attitudes towards high- and low-skilled immigrants without relying on the respondents' assumptions about the skill level of the immigrants. Insights about immigration attitudes may contribute with valuable information to immigration related debates by understanding the underlying drivers of public opinion.

My findings suggest that higher educated natives are almost always more positive towards all types of immigrants. This is in contrast to the labor market competition hypothesis that predicts that natives will oppose immigrants with similar skill level to their own. Rather, my results coincide with the general presumption that higher educated individuals are more racially and culturally tolerant. My results also suggest that attitudes towards low-skilled immigrants is not correlated with the income level of the natives. The interpretation of this finding is however not straight forward. The fiscal burden hypothesis predicts that, under tax-adjustments, the relationship between the income level of the natives and attitudes towards low skilled immigrants will be negative. Furthermore, under transfer-adjustments, the relationship between the income level of the natives and attitudes towards low skilled immigrants will be positive. Hence, two potential factors could drive the findings. First, the insignificant correlation could imply that the fiscal burden of immigrants is not of significant concern to the natives. Second, if tax- and transfer-adjustment simultaneously prevail, then both high- and low-income natives would oppose low-skilled immigrants. This would potentially result in the relationship between income and attitudes being canceled out as both tax- and transfer-adjustments prevail simultaneously and thus yield an insignificant estimate for the relation between attitudes and income.

Taken together, my result suggest that the labor market competition channel does not explain European natives' attitudes towards immigrants. However, my result fail to reject the fiscal burden hypothesis, as I was not able to rule out the possibility that the relationship between income and attitudes towards immigrants is canceled out because both tax- and transfer-adjustments are relevant.

This paper is structured as follows. Section 2 presents a theoretical framework and literature review. Section 3 describes that data. Section 4 presents the hypothesis' and empirical strategy. Section 5 reports the results. Section 6 contains a discussion of the findings and section 7 concludes.

## **2. Theoretical framework**

The literature that considers material self interest to be the underlying driver of attitudes towards immigrants assumes that there are two channels in which material self interest

impacts the attitudes towards immigrants: the labor market channel and fiscal burden channel (see Scheve & Slaughter, 2001; Mayda, 2006; Hainmueller & Hiscox, 2007; Facchini & Mayda 2012).

To illustrate the underlying mechanisms that forms these attitudes we consider a simple closed economy model developed by Huber & Oberdabernig (2016)<sup>1</sup>. This economy is populated by native and foreign laborers who are either high-skilled or low-skilled. All laborers supply one unit of labor to firms with the following Cobb-Douglas production function:

$$Y = L_h^\alpha L_l^{1-\alpha}, \quad 0 < \alpha < 1 \quad (1)$$

Where  $Y$  denotes the produced output,  $L_i$  denotes the labor inputs where  $i = h, l$  for high-skilled and low-skilled respectively. Unlike the standard theory where output is produced by labor and capital inputs (Olsson & Dawsonera, 2012), it is now assumed that high-skilled and low-skilled labor inputs are the only factors that produce output  $Y$ . Furthermore, it is assumed that immigrants are perfect substitutes for natives of the same skill level and that changes in relative factor prices does not affect the relative factor supplies.

The wages of the high-skilled and low-skilled laborers respectively are competitive and equal to the marginal product of the worker:

$$w_h = \alpha L_h^{\alpha-1} L_l^{1-\alpha} \quad (2)$$

$$w_l = (1 - \alpha) L_h^\alpha L_l^{-\alpha} \quad (3)$$

To ensure that the wage of high-skilled laborers exceeds the wage of low-skilled laborers,  $w_h > w_l$ , it is assumed that  $\alpha > \frac{L_h}{(L_h + L_l)}$

The number of native laborers are normalized to one and the share of highly skilled natives is denoted as  $e$ . Furthermore, number of immigrant laborers are denoted as  $\mu$  and the share of highly skilled immigrants as  $\sigma$ . The labor supply for high-skilled and low-skilled laborers respectively is thus given by:

$$L_h = (e + \sigma\mu) \quad (4)$$

$$L_l = [1 - e + (1 - \sigma)\mu] \quad (5)$$

In order to consider the redistributive elements of the welfare state it is assumed that low-skilled (assumed to also be low-wage) laborers receive welfare benefit  $b$ . These social

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<sup>1</sup> Which essentially is a simplified version of the model developed by Facchini & Mayda (2012)

benefits are financed by a flat tax  $\tau$  imposed on high-skilled (high income) native and immigrant laborers. Hence, the government is assumed to operate under the following budget constraint:

$$b[1 - e + (1 - \sigma)\mu] = t(e + \sigma\mu) \quad (6)$$

This implies that the respective total net income of high-skilled and low-skilled laborers is given by:

$$y_h = w_s - \tau \quad (7)$$

$$y_l = w_l + b \quad (8)$$

It is assumed that the government can respond to an increase in immigration in two possible ways. Through adjustments of the tax-rate while holding per-capita transfers constant or adjustments of the per-capita transfers while holding the tax-rate constant. In the first case, the tax-rate is endogenously determined by:

$$\tau = \frac{b(1 - e + (1 - \sigma)\mu)}{(e + \sigma\mu)} \quad (9)$$

Whereas in the the case of changes in per-capita transfers the social benefits are endogenously determined by:

$$b = \frac{t(e + \sigma\mu)}{(1 - e + (1 - \sigma)\mu)} \quad (10)$$

Laborers derive utility solely from income, hence, their attitudes towards immigration is determined by how immigration will affect their income. Assuming that the government responds to changes in immigration by adjusting the tax-rate and inserting the labor supply and the balanced budget constraint into the net-income of the high-skilled and low-skilled laborers respectively and then taking the derivatives with respect to the number of immigrants results in the following:

$$\frac{\partial y_h}{\partial \mu} = (e - \sigma) \left( \frac{A}{L_h} + \frac{b}{L_s^2} \right) \quad (11)$$

$$\frac{\partial y_l}{\partial \mu} = (\sigma - e) \frac{A}{L_l}, \quad \text{where } A = \alpha(1 - \alpha)L_h^{a-1}L_l^{-a} \quad (12)$$

When assuming that the government responds to changes in immigration by adjusting the social benefits we instead get the following results:

$$\frac{\partial y_h}{\partial \mu} = (e - \sigma) \frac{A}{L_h} \quad (13)$$



$$\frac{\partial y_l}{\partial \mu} = (\sigma - e) \left( \frac{A}{L_l} + \frac{\tau}{L_l^2} \right), \quad \text{where } A = \alpha(1 - \alpha)L_h^{a-1}L_l^{-a} \quad (14)$$

From equation (11) – (14) we find the two ways in which immigration affects the income of the natives. The labor market channel is represented by the terms  $(e - \sigma) \frac{A}{L_h}$  and  $(e - \sigma) \frac{A}{L_l}$  in equation (11) – (14). The fiscal burden channel is represented by the terms  $(e - \sigma) \frac{b}{L_s^2}$  and  $(e - \sigma) \frac{\tau}{L_l^2}$  in equation (11) and (14).

## 2.1 Labor market competition channel

Here I will shortly present the implication of the labor market competition channel and then summarize the main empirical findings of the attitudes towards immigrants with respect to the labor market competition channel<sup>2</sup>.

Given the labor market channel, the model developed by Huber & Oberdabernig (2016) predicts that the effects of further immigration are unevenly distributed with respect to the population. For an instance, if the share of highly skilled natives exceeds the share of highly skilled immigrants ( $e > \sigma$ ), the wage of highly skilled laborers will increase while the wage of low-skilled laborers will decrease. By contrast, if the share of highly skilled immigrants exceeds the share of highly skilled natives ( $e < \sigma$ ), the wage of highly skilled laborers will decrease while the wage of low-skilled laborers will increase. The model thus yields the following predictions:

**Prediction 1a:** *The relationship between the skill level of the natives and their pro-immigration attitudes towards high-skilled immigrants will be negative.*

**Prediction 1b:** *The relationship between the skill level of the natives and their pro-immigration attitudes towards low-skilled immigrants will be positive.*

The empirical body of literature on attitudes towards immigrants with an emphasis on material self-interest was partly pioneered by Scheve & Slaughter (2001) who looked at the determinants of individual preferences of immigration policy. Similar to the model developed by Huber & Oberdabernig (2016), they consider a factor proportion model and document a link between labor market skills and preferences. Their model assumes perfect substitutability between natives and immigrants within the same skill group and predicts that an increase in low-skilled immigration will decrease the wages of low-skilled laborers in the particular

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<sup>2</sup> For a more elaborate literature review see Hainmueller & Hopkins (2014)

country. As in the case above, their model predicts that a surge in low-skilled immigration will result in a decrease in the relative labor supply which decreases the wages for low-skilled laborers. Hence, they accordingly expect low-skilled natives to be opposed to low-skilled immigrants.

To test the given predictions Scheve & Slaughter (2001) use the 1992, 1994 and 1996 American National Election Study (ANES). Their findings suggest that low skilled individuals prefer a more restrictive immigration policy. Scheve & Slaughter (2001) conclude that these preferences are consistent with the predictions of the factor proportion model given their assumption that the respondents have low-skilled immigrants in mind when they answer the survey questions about their attitudes towards immigrants.

In another influential study, Mayda (2006) empirically studies the determinants of individual attitudes towards immigrants within and across countries. She uses the 1995 International Social Survey Programme (ISSP) and the third round of World Value Survey (WVS) and considers the factor proportion model of Scheve & Slaughter (2001) to investigate the theoretical predictions. She finds that there is positive correlation between pro-immigration sentiment and individual skill level in countries where the natives are relatively more highly skilled than the immigrants and concludes that the findings are consistent with the predictions of the factor proportion model. She further emphasizes the important role that labor market competition plays in immigration preferences.

In a similarly conducted study O'Rourke & Sinnott (2006) suggests that high-skilled natives are less opposed to immigrants relative to low-skilled natives using the 1995 ISSP. This relationship is stronger in rich countries relative to poor and in more equal countries relative to unequal.

However, Hainmueller & Hiscox (2010) points out that there are several reasons to interpret the findings of the mentioned studies with caution. To begin with, they mention that there could be a variety of alternative explanations for the reported positive relationship between skill level (defined by years of education) of natives and pro-immigration sentiment. For an instance, there seem to be a greater level of ethnic/racial tolerance, stronger preferences for cultural diversity and more economic knowledge among high-skilled individuals in relation to low-skilled.

Moreover, each of the previous studies that evaluates the differences in attitudes towards immigrants between differently skilled natives do not differentiate between low-skilled and high-skilled individuals in their formulation of survey questions. This becomes problematic since the prediction given the labor market channel is that natives should oppose

immigrants with similar skill level as their own and be in favor of immigrants with different skill level.

In their empirical analysis, Hainmueller & Hiscox (2010) conduct a U.S. survey experiment where half of the respondent were randomly assigned questions about attitudes towards high-skilled immigrants and half were assigned questions about attitudes towards low-skilled immigrants. Unlike the theoretical predictions of the labor market competition channel, their findings indicate that high- and low-skilled natives equally prefers highly skilled immigrants over low-skilled. They attribute the findings to noneconomic concerns regarding ethnocentric and sociotropic implications of immigration on the economy in general.

Malhotra et al. (2013), however, conclude that this weak support for the labor market competition channel is rather explained by the fact that a large portion of the American population are not economically affected by immigration. Leveraging from a targeted sampling strategy of high technology countries they look at U.S. natives in high-tech sectors attitudes towards high-tech H-1B visa holding laborers from abroad. By focusing on individuals who are employed in a sector that is threatened by immigrations they find that natives workers are more opposed to extending visas for foreign workers relative to other sectors.

In a recent study by Haaland & Roth (2017) they attempt to find a causal relationship between individuals' belief about labor market effects of immigration and their attitudes towards immigration. They conduct an U.S. survey experiment where they elicit their respondents' beliefs about the labor market effect of the Mariel boatlift – an unexpected mass immigration of Cubans in 1980 – where a random subset of respondents received factual information about the labor market consequences of the Mariel boatlift. The information included research that claimed that the Mariel boatlift did not have any significant impact on the labor market. Haaland & Roth (2017) finds that changes in beliefs about the economic effect of immigration changes the attitudes towards immigration and further concluded that labor market concerns constitutes a causal determinant of natives' attitudes towards immigrants.

## **2.2 Fiscal burden channel**

Here I will shortly present the implication of the fiscal burden channel and then summarize the main empirical findings of the attitudes towards immigrants with respect to the fiscal burden channel.

In the case of labor market competition, the effect of immigration on attitudes is determined by the natives' skill level. By contrast, the fiscal burden channel assumes that the effect of immigration on attitudes is determined by the natives' income level. Hence, the model predicts that, in the case of tax adjustments, if the share of highly skilled natives exceeds the share of highly skilled immigrants ( $e > \sigma$ ), the income of highly skilled laborers will decrease. By contrast, in the case for adjustments of per-capita transfers, if the share of highly skilled natives exceeds the share of highly skilled immigrants, the income of low-skilled immigrants will decrease. The model thus yields the following predictions:

**Prediction 2a:** *Under tax adjustments, the relationship between the income level of the natives and their pro-immigration attitudes towards low-skilled immigrants will be negative.*

**Prediction 2b:** *Under tax adjustments, the relationship between the income level of the natives and their pro-immigration attitudes towards high-skilled immigrants will be positive.*

**Prediction 2c:** *Under transfer adjustments, the relationship between the income level of the natives and their pro-immigration attitudes towards low-skilled immigrants will be positive.*

**Prediction 2d:** *Under transfer adjustments, the relationship between the income level of the natives and their pro-immigration attitudes towards high-skilled immigrants will be negative.*

In an influential paper in this second strand of the empirical literature on self interested individuals' attitudes towards immigrants, Hanson et al. (2007) looks at individuals' preferences towards immigration and trade policy. They begin by developing a theoretical framework for studying how the difference between pre- and post-taxes differs depending on globalization strategies and fiscal policy. They then apply this framework to look at differences in attitudes towards immigrants in different U.S. states using the 1992 and 2000 American National Election Studies (ANES). The general premise is that low-skilled individuals have a negative net-effect on the public finances whereas high-skilled individuals have a positive net-effect on the public finances. The prediction of their theoretical framework is that immigrants burden on public finances is the underlying determinant of the natives' attitudes towards immigrants, hence, high-income natives should oppose low-skilled immigrants more and favor high-skilled immigration more relative to low-income natives. Hanson et al., (2007) finds that – in line with the predictions given tax adjustments – high-income natives in states with high exposure to the fiscal pressure (e.g. states with generous public benefits) induced by immigration are more opposed to immigration in relation to states with lower fiscal exposure.

Furthermore, Facchini & Mayda (2009) also considers the fiscal impact of immigrants and considers, as in my case, two models in which fiscal adjustments as a consequence of immigration affects the attitudes towards immigration among natives. As Huber & Oberdabernig (2016), their first model assumes that changes in immigration inflows results in adjustments of tax-rates while the per-capita transfers are kept constant. Immigration will thus have a larger impact on high-income individuals (i.e. net contributors). The prediction in terms of attitudes towards immigrants is that high-income natives should be more opposed to immigration of low-skilled immigrants (i.e. net recipients) and more supportive towards high-skilled immigrants in relation to low-income natives. The second model assumes that changes in immigration inflows results in adjustments of the per-capita transfers while holding the tax-rates constant. Hence, the model predicts that low-income natives are affected by immigration and that they are more opposed to low-skilled immigrants and more in favor of high-skilled immigrants in relation to high-income individuals (as access to public services becomes more scarce). Again, the general assumption in both models are that low-skilled immigrants impose a fiscal burden on the economy whereas high-skilled immigrants increase the tax-revenues of the economy. Their empirical findings are that attitudes towards immigrants in Europe is consistent with the first model. In countries with inflows of low-skilled immigrants, income of natives is negatively correlated with pro-immigration sentiment and skill-level is positively correlated with pro-immigration sentiment. In countries with inflows of high-skilled immigrants, the reversed is true.

Again, Hainmueller & Hiscox (2010) mentions that there are several reason to be wary of these findings. There is a fair amount of ambiguity regarding the actual fiscal net contributions of immigrants especially in terms of the extent to which immigrants affect the tax-burden on natives. Additionally, they note that the empirical analysis underpinning the mentioned findings are based on indirect and incomplete survey questions and are based on questionable assumptions regarding the respondents. Also, similarly to the case of the labor market competition channel, none of the studies actually differentiates between high-skilled and low-skilled immigrants in the survey questions. Rather they look attitudes towards immigrants in general. In their U.S. survey experiment mentioned above they find that high- and low-income natives are generally equally opposed to low-skilled immigrants. However, they do find that in states with high fiscal exposure, low-income natives are more opposed to low-skilled immigrants compare to states with lower fiscal exposure. They conclude that low-income natives are more concerned about the potential constraints on welfare benefits than the effect on the tax-rate.

Huber & Oberdabernig (2016) interesting contribution to the literature looked at the impact of the fiscal burden channel on natives' immigration preferences. They use a measure for welfare utilization for 24 European countries and find evidence that suggest that low-skilled natives seem to fear further immigration as it threaten their receipt of social benefits. In particular, they find that natives' attitudes towards immigrants is positively influences by education (assumed to be positively correlated with being a net-contributor to the welfare state) and negatively influenced by age (assumed to be negatively correlated with being a net-contributor to the welfare state) in the cases where benefit take-up rates are higher among immigrants in relation to natives.

In a recent paper, Gerber et al. (2017) acknowledges the shortcomings of the earlier literature and conducts an experimental survey to evaluate the perceptions of economic, cultural and political implications of immigration. They specifically study the beliefs about the fiscal burden on the welfare that immigrations might create. From the responses of 2000 participants, they concluded that beliefs about the fiscal burden of immigrants is correlated with immigration attitudes and explains the difference in attitudes towards high-skilled and low-skilled immigrants. Accordingly, they mention that previous studies underestimate the importance of economic self-interest as a determinant when evaluating attitudes towards immigration.

Taken together, the current literature on the role of labor market competition and fiscal burden concerns in shaping the natives' attitudes towards immigrants remains empirically unconvincing. The shortcomings of the empirical research due to mainly data constraints results in the necessity of making problematic assumptions in order to make inferences which causes further ambiguity.

### **3. Data and descriptive statistics**

#### **3.1 The European Social Survey**

The primary data source of the empirical analysis in this paper stems from the seventh round of the European Social Survey (ESS). The dataset is a multi-country survey that covers 22 European countries<sup>3</sup>, surveys 40,185 participants and involves strict random sampling probability. The data records responses made in hour-long face-to-face interviews in 2014 and deals with a variety of topics repeated from previous rounds. Every round of the ESS consists of a core set of survey questions together with rotating modules of in-depth questions related

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<sup>3</sup> Where Israel is included

to a specific topic. The seventh round of the ESS includes two topic-specific modules with questions covering health-related social inequalities and immigration attitudes. The data set also includes design and population weights which will be applied to correct for sampling and non-response errors as well as differences in population size between countries (ESS, 2016). The main advantage of examining this particular round of the ESS is that there are questions about attitudes towards immigrants that differentiates between immigrants with different skill levels. This distinction allows for a direct test of the predictions without relying on assumptions regarding the respondents' own assumption about the skill levels of immigrants.

### **3.2 Variable selection**

I will construct the dependent variables based on four questions in the ESS that asks the respondent the following question: "please tell me to what extent you think [country] should allow [professionals/unskilled] from [poor European/non-European country providing largest number of migrants] to come to live in [country]?". There are four possible answers choices to the questions: "allow many", "allow some", "allow a few" or "allow none". To allow for a more intuitive and basic summary of the results I will create a pro-immigration binary variable that is equal to one if the answers to the questions is "allow many" or "allow some" and zero if the answers is "allow few" or "allow none".

It should be noted that, due to a large number of non-responses on the dependent variables, there is a large drop in the number of observations in the main results. However, the implication of this seem to be marginal, which will be further discussed below.

The independent variables of primary interest will be years of education (as a proxy for skill level) and household income. Also, to control for socio-demographical factors, I will use a baseline set of covariates that includes the respondents age, gender, occupational status, type of area of residence, parents' immigration background as well as a binary variable that indicate if the respondent was born in the country of residence. Lastly, I will also include country fixed effects to control for unobserved country specific factors. This is crucial as it becomes possible to account for the effect of country specific variables that are homogenous across citizens, as for example, the state of the economy or skill composition of natives relative to immigrants (Facchini & Mayda, 2009). The main risk associated with not including country fixed effects would be that the majority of the natives in the rich countries would be reported as high income earners whereas even rich individuals in poor countries would be reported as poor.

In addition to the baseline covariates I will in a second specification also include covariates that captures the respondents' values and cultural attributes. These variables measure the respondents' satisfaction with the current state of the economy, opinion about the importance of following traditions and culture and placement in the political left-right scale. Additionally, beliefs about the cultural contribution of immigrants to the society will be included. There is reason to believe that these variables are correlated with some of the independent variables and determines the dependent variables. However, there is a challenge with this specification, there might be elements of reversed causality, as some of these variables might be determined by the dependent variable which in turn would leave us with an

Table 1 - Summary statistics (Dependent variables)

Pro-immigration attitudes towards:	Dependent variable				Obs.
	High-skilled Europeans	Low-skilled Europeans	High-skilled non-Europeans	Low-skilled non-Europeans	
Austria	0,66	0,35	0,57	0,27	1671
Belgium	0,64	0,41	0,67	0,40	1618
Switzerland	0,84	0,62	0,74	0,39	1237
Czech Republic	0,44	0,21	0,45	0,21	2128
Germany	0,90	0,62	0,87	0,47	2894
Denmark	0,76	0,54	0,75	0,39	1438
Spain	0,56	0,24	0,54	0,30	1818
Finland	0,72	0,26	0,55	0,19	2039
France	0,83	0,60	0,77	0,48	1820
United Kingdom	0,73	0,35	0,73	0,28	2135
Hungary	0,39	0,09	0,34	0,09	1698
Ireland	0,63	0,38	0,48	0,26	2193
Israel	0,43	0,27	0,47	0,39	2542
Lithuania	0,62	0,44	0,58	0,29	2242
Netherlands	0,61	0,34	0,62	0,32	1856
Norway	0,84	0,62	0,75	0,44	1339
Poland	0,71	0,47	0,62	0,36	1614
Portugal	0,60	0,37	0,72	0,41	1234
Sweden	0,86	0,68	0,82	0,71	1720
Slovenia	0,74	0,53	0,66	0,27	1209
Total	0,73	0,46	0,70	0,37	36445

**Note:** The country specific statistics are reported using design weights whereas cross-country statistics are reported using design and population weights.

endogenous model (see Huber & Oberdabernig, 2016). For this reason, they will not be used in the baseline specification.



Moreover, I will append my data set with EUROSTAT data to construct a variable that measures the fiscal exposure to immigration of a country. The EUROSTAT data holds information on the respective countries number of natives and immigrants as well as data on general public expenditures. Similar to Hanson et al. (2007), I will construct a binary variable that indicates high fiscal exposure to immigration if two conditions are met: (1) the ratio of immigrant to native in a particular country is greater than the median level of the countries in the sample and (2) the public expenditure on general public services per native is above the median level of the countries in the sample.

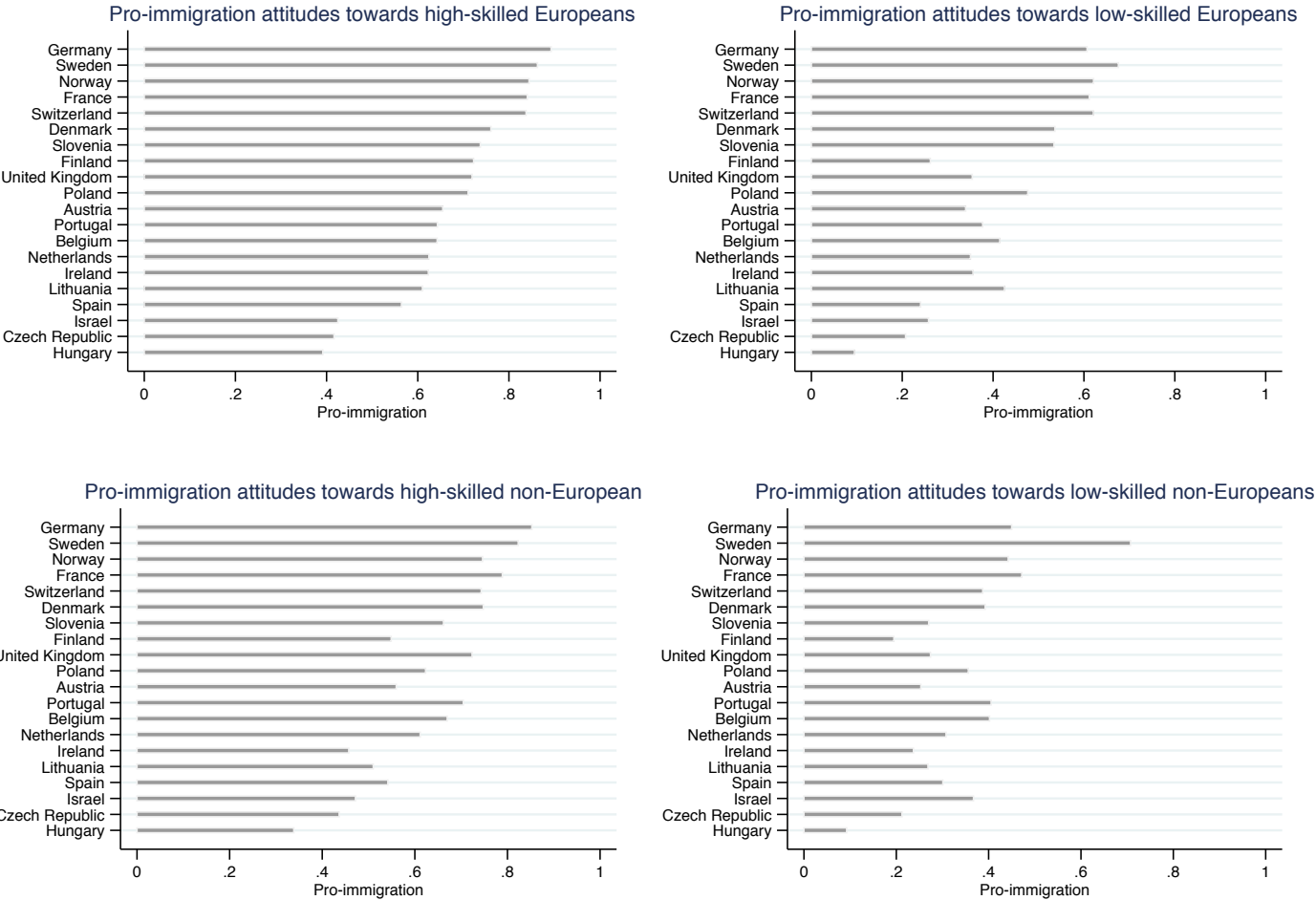
### **3.3 Summary statistics**

Table 1 and 2 presents the summary statistics of the variables used in the empirical analysis for each of the countries as well as across all countries. Table 1 shows that, overall, natives (defined as citizens of the country of residence) have a substantially more positive attitude towards high-skilled immigrants than low-skilled immigrants. Furthermore, natives prefer European immigrants slightly more than non-European. Approximately 73% and 70% of the natives in the countries believe that some/many more high-skilled immigrants from European and non-European countries respectively should be allowed to come and live in the native's country of residence. Accordingly, 46% and 37% of the natives believe that some/many more low-skilled immigrants from European and non-European countries respectively should be allowed to live in the countries. However, there is a substantial cross-country variation, general pro-immigration attitudes are particularly high in Sweden and Germany and particularly low in Czech Republic and Hungary. This is further illustrated in figure 1, which depicts the variation in average pro-immigration sentiment towards high-skilled and low-skilled Europeans and non-Europeans among the respective countries in the sample. The figures reveal that countries as Germany, Sweden, Norway and France have relatively high pro-immigration preferences independently of the skill level and origin of the immigrants. By contrast, eastern European countries as Hungary and Czech Republic show relatively low pro-immigration preferences independently of the skill level and origin of the immigrants. Generally, most countries seem to prefer European over non-European immigrants and high-skilled over low-skilled immigrants. They tend to be relatively strongly opposed to non-European low-skilled immigrants, where Sweden is the only country with an average pro-immigration level above 0.5. Conversely, the majority of the countries are strongly in favor of high-skilled European immigration, where Hungary, Czech Republic and Israel are the only countries with an average pro-immigration level below 0.5. Also note that, for all countries,

the skill level of the immigrants is prioritized over the origin of the immigrants when shaping their preferences. High-skilled immigrants are always preferred over low-skilled immigrants independent of the immigrants' origin. In summary, table 1 and figure 1 reveals that pro-immigration sentiments vary substantially across countries. However, the relative preferences with respect to the countries are fairly similar independently of the skill levels and origins of the immigrants. Furthermore, preferences towards high-skilled immigrants are higher relative to low-skilled immigrants and preferences towards European immigrants are higher relative to non-European immigrants.

Table 2 reports the summary statistics for the independent variables. As mentioned above, there is a large drop in the number of observations of the main results due to the

Figure 1 - Country specific attitudes



number of non-responses of the dependent variables. For this reason, table 2 only reports the observations without non-responses on the first dependent variable (attitudes towards high-skilled European immigrants). With that said, there is a very slim difference in the summary statistics compared to the case where all observations in the data set are included. Hence, if all the non-respondents where to respond, it would be reasonable to assume that the summary

statistics when including all observations would remain fairly similar (see appendix for summary statistics of all observations).

In terms of the socio-demographical factors, table 2 reports that the average years of schooling across all countries in the sample is 13 years. The average standard deviation is 3.56 years of schooling, ranging from 2.42 to 5.77 years across countries. The average age is 49 years and 49% of the respondents are male. The average household size amount to 2.84 individuals. Approximately 93% of the respondents were born in the country of residence whereas 15% have at least one parent that was born in another country than the respondents country of residence. In terms of labor market status, 11% of the respondents are students, 52% are working, 4% are unemployed and 2% are out of the labor force.

To get further insights to the extent to which the fiscal burden channel explains the relationship between natives' attitudes towards immigrants and income I will construct a measurement for the fiscal exposure to immigrants of a country. A country is considered to have a high degree of fiscal exposure to immigrants if the country has a relatively high ratio of immigrants to natives and relatively high public service expenditures. Ideally, instead of public service expenditure, the take-up rate of social benefits among immigrants would be a better criterion, however, this is not attainable due to data constraints. With that said, Hanson et al. (2007) finds that total welfare spending is a reasonable proxy for welfare spending by immigrants only.

Figure 2 shows the fiscal exposure of each country in the data set. The countries in the top right corner of the figure is considered to have high fiscal exposure to immigrants whereas the rest is considered to have low fiscal exposure. The figure shows that there are eight countries in my sample that have a high degree of fiscal exposure. Among these countries are the ones that displayed a relatively high pro-immigration sentiment towards all types of immigrants. The high fiscal exposure countries are Sweden, Norway, Belgium, Austria, Ireland, Germany, France and Switzerland.

## **4. Hypothesis and econometric specification**

### **4.1 Hypothesis**

Here I will formulate the hypothesis that I aim to test in this paper. I will empirically test the effect of the natives' skill level and income on attitudes towards high-skilled and low-skilled immigrants. The individuals' skill level will be measured by years of education, as in the case

Table 2 - Summary statistics (Independent variables)

	Indep. var.											
	Education	Income	Age	Male	Household size	Migrant parent	Student	Employed	Uemployed	Out of labor force	Born in country	Obs.
Austria	12.27	4.86	49.80	0.50	2.43	0.17	0.08	0.52	0.04	0.01	0.93	394
Belgium	13.33	5.73	48.19	0.50	2.91	0.14	0.11	0.47	0.04	0.03	0.94	414
Switzerland	10.89	5.26	49.20	0.56	2.60	0.26	0.09	0.55	0.04	0.01	0.89	308
Czech Republic	12.71	5.61	46.18	0.53	2.86	0.10	0.12	0.54	0.04	0.01	0.98	502
Germany	14.18	6.12	50.32	0.51	2.64	0.15	0.12	0.59	0.03	0.01	0.93	698
Denmark	12.46	5.62	47.33	0.53	2.56	0.07	0.16	0.56	0.05	0.01	0.96	380
Spain	12.98	5.12	48.87	0.49	3.02	0.04	0.15	0.45	0.09	0.04	0.96	452
Finland	13.31	5.60	51.81	0.50	2.36	0.04	0.10	0.49	0.04	0.03	0.97	501
France	12.79	5.69	45.82	0.46	3.12	0.19	0.12	0.53	0.06	0.02	0.94	432
United Kingdom	13.68	5.54	50.42	0.45	2.68	0.14	0.05	0.53	0.03	0.01	0.92	527
Hungary	12.29	6.55	49.91	0.47	2.60	0.05	0.06	0.54	0.03	0.01	0.98	406
Ireland	13.69	4.37	46.59	0.44	3.18	0.10	0.13	0.43	0.05	0.03	0.94	552
Israel	13.32	5.28	46.18	0.48	3.58	0.70	0.13	0.57	0.04	0.03	0.66	605
Lithuania	12.89	6.26	47.47	0.40	2.68	0.11	0.13	0.54	0.02	0.03	0.98	526
Netherlands	13.66	6.19	47.97	0.48	2.81	0.16	0.12	0.51	0.04	0.03	0.92	434
Norway	13.83	5.36	46.04	0.54	2.65	0.11	0.16	0.66	0.02	0.00	0.94	340
Poland	12.20	5.34	46.35	0.49	3.33	0.03	0.12	0.51	0.05	0.02	0.99	411
Portugal	8.48	4.95	52.28	0.50	3.07	0.05	0.07	0.44	0.11	0.01	0.94	311
Sweden	13.02	6.49	50.53	0.49	2.52	0.17	0.10	0.57	0.02	0.01	0.90	444
Slovenia	12.27	4.88	48.34	0.44	3.14	0.15	0.16	0.40	0.08	0.03	0.91	293
Total	12.88	5.58	48.46	0.49	2.84	0.15	0.11	0.52	0.04	0.02	0.93	8930

**Note:** The country specific statistics are reported using design weights whereas cross-country statistics are reported using design and population weights. Educ. stands for years of schooling. Income stands the household income. Parents mig. stands for parents migrants (equal to one if at least one parent is born outside the country of residence). See appendix for the survey questions. See appendix for summary statistics of all observations in the data set.

of most similarly conducted studies (see Hainmueller & Hiscox, 2010, Facchini & Mayda 2009) and income will be based on the natives' household income. I will evaluate the natives' attitudes towards high- and low-skilled immigrants with respect to the labor market channel and fiscal burden channel. Given the discussion in the previous sections as well as prediction (1a) - (1b) and (2a) - (2d), I will test the following hypothesis':

- The labor market channel: The relationship between the skill level of the natives and their attitudes towards high-skilled immigrants is negative. Moreover, the relationship between the skill level of the natives and their attitudes towards low-skilled immigrants is positive.
- The fiscal burden channel: Under tax-adjustments, the relationship between the income level of the natives and their attitudes towards low-skilled immigrants is negative. Moreover, the relationship between the income level of the natives and their attitudes towards high-skilled immigrants is positive. By contrast, under transfer-adjustments, the relationship between the income level of the natives and their attitudes towards low-skilled immigrants is positive. Moreover, the relationship between the income level of the natives and their attitudes towards high-skilled immigrants is negative.

## 4.2 Econometric specification

My baseline specification will be a linear probability model where the dependent variable in my analysis is a binary variable that takes the value one or zero:

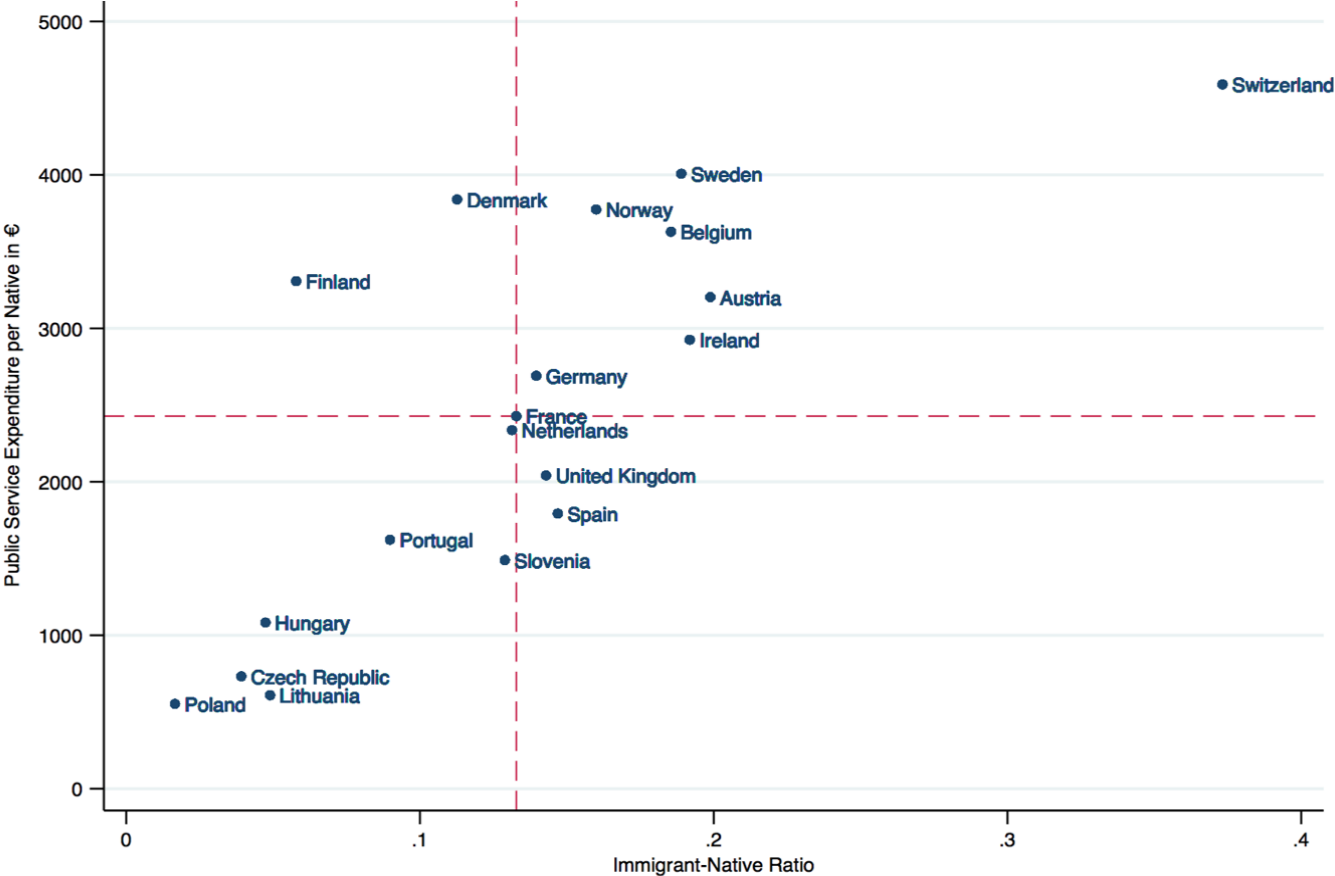
$$PROIM_{ij}^* = \alpha + \gamma_1 Skills_{ij} + \delta_1 Income_{ij} + \beta X'_{ij} + \theta_j + \varepsilon_{ij} \quad (15)$$

where  $PROIM_{ij}^*$  measures the pro-immigration attitude of individual  $i$  in country  $j$ ,  $Skills_{ij}$  measures the individuals years of education and  $Income_{ij}$  measures the individuals household income.  $X'_{ij}$  is a matrix that consists of individual socio-demographic factors as gender, age, marital status, household size and labor market status. The key-parameters of interest will be  $\gamma_1$  and  $\delta_1$  that will capture the relationship between pro-immigration attitudes and the skill and income level of the natives respectively. The parameter  $\theta_j$  is the country fixed-effect that captures unobservable country specific factors. The error term  $\varepsilon_{ij}$  is assumed to be normally and independently distributed.

There are two particular challenges associated with equation (1). Firstly, the skill level and the income level will very likely be relatively strongly correlated, causing them to yield similar results. To address this problem, I will evaluate the effect of income on immigration attitudes conditional on the skill level of the natives. Given prediction (2a) and (2b), one

would expect that, for an instance, high-skilled high-income individuals would behave identically as low-skilled high-income individuals. Furthermore, I will construct a measurement for the fiscal exposure to immigrants in a country. As mentioned above, I will construct a binary variable that indicates high fiscal exposure to immigration if two conditions

Figure 2 - Fiscal exposure to immigrants by country



are met: (1) the ratio of immigrant to native in a particular country is greater than the median level of the countries in the sample and (2) the public expenditure on general public services per native is above the median level of the countries in the sample. Hence, one would expect the effects associated with the labor market channel to be independent with respect to the fiscal exposure to immigrants, whereas the effects associated with the fiscal burden channel should be greater in high fiscal exposure countries. However, since the immigrant-to-native ratio and public service expenditures obviously do not vary across individuals, appending the data will imply that it will not be possible to control for unobserved country specific variables. It is also important to note that the fiscal exposure measurement was constructed by Hanson et al. (2007) in the context of U.S. states which obviously are more homogenous than European countries.

The second challenge associated with the baseline specification is that the cross-sectional design of the specification will not allow me to make causal inferences. It will however yield important insights regarding the relationship between the dependent and independent variables in terms of correlation.

## **5. Results**

### **5.1 Main results**

In this section, I will outline the results from my baseline specification with and without value-specific control variables included. Moreover, I will present the results conditional on different education level of the native's. Lastly, I will report the result when differentiating between high- and low fiscal exposure countries. Table 3 reports the baseline specification with and without value controls. For a more convenient and clear summary of the results, the table only reports the key parameters of interest, i.e. education level and income (see appendix for the full results). Starting from column (1) - (4), the estimation results reports that the education level of the native's is significantly and positively correlated with pro-immigration attitudes, independent of the education level and origin of the immigrants. The results further report that the income level of the natives is significantly and positively correlated with the attitudes towards high-skilled immigrants from European and non-European countries. However, the correlation between the level of income and attitudes towards low-skilled immigrants is not significantly different from zero.

Column (5) – (8) reports the results when including value specific control variables to the baseline specification. Some of the variation in the first four columns might be explained by the value specific variables rather than the labor market competition and fiscal burden channel. The inclusion of the controls results in the correlation between the education level of the natives' and attitudes towards low-skilled European immigrants becoming insignificant. Additionally, it reduces the significance level of the correlation between the education level of the natives' and attitudes towards high-skilled non-European immigrants. Lastly, the correlation between the income level of the natives' and attitudes towards high-skilled European and non-European immigrants is significant at a significance level of 10% once the value-specific control variables are included.

Excluding value-specific control variables, the results suggests that a one years increase in schooling is associated with a 1.5% increase in the likelihood of having pro-immigration

attitudes towards all types of immigrants except low-skilled non-European immigrants, for which the corresponding number is 1.9%. Moreover, a one decile rank increase in income is associated with a 1.3% and 1.8% increase in the likelihood of having positive attitudes towards high-skilled European and non-European immigrants respectively. When including the value-specific control variables, a one years increase in schooling is associated with a 1.0% increase in the likelihood of having positive attitudes towards high-skilled European immigrants and 0.8% increase the likelihood of having positive attitudes towards non-Europeans immigrants. A one decile rank increase in income is further associated with a 0.7% and 0.9% increase in the likelihood of having positive attitudes towards high-skilled European and non-European immigrants respectively.

In summary, the main results suggest that immigration attitudes are almost always positively correlated with the education level of the natives. The only exception to this is the insignificant correlation between attitudes towards low-skilled non-European immigrants and education level of natives (when including value-specific controls). Overall, this goes in line with the general presumption that higher educated individuals are more racially and culturally tolerant. Furthermore, the correlation between attitudes towards low-skilled immigrants and income level of the natives is always insignificant. The constants of each regression further reveals some insights about the relative attitudes towards high- and low-skilled immigrants. Particularly that high-skilled immigrants are always preferred over low-skilled immigrants. Lastly, the inclusion of values specific control variables does not have a noteworthy impact on the main findings – and more importantly - the final conclusions, for this reason, I will henceforth only discuss the results when excluding the value-specific control variables in this section.

To assess whether the correlation between income and attitudes differs for different levels of education, table 4 reports the results of the baseline specification excluding the skill variable conditional on the natives' years of education. Given prediction (2), the correlation between income and attitudes is expected to be independent of the education level of natives. Interestingly enough, when excluding value specific control variables, the correlation between attitudes and income generally becomes smaller as the education level of the natives'



Table 3 - Main result (Linear Probability Model)

Pro-immigration	European		Non-European		European		Non-European	
	(1) High- skilled	(2) Low- skilled	(3) High- skilled	(4) Low- skilled	(5) High- skilled	(6) Low- skilled	(7) High- skilled	(8) Low- skilled
<b>Education</b>	<b>0.015***</b> (0.002)	<b>0.015***</b> (0.003)	<b>0.015***</b> (0.003)	<b>0.019***</b> (0.003)	<b>0.010***</b> (0.003)	<b>0.005</b> (0.004)	<b>0.008**</b> (0.003)	<b>0.008***</b> (0.002)
<b>Income</b>	<b>0.013***</b> (0.002)	<b>0.005</b> (0.003)	<b>0.018***</b> (0.005)	<b>0.006</b> (0.007)	<b>0.007*</b> (0.004)	<b>0.002</b> (0.003)	<b>0.009*</b> (0.005)	<b>0.006</b> (0.006)
Socio- demographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Value controls	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.437*** (0.089)	0.130* (0.069)	0.395*** (0.049)	0.064 (0.119)	0.346*** (0.087)	-0.006 (0.118)	0.285*** (0.073)	0.018 (0.117)
Observation	7451	7274	7263	7312	6620	6404	6449	6513

\*p<0.10, \*\*p<0.05, \*\*\*p<0.01

**Note:** Linear probability model (LPM) results are reported using design and population weights. Socio-demographic controls include age, gender, marital status, respondent born in country of residence, parents born in country of residence, domicile, student, employed, unemployed and out of labor force. Cultural controls include left-right scale, satisfaction with current state of economy, beliefs about if immigration is good for the economy, beliefs about if immigration enriches the cultural life of the country, beliefs about if immigrants constitute net-benefit for the economy and beliefs about if it is important to follow traditions. Standard errors clustered by country are reported in the parentheses. See appendix for full result.

Table 4 - Baseline specification conditional on education level

Pro-immigration	European		Non-European		European		Non-European	
	(1) High-skilled	(2) Low-skilled	(3) High-skilled	(4) Low-skilled	(5) High-skilled	(6) Low-skilled	(7) High-skilled	(8) Low-skilled
<b>Educ. level =&lt; 10yrs</b>								
<b>Income</b>	<b>0.013**</b> (0.006)	<b>0.025*</b> (0.012)	<b>0.024***</b> (0.005)	<b>0.004</b> (0.008)	<b>0.011</b> (0.007)	<b>0.025***</b> (0.008)	<b>0.016*</b> (0.008)	<b>0.004</b> (0.008)
Observation	1686	1563	1595	1357	1427	1286	1301	1357
<b>10&lt;Educ. level =&lt; 14yrs</b>								
<b>Income</b>	<b>0.018***</b> (0.006)	<b>0.010**</b> (0.004)	<b>0.020***</b> (0.003)	<b>0.009</b> (0.009)	<b>0.008</b> (0.007)	<b>0.004</b> (0.005)	<b>0.010***</b> (0.002)	<b>0.008</b> (0.007)
Observation	3026	2998	2960	2951	2678	2623	2627	2608
<b>Educ. level&gt;14yrs</b>								
<b>Income</b>	<b>0.012***</b> (0.004)	<b>-0.008</b> (0.007)	<b>0.015</b> (0.010)	<b>0.003</b> (0.008)	<b>0.005</b> (0.004)	<b>-0.011**</b> (0.005)	<b>0.007</b> (0.011)	<b>0.007</b> (0.007)
Observation	2330	2324	2355	2338	2177	2172	2207	2202
Socio-demographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Value controls	No	No	No	No	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

**Note:** LPM results are reported using design and population weights. Socio-demographic controls include age, gender, marital status, respondent born in country of residence, parents born in country of residence, domicile, student, employed, unemployed and out of labor force. Cultural controls include left-right scale, satisfaction with current state of economy, beliefs about if immigration is good for the economy, beliefs about if immigration enriches the cultural life of the country, beliefs about if immigrants constitute net-benefit for the economy and beliefs about if it is important to follow traditions. Standard errors clustered by country are reported in the parentheses.

increases. Particularly, column (2) and (3) suggest that the correlation between income and attitudes towards low-skilled European and non-European immigrants diminishes as the education level increases. In fact, income is not significantly correlated with attitudes for the highest educated natives'. The only case in which the correlation between attitudes and income is independent of the education level is when considering attitudes towards low-skilled non-European immigrants, where the correlation is insignificant for any level of education. All in all, these results suggest that highly educated natives, to some extent, seems to be less concerned of the impact of immigrants on their income. Similar to the main results, this illuminates the higher racial and cultural tolerance among the relatively highly educated natives.

Tabel 5 shows how the results from the baseline specification differs between high and low fiscal exposure countries respectively. The countries in the sample that has a high immigrant-to-native ratio and high public service expenditures (both being above median level) are said to have high fiscal exposure to immigrants. Given prediction (1), one would expect the effect of the labor market competition channel to be independent of the countries having high or low fiscal exposure to immigrants. For high fiscal exposure countries, the results suggest that the correlation between attitudes and the education level of the natives is significantly positive in all cases except when considering low-skilled European immigrants. When considering low fiscal exposure countries, the corresponding correlation is positively significant for all types of immigrants. The magnitude of the correlation is larger in the case of high fiscal exposure countries when considering high-skilled immigrants and lower when considering low-skilled immigrants. It should however be noticed that the sample size for high fiscal exposure countries are smaller than low fiscal exposure countries as they include fewer countries. Moreover, given prediction (2), one would expect the fiscal burden channel to be less apparent among natives from low fiscal exposure countries. For high fiscal exposure countries, the correlation between attitudes and income is significantly positive when considering high-skilled European immigrants and high-/low-skilled non-European immigrants. Comparably, for low fiscal exposure countries, the correlation is significantly positive only when considering high-skilled European and non-European immigrants.

Hence, these results suggest that the labor market competition channel does not manifest itself identically among natives from high and low fiscal exposure countries. Furthermore, there is arguable little to indicate that natives from high fiscal exposure countries are more – or at all – concerned of the fiscal burden of immigrants relative to natives from low fiscal exposure countries as the relationship between income and attitudes is

Table 5 – Results for high and low fiscal exposure countries

Pro-immigration	High Fiscal Exposure Countries				Low Fiscal Exposure Countries			
	European		Non-European		European		Non-European	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	High-skilled	Low-skilled	High-skilled	Low-skilled	High-skilled	Low-skilled	High-skilled	Low-skilled
<b>Education</b>	<b>0.018***</b>	<b>0.008</b>	<b>0.018***</b>	<b>0.011***</b>	<b>0.015***</b>	<b>0.016***</b>	<b>0.014***</b>	<b>0.024***</b>
	(0.001)	(0.006)	(0.003)	(0.001)	(0.002)	(0.004)	(0.004)	(0.004)
<b>Income</b>	<b>0.020**</b>	<b>0.008</b>	<b>0.018***</b>	<b>0.020***</b>	<b>0.013***</b>	<b>0.007</b>	<b>0.017**</b>	<b>-0.006</b>
	(0.004)	(0.006)	(0.002)	(0.002)	(0.003)	(0.005)	(0.007)	(0.004)
Socio-demographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Value controls	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.179	0.228**	0.381*	0.194	0.634***	0.473***	0.564***	0.163
	(0.085)	(0.054)	(0.157)	(0.111)	(0.127)	(0.097)	(0.079)	(0.199)
Observation	1438	1337	1415	1372	4956	4875	4833	4854

\* p<0.10, \*\*p<0.05, \*\*\*p<0.01

**Note:** LPM results are reported using design and population weights. Column (1) - (4) reports the results for high fiscal exposure countries and column (5) – (8) reports the results for low fiscal exposure countries. The results are reported excluding value specific control variables. Socio-demographic controls include age, gender, marital status, respondent born in country of residence, parents born in country of residence, domicile, student, employed, unemployed and out of labor force. Cultural controls include left-right scale, satisfaction with current state of economy, beliefs about if immigration is good for the economy, beliefs about if immigration enriches the cultural life of the country, beliefs about if immigrants constitute net-benefit for the economy and beliefs about if it is important to follow traditions. Standard errors clustered by country are reported in the parentheses.

non-negative when considering all types of immigrants. With that said, it is important to consider the heterogeneity among the countries in the sample, which will be further discussed in section six.

## **5.2 Robustness**

### **5.2.1 Probit estimation**

To evaluate the sensitivity to changes in the model used to estimate the baseline specification I also estimate a probit model. Table 6 presents the average marginal effect of the probit estimation where column (1) – (4) reports the results without the value-specific controls and column (5) – (8) includes the value controls. Focusing on the first four columns, the results are almost identical to the LPM results in terms of significance and sign. The only difference occurs when considering the correlation between the income level of the natives and pro-immigration attitudes towards low-skilled European immigrants which is insignificant in the LPM-model. When including the value-specific controls the results remain equally robust.

### **5.2.2 Outliers**

When considering the labor market channel, the key variable of interest is the education level of the natives, i.e. years of education. In my sample the range of years of education lies between 0 and 50 years. However, 94.38% of all the individuals in the sample has 6 to 20 years of education. To evaluate sensitivity of the baseline specification with respect to outliers, I estimate the baseline model for the natives with 6 to 20 years of education. Table 7 presents these results where column (1) – (4) reports the results without the value-specific controls and column (5) – (8) includes the value controls. The results remain fairly robust when omitting outliers. The results reported on the first four columns shows that the correlation between pro-immigration attitudes and education level is identical to the main results with respect to sign and significance. When including value specific variables, the only noteworthy difference is that the correlation between skill-level and attitudes towards high-skilled non-Europeans becomes insignificant. Similarly, the correlation between pro-immigration attitudes and income remains relatively robust. When excluding value specific controls, the only noteworthy difference is that the correlation with respect to low-skilled European immigrants becomes significant. Furthermore, the correlation with respect to high-skilled non-European immigrants becomes insignificant when including value-specific controls.

Table 6 - Probit results (Average marginal effects)

Pro-immigration	European		Non-European		European		Non-European	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	High-skilled	Low-skilled	High-skilled	Low-skilled	High-skilled	Low-skilled	High-skilled	Low-skilled
<b>Education</b>	<b>0.016***</b>	<b>0.015***</b>	<b>0.015***</b>	<b>0.019***</b>	<b>0.010***</b>	<b>0.005</b>	<b>0.008***</b>	<b>0.007***</b>
	(0.001)	(0.003)	(0.002)	(0.003)	(0.002)	(0.004)	(0.003)	(0.002)
<b>Income</b>	<b>0.013***</b>	<b>0.005*</b>	<b>0.017***</b>	<b>0.006</b>	<b>0.006*</b>	<b>0.002</b>	<b>0.009</b>	<b>0.006</b>
	(0.002)	(0.003)	(0.005)	(0.007)	(0.003)	(0.003)	(0.005)	(0.006)
Socio-demographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Value controls	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observation	7451	7274	7263	7312	6620	6404	6449	6513

\* p<0.10, \*\* p<0.05, \*\*\*p<0.01

**Note:** Probit results report average marginal effects and are reported using design and population weights. Socio-demographic controls include age, gender, marital status, respondent born in country of residence, parents born in country of residence, domicile, student, employed, unemployed and out of labor force. Cultural controls include left-right scale, satisfaction with current state of economy, beliefs about if immigration is good for the economy, beliefs about if immigration enriches the cultural life of the country, beliefs about if immigrants constitute net-benefit for the economy and beliefs about if it is important to follow traditions. Standard errors clustered by country are reported in the parentheses.

Table 7 - Observations with 6 to 20 years of education only

Pro-immigration	European		Non-European		European		Non-European	
	(1) High- skilled	(2) Low- skilled	(3) High- skilled	(4) Low- skilled	(5) High- skilled	(6) Low- skilled	(7) High- skilled	(8) Low- skilled
<b>Education</b>	<b>0.016***</b> (0.002)	<b>0.019***</b> (0.005)	<b>0.018***</b> (0.005)	<b>0.025***</b> (0.003)	<b>0.008***</b> (0.002)	<b>0.008</b> (0.006)	<b>0.007</b> (0.005)	<b>0.010***</b> (0.002)
<b>Income</b>	<b>0.015***</b> (0.003)	<b>0.006*</b> (0.003)	<b>0.018***</b> (0.005)	<b>0.006</b> (0.007)	<b>0.008</b> (0.005)	<b>0.003</b> (0.003)	<b>0.011**</b> (0.005)	<b>0.007</b> (0.006)
Socio-demographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Value controls	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.437*** (0.089)	0.130* (0.069)	0.395*** (0.049)	0.064 (0.119)	0.346*** (0.087)	-0.006 (0.118)	0.285*** (0.073)	0.018 (0.117)
Observation	7451	7274	7263	7312	6620	6404	6449	6513

\*p<0.10,\*\*p<0.05,\*\*\*p<0.01

**Note:** LPM results are reported using design and population weights. Only observations with years of education between 6 and 20 years are included. Socio-demographic controls include age, gender, marital status, respondent born in country of residence, parents born in country of residence, domicile, student, employed, unemployed and out of labor force. Cultural controls include left-right scale, satisfaction with current state of economy, beliefs about if immigration is good for the economy, beliefs about if immigration enriches the cultural life of the country, beliefs about if immigrants constitute net-benefit for the economy and beliefs about if it is important to follow traditions. Standard errors clustered by country are reported in the parentheses.

## 6. Discussion

Does concerns about labor market competition and fiscal burden shape Europeans natives' attitudes towards immigrants? To begin with, my result suggests that labor market concern does not have a substantial effect on European natives' attitudes towards immigrants. My research examines the relationship between attitudes towards different types of immigrants and the skill level of European natives. I find no evidence to suggest that natives are more likely to oppose immigrants with similar skill level to their own. Rather, my results suggest that pro-immigration sentiment is almost always positively correlated with the skill level of the natives. The only exception to this is the insignificant correlation between attitudes towards low-skilled non-European immigrants and the skill level of the natives. Furthermore, one would expect the effect of the labor market competition channel to be independent with respect to the fiscal exposure to immigrants. However, I find that natives from high fiscal exposure countries behave differently in comparison to natives from low fiscal exposure countries. Particularly, the relationship between attitudes towards high-skilled immigrants and skill level is generally stronger in high fiscal exposure countries. The results also suggest that regardless of the fiscal exposure to immigrants there is no evidence of a negative relationship between attitudes and skill level. Taken together, my results are in strict contrast to the derived theoretical predictions that states that natives should be opposed to immigrants with similar skill level to their own. The result is much in line with the findings of Hainmueller & Hiscox (2010).

My research also examines the relationship between attitudes towards different types of immigrants and the income level of European natives. My results with respect to the fiscal burden channel is, however, less clear. The theoretical prediction of the fiscal burden channel states that, if tax-adjustments prevail, the relationship between the income level of the natives and attitudes towards low skilled immigrants will be negative. Furthermore, if transfer-adjustments prevail, the relationship between the income level of the natives and attitudes towards low skilled immigrants will be positive. My main results suggest that the correlation between pro-immigration sentiment towards low-skilled immigrants and income level of the natives is under no circumstances significantly different from zero. Two potential factors could drive this result. First, the insignificant correlation could imply that the fiscal burden of immigrants is not of significant concern to the natives. Second, if tax- and transfer-adjustment simultaneously prevail, then both high- and low-income natives would oppose low-skilled immigrants. This would potentially result in the relationship between income and attitudes



being canceled out as both tax- and transfer-adjustments prevail simultaneously and thus yield an insignificant estimate for the relation between attitudes and income. In the long-run, the latter would be a reasonable assumption as both tax- and transfer-adjustments likely occurs. Moreover, it is evident from the results that high-skilled immigrants are always preferred over low-skilled immigrants. Indeed, given that tax- and transfer-adjustments simultaneously occurs, the fiscal burden hypothesis predicts that both high and low income natives would be more opposed to low-skilled immigrants in relation to high-skilled immigrants. Nonetheless, if the fiscal burden channel explained relationship between income and the natives' attitudes towards immigrants, one would expect the effect to be greater in countries with high fiscal exposure to immigrants. When separating the high and low fiscal exposure countries, there is little to suggest that the fiscal burden channel is more – or at all – apparent among high fiscal exposure countries. It is again noteworthy to mention that Hanson et al. (2007) applied the fiscal exposure measurement in the context of U.S. states. It is reasonable to assume that U.S. states are more homogenous relative to European countries, which would imply the isolated effect of fiscal exposure to immigrants would be more apparent in the case of U.S. states. There are clearly other factors that differs between the European countries in the sample than just the fiscal exposure to immigrants and this heterogeneity is likely to be more evident among European countries relative to U.S states.

My results remain inconsistent with the fiscal burden hypothesis when evaluating the correlation conditional on the skill level of natives as the correlation between attitudes and income differs depending on the skill level of the natives. That being said, in light of the main result, the caveats with the specification when considering the fiscal exposure of the countries – mainly that I am not able to use country fixed effects – gives me reason to interpret the result with caution. Hence, the ambiguity in the results with respect to the fiscal burden channel should make one wary of rejecting the fiscal burden hypothesis.

Are there other factors than material self-interest that could potentially shape natives' attitudes towards immigrants? This question is beyond the scope of this study, however, I will briefly present other factors within the existing literature that potentially could explain the differences in attitudes towards immigrants.

There is a body of literature that attributes attitudes towards immigrants to socio-psychological factors in which previous research mainly focuses on nationality and ethnicity. The effect of immigrants' impact on different social groups in these studies are often classified as cultural or economic sociotropic threats. The former includes perceptions about the threat that immigrants pose to national identity and other cultural factors as language. The

latter often connects attitudes towards immigrants with beliefs about the economic impact of immigrants on the nation as a whole or other social aggregates (Hainmueller & Hopkins, 2014).

In a pioneering paper, Citrin et al. (1997) used 1992 and 1994 National Election Study Survey (ANES) to evaluate the effect of economic factors on public opinion regarding immigration policy. They find that personal economic circumstances play a limited role in shaping opinions about immigration policy. Rather, they attribute the main opinion forming factors to sociotropic concerns such as beliefs about the present state of the economy and general feelings about major immigrant groups.

In a comparable study, Chandler & Thsai (2001) evaluates the effect of social factors on public opinion about immigration policy using the 1994 Generalized Social Survey (GSS). Their findings suggest that cultural threats, to mainly the English language, have a substantial effect on immigration views.

McLaren & Johnson (2007) also suggest that sociotropic threats are important determinants of natives' view of immigration policy. In fact, using 2003 British Social Attitudes Survey (BSA), they conclude that material self-interest does not seem to play an important role in shaping the respondents' view of immigration policies. Rather, the greatest concern lies in the threat posed by immigrants on in-group resources and shared customs and traditions within the British society.

Other studies emphasize the impact of ethnocentrism on individuals' perception of immigrants. For an instance, Ford (2011) looks at British citizens' attitudes towards immigrants using six rounds of the BSA. He finds that British individuals strongly prefers whites and more culturally proximate immigrant groups relative to culturally distinct non-white groups.

That being said, studies on attitudes towards immigrants from a sociotropic point of view are not plentiful and there are general difficulties associated with studying these factors. For an instance, as mentioned by Hainmueller and Hopkins (2014), the differences between various sociotropic theories are less clear. If, say, natives prefer immigrants who speak the native language, is it because of their expected economic contribution to the society or is it because they do not pose as much of a cultural threat? Therefore, for future research, it is crucial to identify critical tests that can distinguish between different sociotropic theories.

## 7. Conclusion

This paper aims to test whether the labor market competition channel and fiscal burden channel can explain European natives' attitudes towards high- and low-skilled immigrants using the seventh round of the European Social Survey. Particularly, I examine if the labor market competition hypothesis explains the relationship between immigration attitudes and the skill level of the natives and if the fiscal burden hypothesis explains the relationship between attitudes and income level.

Unlike previous contributions, this paper utilizes a large and rich data set that includes 20 European countries and explicitly differentiates between high-skilled and low-skilled immigrants. This allows me to estimate the impact on attitudes towards immigrants without relying on assumptions about what the respondents assume regarding the skill level of the immigrants.

My results suggest that higher educated natives are almost always more positive towards all types of immigrants. This is in contrast to the labor market competition hypothesis that predicts that natives will oppose immigrants with similar skill level to their own. Rather, my results coincide with the general presumption that higher educated individuals are more racially and culturally tolerant. Moreover, my results suggest that attitudes towards low-skilled immigrants are not correlated with the income level of the natives. The implication of this finding is however less clear. The fiscal burden hypothesis predicts that, under tax-adjustments, the relationship between the income level of the natives and attitudes towards low skilled immigrants will be negative. Furthermore, under transfer-adjustments, the relationship between the income level of the natives and attitudes towards low skilled immigrants will be positive. Hence, two potential factors could drive the findings. First, the insignificant correlation could imply that the fiscal burden of immigrants is not of significant concern to the natives. Second, if tax- and transfer-adjustment simultaneously prevail, then both high- and low-income natives would oppose low-skilled immigrants. This would potentially result in the relationship between income and attitudes being canceled out as both tax- and transfer-adjustments are simultaneously relevant and thus yield an insignificant estimate for the relation between attitudes and income.

Taken together, my result suggest that the labor market channel does not have a substantial impact on European natives' attitudes towards immigrants. However, my result fail to reject the fiscal burden hypothesis, as I was not able to rule out the possibility that the

relationship between income and attitudes towards immigrants is canceled out because both tax- and transfer-adjustments are relevant.

There are nonetheless shortcomings to the empirical results. Primarily, due to data constraints, I use household income as a proxy for individual income. Despite controlling for household size, household arrangements could have had an impact on the final results. Moreover, given the design of the study, I only made inferences about correlation rather than causation. For future research, the utilization of panel data or natural experiments to isolate causal effects could be an alternative that in turn would give more convincing and applicable insights for policy decision making.

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## Appendix

### 1. Survey Questionnaire: Seventh round of the European Social Survey<sup>4</sup>

#### 1.1 Dependent variables

- *Using the same card, please tell me to what extent you think [country] should allow professionals from [poor European country providing largest number of migrants] to come to live in [country]?*
- *Using the same card, please tell me to what extent you think [country] should allow professionals from [poor country outside Europe providing largest number of migrants] to come to live in [country]?*
- *Using the same card, please tell me to what extent you think [country] should allow unskilled labourers from [poor European country providing largest number of migrants] to come to live in [country]?*
- *Using the same card, please tell me to what extent you think [country] should allow unskilled labourers from [poor country outside Europe providing largest number of migrants] to come to live in [country]?*

#### 1.2 Independent variables

- *About how many years of education have you completed, whether full-time or part-time? Please report these in full-time equivalents and include compulsory years of schooling.*
- *Using this card, please tell me which letter describes your household's total income, after tax and compulsory deductions, from all sources? If you don't know the exact figure, please give an estimate [...].*
- *Including yourself, how many people - including children - live here regularly as members of this household?*
- *Were you born in [country]?*
- *Was your father born in [country]?*
- *Was your mother born in [country]?*
- *Which phrase on this card best describes the area where you live?*
- *Using this card, which of these descriptions applies to what you have been doing for the last 7 days? In education (not paid for by employer) even if on vacation*
- *Using this card, which of these descriptions applies to what you have been doing for the last 7 days? Unemployed and actively looking for a job*
- *Using this card, which of these descriptions applies to what you have been doing for the last 7 days? In paid work*
- *Using this card, which of these descriptions applies to what you have been doing for the last 7 days? Unemployed, wanting a job but not actively looking for a job*
- *On the whole how satisfied are you with the present state of the economy in [country]?*
- *And, using this card, would you say that [country]'s cultural life is generally undermined or enriched by people coming to live here from other countries?*
- *In politics people sometimes talk of "left" and "right". Using this card, where would you place yourself on this scale, where 0 means the left and 10 means the right?*
- *Now I will briefly describe some people. Please listen to each description and tell me how much each person is or is not like you. Use this card for your answer. Tradition is important to her/him. She/he tries to follow the customs handed down by her/his religion or her/his family.*

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<sup>4</sup> See <http://nesstar.ess.nsd.uib.no/> for all survey questions and answer choices

## 2. Summary statistics when including all observations in the data set

	Indep. var.											
	Educ	Income	Age	Male	Household size	Parents mig.	Student	Employed	Uemployed	Out of labor.f.	Born in centry	Obs
Austria	12,52	4,66	50,03	0,48	2,32	0,16	0,07	0,55	0,04	0,02	0,93	1671
Belgium	13,27	5,91	47,54	0,51	2,91	0,16	0,10	0,50	0,04	0,02	0,94	1618
Switzerland	10,97	5,45	48,88	0,51	2,70	0,26	0,11	0,59	0,02	0,01	0,89	1237
Czech Republic	12,82	5,68	44,74	0,48	2,82	0,09	0,14	0,57	0,05	0,01	0,99	2128
Germany	14,17	6,13	49,87	0,51	2,60	0,15	0,11	0,57	0,03	0,01	0,93	2894
Denmark	13,07	5,84	48,30	0,52	2,55	0,08	0,14	0,57	0,04	0,01	0,96	1438
Spain	12,75	4,98	49,12	0,51	3,00	0,05	0,13	0,47	0,10	0,05	0,96	1818
Finland	13,38	5,67	51,71	0,49	2,36	0,04	0,10	0,49	0,03	0,02	0,97	2039
France	12,85	5,67	45,89	0,48	3,18	0,20	0,10	0,54	0,06	0,02	0,94	1820
United Kingdom	13,64	5,41	50,70	0,47	2,65	0,18	0,06	0,53	0,04	0,01	0,90	2135
Hungary	12,19	6,41	49,87	0,43	2,56	0,04	0,08	0,52	0,03	0,01	0,98	1698
Ireland	13,86	4,43	47,06	0,45	3,13	0,08	0,11	0,45	0,06	0,03	0,95	2193
Israel	13,24	5,30	45,73	0,47	3,77	0,68	0,14	0,59	0,04	0,02	0,68	2542
Lithuania	12,76	6,12	45,98	0,41	2,83	0,12	0,15	0,54	0,03	0,02	0,97	2242
Netherlands	13,72	6,26	48,52	0,45	2,84	0,15	0,12	0,52	0,04	0,02	0,93	1856
Norway	13,78	5,38	47,19	0,53	2,61	0,10	0,15	0,63	0,02	0,01	0,94	1339
Poland	12,21	5,20	47,31	0,46	3,31	0,05	0,11	0,51	0,04	0,02	0,99	1614
Portugal	8,57	4,81	52,08	0,47	2,94	0,05	0,10	0,43	0,08	0,01	0,95	1234
Sweden	13,13	6,34	49,92	0,50	2,51	0,17	0,12	0,57	0,03	0,01	0,90	1720
Slovenia	12,18	4,71	49,60	0,46	3,13	0,16	0,13	0,43	0,05	0,03	0,93	1209
Total	13,09	5,62	48,64	0,48	2,64	0,14	0,11	0,53	0,05	0,02	0,94	36445

**Note:** The country specific statistics are reported using design weights whereas cross-country statistics are reported using design and population weights. Educ. stands for years of schooling. Income stands the household income. Parents mig. stands for parents migrants (equal to one if at least one parent is born outside the country of residence). See appendix for the survey questions.

### 3. LPM regression results

#### 3.1 Excluding value-specific control variables

Pro-immigration	European		Non-European	
	High-skilled	Low-skilled	High-skilled	Low-skilled
Education	0.015*** (0.002)	0.015*** (0.003)	0.015*** (0.003)	0.019*** (0.003)
Income	0.013*** (0.002)	0.005 (0.003)	0.018*** (0.005)	0.006 (0.007)
Age	0.000 (0.001)	0.001 (0.001)	-0.000 (0.001)	-0.001 (0.001)
Male	0.038 (0.023)	0.034** (0.016)	0.032** (0.014)	0.031** (0.014)
# people in household	0.001 (0.006)	-0.006 (0.009)	-0.008 (0.013)	-0.010*** (0.003)
Born in cntry	0.004 (0.029)	-0.025 (0.036)	-0.009 (0.034)	-0.026 (0.027)
Parents born in cntry	0.008 (0.015)	0.002 (0.013)	0.006 (0.017)	0.031* (0.016)
Domicile	-0.018** (0.007)	-0.025*** (0.004)	-0.015*** (0.004)	-0.008 (0.010)
Student	0.079** (0.036)	0.017 (0.041)	0.111*** (0.037)	0.056*** (0.014)
Employed	-0.013 (0.026)	0.033* (0.018)	-0.023** (0.010)	0.041 (0.024)
Unemployed	-0.052* (0.027)	-0.004 (0.030)	0.004 (0.015)	0.015 (0.040)
Out of labor force	-0.028 (0.028)	-0.102 (0.064)	-0.035 (0.057)	0.014 (0.070)
Constant	0.437*** (0.089)	0.130* (0.069)	0.395*** (0.049)	0.064 (0.119)
Obs.	7451	7274	7263	7312

**Note:** LPM results are reported using design and population weights. Country fixed effects are included.



### 3.2 Including value-specific control variables

Pro-immigration	European		Non-European	
	High-skilled	Low-skilled	High-skilled	Low-skilled
Education	0.010*** (0.003)	0.005 (0.004)	0.008** (0.003)	0.008*** (0.002)
Income	0.007* (0.004)	0.002 (0.003)	0.009* (0.005)	0.006 (0.006)
Age	0.000 (0.001)	0.002* (0.001)	-0.001 (0.000)	-0.001 (0.001)
Male	0.047** (0.018)	0.047** (0.018)	0.032** (0.013)	0.029* (0.014)
# people in household	0.005 (0.006)	-0.001 (0.012)	-0.006 (0.015)	-0.006 (0.005)
Born in entry	-0.043* (0.020)	-0.046* (0.022)	-0.021 (0.030)	-0.044** (0.021)
Parents born in entry	0.000 (0.015)	-0.037*** (0.012)	-0.027*** (0.007)	0.007 (0.021)
Domicile	-0.011 (0.008)	-0.015*** (0.005)	-0.006 (0.005)	0.001 (0.009)
Student	0.038 (0.030)	-0.005 (0.028)	0.073 (0.045)	0.022 (0.026)
Employed	-0.019 (0.021)	0.024 (0.020)	-0.030** (0.013)	0.015 (0.021)
Unemployed	-0.049** (0.020)	0.038 (0.046)	-0.028 (0.021)	-0.001 (0.043)
Out of labor force	-0.055 (0.043)	-0.124* (0.071)	-0.040 (0.049)	-0.007 (0.067)
Satisfaction (state of econ.)	0.010* (0.005)	0.007 (0.006)	0.008 (0.006)	0.000 (0.004)
Immigrants enrich cultural life	0.041*** (0.005)	0.059*** (0.005)	0.051*** (0.003)	0.062*** (0.003)
Position left-right scale	-0.005 (0.005)	-0.016*** (0.002)	-0.007** (0.003)	-0.026*** (0.005)
Importance follow traditions	0.005 (0.004)	0.002 (0.004)	0.005 (0.005)	0.009 (0.008)
Constant	0.346*** (0.087)	-0.006 (0.118)	0.285*** (0.073)	0.018 (0.117)
Obs.	6620	6404	6449	6513

**Note:** LPM results are reported using design and population weights. Country fixed effects are included.