



Handbook on Migration and Social Policy

Edited by Gary P. Freeman and Nikola Mirilovic

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Table of contents

Table of Contents

Expand All | Collapse All

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Front Matter	
Copyright	Download PDF (468.1 KB)
Contents	Download PDF (35.6 KB)
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Introduction: migration and social policy: key trends and debates Gary P. Freeman and Nikola Mirilovic	Download PDF (66.5 KB)
PART I: New Analytical Perspectives	
Chapter 1: The 'epistemic turn' in immigration policy analysis	Download PDF (113.4 KB)



[< Previous Chapter](#) [Next Chapter >](#)

Chapter 15: Does immigration affect preferences for redistribution? Evidence across countries

Giovanni Facchini, Anna Maria Mayda, and Elie Murard

Category: Handbook Chapter

Page Range: 293–314

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Abstract

15 Does immigration affect preferences for redistribution? Evidence across countries Giovanni Facchini, Anna Maria Mayda and Elie Murard Introduction One important question in the economics literature is whether free markets and governments are co...

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Does Immigration Affect Preferences for Redistribution?

Evidence Across Countries*

Giovanni Facchini[†], Anna Maria Mayda[‡] and Elie Murard[§]

June 4, 2015

Abstract

We analyze the impact of international migration on public opinion towards redistribution, using migration data at the NUTS-1 regional level from the European Labor Force Survey and individual attitudes data from the European Social Survey. Theory suggests that we should observe a negative correlation between natives' individual skill and attitudes in favor of redistribution if migrants are unskilled relative to natives. When migrants are skilled, the correlation could be either positive, negative or zero – since in this case migration flows tend to be small. Our empirical findings are consistent with these predictions. *JEL classification*: F22, F1, J61.

Keywords: Immigration, Welfare State, Political Economy, Redistribution, Attitudes.

*Very useful comments were provided by Gary Freeman, Nikola Mirilovic and by participants at the Elgar Handbook Conference at the University of Texas, Austin.

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1 Introduction

One important question in the economics literature is whether free markets and governments are complements or substitutes. In international economics, free markets imply openness to trade and migration. Thus, in the international context, the question is whether globalization entails an increase or a decrease in the size of the government. Previous work in the trade literature (see, for example Rodrik 1998 and Mayda, O'Rourke, and Sinnott 2012) shows that big governments can bolster support for globalization by reducing the risk associated with it in the minds of voters. For example, Mayda, O'Rourke, and Sinnott 2012 find that the positive impact of risk aversion on anti-trade attitudes is smaller in countries with greater levels of government expenditure. In this paper, we ask a related question – specifically, about the relationship between globalization and redistribution – but we focus on immigration.

In particular we study the impact of international migration on public opinion towards redistribution. We investigate how individual-level attitudes towards redistribution depend on the respondent's skill level, and on the skill composition of migration in the location where the respondent lives. We construct measures of the skill composition of migration at the NUTS-1 European regional level using data from the European Labor Force Survey (ELFS) and merge them with information on individual-level variables – such as attitudes towards redistribution and socio-economic background of European respondents – from the European Social Survey (ESS).

Our empirical analysis is based on a theoretical framework in which the presence of migrants affects both the host country's labor market and the welfare state. Migrants can be skilled or unskilled (relative to the native population). Through the labor-market channel, unskilled migrants negatively (positively) affect the labor-market outcomes of unskilled (skilled) natives, whereas the opposite is true for skilled migrants, i.e. they negatively (positively) affect the labor-market outcomes of skilled (unskilled) natives. Through the welfare-state channel, immigration has an impact on the government budget constraint: if migrants are skilled, they are likely to represent a net contribution to the destination country's welfare state, in which case an increase in the size of the migrant population improves natives' well being; if migrants are unskilled, they represent a net burden for the destination country's welfare state, in which case an increase in the size of the migrant population worsens natives' well being. Whether migrants are skilled or unskilled, there will be an adjustment, which will imply changes in tax rates and/or changes in the per capita benefits granted by the

welfare state.

The main focus of the theoretical analysis is on the effect of a change in the extent of redistribution on the well being of a native of a given skill level. First, we find that if an individual is richer than the average, an increase in the size of the welfare state will hurt him. On the contrary, if an individual is poorer than the average, an increase in the size of the welfare state will be beneficial. In other words, consistent with the results in the existing literature, the theoretical framework predicts that there should be a negative correlation between the individual skill/income level and attitudes in favor of redistribution. Next, we study how migration affects individual preferences towards redistribution. The first channel through which migration shapes redistribution attitudes works at the aggregate level. If the average migrant earns an income that is larger (smaller) than natives' average income – this is the case when migrants are skilled (unskilled) – then immigration will move everybody's preferences towards favoring (opposing) more redistribution. The intuition is that, through this channel, migrants affect the *net* income of a native, through changes in tax rates and/or per capita welfare-state benefits.

In addition, and most importantly, migration affects redistribution preferences through a second channel which works at the individual level. Note that the intuition for the second channel is that migrants affect the *gross* income of a native. In particular the theoretical predictions show that, if immigration increases (decreases) the gross wage of an individual, then that individual will be less (more) favorable to greater redistribution, since he is less (more) likely to be on the receiving end of the welfare state. As mentioned above, the wage impact of migration depends on the relative skill composition of immigrants to natives. In particular, if immigrants are unskilled, then they will decrease the wage of an unskilled native – the more so, the more unskilled the native is – and increase the income of a skilled native, the more so the more skilled the native is. On the other hand, the opposite is true if immigrants are skilled. Thus, the main prediction of the theoretical model – which we bring to the data – is that we should observe a negative correlation between natives' individual skill and attitudes in favor of redistribution, if migrants are unskilled relative to natives. At the same time, natives' individual skill should be positively correlated with attitudes in favor of redistribution, if migrants are skilled relative to natives. However, in the data, in NUTS-1 European regions where migrants are skilled relative to natives, migration rates tend to be small (as a fraction of the resident population). Therefore, when migrants are skilled, the effect of education could be either negative, positive or zero, since it is the average of a

negative effect (consistent with small migration flows) and a positive one (consistent with skilled migration flows).

We empirically assess these predictions by taking advantage of the rich information on the location of the respondent available in the ESS, which allows us to identify the NUTS-1 European region where she lives, and to exploit the variation in the skill composition of migrants across regions. Three questions in the survey elicit attitudes towards redistribution and, in our empirical analysis we use as the dependent variable a composite index of these three questions, which is derived from a principal component analysis. We find strong support for the predictions of the theoretical model. In particular, we find that the higher the level of a respondent's skill, the less likely she is to favor an increase in the extent of redistribution if migrants are unskilled. On the other hand, if migrants are skilled, the effect of individual skill on attitudes towards redistribution appears to be close to zero. We test the robustness of our results by estimating our main specification with and without weights, by focusing on two different samples of countries (the entire sample vs. the sample of "core" countries, which excludes peripheral European countries), by including either NUTS-1 region fixed effects and year fixed effects or NUTS-1 region-by-year fixed effects. In addition, we also control for a range of individual-level socio-economic characteristics which, as suggested by the existing literature, should affect attitudes towards redistribution.

The rest of the paper is organized as follows. Section 2 provides an overview of the related literature. Section 3 presents the theoretical framework which guides the empirical analysis. Section 4 presents the data sources and section 5 discusses our empirical strategy and presents our estimates. Finally, section 6 concludes.

2 Related Literature

This paper builds upon two main strands of literature. The first investigates the economic and non-economic determinants of preferences for redistribution; the second focuses instead on the role played by welfare state considerations in shaping attitudes towards immigration.

Empirical work on preferences for redistribution has shown that individual socio-economic characteristics such as income, race, gender and education are important drivers of opinions on the size and scope of the welfare state. Moreover, individual differences in personal life history, culture, political ideology and perception of fairness are also found to play an im-

portant role.¹ When it comes to understand the impact that the presence of migrants might have on these preferences, most of the existing literature has emphasized the role played by non-economic considerations, whereas little attention has been put on straightforward economic motives, which are instead the focus of our analysis. For instance, as highlighted in a recent survey by Stichnoth and Van der Straeten (2013), a large number of studies have focused on the link between ethnic diversity and the level of public spending, both for the U.S. and other countries. Evidence from the US² suggests the presence of a negative relationship between diversity and redistribution, whereas studies focusing on European countries report mixed results. For instance, Jofre-Monseny et al. (2013) find that the recent large inflow of immigrants has led to a decline in public expenditure at the municipal level in Spain. At the same time, causal evidence from a random assignment of refugees suggest instead the absence of any major effect in Denmark (Gerdes 2011).

Several theories have been proposed to explain why ethnically or culturally diverse communities may fail to resolve the collective action problem related to public good provision (see Habyarimana et al. 2007). For instance, as argued by Alesina et al. (1999) and Alesina and La Ferrara (2005), different ethnic groups may have different preferences over which type of public goods to provide. Ethnic diversity thus creates heterogeneity of tastes which is likely to exacerbate the under-provision of public goods. In addition, individuals may well prefer to share resources within their own racial/ethnic/cultural group and tend to be less supportive of redistribution when members of their own group are less likely to benefit from it. Since diversity lowers the share of welfare recipients of one's own group, it is likely to reduce support for public spending.

Broad empirical support exists for this mechanism. For instance, in a pioneering study using the U.S. General Social Survey, Luttmer (2001) finds that individuals become more adverse towards welfare spending as the share of people of their own race among welfare recipients in their neighborhood declines. More recent, causal evidence from an exogenous refugee placement program carried out in Sweden between 1985 and 1994 delivers a similar message: the inflow of immigrants from different ethnic backgrounds has reduced natives' support for redistribution (Dahlberg et al. 2012). More nuanced results in the same spirit have also been obtained by Murard (2011), who finds that West Germans express relatively more support for redistribution when the share of East German migrants among welfare

¹For an excellent review, see Alesina and Giuliano (2015).

²See in particular Alesina et al. (1999), Alesina et al. (2000) and Alesina et al. (2001).

recipients is higher, but that they favor less welfare when former “Gastarbeiter”, especially Turks, are more likely to benefit from it.³

Scarce evidence exists on the role played by economic factors in explaining the impact of migration on preferences for redistribution. The goal of this paper is to help fill this gap. Two exceptions are represented by Senik et al. (2009) and Finseraas (2008). The first paper finds that, in terms of preferences for redistribution, natives who express both anti-immigrant attitudes and concern about the economic consequences of immigration react much more negatively to a given share of immigrants than natives with opposite views. The second paper finds instead evidence that immigration might increase the perceived exposure to risk of income loss and thus boost rather than diminish support for redistribution. None of these papers considers how preferences for redistribution are affected by the direct impact that immigrants have on the welfare state in destination countries, which has instead been the subject of several studies (e.g. Storesletten 2000 and Dustmann and Frattini 2014) and is at the center of our theoretical framework.

The second strand of literature to which our paper is related is the body of work that explores the impact of the welfare state on immigration attitudes. Note that, while this literature also analyzes the link between immigration and redistribution, the direction of the effect is opposite to what we consider. In other words, these papers investigate how different characteristics of the welfare state affect preferences for more migration. Two papers are particularly relevant in this area. In the first, Hanson, Scheve, and Slaughter (2007) focus on the United States and study the role played by welfare-state and labor-market determinants of individual preferences over globalization - migration and trade. Their analysis reveals that, while the drivers working through the labor-market channel are similar for immigration and trade attitudes, those working through the welfare-state are different. In particular, their main result is that the fiscal pressure of (unskilled) immigrants negatively affects public opinion on migration, especially among more skilled native voters. In the second paper, Facchini and Mayda (2009) carry out instead a cross-country analysis and show that immigration attitudes are consistent with a labor-market channel and with a welfare-state channel under the so called tax adjustment model of the welfare state – i.e. pro-migration preferences are negatively (positively) correlated with individual income when migrants are less (more) skilled than natives.⁴

³For less conclusive results using the European Social Survey, see Senik et al. (2009).

⁴Our paper is also related to long-run political-economy models of migration and the welfare state, such as Razin, Sadka, and Swagel (2002) and Ortega (2005).

3 Theoretical Framework

To analyze the effect of immigration on individual attitudes towards redistribution we consider a simple two-factor, two-good Heckscher-Ohlin model of a small open economy, focusing on the case in which the two goods are produced both before and after migration takes place. We augment this model by incorporating a redistributive welfare system, like in Facchini and Mayda (2009). We refer the interested reader to Facchini, Mayda, and Murard (2015) for a more technical presentation of the theoretical model.

To fix ideas, we assume that the two production factors are unskilled and skilled labor and that they are combined using a constant returns to scale technology to produce two outputs, good 1 and 2. We will assume good 1 to be the numéraire so that its price is normalized to 1. The economy is populated by both natives and immigrants. Each native is endowed with one unit of labor (either skilled or unskilled) and with an amount of the numéraire good which is higher for skilled relative to unskilled natives. As a result, we can distinguish four different types of natives, based on their skill levels and asset holdings.⁵ To capture the idea that there might be a leakage through the welfare state from natives to immigrants, we assume foreigners to be endowed only with either one unit of skilled or unskilled labor.⁶

The key variable in our analysis of the effect of immigration on preferences for redistribution is given by the migrants to natives ratio which, for simplicity, is assumed to be equal to zero in the initial equilibrium. Furthermore, the number of natives will be held constant throughout the analysis. We also assume that the (before tax) prevailing wage rate is higher for skilled relative to unskilled workers. In this simple model the endogenous variables – i.e. wages and the output level for each of the two goods⁷ – are determined in equilibrium by insuring that labor markets clear and that the perfectly competitive firms we consider earn non-positive profits.

We model the working of a stylized welfare state by allowing the government to levy an income tax at a flat rate on all sources of income, and to give out a lump sum rebate. The latter cash grant (“per capita welfare-state benefit”) may be thought of as capturing the provision of free public services. For simplicity we assume that migrants are entitled to

⁵While skilled natives with a limited initial endowment could well be poorer than low skilled natives with abundant assets, in the empirical analysis we assume that individual skill and income are positively correlated, which is consistent with findings in the literature.

⁶See Razin, Sadka, and Swagel (2002) for a similar approach.

⁷The prices for the final goods are determined in the international market.

all public programs available in the destination country. Thus, by design, our tax system is redistributive. The government budget constraint simply states that the total revenues accruing to the government - deriving from applying the same flat tax rate to all types of income – must equal the government’s total outlays, equal to the sum of welfare-state benefits distributed to natives and immigrants present in the country.

The net income of a native individual is the sum of two components: the first one is after tax gross income; the second one is the demogrant. The net income of a native can change because of one of three reasons: a change occurs in gross income, for instance because of variation in wages or individual endowments; a change occurs in the income tax rate, or a change occurs in the size of the demogrant. We will assume that no debt can be accumulated to finance public expenditures. As a result, the government budget must be balanced in every period.

Under these assumptions, it is easy to show that, if the individual in the initial equilibrium is poorer than the average in the population (i.e. his gross income is smaller than the overall population’s average), an increase in the tax rate will increase his well being. The opposite is true if instead the individual is richer than the average. In other words, consistent with the results in the existing literature, our model predicts that there should be a negative correlation between the level of individual skill (or income) and attitudes in favor of greater redistribution.

Next, we study how migration affects individual preferences towards greater redistribution. In other words, how is the change discussed above – i.e., the change in the native’s well-being due to the increase in the tax rate - affected by immigration? We answer this question under two alternative scenarios in terms of the labor-market impact of migration. We first assume that there are no labor-market effects of immigration and, next, we relax this assumption, i.e. we assume the immigration affects wages according to the skill composition of migrants relative to natives.

In the absence of labor market effects of immigration, immigration will make the individual more in favor of greater redistribution as long as the average migrant earns an income that is larger than the average income of the population, which holds true if migrants are substantially more skilled than natives on average.⁸ In this case, the average migrant is a net contributor to the welfare state, i.e. the tax payments of the average migrant – which

⁸The reason why migrants need to be substantially more skilled than natives on average is that migrants do not own the initial endowment of the numéraire good.

are simply the product of the flat tax rate times the average income of a migrant – are greater than or equal to the per capita welfare-state benefit. Therefore, for the budget to be balanced, either the tax rate can decrease and/or the per capita welfare-state benefit can increase, which means that immigration has a positive impact on each native’s preference for more redistribution. In turn, immigration will make all natives less in favor of greater redistribution if the average migrant earns an income that is lower than the population average. In this case the average migrant is a net receiver from the welfare state. Note that, up to this point, the impact of migration on attitudes towards redistribution is independent from the individual skill level.

We can now relax the assumption that immigration does not affect wages. If immigration increases (decreases) the gross wage of an individual, then that individual will be less (more) in favor of an increase in the extent of redistribution. The wage impact of migration takes place through the labor market, and depends on the relative skill composition of immigrants to natives. In particular, if immigrants are unskilled relative to natives, then they will decrease the wage of an unskilled native – the more so, the more unskilled the native is – and increase the wage of a skilled native – the more so the more skilled the native is. As a result, with the arrival of unskilled migrants, unskilled natives favor greater redistribution to compensate them for the loss in their earnings, while skilled natives favor less redistribution since their gross income has increased. On the other hand, the opposite is true if immigrants are skilled relative to natives. Thus, when we relax the assumption of no labor-market effects, we find that we should observe a negative correlation between natives’ individual skill and attitudes in favor of redistribution, if migrants are unskilled relative to natives. At the same time, natives’ individual skill should be positively correlated with attitudes in favor of redistribution, if migrants are skilled relative to natives. However, in the data, in NUTS-1 European regions where migrants are skilled relative to natives, migration rates tend to be small (as a fraction of the resident population). Therefore, when migrants are skilled, the effect of education could be negative, positive or zero, since it is the average of a negative effect (consistent with small migration flows) and a positive one (consistent with skilled migration flows).

4 Data

In this section we describe the data and variables analyzed in the paper. The main sources of our data are the European Social Survey – which gives information on individual-level variables such as attitudes towards redistribution and socio-economic background of European respondents – and the European Labor Force Survey (ELFS) – from which we construct measures of the skill composition of migrants relative to natives at the European NUTS-1 regional level.

To measure individual attitudes in favor of redistribution – which is the dependent variable of our specifications – we use five rounds of the European Social Survey from 2002 to 2010 and exploit respondents’ answers to three different questions related to redistribution and to the role of the government in this respect. In particular, we define the following three dummy variables: *pro_redis* equals one if the respondent thinks that ”The government should take measures to reduce differences in income levels”; *pro_equality* equals one if the respondent believes that ”every person in the world should be treated equally and everyone should have equal opportunities in life”; *pro_govstrong* equals one if the respondent thinks that ”It’s important to her/him that the government ensures her/his safety against all threats. She/he wants the state to be strong so it can defend its citizens.” We create a composite index y of pro-redistribution attitudes which we derive from principal component analysis based on the three binary variables *pro_redis*, *pro_equality* and *pro_govstrong*. Specifically, we proxy the attitude of individual i towards redistribution as:

$$y_i = w_1 * pro_redis + w_2 * pro_equality + w_3 * pro_govstrong$$

where $w_1 = 0.48$, $w_2 = 0.61$ and $w_3 = 0.62$ are the factors of the principal components estimated in the ESS sample.

Besides the index of pro-redistribution attitudes, we use the ESS dataset to construct the following individual-level variables: the respondent’s age, gender, years of education, household income quintile, whether she is an immigrant from the EU or from outside the EU, the size and composition of her household, her main activity during the week before the interview (employee, self-employed, inactive, attending school, unemployed, sick/disabled, retired), as well as the nature of her usual place of residence (big city, suburbs, small city, village, country side). We use the variable years of education as the measure of the individual’s level of skill.

As mentioned above, we use the ELFS to construct measures of the skill composition of migrants at the European NUTS-1 regional level. Immigrants are defined as foreign-born individuals, irrespective of whether they are born in the EU or not. We define natives and migrants as being *skilled* if they have at least one year of tertiary education, based on the International Standard Classification of Education (ISCED 5a, 5b or 6). In each NUTS-1 region, we define the relative skill composition as being equal to

$$RSC = \text{relative skill composition} = \log \left(1 + \frac{r_N}{r_F} \right)$$

where r_N is the skill ratio among natives and r_F is the skill ratio among foreigners, i.e.

$$r_N = \frac{\text{number skilled natives}}{\text{number unskilled natives}} \quad \text{and} \quad r_F = \frac{\text{number skilled foreigners}}{\text{number unskilled foreigners}}$$

Note that, the higher the *relative skill composition*, the more unskilled migrants are relative to natives. To address potential reverse causality concerns, in our empirical analysis we will rely upon a time invariant measure, that is constructed using information pre-dating our sample period, i.e. relying on data for the years 1998–2002.⁹

The ELFS data and the ESS survey can be successfully combined for 60 different NUTS-1 regions across 19 different countries during the period 2002–2010: Austria (AT), Belgium (BE), Cyprus (CY), Czech Republic (CZ), Denmark (DK), Estonia (EE), Spain (ES), Finland (FI), France (FR), Greece (GR), Hungary (HU), Ireland (IE), Luxembourg (LU), Netherlands (NL), Norway (NO), Portugal (PT), Sweden (SE), Slovenia (SI), United Kingdom (UK). All EU-15 countries are included, with the exception of Germany and Italy, as the ELFS does not contain information on the country of birth of individuals included in the sample.

To assess the robustness of our results, we use an alternative data set to measure the relative skill composition of immigrants. Specifically, instead of the European Labor Force Survey, we use the Database on Immigrants in OECD Countries (DIOC) which builds on Docquier and Marfouk (2006). This database includes the education level (based on ISCED) of immigrants and natives in most of OECD countries around the year 2000, and it is based on census data. In addition to the countries already mentioned, the DIOC data also includes

⁹The ELFS data is available from 1998 onwards. Since immigration data is sometimes missing for some years and countries, we measure the relative skill composition as an average over 1998–2002 in order to maximize the number of observations included in the analysis.

Switzerland (CH), Poland (PL), Slovakia (SK), and Italy (IT) which are also covered by the ESS survey. However the DIOC data does not report information on Cyprus, Estonia, and Slovenia, which are instead included in the ELFS.

Table 1 presents summary statistics of the main variables used in the analysis. On average, in the sample of NUTS-1 regions from 19 countries which we analyze, 72 percent of respondents is in favor of the government taking measures to reduce differences in income levels; 74 percent of individuals believes that every person in the world should be treated equally and everyone should have equal opportunities in life; and, finally, 60 percent of respondents is in favor of a strong government. The two main explanatory variables in the empirical analysis, at the individual level, are years of education and household income quintile, which are on average equal to 12.04 and 2.7. The sample includes immigrants, both from the EU (2 percent of the sample) and from outside of the EU (5 percent of the sample). The descriptive statistics also show the geographical distribution of respondents across countries in the sample and the years for which data on each country are available.

5 Empirical analysis

5.1 Specification

The main prediction of the theoretical model – which we bring to the data – is that we should observe a negative correlation between natives’ individual skill/income and attitudes in favor of redistribution, if migrants are unskilled relative to natives. At the same time, natives’ individual skill/income should be positively correlated with attitudes in favor of redistribution, if migrants are skilled relative to natives. Both theoretical predictions hold under the assumption that migration flows are non trivial in size. If on the other hand migration flows are small, the theoretical model predicts a negative relationship between individual skill/income and pro-redistribution preferences.

Before assessing these prediction, consider the Figure 1, where we correlate the share of foreigners in the population to the relative skill composition of the native and immigrant population.¹⁰ As shown in the top panel, in NUTS-1 regions characterized by skilled migration, immigration levels tend to be small, whereas regions that host a large number of foreign born, tend to be characterized by a native population that is more highly skilled than the

¹⁰Note that the diameter of the circle is proportional to the population size of the region.

immigrant one. Put it differently, there is a negative relationship between the prevalence of immigration and the skills of immigrants relative to natives. These patterns continue to hold also at the country level, using either the ELFS data or the DIOC data, as shown in the bottom two panels of Figure 1. Regions with low and skilled immigration – at the bottom left corner of the top panel – tend to be regions in Portugal, Ireland and Hungary. Note that there are only very few small countries, for example Luxembourg and Estonia, where immigration levels are high and immigrants are skilled relative to natives. Therefore when migrants are skilled – given that migration rates tend to be small – the impact of education on attitudes towards redistribution is the average of two opposite effects: a positive one – consistent with skilled migration flows – and a negative one – consistent with zero migration flows. In other words, when migrants are skilled, the correlation between education and redistribution preferences could be positive, negative or zero.

These predictions suggest an empirical specification where pro-redistribution attitudes are regressed on the direct effect of individual skill/education and its interaction with the relative skill composition of natives to immigrants. In particular, for individual i living in region n (NUTS1 region) at time t , we estimate a linear probability model of the following type:

$$y_{int} = \alpha * RSC_n * edu_{int} + \beta * edu_{int} + \gamma' X_{int} + \delta_{nt} + \epsilon_{ikt} \quad (1)$$

where X_{int} is a matrix of individual level socio-demographic controls such as the respondent's age, gender, education, whether she is an immigrant from the EU or from outside the EU, the size of her household, her main activity during the week before the interview as well as her usual place of residence. In all our specifications, we include also a set of region-year interaction dummies δ_{nt} , to account for region specific shocks, which can vary over time. The variable edu_{int} is the educational attainment (in years) of individual i in region n at time t . Note that, in this specification, the relative skill composition only appears in interaction with the variable education since its direct impact is accounted for by including the region-year fixed effects. One concern with our specification is the potential endogeneity of the relative skill composition measure RSC_n , since unskilled migrants are more likely to be attracted by the generosity of the welfare state than skilled migrants (Razin and Wahba 2015). To address it, we do not exploit the time variation in the relative skill composition and use instead a time-invariant measure which only varies across NUTS-1 regions. In particular RSC_n is the relative skill composition in region n right before the beginning of our sample period, i.e.

averaged over 1998-2002. Finally, we cluster standard errors at the NUTS-1-by-year level to account for the possible correlation of the individual-level residuals ϵ_{ikt} within the same NUTS-1 region and year.

In the above specification, α represents the impact of individual skill/education when migrants are unskilled relative to natives (i.e., when RSC_n is high). At the same time, β represents the impact of individual skill/education when migrants are skilled relative to natives (i.e., when RSC_n is low). Based on the theoretical predictions, we expect α to be negative, whereas β could take any sign, but it is most likely to be close to zero in magnitude. In general, we have modeled the marginal effect of one additional year of education on the individual support for redistribution as varying with the relative skill composition of immigrants in the region of residence of the respondent – for an individual residing in a NUTS-1 region with relative skill composition RSC_n , the marginal effect of education equals $(\alpha RSC_n + \beta)$.

In the regressions, observations are weighted with survey weights in order to ensure the representativity of the sample, both within each country and also across countries.¹¹ As a robustness check, we also estimate the regressions without survey weights. In addition, in order to assess whether our results depend on the sample of countries included in the analysis, we estimate the same regressions on a restricted sample of “core” countries, i.e. members of the EU-15 plus Norway and Switzerland.

5.2 Education and relative skill composition

The empirical results are presented in Table 2. Column 1 shows that the correlation between the individual years of education and support for redistribution is affected by the skill composition of the immigrants. The impact of individual education on redistribution preferences is negative and significant when migrants are unskilled relative to natives ($\hat{\alpha} = -0.049$ significant at the 1 percent level) while the impact is not significantly different from zero when migrants are skilled relative to natives ($\hat{\beta} = 0.009$ and insignificant – in addition, the marginal effect $\alpha RSC_n + \beta$ is not significantly different from zero for low values of RSC_n in our sample.). As Figure 2 indicates, in regions characterized by skilled immigration, like Ireland (IE) or Scotland (UKM), ($RSC_n \approx 0.35$), individual education is not significantly correlated with attitudes towards redistribution. Instead, in regions characterized by unskilled immigration

¹¹Survey weights include population weights to make the size of the country-specific samples proportional to each country’s population.

like Ile de France (FR1) in France or the Walloon Region (BE3) in Belgium ($RSC_n \approx 0.9$), education is strongly negatively associated with pro-redistribution attitudes. Note also that the difference between regions hosting relatively unskilled immigration and regions receiving relatively skilled migration is statistically significant.

When we use DIOC data instead of ELFS to measure the relative skill composition (column 2 in Table 2), we also find a statistically significant difference between skilled-immigration regions and unskilled-immigration regions with a similar coefficient $\hat{\alpha} = -0.051$. As Table 2 further shows, the results are robust whether we use or not survey weights in the regression (columns 3 and 4). Furthermore, they continue to hold also when we restrict our analysis to the “core” sample of countries (columns 5 to 8).¹²

Other individual level determinants are also found to play an important role. Women appear to be more supportive of redistribution than men, either because they are more risk averse or because of their disadvantaged position in the labor market. Immigrants seem to favor more generous welfare policies, possibly because their families are more likely to benefit from it. Relative to employee in wage-earning jobs, self-employed are less likely to favor greater redistribution, while retired people and unemployed are more likely to express support for redistribution. The estimated marginal effect of education is similar in magnitude to the impact of these demographic and socio-economic variables. For an average NUTS-1 region with a relative skill composition of 0.56, the estimated effect of education is equal to -0.027 (based on column 1 in Table 2). This means that four additional years of education (= a standard-deviation increase) reduce the pro-redistribution index by approximately ten percent of a standard deviation.

5.3 Household income and relative skill composition

To assess the robustness of our results, we also explore how attitudes towards redistribution change with the respondents’ household income, and how the relative skill composition of immigrants affects this relationship. The ESS provides data only on net household income (after taxes), which is reported according to the country-specific deciles of the income distribution. We group respondents in five quintiles of the distribution, i.e. in five categories

¹²Note that when we use DIOC data in the entire sample, the number of observations shrinks because DIOC data does not include Bulgaria, Cyprus, Estonia, nor Slovenia. However, in the “core” countries sample, the number of observations is higher when DIOC data is used than when ELFS data is used. This is because, in the core countries, we include Switzerland which is covered by DIOC data and not by the ELFS.

of household income in ascending order from low to high levels of income.¹³

The empirical results are presented in Table 3. In line with the previous results and consistent with the theoretical predictions, we find a negative and significant correlation between the household income and pro-redistribution attitudes in regions where immigration is more unskilled (relative to natives). In correspondence of regions characterized by skilled migration, the correlation is either negative (and significant) or insignificant. When we use the ELFS data to measure the skill composition of immigrants at the NUTS-1 level, the results are robust whether we weight the regressions or not. Our findings are also not sensitive to countries included in the analysis, i.e. they hold both when we use the entire sample or the restricted sample of “core countries.” The results exhibit the same patterns also when we use the DIOC data, but the point estimates are less significant.

5.4 Cross-country variation in attitudes towards redistribution

Finally, we study how individual attitudes towards redistribution vary on average across countries as a function of public spending (as a percentage of GDP), after netting out the impact of individual-level determinants of such preferences. In particular, we estimate a two-step specification. In the first stage, we regress pro-redistribution preferences on all our individual-level variables – including $\alpha R\hat{S}C_n + \beta$ – plus country fixed effects. In the second stage, we regress the estimated country fixed effects on public spending (as a percentage of GDP). Since the dependent variable in the second stage is a generated regressand, we employ weighted least squares (WLS).¹⁴ By doing so, we attribute more weight to countries with a smaller variance of the estimated fixed effect (Goldberg and Pavcnik 2003). We find a weak negative correlation between individual attitudes towards redistribution and public spending (as a percentage of GDP).¹⁵ We find similar results when we regress average attitudes on redistribution across countries on public spending (see Figure 3). This result may be explained by two opposite effects. On the one hand, the generosity of the welfare system depends on individual support and willingness to contribute to the welfare state (positive effect). On the other hand, in countries in which public spending is already high,

¹³The fact that this measure of the household income is not comparable across countries and over time is not important since our regressions include region-year fixed effects

¹⁴In particular, we use as weights the square root of the inverse of (one plus) the variance of the estimated country fixed effects from the first stage.

¹⁵Note that the correlation is statistically insignificant, most likely due to the very small number of observations in the second stage.

individuals may be reluctant to expand redistribution further (negative effect).

6 Conclusions

In this paper we have studied the link between migration and public opinion on redistribution. Our simple theoretical framework suggests that we should observe a negative correlation between natives' individual skill and attitudes in favor of redistribution if migrants are unskilled relative to natives. When migrants are skilled, the correlation can be either positive, negative or zero.

Our empirical analysis, which combines rich individual level data on preferences for redistribution for a large number of European countries, with regional level variation in the characteristics of immigrants, provides strong evidence for the simple economic mechanism highlighted in the theory. This suggest that future analyses of the impact of immigration on preferences towards the welfare state cannot abstract away from looking at economic characteristics of the immigrant population. Our findings indicate that they do play an important role in shaping preferences for redistribution, that goes beyond the effects highlighted in the existing literature focusing on heterogeneity in cultural and ethnic backgrounds.

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Table 1: Descriptive Statistics

	Average	Standard Deviation
<i>Individual attitudes toward redistribution</i>		
pro_redis	0.72	0.45
pro_equality	0.74	0.44
pro_govstrong	0.60	0.49
Index of pro-redistribution attitudes	-0.06	1.15
<i>Relative skill composition</i>		
Relative Skill composition by NUTS1 (average over 1998-2002)	0.56	0.16
Relative Skill composition by country (DIOC data)	0.56	0.14
% foreigner in pop by NUTS1 (average over 1998-2002)	0.07	0.06
%foreigner in pop in 2000 by country (DIOC data)	0.09	0.04
<i>Individual demographic characteristics</i>		
years of education	12.04	4.15
household income quintile	2.70	1.39
male	0.46	0.50
age	47.34	18.29
immigrant from EU	0.02	0.14
immigrant from non-EU	0.05	0.22
number children in household	0.48	0.87
number adults in household	1.13	1.06
number elderly in household	0.15	0.38
<i>Main activity during the week preceding the interview</i> <i>(mutually exclusive categories)</i>		
employee	0.42	0.49
self employed	0.08	0.27
inactive (not retired)	0.09	0.29
attend education last week	0.08	0.28
unemployed looking	0.04	0.19
unemployed not looking	0.02	0.13
sick, disabled	0.02	0.15
retired	0.23	0.42
<i>Place of residence</i> <i>(mutually exclusive categories)</i>		
big city	0.20	0.40
suburbs	0.12	0.33
small city	0.30	0.46
village	0.30	0.46
home in country side	0.07	0.25
<i>Country of residence at the time of the survey</i> <i>(available year in parentheses)</i>		
AT, Austria (2002,2004,2006)	0.04	0.19
BE, Belgium (2002,2004,2006,2008,2010)	0.06	0.22
CY, Cyprus (2006,2008,2010)	0.02	0.14
CZ, Czechrepublic (2002,2004,2008,2010)	0.05	0.21
DK, Denmark (2002,2004,2006,2008,2010)	0.05	0.20
EE, Estonia (2004,2006,2008,2010)	0.05	0.20
ES, Spain (2002,2004,2006,2008,2010)	0.06	0.23
FI, Finland (2002,2004,2006,2008,2010)	0.06	0.22
FR, France (2002,2004,2006,2008,2010)	0.06	0.22
GR, Greece (2002,2004,2008,2010)	0.07	0.23
HU, Hungary (2002,2004,2006,2008,2010)	0.05	0.21
IE, Ireland (2002,2004,2006,2008,2010)	0.06	0.22
LU, Luxembourg (2002,2004)	0.01	0.09
NL, Netherlands (2002,2004,2006,2008,2010)	0.07	0.23
NO, Norway (2002,2004,2006,2008,2010)	0.05	0.21
PT, Portugal (2002,2004,2006,2008,2010)	0.07	0.24
SE, Sweden (2002,2004,2006,2008,2010)	0.05	0.21
SI, Slovenia (2002,2004,2006,2008,2010)	0.05	0.20
UK, United Kingdom (2002,2004,2006,2008,2010)	0.07	0.24
Observations	142763	

Table 2: Effect of education and relative skill composition on attitudes towards redistribution

Dependent variable : Index of individual support for redistribution								
<i>RSC_{ELFS}</i> = relative skill composition using ELFS data by NUTS1 (regional level)								
<i>RSC_{DIOC}</i> = relative skill composition using DIOC data by country								
	All countries				Core countries only			
	Weighted Est.		Not weighted		Weighted		Not weighted	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
years education* <i>RSC_{ELFS}</i>	-0.049*** (0.011)		-0.058*** (0.012)		-0.051*** (0.011)		-0.067*** (0.013)	
years education* <i>RSC_{DIOC}</i>		-0.051*** (0.016)		-0.055*** (0.017)		-0.048*** (0.016)		-0.054*** (0.017)
years of education	0.009 (0.007)	0.008 (0.009)	0.019** (0.007)	0.015 (0.010)	0.011 (0.007)	0.008 (0.010)	0.024*** (0.008)	0.015 (0.011)
NUTS1*year fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Other individual characteristics:								
male	-0.114*** (0.011)	-0.119*** (0.009)	-0.132*** (0.010)	-0.136*** (0.010)	-0.111*** (0.011)	-0.115*** (0.011)	-0.127*** (0.012)	-0.132*** (0.011)
age	0.012*** (0.002)	0.011*** (0.002)	0.013*** (0.001)	0.012*** (0.001)	0.012*** (0.002)	0.011*** (0.002)	0.014*** (0.001)	0.012*** (0.001)
age squared/100	-0.007*** (0.002)	-0.007*** (0.002)	-0.009*** (0.001)	-0.008*** (0.001)	-0.008*** (0.002)	-0.007*** (0.002)	-0.009*** (0.001)	-0.008*** (0.001)
immigrant from EU	0.112*** (0.028)	0.109*** (0.024)	0.083*** (0.021)	0.072*** (0.017)	0.113*** (0.028)	0.117*** (0.025)	0.078*** (0.022)	0.072*** (0.017)
immigrant from non-EU	0.219*** (0.025)	0.217*** (0.024)	0.223*** (0.020)	0.200*** (0.019)	0.222*** (0.026)	0.222*** (0.025)	0.206*** (0.021)	0.214*** (0.020)
number children in household	-0.008 (0.006)	-0.008 (0.005)	-0.013*** (0.004)	-0.009** (0.004)	-0.011* (0.006)	-0.011* (0.006)	-0.018*** (0.005)	-0.017*** (0.005)
number adults in household	0.002 (0.006)	0.005 (0.005)	-0.001 (0.003)	0.001 (0.003)	0.000 (0.006)	0.000 (0.006)	-0.005 (0.004)	-0.004 (0.004)
number elderly in household	0.026** (0.013)	0.020 (0.013)	0.023** (0.009)	0.024*** (0.008)	0.029* (0.015)	0.026* (0.015)	0.032*** (0.010)	0.029*** (0.010)
employee	ref	ref	ref	ref	ref	ref	ref	ref
self employed	-0.124*** (0.019)	-0.107*** (0.017)	-0.111*** (0.015)	-0.105*** (0.013)	-0.116*** (0.021)	-0.103*** (0.020)	-0.093*** (0.015)	-0.093*** (0.014)
inactive (not retired)	-0.008 (0.017)	0.004 (0.015)	0.021 (0.015)	0.031** (0.014)	-0.006 (0.018)	-0.010 (0.017)	0.035** (0.017)	0.030* (0.016)
attended education last week	0.030 (0.026)	0.014 (0.023)	0.064*** (0.016)	0.046*** (0.016)	0.040 (0.028)	0.042 (0.027)	0.081*** (0.019)	0.073*** (0.018)
unemployed, actively looking for job	0.084*** (0.028)	0.077*** (0.024)	0.093*** (0.029)	0.094*** (0.027)	0.082*** (0.031)	0.075** (0.029)	0.080** (0.035)	0.081** (0.034)
unemployed, not actively looking for job	0.001 (0.037)	0.000 (0.032)	0.042* (0.024)	0.038 (0.024)	-0.007 (0.039)	0.003 (0.036)	0.050* (0.025)	0.044* (0.025)
sick or disabled	0.213*** (0.030)	0.208*** (0.028)	0.215*** (0.022)	0.207*** (0.021)	0.219*** (0.032)	0.223*** (0.031)	0.224*** (0.025)	0.222*** (0.024)
retired	0.093*** (0.019)	0.097*** (0.016)	0.086*** (0.014)	0.085*** (0.014)	0.094*** (0.021)	0.100*** (0.020)	0.082*** (0.017)	0.082*** (0.016)
big city	ref	ref	ref	ref	ref	ref	ref	ref
suburbs	-0.036 (0.022)	-0.015 (0.021)	-0.048** (0.021)	-0.039* (0.020)	-0.048** (0.023)	-0.048** (0.023)	-0.062*** (0.021)	-0.062*** (0.020)
small city	-0.043** (0.017)	-0.017 (0.018)	-0.006 (0.017)	-0.001 (0.017)	-0.057*** (0.018)	-0.057*** (0.019)	-0.024 (0.021)	-0.022 (0.020)
village	-0.047** (0.019)	-0.029 (0.018)	-0.015 (0.018)	-0.009 (0.018)	-0.065*** (0.019)	-0.070*** (0.019)	-0.043** (0.021)	-0.042** (0.020)
country side	-0.136*** (0.029)	-0.107*** (0.028)	-0.029 (0.028)	-0.029 (0.028)	-0.154*** (0.030)	-0.145*** (0.029)	-0.052* (0.031)	-0.049* (0.029)
Observations	142763	151429	2142763	151429	111643	121962	111643	121962

Standard errors in parentheses. Standard Error clustered at NUTS1*year level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Dependent variable computed with principal component analysis using three binaries: pro_redis, pro_equal, pro_govstrong

Table 3: Effect of household income and relative skill composition on attitudes towards redistribution

Dependent variable : Index of individual support for redistribution								
<i>RSC_{ELFS}</i> = relative skill composition using ELFS data by NUTS1 (regional level)								
<i>RSC_{DIOC}</i> = relative skill composition using DIOC data by country								
	All countries				Core countries only			
	Weighted Est.		Not weighted		Weighted		Not weighted	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
household income quintile * <i>RSC_{ELFS}</i>	-0.088*** (0.030)		-0.126*** (0.044)		-0.084*** (0.031)		-0.159*** (0.051)	
household income quintile * <i>RSC_{DIOC}</i>	0.007	(0.042)	-0.091* (0.028)	(0.054)	0.021	(0.044)	-0.074 (0.033)	(0.059)
household income quintile	-0.032 (0.020)	-0.086*** (0.026)	0.001 (0.028)	-0.025 (0.034)	-0.035* (0.021)	-0.095*** (0.027)	0.018 (0.033)	-0.036 (0.037)
NUTS1*year fixed effect	YES	YES	YES	YES	YES	YES	YES	YES
Other individual characteristics	YES	YES	YES	YES	YES	YES	YES	YES
Observations	104547	112891	104547	112891	85909	94030	85909	94030

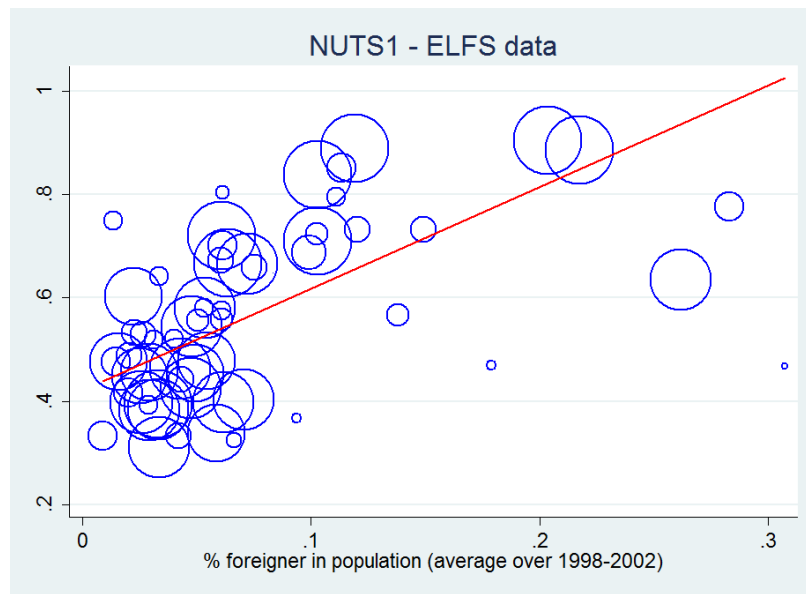
Standard errors in parentheses. Standard Error clustered at NUTS1*year level

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

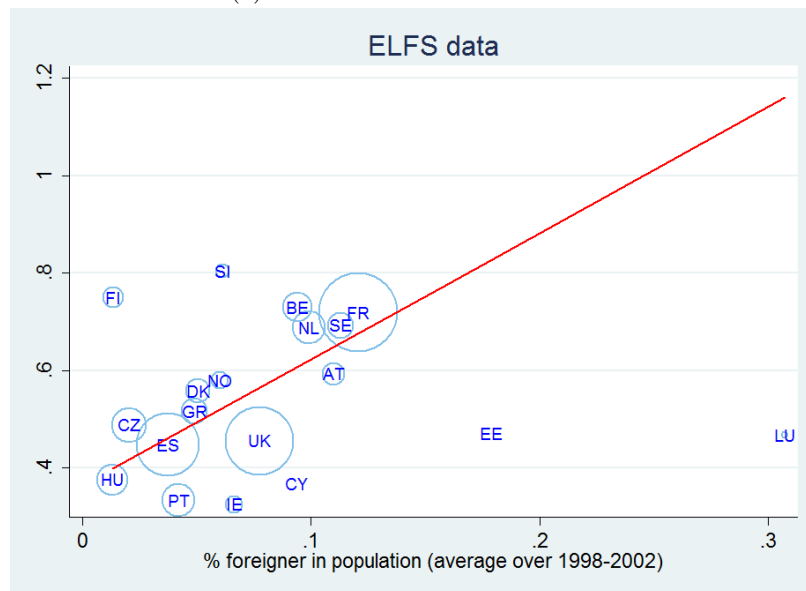
Dependent variable computed with principal component analysis using three binaries: pro_redis, pro_equal, pro_govstrong

Table 4: Pro-redistribution Index - COUNTRY fixed effect (with survey weights)

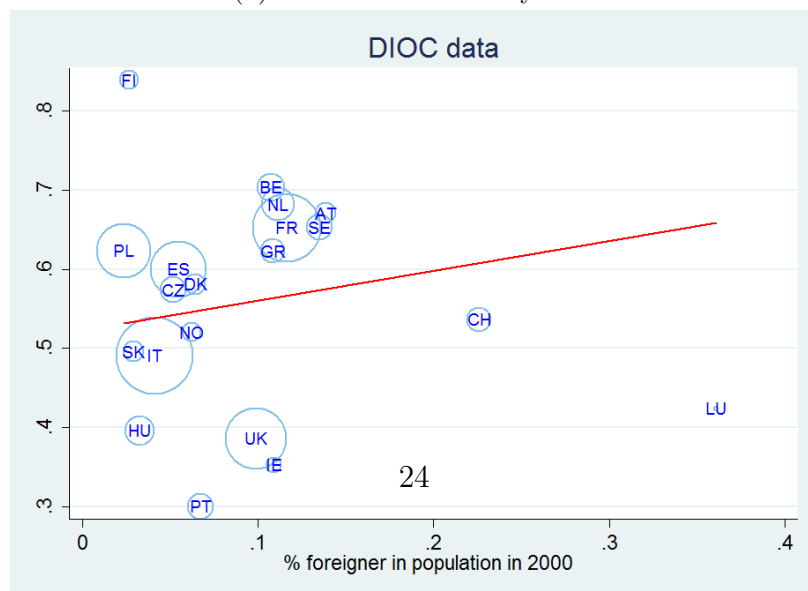
<i>RSC_{ELFS}</i> = <i>relative skill composition</i> using ELFS data by NUTS1 (regional level)		
First-stage : estimation of country fixed effects		
	Dependent variable Individual support for redistribution	
years of education* <i>RSC_{ELFS}</i>	-0.010*	(0.006)
years of education	-0.012***	(0.004)
SE, Sweden	reference	
AT, Austria	0.264***	(0.046)
BE, Belgium	0.351***	(0.042)
CZ, Czechrepublic	0.152***	(0.039)
DK, Denmark	-0.359***	(0.029)
ES, Spain	0.830***	(0.036)
FI, Finland	0.400***	(0.030)
FR, France	0.405***	(0.024)
GR, Greece	1.006***	(0.037)
HU, Hungary	0.632***	(0.039)
IE, Ireland	0.504***	(0.072)
LU, Luxembourg	0.454***	(0.031)
NL, Netherlands	0.071***	(0.023)
NO, Norway	-0.003	(0.026)
PT, Portugal	0.128***	(0.049)
UK, United Kingdom	0.217***	(0.029)
NUTS1*year fixed effect	NO	
Year fixed effect	YES	
Other individual characteristics	YES	
Observations	126288	
Second-stage : Prediction of country fixed effects (weighted regression)		
	Dependent variable Country fixed effects (estimated)	
Public spending as % of GDP (OECD)	-0.008	(0.018)
Constant	0.576	(0.489)
Observations	15	
Standard Error in parentheses		
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$		
First-Stage Standard Error cluster at NUTS1*year level		
Second-stage Standard Error corrected for estimation of country FE		



(a) ELFS data at NUTS1 level



(b) ELFS data at country level



(c) DIOC data at country level

Figure 1: Relative skill composition and immigration (as % of total population)

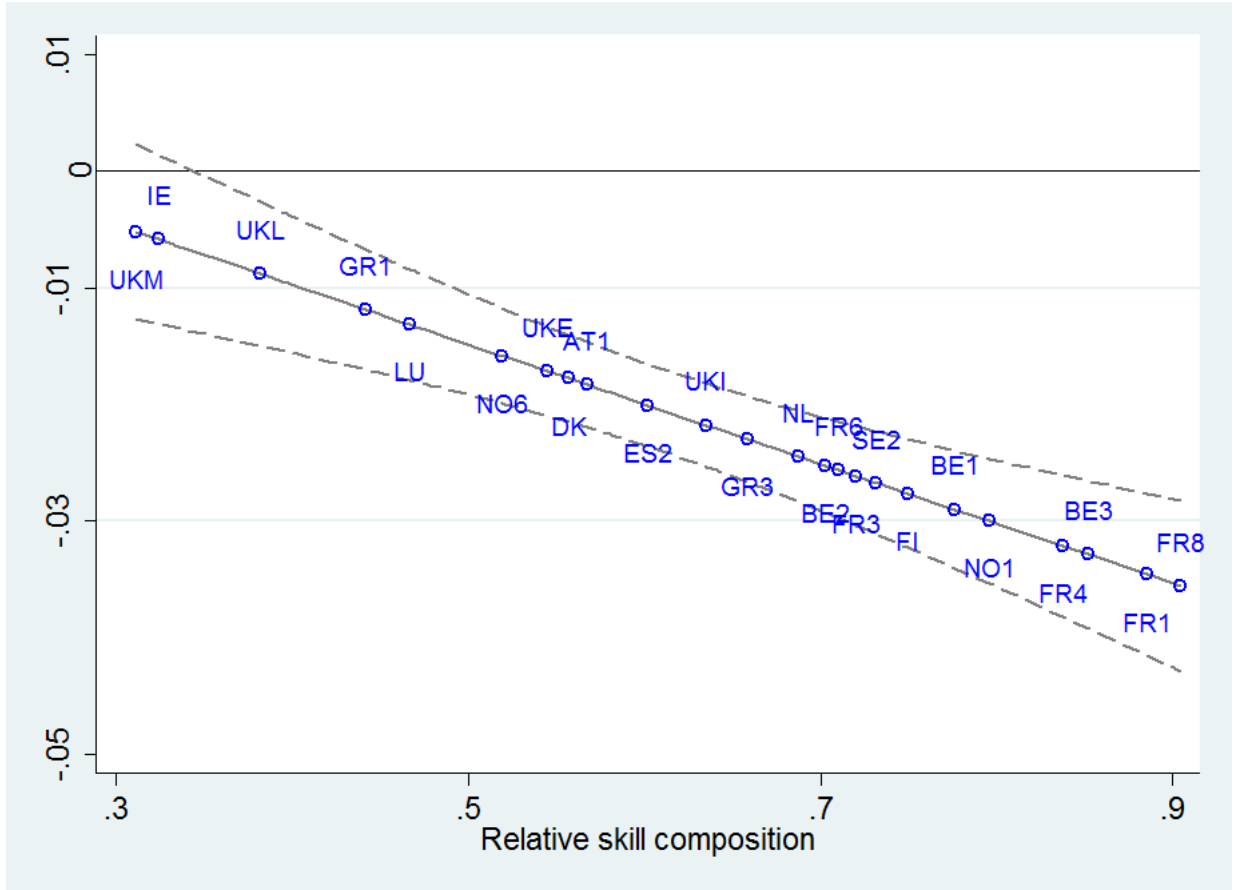
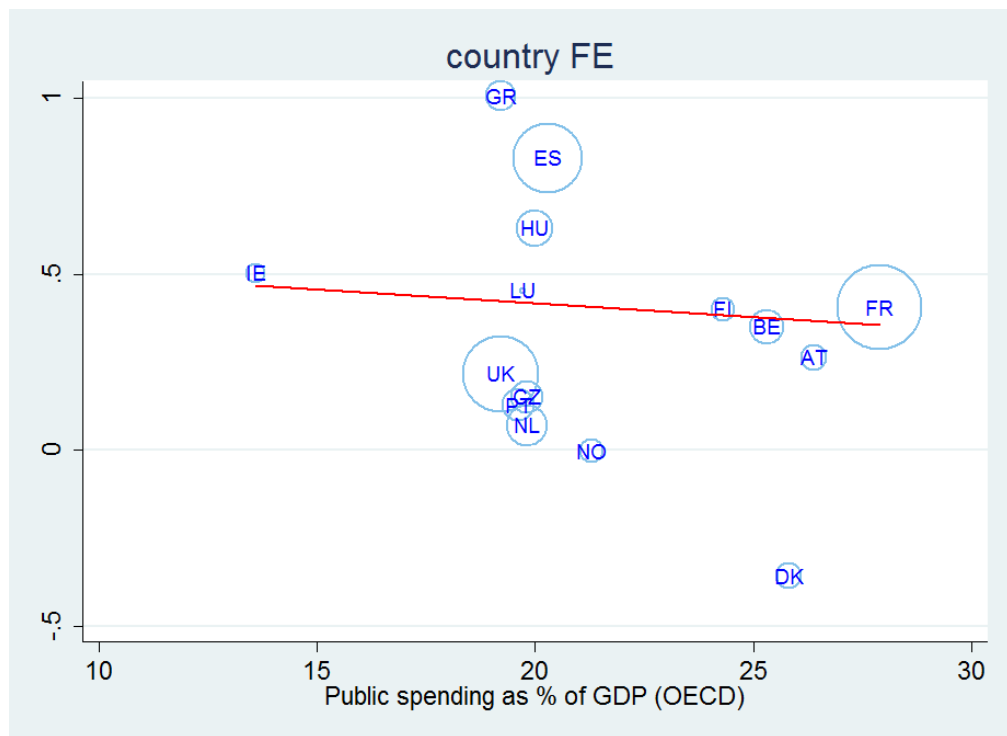
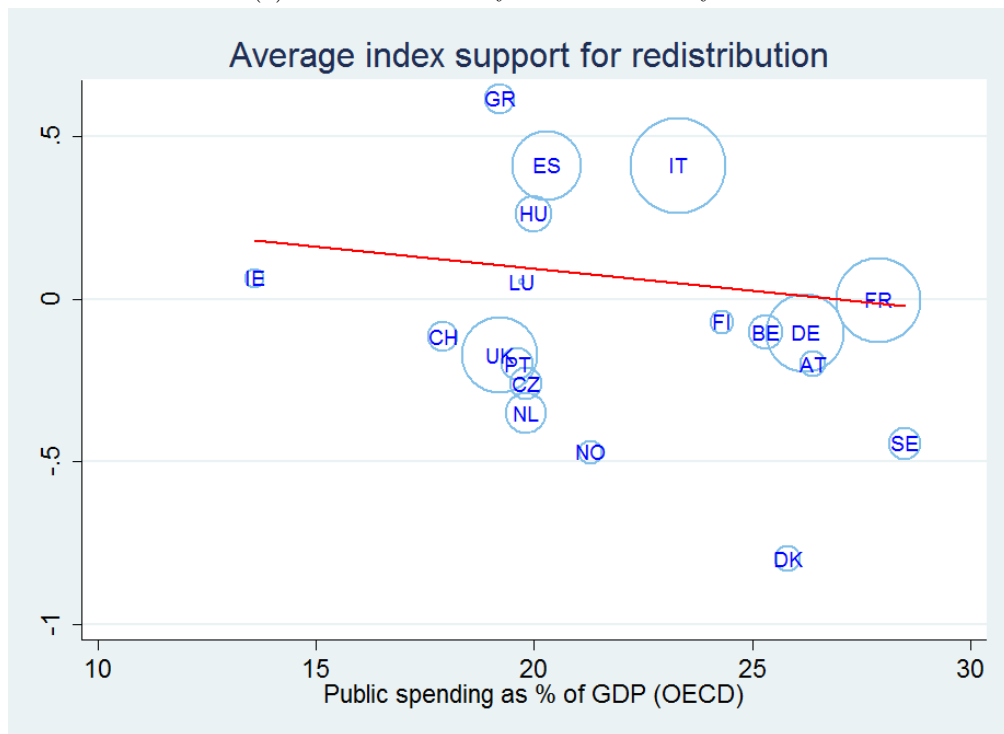


Figure 2: Estimated marginal effect of one year of education on pro-redistribution attitudes (y-axis) and Relative Skill Composition by NUTS1 region (x-axis) – 95% confidence interval curve . Coefficients and Std. errors are those in column (1) in Table 2



(a) Estimated country fixed effects on y axis



(b) Average of individual attitudes by country

Figure 3: Support for redistribution and public spending as % of GDP