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IMMIGRATION AND PREFERENCES FOR REDISTRIBUTION IN EUROPE

Alberto F Alesina, Elie Murard and Hillel Rapoport

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Alberto F Alesina - aalesina@harvard.edu
Harvard University and CEPR

Elie Murard - murard@iza.org
University of Alicante

Hillel Rapoport - hillel.rapoport@psemail.eu
Paris School of Economics

Immigration and Preferences for Redistribution in Europe [*]

Alberto Alesina[1], Elie Murard[2], and Hillel Rapoport[3]

[1]*Harvard University and IGIER Bocconi*
[2]*University of Alicante, IZA, LEAP*
[3]*Paris School of Economics, Université Paris 1 Panthéon-Sorbonne;*
Institut Convergences Migrations, Paris ; and CEPII

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Abstract

We examine the relationship between immigration and preferences for redistribution in Europe using a newly assembled data set of immigrant stocks for 140 regions in 16 Western European countries. Exploiting within-country variations in the share of immigrants at the regional level, we find that native respondents display lower support for redistribution when the share of immigrants in their residence region is higher. This negative association is driven by regions of countries with relatively large Welfare States and by respondents at the center or at the right of the political spectrum. The effects are also stronger when immigrants originate from Middle-Eastern or Eastern European countries, are less skilled than natives, and experience more residential segregation. These results are unlikely to be driven by immigrants' endogenous location choices, that is, by welfare magnet effects or by immigrants' sorting into regions with better economic opportunities. They are also robust to instrumenting immigration with a standard shift-share approach or to controlling for regional growth prospects.

Keywords: Income redistribution, population heterogeneity, welfare systems, immigration
JEL codes: D31, D64, I3, Z13

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1   Introduction

Private and public generosity (charity and welfare) travel more easily within the same ethnic lines, nationality and religious affiliation.[1] Alesina and Glaeser (2004) argue that one of the reasons why the welfare state is more generous and expensive in Western Europe than in the US is that European countries have been traditionally much more homogeneous than the US, a country built by waves of relatively recent immigrants. However in the last two decades immigration in Western Europe has substantially increased and has become (and will remain for the foreseeable future) a major political issue. Does immigration reduce support for redistributive policies in Europe? The answer provided by this paper is "yes", but with qualifications.

We assemble a novel unique data set of fully harmonized population census/register data at the regional level for 140 regions in 16 different European countries (in the years 1990, 2000 and 2010), which is then matched with attitudinal data from the 2008 and 2016 rounds of the European Social Survey. We investigate the relationship between immigration and natives' attitudes to redistribution by exploiting within-country variation in the share of immigrants, thus holding constant Welfare policies at the national level. We cannot hold constant welfare policies that vary at the local level, an issue which may be of limited importance in some countries (e.g., France) but are more relevant in others (e.g., Sweden or Germany). In any event, we analyze the robustness of our results to various potential confounders related to the non-random location choices of immigrants. Our results are robust to excluding Federal States where welfare policies are largely set at the regional level, suggesting that they are not driven by welfare magnet effects. They are also robust to controlling for a host of regional pull factors, either in terms of economic opportunities or social services, as well as to using a conventional shift-share instrument based on the 1990 location of immigrants.

We first find that local (i.e., regional) exposure to immigration in the residence region affects natives' perception of the number of immigrants at the national level and, therefore, also their perception about the identity (natives versus immigrants) of the potential beneficiaries of the Welfare State. We then show that native respondents in our sample display

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[1]See Alesina and Giuliano (2011) and Stichnoth and Van der Straeten (2013) for a survey of the literature on redistributive policies, and Alesina and La Ferrara (2005) for a survey on the effect of social heterogeneity on social capital and trust; see also Algan et al. (2016) for recent results and Desmet et al. (2009) for the role of linguistic diversity on redistribution.

lower support for redistribution when the share of immigrants in their residence region is higher. This effect is sizeable, comparable to the effect of individual variables such as education or income that are important determinants of preferences for redistribution (Alesina and Giuliano, 2011). For example, the anti-redistribution effect of increasing a region's share of immigrants from the bottom to the top quintile of the immigration size distribution is two thirds as large as the attitudinal effect of an equivalent increase in household income. We also uncover that the attitudinal effect of immigrants is not linear and tends to tappers off gradually with the share of immigrants (i.e., is marginally decreasing). Going from zero to, say, 5 percent of immigrants in a region may be more salient for the natives than going from, say, 15 percent to 20 percent.

This average effect hides considerable heterogeneity along a number of dimensions. First, the anti-redistribution impact of immigration is mainly driven by destination countries with more generous Welfare States (e.g., Nordic countries and France) relative to countries with smaller Welfare States (e.g., the UK or Ireland). Second, we find that the reaction against redistribution is significantly stronger among native individuals placing themselves at the center or the right of the political spectrum. The impact is also stronger among natives who hold negative views about immigrants or think that immigrants should not be entitled to welfare benefits. In contrast, the attitudinal response to immigration is less pronounced among more educated individuals – in line with the "educated preferences" theory (Hainmueller and Hiscox, 2007) – and among households in the bottom quintile of the income distribution. Third, the attitudinal effect of immigration greatly depends on immigrants' countries of origin and skills. Immigrants originating from the Middle-East (North-Africa included), as well as from Eastern and Central European countries (that joined the EU after 2004), generate a larger anti-redistribution effect relative to immigrants from other origin regions. We also uncover that immigrants' skills, both in terms of formal education and labor market occupation, shape natives' attitudinal reaction: a higher proportion of highly-skilled immigrants tends to significantly mitigate the anti-redistribution effect of immigration.[2] Finally, we find that, for a given share of immigrants in a region, a higher residential segregation of immigrants is associated, ceteris paribus, with a significant reduction in the support for redistribution in that region.

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[2]This is consistent with Moriconi et al. (2019)'s findings that high-skilled immigration is associated with European citizens shifting their votes toward parties that favor expansion of the welfare state, with low-skilled immigration having opposite effects.

Our paper relates to the literature on population diversity and demand for redistribution. Beliefs about who is a worthy recipient of public generosity correlate with race, especially in the United States. Many studies find that the white American majority is much less supportive of redistribution than members of minority groups (holding income constant) – see Alesina and La Ferrara (2005) for a survey. Using individual data for the U.S., Luttmer (2001) shows evidence for "group loyalty effects", namely that support for redistribution increases if members of the respondent's own ethnic group are over-represented among welfare recipients. Using experimental data, Fong and Luttmer (2009) study the role of racial group loyalty on generosity, measured by charitable giving in a dictator game where respondents choose how to divide $100 between themselves and a charity dedicated to Hurricane Katrina victims and find that racial discrimination in giving depends on subjective racial identification (i.e., on how close one feels to one's own racial group). With more specific reference to immigration, Tabellini (2018) shows at the municipality level that the large inflows of immigrants to the United States in the late 19th century and early 20th century made voters more hostile toward immigrants, and more anti-redistribution (and even more so when immigrants came from culturally or religiously distant countries) in spite of the economic benefits brought about by immigrants.

Turning to Europe, Dahlberg et al. (2012) analyze changes in natives' attitudes to redistribution resulting from the arrival of refugees in Sweden in the late 1980s and early 1990s and find a strong negative effect, especially among high-income earners. They take advantage of the existence between 1985 and 1994 of a "refugee placement program" which exogenously allocates refugees to municipalities in Sweden, essentially without refugees having a say as to where they can be placed. Indeed, one difficulty when analyzing the consequences of immigration on welfare policies is that immigrants (especially the poorest) may be attracted by so called "welfare magnets".[3] Whether and how this effect may bias our results on attitudes to redistribution, however, is not obvious: immigrants may well flow to countries or regions with more generous welfare systems; if these are precisely the countries in which individuals tend to be more favorable towards redistribution, this would generate an upward bias in our estimates. In any event, this issue is addressed in our analysis, at least partly, by focusing on within-country (i.e., regional) variation in immigrants' shares (see Section

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[3]Boeri (2010) and Borjas (1999) find evidence of such welfare magnet effects respectively in the context of the US and of Western Europe (see also Razin and Wahba (2015)).

3.2.). Senik et al. (2009) also use the European Social Survey to analyze the role of individual characteristics (especially attitudes toward immigration) in determining attitudes to redistribution in response to increased perceived immigration. To further explore the role of natives' *perceptions*, Alesina, Miano, and Stantcheva (2018) conduct an original survey on six countries (the US and five Western European countries: the UK, Sweden, Germany, Italy and France) and show two sets of results. First, natives are vastly misinformed about immigrants, regarding their number, country of origin, education level and reliance on the welfare state. Second, there is a strong correlation between natives' beliefs about immigrants and their preferences for redistribution. They also find, as we do, that this relationship is stronger for self-reported right-wing respondents. Interestingly, the authors randomize the order in which they administer the questionnaire, starting either with the immigration or the redistribution questions first and find significantly lower levels of support for redistribution among respondents that were "primed" to think about immigration before answering the questions on redistribution. In contrast to these two studies, we focus on *actual exposure* to immigration, and investigate the attitudinal response to such exposure in terms of attitudes to redistribution. Finally, there is a large, mostly descriptive, sociological and political literature using cross-country analyses to document how exposure to immigration may shape attitudes towards the Welfare State (see, e.g., Burgoon et al., 2012; Burgoon, 2014; Brady and Finnigan, 2014). Some sociological studies also exploit regional-level data to examine the relationship between immigration and support for redistribution, either within specific countries, such as Germany (Schmidt-Catran and Spies, 2016) or Sweden (Eger, 2009), or across different European countries (Eger and Breznau, 2017).[4]

This paper is organized as follows. The next section describes in detail the data set we assemble. Section 3 presents our empirical strategy. Section 4 describes our main results, robustness checks, and the heterogeneity analysis. The last section concludes.

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[4]The empirical analysis in Eger and Breznau (2017), however, is potentially contaminated by the same confounders as in cross-country studies, as the authors use regressions that do not control for country fixed-effects.

2 Data

We construct a novel data set on the stocks of immigrants at the regional level for a total of 140 regions in 16 Western European countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain Sweden, Switzerland, and the United Kingdom. While there have been several efforts to compile global bilateral immigrant stocks across countries (e.g. Docquier et al., 2009; Özden et al., 2011), we provide a new data set of immigrant population by origin country and by educational level in each region (NUTS) of Europe by harmonizing population censuses and registers in the years 1991, 2001 and 2011. We then combine this data set with individual attitudinal data drawn from the European Social Survey across more than 140 regions in western Europe.

2.1 Stock of immigrants at the regional level

2.1.1 Primary sources of data

We draw on population census and register data, from the 1991, 2001 and 2011 rounds – see Table A.8 in the appendix. We have census data for 10 countries: Austria, Belgium, Ireland, Italy, France, Greece, Portugal, Spain, Switzerland, and the United Kingdom. These data were either provided by the national statistical offices or taken from IPUMS International.[5] For countries not taking periodic censuses but keeping population registers, we extracted data from those registers.[6] In order to obtain immigrants stock data by educational level, we sometime rely on the European Labor Force Survey (due to the lack of suitable census data) – see Table A.9 in the appendix.[7]

We compile the immigrant stock data in the regions of residence of our 16 European countries by using the NUTS geocode standard for referencing the subdivisions of countries. The NUTS standard defines minimum and maximum population thresholds for the size of the

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[5]For the UK, the census data we used (as provided by the ONS) does not cover Scotland nor Northern Ireland. Those two countries run separately their own census which we could not have access to.

[6]This is the case for 6 countries: Denmark, Finland, Germany, Norway, the Netherlands and Sweden.

[7]We use the European Labor Force Survey (ELFS) instead of population censuses in three countries: Belgium, Switzerland and Germany. In Belgium and Switzerland, we chose not to rely on census data because of the high share of foreign-born with unknown level of education. In Germany, the census does not report the birthplace, only the Labor Force Survey does.

NUTS regions: between 3 and 7 millions for NUTS1 units, between 800,000 and 2 millions for NUTS2 units, and between 150,000 and 800,000 for NUTS3 units. NUTS regions are generally based on existing national administrative subdivisions.[8]

Definition of migrants Official records usually apply two different definitions as to what constitutes a migrant: either being born in a foreign country, or being a citizen of a foreign country. When harmonizing the data, we gave priority to the definition based on country of birth. Birthplace data is available from most of the primary sources, expect for the 1991 rounds of the Austrian and Greek censuses, as well as for the 1991 and 2001 rounds of the German registers. In order to have a consistent definition of immigrants over time comparable across countries, we imputed the number of foreign-born in the few instances in which data are missing. We follow the approach of Brücker et al. (2013) by using the ratio between foreign citizens and foreign-born in year t in order to infer the number of foreign born in the previous years $t-10$ or $t-20$. [9]

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[8]For example in mainland France, NUTS1 mirrors the 9 French areas "Zones d'etudes et d'amenagement du territoire " while the NUTS2 corresponds to the 22 French "Regions" and NUTS3 to the 96 French "Départements".

[9]In practice we impute the number $\widehat{N}_{r,o,t}$ of foreign-born from origin country o living in region r at time t by using the observed number of foreign citizen $C_{r,o,t}$ in the same year, region and coming from the same origin country:

$$\widehat{N}_{r,o,t} = r_{o,t+10} * C_{r,o,t}$$

with $r_{o,t+10} = \frac{N_{o,t+10}}{C_{o,t+10}}$ the ratio at time $t+10$ between national-level number of foreign-born and foreign-citizen from origin o and living in the same destination country of region r. For Austria and Greece, we impute the number of foreign-born in 1991 by using the ratio between foreign-born and foreign-citizen in 2001. For Germany, we impute the number of foreign-born in 1991 and 2001 by using the ratio in 2011. In order to assess the precision of such imputation, we predicted the number of foreign-born in Austria and Greece in 2000 following the same approach (i.e., using the 2011 ratio between foreign-born and foreign-citizen) and compared the imputed 2000 values and the observed 2000 values of foreign-born by origin country and region of residence. In both Austria and Greece, we obtained a coefficient of correlation above 0.97 between the observed and the imputed values. For Germany, we checked how the 2000 imputed values by origin countries correlate with the DIOC data 2000 values at the national level (Docquier and Marfouk, 2006). Considering only origin countries with positive DIOC numbers of migrants, we obtained a coefficient of correlation above 0.96 – and in particular a similar number of migrants from the ex-USSR, the so-called ethnic Germans.

Countries of origin Following the end of the cold war, many countries redrew their political boundaries. The coding of birthplace data, which varies from one population census to another, often only reports the original territory as it existed before the split into newly constituted countries. For example, in many censuses of the 16 European countries, Serbia, Croatia or Bosnia are aggregated under the name of the former Yugoslavia. We treated as a single entity the countries that belonged to each of the following territory: the former Yugoslavia, the former Czechoslovakia, the Netherlands Antilles, the Channel Islands, Sudan and South Sudan, Indonesia and East Timor. With respect to the ex-USSR, we choose to impute (when not known) the number of immigrants originating from the individual countries that comprise that area as follows: observing the total number of migrants from USSR in a given destination region, we allocated these migrants to each individual countries by using the IAB brain-drain database Brücker et al. (2013) which provides, at the national level, the number of immigrants by individual origin.[10] After harmonization, we have 217 different countries of origin in 1991, 2001 and 2011. The share of the population for whom the place of birth is missing or too imprecise is below 1% for most receiving countries and not higher than 4% for two countries (the UK and Switzerland).

Education data We distinguish three levels of education using the International Standard Classification of Education: primary (ISCED 0/1/2, i.e. lower secondary, primary and no schooling); secondary (ISCED 3/4 : high-school leaving certificate or equivalent) and tertiary education (ISCED 5A/5B/6 or higher).

2.1.2 Other sources of data at the regional level

Occupation data We use the 2011 Census database of Eurostat that harmonises statistical definitions and classifications in order to ensure the comparability of population census data across different countries. This database gives information on the 2011 population structure at the NUTS regional level. In particular, we use data on the number of foreign-born and native workers in various occupations, categorized by the ISCO 1-digit classification.

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[10]For example, for a given year and destination region, we impute the number of Ukrainian migrants by multiplying the number of migrants from the USSR in the same year and destination region with the share of Ukrainians among all USSR migrants in the same year and destination country, as provided by the IAB data set.

This occupational data is available for every country used in the analysis expect for Austria, Belgium and France.[11]

Segregation data We also draw on a data set providing the distribution of the immigrant population at a very high spatial resolution in order to measure the residential segregation of immigrants within NUTS regions of Europe. This data set has been assembled by the Joint Research Centre (JRC) of the European Commission that harmonized 2011 population censuses in 8 different countries: France, Germany, Ireland, Italy, Netherlands, Portugal, Spain and UK. The ensuing data is a uniform grid giving the numbers of immigrants in cells of 100 by 100 meters in each of these 8 European countries. The primary source of data is the population at the census tract level. However, the geographical resolution and geometries of census sampling units are extremely variable across European countries. In the case of the Netherlands, sampling areas are at the postal code level (groups of buildings including around 25 households). Other countries report data at higher resolution (from 0.01 to 1.7 square km) using census sampling areas with a regular grid (Germany) or polygons with variable shapes and sizes. These differences in geometries and resolution were harmonized through the dasymmetric mapping method.[12] We aggregate this data at the regional level by constructing an index of immigrants' spatial segregation within each NUTS region. We explain the construction of this index in the results section 4.3.4.

2.2   Individual attitudinal data

Data on individual attitudes towards redistribution are from the European Social Survey (ESS), which contains information on a wide range of socioeconomic and political values for individuals in 28 European countries. The data are available for seven biannual survey waves starting in 2002 and have been widely used.[13] We use the 2008 and 2016 rounds of the ESS

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[11]For details, see https://ec.europa.eu/eurostat/web/population-and-housing-census/census-data/2011-census

[12]This method me redistributes the population (by origin country) from the original census areas to a regular grid at 100 m resolution. The method allocates higher shares of the total population to cells characterized by a higher surface occupied by buildings and with an urban land cover classification, as compared to cells occupied, for example, by green areas or with an agricultural land.For details, see https://bluehub.jrc.ec.europa.eu/datachallenge/data

[13]For preferences towards redistribution see Burgoon et al. (2012); Finseraas (2008); Luttmer and Singhal (2011); Senik et al. (2009). For views about immigration see Card et al. (2005) and Ortega and Polavieja

that include a rich set of specific questions on attitudes towards Welfare. We rely on eight different variables V_j to measure preferences towards redistribution. We first use answers to the statement *"The government should take measures to reduce differences in income levels"*. Answers are captured with a 5-point scale variable (V_1): agrees strongly (5), agrees (4), neither agrees nor disagrees (3), disagrees (2), disagrees strongly (1). Respondents are also asked to what extent they agree that *"For a society to be fair, differences in people's standard of living should be small"* (V_2). Respondents also report how much responsibility they think governments should have to ensure a reasonable standard of living for the old (V_3), the unemployed (V_4), as well as to ensure sufficient child care services for working parents (V_5). Finally, respondents report their views on social benefits, and in particular the extent to which they agree with the following three statements: *"social benefits place too great strain on economy"* (V_6), *"social benefits cost businesses too much in taxes and charges"* (V_7), *"social benefits make people lazy "* (V_8). Given that these variables use different scales (either 5 or 11 points), we standardize them using the Z-score formula in order to make the results more comparable across attitudinal outcomes. (i.e., variables are rescaled to have a mean of 0 and a standard deviation of 1). We also recode these variables in such a way that a higher value corresponds to stronger support for Welfare and redistribution.

Table 1 shows that, somewhat surprisingly, these eight different variables are not as strongly correlated as one may expect, with coefficients of correlation below 0.5. We construct a composite index of attitudes as the first component of a Principal Component Analysis of these eight variables.[14] We use this index as the main dependent variable in the analysis of the effect of immigration on attitudes towards redistribution. The advantage of the index is to combine the diverse facets of Welfare attitudes into one single indicator instead of relying on only one dimension. We check the robustness of the results to using each of these eight variables on their own as an attitudinal outcome.

2.3 Matched data on attitudes and immigrant stocks

The ESS provides relatively precise information on the place of residence of the respondents: at the regional NUTS 2 level for most countries expect for Belgium, France, Germany and the UK for which only larger NUTS 1 regions are available. In Ireland, smaller NUTS 3 region

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(2012).

[14]The weights obtained by the PCA are very similar for each of the height different variables

Table 1: Cross-correlations of Welfare attitudes

Variables	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8
V_1: Favors reduction in income differences	1.00							
V_2: Favors small differences in standard of living for a fair society	0.41	1.00						
V_3: Favors government responsibility for the standard of living for the old	0.22	0.20	1.00					
V_4: Favors government responsibility for the standard of living of the unemployed	0.24	0.24	0.48	1.00				
V_5: Favors government responsibility for child care services	0.19	0.17	0.43	0.42	1.00			
V_6: Disagrees that social benefits place too great strain on economy	0.08	0.07	0.09	0.19	0.11	1.00		
V_7: Disagrees that social benefits cost businesses too much	0.08	0.07	0.05	0.17	0.08	0.44	1.00	
V_8 :Disagrees that social benefits make people lazy	0.11	0.11	0.08	0.27	0.12	0.38	0.36	1.00

are available. In a few instances the coding of the place of residence in the ESS data does not fully coincide with the NUTS classification or is sometimes inconsistent across different survey rounds. In these cases we aggregate different NUTS regions into one larger unit.[15] Once these small adjustments are made, we can combine the ESS attitudinal survey with the immigrant stock data across 148 different regions of residence – either NUTS 2 or NUTS 1 – in our 16 European countries. Table A.10 in the Appendix provides the exhaustive list of the regions included in the analysis.[16]

Estimation sample Since we are interested in the effect of immigration on natives' support for redistribution, we restrict the ESS sample to native-born individuals, i.e. born in their current European country of residence. We consider only respondents with both non-missing data on attitudes towards redistribution and non-missing data on individual characteristics. Pooling the ESS rounds of 2008 and 2016 together, we obtain a cross-section of 31,230 individuals.[17]

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[15]The northwestern region of Switzerland with Zurich (CH03-CH04), the Southern part of Finland with Helsinki (FI1B-FI1C), and the Trentino province with the Bolzano province in Italy (ITH1-ITH2).

[16]The following NUTS regions are not covered by the 2008 and 2016 ESS rounds: the Açores and Madeira in Portugal, Molise in Italy, Ipeiros and the islands of Ionia Nissia and Voreio Agaio in Greece, and Aland in Finland.

[17]This sample represents 70% of the initial sample because it keeps observations where all control variables are jointly non-missing. We checked that this restricted sample does not differ substantially from the initial sample in terms of attitudes, political preferences and socio-demographics: We obtain standardized differences (Rosenbaum and Rubin, 1985) always lower than 6%, which indicates that there are no important imbalances between the two sample.

2.4 Descriptive Statistics

All variables used in the empirical analysis are described in Table A.6 and Table A.7 in the Appendix.

Immigrants in Europe Over the last decades, immigration has increased in every European country, and has accelerated since the early 2000s, particularly in Spain, Italy and Ireland (see Figure A.1 in the Appendix). This increase is due to a inflow of immigrants coming from countries outside of the EU15, and mainly from Central and Eastern Europe, the Middle East (including North-Africa), and South America (see Figure A.2 in the Appendix). As shown by Figure 1, the population share of immigrants in 2010 is very heterogeneous across countries, but also across regions within the same country. For example, northern regions of Italy host many more immigrants than southern regions, which is also true for western regions of Germany relative to eastern regions.

Figure 1: Population share of immigrants in 2010
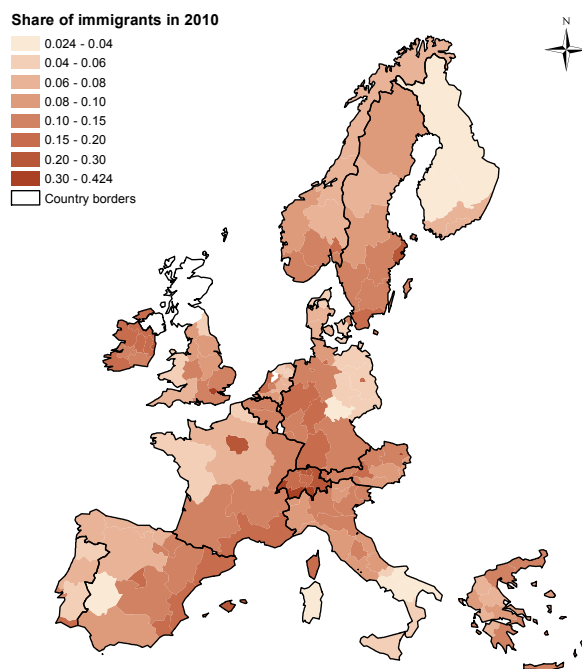
Preferences for redistribution The average support for redistribution, as measured by the index of Welfare attitudes, is also heterogeneous across European regions, not only across but also within countries. Figure 2 shows that there is a significant within-country variability

Figure 2: Index of support for redistribution (2008, 2016)
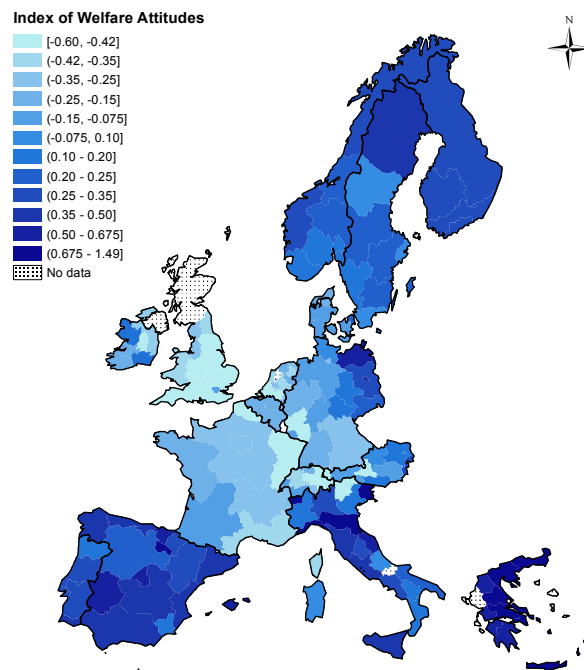
in the index of Welfare attitudes. For example, there is lower support for redistribution in western regions of Germany relative to eastern regions, as well as in the south-eastern regions of France relative to western regions.[18] The ESS also allows to examine the evolution of attitudes over time for only one variable of the index, namely variable V_1, which measures the support for reduction in income differences and is available for every biannual rounds of the survey from 2002 onward. Figure A.4 in the Appendix. shows that preferences for redistribution have been relatively stable over the last decades at the country level. Between 2002 and 2016 the average support for redistribution has varied by at most 10% relative to its initial level, and this is true for every European country.

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[18]A variance-decomposition analysis reveals that, at the regional level, 35% of the variation in attitudes is due to within-country variation. On differences between Western and Eastern parts of Germany, see Alesina and Fuchs-Schündeln (2007)

3 Empirical strategy

3.1 Specification

We estimate the following linear regression for native-born individual i, living in region r of country c :

$$y_{irc} = f(Mig_r) + X_i\alpha + Z_r\lambda + \delta_{c,s} + \epsilon_{irc} \tag{1}$$

where y_{irc} is individual i' s attitudinal support for redistribution measured either in 2008 or in 2016, as described in the previous section. $f(Mig_r)$ is a flexible function of the share of immigrants in the population of region r in 2010.[19] Importantly, the regression includes country fixed-effect $\delta_{c,s}$ that are interacted with survey round dummies ($s = 2008$ or 2016). The vector Z_r includes controls at the regional level such as the native population (log), GDP per capita (log), unemployment rate, and the share of tertiary educated among the native population, all measured in 2010. The vector X_i controls for individual socio-demographic characteristics, such as the respondent's gender, age, education, main activity during the week before the interview, the size of his/her household, parental education and immigration background, as well as usual place of residence. We test the sensitivity of the results to the inclusion of a richer set of individual controls related either to the individual's income and occupation[20] or to the individual's political views.[21] All variables used in the empirical analysis are described in Table A.6 and Table A.7 in the Appendix. We cluster standard errors at the regional level r to account for possible correlation of the individual-level residuals ϵ_{irc} within the same region.

The share of immigrants in the regional population is very heterogeneous across Europe. In 2010, the share of immigrants was comprised between 2% and 6% in 24 regions out of 148 while it was higher than 20% in 12 regions (see Figure A.3 in the Appendix). Given this heterogeneity, we expect that immigrants may have non-linear effects along the distribution

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[19]The results are robust to using immigrant stocks measured in 2000 or 1990. See next section.

[20]Current or former occupation (2-digits isco88 categories), household income quintile, and self-assessed standard of living.

[21]Self-declared placement on a left-right political scale, opinions about whether people should be treated equally and have equal opportunities, opinions about the importance of helping people and caring for others' well-being, and views about whether most people try to "take advantage of you", or try "to be fair".

of the immigrants' share. We estimate the shape of the function f by using non-parametric regression techniques (discussed in detail in the results section).

The specification we propose only exploits cross-sectional variations in the immigrants' share, and not variation over time. Having attitudinal data in both 2008 and 2016, we could in theory examine how changes in immigration levels affects changes in Welfare attitudes between these two points in time. Unfortunately, data constraints precludes us from doing so, as population censuses only provides immigrants stock data in 2000 and 2010 (i.e., every ten years). Furthermore, as we show in Figure A.4 in the Appendix, attitudes toward redistribution appear quite persistent over time (at the country level). This suggests that cross-sectional regressions might be more appropriate to capture the long-term attitudinal effect of immigration, rather than a specification relying on short-term variations in attitudes.

3.2   Endogeneity

In cross-country studies about immigration and redistribution, a key endogeneity question is the potential sorting of immigrants across countries based on the generosity of their welfare systems. While there may well be such "welfare magnets", their effect on preferences for redistribution is not clear. On the one hand, in places with more generous welfare polices poorer immigrants "cost" (or are perceived to cost) more, on the other hand the natives must be in principle more favorable to the welfare state by revealed preferences. The unit of observation in this study is the region; hence, the country-year fixed effects control for country-level heterogeneity and hold constant welfare policies set at the national level. However, immigrants are not randomly distributed across regions within the same country.

Thus, it could still be that immigrants are attracted by regions offering relatively more generous social services (e.g., social housing), even within the same country. In order to address the issue of potential regional welfare magnets, we exclude Federal countries where regions have more autonomy to set welfare policies locally. We also add to the regression's controls the number of beds per capita in public hospitals, as a proxy for public good provisions at the regional level. Immigrants may also reside in relatively poorer regions (e.g. due to constraints on the housing market), where people have higher (or lower) preferences for redistribution. To test this, we include the share of households in or at risk of poverty at the regional level. We find that the results are robust to the inclusion of these potential confounders.

An additional concern is that immigrants may self-select into regions with higher economic growth and higher prospect for upward income mobility. Since people have lower support for redistribution when the prospects for upward mobility are higher, this could generate a negative correlation between support for redistribution and share of immigrants.[22] We address this concern by: (i) controlling for long-run regional GDP growth between the 1960s and 2000, (ii) controlling for negative trade shocks and industrial decline over the last two decades, (iii) excluding capital regions, and (iv) using the share of immigrants in 1990 (instead of 2010) as main regressor.

Finally we consider the residential choices of the native population, which can be driven by attitudes toward immigrants. For example, native individuals who are intolerant toward immigrants are unlikely to choose to live in areas with large immigrant populations. To the extent that racially intolerant natives tend to have lower support for redistribution (as is observed in the ESS survey), this type of residential sorting would yield an upward bias in any correlation between immigrants' share and attitudinal support for redistribution. In any case, the NUTS regions used in the analysis are very large spatial areas, with typically around 1.5 millions inhabitants, and always more than 200,000 inhabitants. As Dustmann and Preston (2001) argue, the ethnic composition of such large areas may be regarded as beyond the control of individuals whose geographic mobility is likely to be limited and to take place within a region.

4   Results

4.1   Main findings

We begin by establishing that the natives' perception of the number of immigrants in their country (at the national level) is affected by the share of immigrants in their residence region. Table 2 shows that a one percentage-point increase in the regional immigration share is associated with a 0.3 percentage-point increase in the perceived national share of immigrants. Thus, even if the respondents perceive that redistributive policies are decided at the national level (and not at the local level), a higher number of immigrants at the local level inflate the number of immigrants perceived at the national level.This suggests that the

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[22]For recent evidence on the relationship between perceptions of social mobility and preferences far redistribution see Alesina, Stantcheva, and Teso (2018)

natives' perception of the identity of potential welfare recipients (native or non-native) is determined by what they observe locally, i.e. by the local composition of the population.

Table 2: Perceived share of immigrants in the country and actual share in the residence region

Dep var :	"Of every 100 people in the country how many are foreign-born?"				
	(1)	(2)	(3)	(4)	(5)
Share of immigrants	0.196***	0.325***	0.307***	0.310***	0.304***
	(0.039)	(0.050)	(0.046)	(0.045)	(0.044)
R2	0.14	0.14	0.21	0.22	0.24
N	32,358	32,358	32,358	32,358	32,358
Country-year FE	X	X	X	X	X
Regional control		X	X	X	X
Basic Individual-controls			X	X	X
Income controls				X	X
Ideology controls					X

Note: The dependent variable is the answer to the question: "Out of every 100 people living in the country, how many do you think were born outside the country?", available only in the 2002 and 2016 rounds of the European Social Survey. Regional controls include: native population (log), GDP per capita (log), unemployment rate, share of tertiary educated among the native population. Individual controls include: year of birth*sex , sex*education, household composition, employment status (unemployed, self-employed, retired..), education of parents and country of birth of parents, type of respondent's domicile (big city, suburbs, small town, village). Individual income controls include: current or former occupation (isco88 2 digits), household income quintile in the country, and feeling about current household's income. Ideology controls include: Placement on left right scale, opinions about whether people should be treated equally and have equal opportunities, opinions about the importance to help people and care for others well-being, opinions about whether Most people try to take advantage of you, or try to be fair. Standard errors are clustered at the NUTS regional level. *** p<0.01, ** p<0.05, * p<0.1

We next turn to examine the shape of the function $f(Mig_r)$ in specification 1. Figure 3 presents the non-linear effects of immigrants on natives' attitudes towards redistribution obtained from semi-parametric regressions following Robinson (1988)'s double residual estimator and controlling for country fixed effects and the vector of regional controls Z_r described

in specification 1. We find that support for redistribution steadily declines with the share of immigrants until their share reaches 20% of the regional population. Past this point, the negative effect of immigrants' presence tappers off and seems to even become positive when the immigrants' share is higher than 30%, although estimates are too imprecise to reject a zero impact.[23] This U-shaped pattern suggests that immigrants have non-linear effects on natives' attitudes that can be approximated with a quadratic function, which we adopt for the rest of the empirical analysis.

Figure 3: Semi-parametric effect of immigrants on natives' support for redistribution
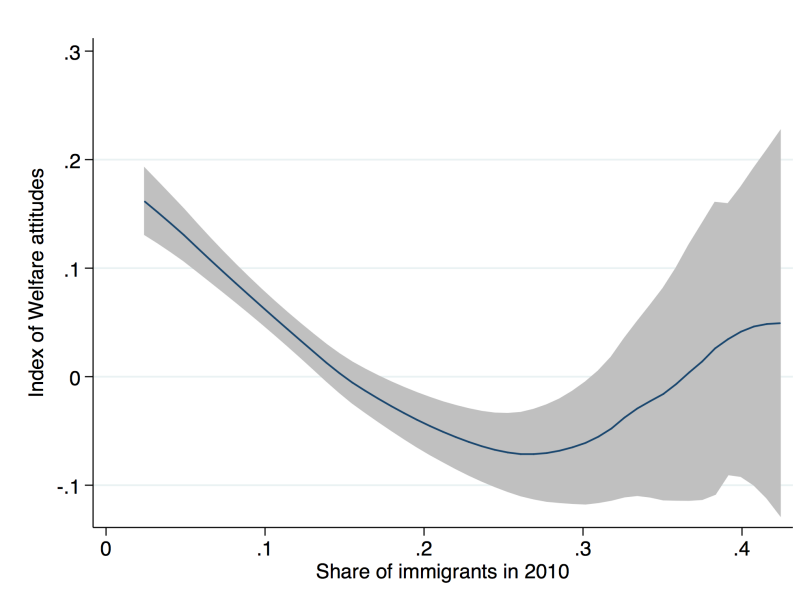
Notes: Kernel-weighted local polynomial fit controlling for country-year fixed effects and regional variables Z_r. We perform these estimations using the `semipar` command provided by the statistical software Stata 15, based on Robinson (1988)'s estimator

Table 3 presents the OLS estimates of the attitudinal effects of exposure to immigrants. We find a negative U-shaped association between immigration and pro-redistribution attitudes that is stable across the various specifications. In addition to country-year fixed effects, we progressively add to the regression regional controls (column 2), individual socio-demographics (column 3), income and occupation controls (column 4), and proxies for altruism, aversion for inequality and sense of fairness (column 5). The U-shaped relationship

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[23]Only four regions host more than 30% of immigrants in their population: Ticino and Geneva (Switzerland), London (UK), and Brussels (Belgium)

Table 3: Immigration and Attitudes towards Redistribution: Average Effect

Dep var. :	Index of welfare attitudes				
	(1)	(2)	(3)	(4)	(5)
Share of immigrants in 2010	-2.711***	-2.802***	-2.842***	-2.670***	-2.323***
	(0.728)	(0.665)	(0.655)	(0.658)	(0.606)
Share of immigrants in 2010, squared	6.865***	5.372***	5.201***	4.848**	4.088**
	(2.022)	(1.941)	(1.985)	(1.986)	(1.812)
R2	0.10	0.11	0.13	0.15	0.28
N	31,230	31,230	31,230	31,230	31,230
Immigrants' share minimizing dep var.	.197	.261	.273	.275	.284
Country-year FE	X	X	X	X	X
Regional control		X	X	X	X
Basic Indiv-controls			X	X	X
Income controls				X	X
Ideology controls					X

Note: The dependent variable *Index of welfare attitudes* is constructed as the first component of a principal component analysis using height attitudinal variable (see Data section). Regional controls include: native population (log), GDP per capita (log), unemployment rate, share of tertiary educated among the native population. Individual Controls include: year of birth*sex , sex*education, household composition, employment status (unemployed, self-employed, retired..), education of parents and country of birth of parents, type of respondent's domicile (big city, suburbs, small town, village). Individual income controls include: current or former occupation (isco88 2 digits), household income quintile in the country, and feeling about current household's income. Ideology controls include: Placement on left right scale, opinions about whether people should be treated equally and have equal opportunities, opinions about the importance to help people and care for others well-being, opinions about whether Most people try to take advantage of you, or try to be fair. Standard errors are clustered at the NUTS regional level. *** p<0.01, ** p<0.05, * p<0.1

reaches its minimum when the immigrants' share is between 20% and 28% of the regional population, depending on the specification. These thresholds correspond to the 92th and 97th percentiles of the distribution, which means that immigration and support for redistribution are negatively associated across virtually all the sample. When the full list of controls is included in column 5, the estimates suggest that a one standard-deviation increase in the share of immigrant from 0% to 6% reduces natives' support for redistribution by 12.3% of the standard-deviation of attitudes. In order to get some sense of the relative size of this effect, note that moving a household income from the bottom to the top quintile decreases

attitudes by 33% of a standard-deviation. In comparison, moving a region's share of immigrants from the bottom quintile average (4%) to the top quintile average (21%) reduces support for redistribution by 22% of a standard-deviation, which is two-third as large as the attitudinal impact of an equivalent increase in household income.

This U-shaped relationship is interesting as it suggests that salience may play an important role in shaping the attitudinal effect of immigrants. The estimated coefficients (column 5) imply that, for example, an increase from zero to 5 percent in the immigrants' share has an anti-redistribution effect three times larger than an increase from 20 to 25 percent. Moving from zero to 5 percent of immigrants in the population may in fact be more more salient and visible – and the perception of this increase more obvious – than moving from 20 to 25 percent.

4.2 Robustness

4.2.1 Immigrant stocks in different census years

Table 4 tests the robustness of the results to using immigrant stocks measured in different census years. Panel A shows that when we use the population censuses in 1990, we find a similar relationship between support for redistribution and immigrants. The U-shape relationship reaches its minimum when the 1990 immigrants' share is around 17%, corresponding to the 94th percentile of the distribution. When using the 2000 censuses in Panel B, we also find a similar U-shaped pattern, whose minimum is attained when the immigrants' share is around 20%, corresponding to the 95th percentile. This implies that natives' support for redistribution and immigration are negatively correlated at the regional level for almost all of the sample.

4.2.2 Shift-Share instrument

We also use a standard shift-share IV (Card, 2001) to instrument for the population share of immigrants in 2010. We predict the number of immigrants in a given region r by interacting the 1990 locations of different origin-specific groups of immigrants with subsequent migration flows from each origin country. Formally, Mig_r in regression (1) is instrumented with

$$\frac{1}{\widehat{P_r}} \sum_o \alpha_{o,r} N_o$$

Table 4: Robustness Checks: Census years in which immigrant stocks are measured

Dep var. :	Index of welfare attitudes				
	(1)	(2)	(3)	(4)	(5)
Panel A: Censuses in 1990					
1990 share of immigrants	-3.596***	-3.555***	-3.551***	-3.378***	-3.284***
	(0.889)	(0.752)	(0.723)	(0.716)	(0.624)
1990 share of immigrants, squared	13.594***	10.459***	10.174***	9.581***	9.384***
	(3.088)	(2.721)	(2.621)	(2.552)	(2.252)
R2	0.10	0.11	0.13	0.15	0.28
N	31,230	31,230	31,230	31,230	31,230
Immigrants' share minimizing dep var.	.132	.17	.175	.176	.175
Panel B: Censuses in 2000					
2000 share of immigrants	-3.266***	-3.263***	-3.194***	-3.011***	-2.631***
	(0.927)	(0.842)	(0.835)	(0.833)	(0.777)
2000 share of immigrants , squared	10.997***	8.251**	7.585**	7.039**	5.832*
	(3.211)	(3.188)	(3.319)	(3.316)	(3.166)
R2	0.10	0.11	0.13	0.15	0.28
N	31,230	31,230	31,230	31,230	31,230
Immigrants' share minimizing dep var	.148	.198	.211	.214	.226
Country-year FE	X	X	X	X	X
Regional control		X	X	X	X
Basic Indiv-controls			X	X	X
Income controls				X	X
Ideology controls					X

Note: Standard errors are clustered at the NUTS regional level. *** p<0.01, ** p<0.05, * p<0.1

where $\alpha_{o,c}$ is the share of immigrants from origin country o living in region r in 1990 and N_o is the total number of immigrants from origin o living in Europe in 2010 (i.e., in our 16 European destination countries). $\widehat{P_r}$ is the predicted regional population, that is, the sum of the predicted number of immigrants and the observed number of natives in 2010. The instrument relies on the key identification assumption that the unobserved regional characteristics that attracted immigrants until 1990 have no persistent confounding effects on attitudinal outcomes in 2008 and 2016.[24]

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[24]The other two assumptions are that: (i) The total stock of immigrants in Europe N_o is driven by push factors and is exogenous to differential pull factors across regions. (ii) The only channel through which immigrant distribution in 1990 affects recent (post-2008) attitudes towards redistribution is its effect on the

We obtain a strong relationship between the instrument and the 2010 share of immigrants, consistent with immigrants' tendency to cluster in areas where their origin community has previously settled (see Table A.1 in Appendix for first-stage results).[25] Table 5 presents the second-stage results. We find that the 2SLS estimates are very similar to the OLS estimates, confirming a negative U-shape relationship between support for redistribution and immigration.

Table 5: Robustness Checks: Shift-Share instrument using 1990 immigrants' locations

Dep var. :	Index of welfare attitudes				
	(1)	(2)	(3)	(4)	(5)
Share of immigrants in 2010	-2.643***	-3.203***	-3.173***	-2.993***	-2.705***
	(0.908)	(0.953)	(0.951)	(0.951)	(0.839)
Share of immigrants in 2010, squared	6.826***	6.461**	5.938**	5.515**	4.896**
	(2.539)	(2.513)	(2.569)	(2.531)	(2.359)
R2	0.10	0.11	0.13	0.15	0.28
N	31,230	31,230	31,230	31,230	31,230
Immigrants' share minimizing dep var.	0,193	0,247	0,267	0,271	0,276
F-stat of weak identification test (Kleibergen-Paap Wald)	59.53	55.75	56.96	57.09	57.08
Country-year FE	X	X	X	X	X
Regional control		X	X	X	X
Basic Indiv-controls			X	X	X
Income controls				X	X
Ideology controls					X

Note: This table presents 2SLS estimates using a Shift-Share instrument based on 1990 locations of immigrants. Standard errors are clustered at the NUTS regional level. *** p<0.01, ** p<0.05, * p<0.1

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actual (2010) distribution of immigrants across regions. One concern with assumption (i) is that migrants from origin o to region r can represent a large fraction of N_o (i.e., all immigrants from origin o to Europe). To address this, we use the total stock of immigrants in Europe net of those that that eventually settled in region r. A similar "leave-out" strategy is also used in Burchardi et al. (2018) and Tabellini (2018).

[25]We instrument the squared immigrants' share with the squared predicted immigrants' share. In all cases, the F-stat is very high and we can reject weak identification tests.

4.2.3   Sensitivity to additional controls and sample restriction

We now examine the robustness of the results to potential confounders discussed in section 3.2. Table 6 presents the estimates, with the baseline estimates in column 1 as a reminder. With respect to the issue that immigrants may self-select into regions with better economic prospects, we find similar results when we: (i) control for long-run regional GDP growth between the 1960s and 2000 (columns 4 and 5), (ii) control for industrial decline by including regional exposure to Chinese import shocks (column 6) and the share of the manufacturing sector in the early 1990s (column 7), (iii) exclude capital regions (column 3). With respect to the fact that immigrants may live in regions with higher poverty levels and/or with more generous social services, we find that our estimates are almost unchanged when we: (i) control for the regional poverty rate (column 8); (ii) exclude Federal countries that have more autonomy to set welfare policies at the regional level (column 2); (iii) control for the number of beds per capita in public hospitals at the regional level (column 9).

4.2.4   Sensitivity to attitudinal outcomes

Finally, we look at the effects of immigration on each of the eight variables that we used to construct our index of Welfare attitudes. Table 7 presents the estimates. We find a similar U-shaped relationship between immigration and support for redistribution across all eight attitudinal outcomes, although the estimates are slightly less significant for attitudes related to social benefits (columns 6, 7 and 8). The fact that our results are robust is especially remarkable given the small correlation between these different attitudinal outcomes (see Table 1).

Table 6: Robustness Checks: Average Effect

Dep var. :	**Index of welfare attitudes**								
	Baseline	Excluding		Long-term growth		De-industrialization		Regional	Public good
		Federal countries	Capitals					Poverty	Provision
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Share of immigrants in 2010	-2.323***	-1.562**	-2.884***	-1.685*	-3.666***	-2.466***	-1.982***	-1.498**	-2.008***
	(0.606)	(0.748)	(0.584)	(0.926)	(0.812)	(0.608)	(0.629)	(0.620)	(0.689)
Share of immigrants in 2010, squared	4.088**	4.680**	6.802***	2.952	7.554***	4.484**	2.438	3.166*	2.733
	(1.812)	(1.855)	(1.291)	(2.770)	(1.782)	(1.779)	(2.103)	(1.704)	(2.164)
R2	0.28	0.31	0.27	0.27	0.29	0.28	0.28	0.28	0.26
N	31,230	19,727	24,495	22,910	20,302	30,129	28,593	25,076	26,645
yearly GDP growth 1980-85 to 2000				X					
yearly GDP growth 1965-70 to 2000					X				
Import shock with China 2007-1991						X			
Employment share of manufacturing in 1990							X		
Share of poor households (log)								X	
Public Hospital beds per capita (log)									X

Note: All regressions include country fixed-effects interacted with ESS rounds dummies, regional controls, socio-economic individual controls, income and ideology controls described in the footnote of Table 3. Data on regional GDP growth from the 1960s is taken from Gennaioli et al. (2014), which provides a data set at the NUTS 2 level for most of the European countries. *Import shock with China 2007-1991* is a variable taken from Colantone and Stanig (2018). This variable measures the exposure of a region to the growth in Chinese imports depending on the ex-ante industry specialization. *Share of poor households* is a measure of the number of people at risk of poverty or social exclusion provided by the Eurostat Database. *Public Hospital beds per capita* is the yearly average number of beds per capita in public hospitals over the period 2010-2015, as provided by the Eurostat Database.

Table 7: Robustness Checks: attitudinal outcomes used to construct the index

Attitudinal outcome (Z-score)	Support for		Support government responsibility for			Disagrees that social benefits		
	reduction in	small differences in	the standard living of		Child care	cost too much for		make people
	income differences	standard of living	old persons	the unemployed	services	the economy	the businesses	lazy
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of immigrants in 2010	-1.351**	-1.891***	-1.626**	-1.906***	-2.013***	-0.952*	-0.415	-1.523*
	(0.651)	(0.566)	(0.655)	(0.575)	(0.659)	(0.572)	(0.584)	(0.881)
Share of immigrants in 2010, squared	2.247	3.690**	2.487	3.346**	4.234**	1.616	1.013	2.642
	(1.685)	(1.419)	(1.676)	(1.413)	(1.725)	(1.491)	(1.512)	(2.105)
R2	0.13	0.10	0.10	0.12	0.15	0.07	0.10	0.09
N	31,230	31,230	31,230	31,230	31,230	31,230	31,230	31,230
Immigrants' share minimizing dep var	.301	.256	.327	.285	.238	.294	.205	.288

Note: All regressions include country fixed-effects interacted with ESS rounds dummies, regional controls, socio-economic individual controls, income and ideology controls described in the footnote of Table 3. Dependent variables are standardized to have a mean of 0 and a standard deviation of 1 Standard errors are clustered at the NUTS regional level. *** p<0.01, ** p<0.05, * p<0.1

4.3 Heterogeneity

4.3.1 Receiving countries

We begin by examining heterogeneous attitudinal effects of immigration depending on the generosity of the national Welfare State of receiving countries. We group countries in two categories of equal size: *High Welfare State* countries, with a share of GDP in welfare spending that is higher than the sample median, and *Low Welfare State* countries, with a GDP share in welfare spending below the sample median.[26] Figure 4 displays the semi-parametric effects of immigration for High and Low Welfare States, respectively, using the same Robinson (1988) semi-parametric regressions as before. Within High Welfare State, an increase in the immigrants' share significantly reduces natives' support for redistribution in a linear way. In contrast, within low Welfare States, there is no significant association between immigration and support for redistribution, except for an upward trend past 20% of immigrants. Note, however, that past this point, the positive relationship is driven by only 6 regions out of 92.[27] Table 8 presents OLS estimates of regressions including the interaction of the share of immigrants with the *High Welfare State* binary variable. The OLS estimates confirm that the negative association between immigration and support for redistribution is significantly stronger in receiving countries with more generous Welfare States (e.g., Nordic countries and France) relative to countries with smaller Welfare States (e.g., the UK or Ireland).

4.3.2 Natives' individual characteristics

Education and income Table 9 explores how the effect of immigration depends on native individuals' characteristics, namely, respondents' education and income. As column 1 of Table 9 shows, the anti-redistribution effect of immigration is less pronounced amongst tertiary-educated individuals relative to the other respondents. This finding is consistent

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[26]Government expenditures are drawn from COFOG Eurostat data and are averaged over the 1998-2004 period. Welfare spending is defined as the sum of expenditures in social protection (social transfers, safety net and aid, social housing, etc.), in health and education. See Table A.5 for details. *High Welfare State* are Austria, Germany, Denmark, Finland, Norway, Sweden and France. *Low Welfare State* are the rest of the EU15 countries and Switzerland.

[27]These are 4 regions of Switzerland (Ticino, Eastern Switzerland, Geneva and Zurich), London, and Brussels.

Figure 4: Semi-parametric effect of immigrants by receiving countries
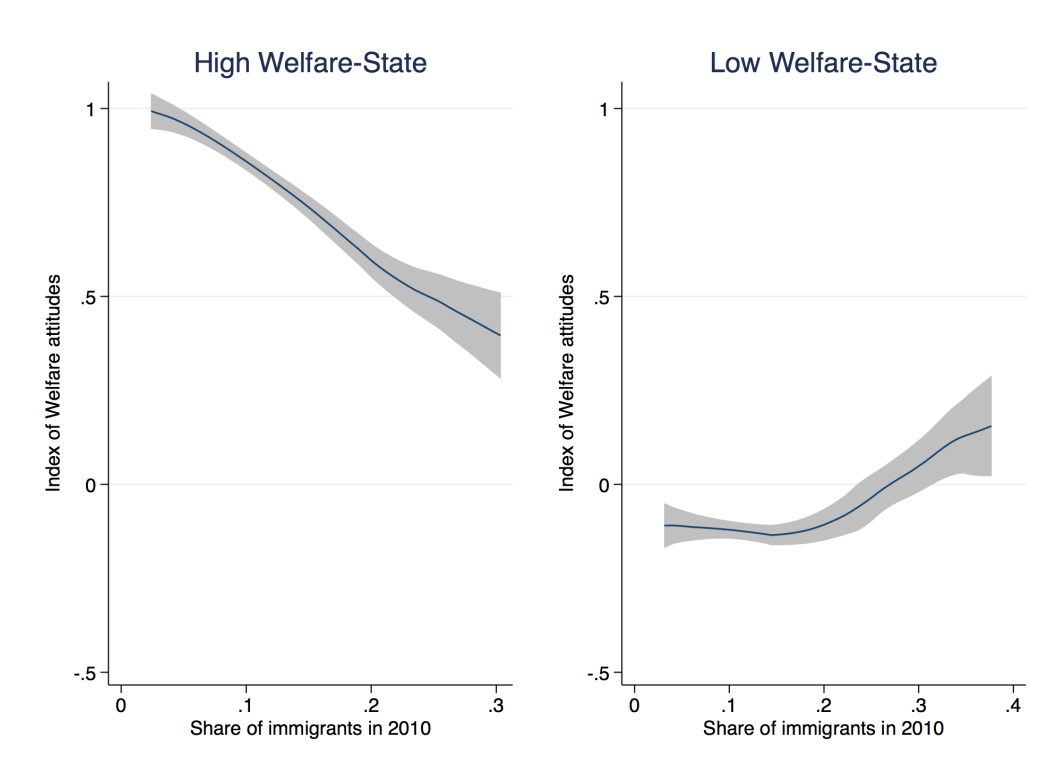
Notes: Kernel-weighted local polynomial fit controlling for country-year fixed effects and regional variables Z_r. We perform these estimations using the `semipar` command provided by the statistical software Stata 15, based on Robinson (1988)' s estimator *High Welfare State* are countries with a GDP share of welfare spending (social protection, health and education) higher than the sample median. *High Welfare State* are Austria, Germany, Denmark, Finland, Norway, Sweden and France. *Low Welfare State* are the rest of the EU15 countries and Switzerland.

with the concept of "educated preferences", i.e. the fact that more educated respondents are significantly less intolerant towards immigrants and place greater value on cultural diversity (Hainmueller and Hiscox, 2007). Also, relative to households in the middle of the income distribution (in the 2nd, 3rd and 4th income quintile), the attitudes of households in the bottom income quintile are significantly less affected by immigration (column 2 and 3). This could be explained by the fact that, in Europe, tax systems are generally progressive and bear relatively more on the middle and upper income classes than on the lower income classes. As immigrants are often (or are perceived to be) net recipients of welfare benefits, the fiscal

Table 8: Heterogeneous effects across receiving countries: Size of the Welfare State

Dep var. :	Index welfare attitudes				
	(1)	(2)	(3)	(4)	(5)
Share of immigrants in 2010	-1.298*	-1.260*	-1.169*	-0.901	-0.779
	(0.723)	(0.651)	(0.651)	(0.660)	(0.695)
Share of immigrants in 2010, squared	4.634**	2.993*	2.610	2.111	1.698
	(2.017)	(1.756)	(1.748)	(1.729)	(1.754)
Share of immigrants in 2010 * High Welfare State	-1.283***	-1.530***	-1.662***	-1.754***	-1.533***
	(0.466)	(0.343)	(0.362)	(0.377)	(0.376)
R2	0.10	0.11	0.13	0.15	0.28
N	31,230	31,230	31,230	31,230	31,230
Country-year FE	X	X	X	X	X
Regional control		X	X	X	X
Basic Indiv-controls			X	X	X
Income controls				X	X
Ideology controls					X

Note: *High Welfare State* is a binary taking one if the GDP share of welfare spending (social protection, health and education) is higher than the sample median. *High Welfare State* takes one for Austria, Germany, Denmark, Finland, Norway, Sweden and France. It takes zero for the rest of the EU15 countries and Switzerland.

Standard errors are clustered at the NUTS regional level. *** p<0.01, ** p<0.05, * p<0.1

burden of the welfare policies directed towards (poorer) immigrants is more likely to be felt by the middle and upper income classes relative to the lower income classes.[28] In column 4, we look at the differential attitudinal response of 6 groups based on income and education: the poor (equivalent to the bottom income quintile), the middle class, and the rich (equivalent to the top income quintile), with or without tertiary education. We find that immigration has the least negative attitudinal effect among poor individuals without tertiary education. This is possibly because low-income low-educated natives are the most exposed to tighter labor market competition with immigrants, and may thus demand more redistribution as insurance (or compensation) against higher risks of downward income mobility. We also find that the anti-redistribution effect of immigration is highest among natives with no tertiary

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[28]Alesina, Miano, and Stantcheva (2018) show that at least for their six countries under consideration, natives in general overestimate the reliance of immigrants on the national welfare state.

education and who belong to the middle and upper income classes.

Table 9: Heterogeneity across individual respondent's characteristics : Education and Income

Dep var. :	Index of welfare attitudes			
	(1)	(2)	(3)	(4)
Share of immigrants in 2010	-2.913***	-2.833***	-3.135***	-3.169***
	(0.657)	(0.662)	(0.672)	(0.662)
Share of immigrants in 2010, squared	4.495**	4.866**	4.527**	4.571**
	(1.986)	(1.951)	(1.967)	(1.971)
Tertiary-educated * Sh. immigrants 2010	0.860***		0.973***	
	(0.325)		(0.327)	
Household income in bottom quantile * Sh. immigrants 2010		0.467*	0.662**	
		(0.282)	(0.302)	
Household income in top quantile * Sh. immigrants 2010		0.331	0.059	
		(0.349)	(0.309)	
Non-tertiary educated poor * Sh. immigrants 2010				1.850***
				(0.703)
Tertiary-educated poor * Sh. immigrants 2010				0.613**
				(0.297)
Tertiary middle income * Sh. immigrants 2010				1.023***
				(0.329)
Tertiary rich * Sh. immigrants 2010				0.922*
				(0.531)
Non-tertiary educated rich * Sh. immigrants 2010				0.483
				(0.452)
R2	0.15	0.15	0.15	0.15
N	31,230	31,230	31,230	31,230

Note: Each regression include country-year fixed effects, regional controls, basic individual controls and income controls (see previous tables' notes for details). Each variable that is interacted with the share of immigrants is included in the controls of the regression. Standard errors are clustered at the regional level. *** p<0.01, ** p<0.05, * p<0.1

Political affiliation. Column 1 of Table 10 shows that the attitudinal response to immigration depends largely on the respondents' political affiliations. Relative to center-rightists (i.e., non-leftists), the preferences for redistribution of leftist individuals are significantly less negatively affected by the level of immigration. The OLS coefficients suggest that the anti-redistribution effect of immigration is 40% less strong among leftists than among center-

rightists. Given that immigrants are on average poorer than natives, this result could be explained by the leftists' higher aversion to inequality (or to poverty). Leftist are more likely to maintain their (higher) support for a system of redistribution directed towards poorer immigrants in order to mitigate the inequality-increasing effect of immigration. Table A.3 in the Appendix shows that the attitudinal response of rightwing individuals (i.e., the 33% of respondents placing themselves at the right of the political spectrum) is relatively similar to the one of individuals placing themselves at the center of the political spectrum (another 33% of respondent). So the relevant cleavage appears to be between leftists and center-rightist individuals.

Attitudes towards immigrants Columns 2 and 3 of Table 10 examine the heterogeneity of the results depending on individual attitudes towards immigrants. Relative to other natives, respondents who think that "immigrants make the country a worse place to live" (about 30% of the sample) lower their support for redistribution significantly more in response to higher levels of immigration. Similarly, native individuals who consider that migrants should have no rights to welfare until they become citizens are more negatively affected by immigration. The coefficients of the regressions indicate that the anti-redistribution effect of immigration is about one third stronger for natives with anti-immigrant views relative to other natives.

Table A.4 shows that the differential effect of immigration along the left-right political spectrum remains unchanged in magnitude when we allow immigration to have differential effects across the educational level and the income of respondents, and even his/her views about immigrants. The differences in attitudinal response between rightist and leftist natives cannot be accounted for by differences in education and income (at least as captured by the two variables we use). The same is true for differences in attitudinal response between natives with pro and anti-immigrant views.

4.3.3   Immigrants' characteristics

Origin countries   We investigate the effects of immigration on preferences for redistribution by immigrants' country of origin. We examine origins by broad continental regions: EU15 countries, Eastern and Central Europe[29], Asia, Middle-East (incl. North-Africa and

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[29]East and Central Europe includes countries that joined the EU following the 2004 enlargement of the European Union: the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Romania and Bulgaria

Table 10: Heterogeneity : Natives' political affiliation and attitudes towards immigrants

Dep var. :	Index of welfare attitudes		
	(1)	(2)	(3)
Share of immigrants in 2010	-2.847***	-2.072***	-2.273***
	(0.609)	(0.637)	(0.690)
Share of immigrants in 2010, squared	4.227**	3.931**	4.621**
	(1.881)	(1.954)	(2.005)
Self-reported Leftist * share. immigrants 2010	1.198***		
	(0.340)		
Self-reported Leftist	0.381***		
	(0.050)		
Think immigrants make the country a worse place to live* Sh. immigrants 2010		-1.132***	
		(0.282)	
Think immigrants make make country worse place to live		-0.180***	
		(0.039)	
Think immigrants should have no rights to welfare* Sh. immigrants 2010			-1.210***
			(0.355)
Think immigrants should have no rights to welfare			-0.039
			(0.040)
R2	0.21	0.17	0.16
N	31,230	31,008	30,674

Note: All regressions include Country-year FE, Regional control , Basic Indiv-controls and Income controls. Standard errors are clustered at the NUTS regional level. *** p<0.01, ** p<0.05, * p<0.1

Turkey), Sub-Saharan Africa, and the Americas. Column 3 of Table 11 reveals that the attitudinal effect of immigrants from the Middle-East is significantly more negative than the effect of immigrants from other origin countries. The estimates suggest that while an increase from 0% to 1% in the share of non-Middle-Eastern immigrants reduces the support for redistribution by 1.67% of a standard-deviation in attitudes, an equivalent increase in the share of Middle-Eastern immigrants reduces it further by an additional 3.16%. This means that immigrants originating from the Middle-East generate a anti-redistribution effect that is almost three times larger than for immigrant from other regions. Column 2 shows that immigrants from Eastern and Central Europe also trigger a more negative attitudinal response relative to other immigrants (about two times more negative). In contrast, the negative attitudinal effect of immigrants from North and South America, as well as from

Asian countries, is significantly less pronounced. [30]

Table 11: Heterogenous effects : Immigrants' origin countries.

Dep var. :	Index of welfare attitudes					
	(1)	(2)	(3)	(4)	(5)	(6)
Share of immigrants in 2010	-2.876***	-2.242***	-1.671***	-2.856***	-3.271***	-2.809***
	(0.668)	(0.674)	(0.605)	(0.673)	(0.655)	(0.631)
Share of immigrants in 2010, squared	4.648**	4.928***	4.091**	4.944***	5.088***	4.342**
	(2.018)	(1.763)	(1.589)	(1.887)	(1.750)	(1.845)
Share of immigrants from EU15 countries	0.888					
	(1.130)					
Share of immigrants from East and Central Europe		-2.494***				
		(0.862)				
Share of immigrants from the Middle-East			-3.165***			
			(1.049)			
Share of immigrants from Sub-Saharan Africa 2010				2.811		
				(1.822)		
Share of immigrants from the Americas					5.652***	
					(1.490)	
Share of immigrants from Asia						4.300*
						(2.346)
R2	0.15	0.15	0.15	0.15	0.15	0.15
N	31,230	31,230	31,230	31,230	31,230	31,230

Note: All regressions include Country-year FE, Regional control , Basic Indiv-controls and Income controls. Standard errors are clustered at the NUTS regional level. *** p<0.01, ** p<0.05, * p<0.1

Education and occupational skills We explore whether immigrants' skills shape natives' attitudinal response to immigration. Following previous literature (Mayda, 2006), we begin by proxying labor market skills with educational attainment. More specifically, we compute the ratio of skilled to unskilled labor, for both natives and immigrant, as the ratio of the number of individuals with tertiary education to the number with at most secondary education (among the population aged 15-60). We then use the immigrant-native ratio in this skill ratio in order to measure the extent to which immigrants are more or less skilled relative to natives. Panel A of Table 12 shows that this measure is positively and significantly associated with natives' support for redistribution.

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[30]Note that the total effect of immigrants from the Americas ,or from Asia, is not significantly positive

Table 12: Heterogenous effects by immigrant's skills

Dep var. :	Index of welfare attitudes				
	(1)	(2)	(3)	(4)	(5)
Panel A: Skills proxied by education					
Share of immigrants in 2010	-1.903**	-1.817**	-1.746**	-1.573**	-1.359*
	(0.835)	(0.779)	(0.757)	(0.747)	(0.695)
Share of immigrants in 2010, squared	5.368**	3.475	3.086	2.733	2.230
	(2.149)	(2.102)	(2.116)	(2.100)	(1.915)
Relative skill ratio in tertiary education (log)	0.109	0.141**	0.157***	0.158***	0.139***
	(0.071)	(0.060)	(0.059)	(0.060)	(0.051)
R2	0.10	0.11	0.13	0.15	0.28
N	31,230	31,230	31,230	31,230	31,230
Panel B: Skills proxied by occupation					
Share of immigrants in 2010	-1.867*	-1.848**	-2.046**	-1.650*	-1.304*
	(0.944)	(0.898)	(0.850)	(0.839)	(0.741)
Share of immigrants in 2010, squared	6.622***	4.840**	5.198***	4.394**	3.551**
	(2.030)	(1.988)	(1.843)	(1.819)	(1.568)
Relative skill ratio in top occupation (log)	0.174*	0.111*	0.109*	0.114*	0.075
	(0.091)	(0.065)	(0.062)	(0.061)	(0.054)
R2	0.12	0.13	0.15	0.17	0.29
N	24,143	24,143	24,143	24,143	24,143
Country-year FE	X	X	X	X	X
Regional control		X	X	X	X
Basic Indiv-controls			X	X	X
Income controls				X	X
Ideology controls					X

Note: The variable *Relative skill ratio in tertiary education* is the the immigrant-native ratio in the ratio of tertiary to non-tertiary educated individuals (15-60 years old). The variable *Relative skill ratio in top occupation* is the immigrant-native ratio in the ratio of high-skilled to low-skilled occupations. High-skilled occupations are defined as ISCO "managers" or "professionals", as provided by the 2011 Census database of Eurostat (not available in Austria, Belgium and France). . Low-skilled occupations are the rest of the occupations. Standard errors are clustered at the NUTS regional level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

This means that a higher proportion of more educated immigrants (relative to natives) tends to mitigate the anti-redistribution effect of immigration. In other words, tertiary-educated immigrants generate a less negative attitudinal response relative to non-tertiary immigrants. The estimates in Column 4 of Panel A suggest that a one-standard-deviation increase in the relative skill ratio generates an effect large enough to offset the anti-redistribution

impact of an increase from 0% to 4% in the share of immigrants.[31] This can be due either to the fact that tertiary-educated immigrants rely less on the welfare system or because they are perceived as more assimilated and culturally closer to natives.

Due to its imperfect transferability across countries, formal education may not be an ideal measure of the labor market skills of immigrants. Drawing on 2011 population censuses, we use instead data on the participation of immigrants (and natives) in various occupations. In particular, we focus on the two ISCO categories "managers" and "professionals" in which immigrants are generally under-represented. We compute the ratio of skilled to unskilled labor as the ratio of the number of individuals employed in these two highly-skilled occupations to the number employed in other occupations (among the population aged 15-60). We then use the immigrant-native ratio in this skill ratio in order to proxy for the extent to which immigrants are more or less skilled compared to natives. Panel B of Table 12 shows that this alternative measure of the relative skill ratio is positively correlated with natives' support for redistribution, although the estimates are less statistically significant than in Panel A where we use formal education to compute the relative skill ratio.

4.3.4 Residential segregation

For a given number of immigrants in a region, the effect of immigrants' presence on natives' perceptions and attitudes is likely to depend on whether immigrants are concentrated in ethnic enclaves or are dispersed across neighborhoods. In principle, the effect of residential segregation could go either way. With higher segregation, natives are less likely to interact with immigrants, who are thus less visible. On the other hand, higher segregation may increase the cultural distance between immigrants and natives, as more segregated immigrants may be perceived, correctly or incorrectly, as less integrated into the society.[32] In addition, the presence of immigrant enclaves in a region may increase salience and perceived cultural threats.

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[31]A one standard-deviation increase in the relative educational skill ratio (0.42) translates into an increase in support for redistribution by $0.158 * 0.42 = 6.6\%$ of a standard-deviation in attitudes. An increase from 0% to 4% in the share of immigrants generates a decline of $-1.57 * 0.04 + 2.7 * 0.04^2 = -5.8\%$ of a standard-deviation in attitudes

[32]Whether residential ethnic clustering strengthens or reduces immigrants' cultural identity (i.e., the retention of an affiliation with their origin country) remains a controversial question in the literature – see for example the conflicting results found by Bisin et al. (2016) and Constant et al. (2013).

To investigate this question, we take advantage of a high spatial resolution data set providing the distribution of immigrants in a grid-cell of 100m by 100m within NUTS regions (see section 2.1.2). We measure immigrants' segregation using the spatial dissimilarity index:

$$\text{Segregation index} = \frac{1}{2p(1-p)} \sum_{j=1}^{J} \frac{t_j}{T} |p_j - p|$$

where p_j is the share of immigrant in the grid-cell j, p the share of immigrants in the entire region, and $\frac{t_j}{T}$ is the proportion of grid-cell's population j in the entire region's population T. Conceptually, this dissimilarity index can be interpreted as the fraction of the immigrants that should move residence in order to achieve an even distribution in the region, divided by the proportion of immigrants that should move if the region were perfectly segregated. The index varies between 0 and 1, where zero corresponds to perfect integration and 1 to perfect segregation. In our sample, the index varies from 0.2 to 0.54 , with an average that stands at 0.33 and a standard deviation at 0.076.[33]

Table 13 explores the joint effect of the immigrants' share and of spatial segregation. We find that, holding constant the share of immigrants in a region, a higher segregation of immigrants (higher dissimilarity) is significantly associated with lower support for redistribution among natives. A one-standard-deviation increase in the dissimilarity index translates into a decline of pro-redistribution attitudes by 10.6% of a standard-deviation (column 4). This result may imply a vicious circle. More anti-immigrants attitudes generate more segregation and turn natives against redistributive policies which may promote immigrants' integration. Also, we find no significant interaction effect between segregation and the share of immigrants.

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[33]The dissimilarity index is highly correlated with other measures of segregation, and in particular with the index used by Alesina and Zhuravskaya (2011), for which we obtain a correlation coefficient of 0.8.

Table 13: Heterogenous effects: Immigrants' Segregation within Region

Dep var. :	Index of welfare attitudes				
	(1)	(2)	(3)	(4)	(5)
Share of immigrants in 2010	-4.693***	-3.100***	-3.355***	-3.229***	-2.582***
	(0.734)	(0.934)	(0.845)	(0.900)	(0.699)
Share of immigrants in 2010, squared	12.527***	6.608**	7.212***	6.901***	5.016**
	(2.184)	(2.679)	(2.408)	(2.566)	(2.010)
Dissimilarity index (std.)	-0.125***	-0.100**	-0.105***	-0.106***	-0.088***
	(0.044)	(0.039)	(0.037)	(0.037)	(0.031)
Share of immigrants in 2010 * Dissimilarity index (std.)	0.251	0.172	0.213	0.158	0.092
	(0.287)	(0.241)	(0.235)	(0.236)	(0.190)
R2	0.10	0.11	0.13	0.16	0.28
N	14,360	14,360	14,360	14,360	14,360
Country-year FE	X	X	X	X	X
Regional control		X	X	X	X
Basic Indiv-controls			X	X	X
Income controls				X	X
Ideology controls					X
breakpoint					

Note: The variable *Dissimilarity index* is standardized to have mean of 0 and a standard deviation of 1. This variable is only available in 2011 population censuses of 8 countries (France, Germany, Ireland, Italy, Netherlands, Portugal, Spain and UK). Standard errors are clustered at the NUTS regional level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

5 Conclusion

Europe is becoming more and more diverse. Since 1980 the share of the foreign-born population has more than doubled in Western Europe, with about two thirds of the increase generated by immigration from outside of Europe. While population diversity may have important economic benefits in the long run (Ortega and Peri, 2014; Alesina et al., 2016; Sequeira et al., 2019; Tabellini, 2018), in the short-run immigration and diversity are perceived by many as a threat to social cohesion and as putting welfare systems at risk. This paper shows that the increase in population heterogeneity in Europe correlates with attitudinal shifts against redistribution among European-born voters. This is especially the case for center-right voters in regions belonging to countries with large welfare systems and high levels of residential segregation between immigrants and natives. The effects are also stronger when

immigrants are less skilled and when they come from Middle-Eastern or Eastern-European countries.

While our results are consistent with group loyalty effects (i.e., with the fact that individuals prefer to redistribute towards the in-group – people of same race/culture/nationality) and less so towards the out-group, they are not exclusive of other channels that determine natives' attitudinal response to redistribution such as taxpayers' fear of having to pay for the benefits of (poorer) immigrants often portrayed as free-riding on the welfare system. Another possible channel relates to concerns of tighter labor market competition caused by immigrant labor and related native workers' perception of higher risks of downward income mobility. To insure against this risk, native workers may demand more redistribution; conversely, when immigrants are perceived as complementing natives' labor (Ottaviano and Peri, 2012) and, thus, as increasing natives' wages, native voters may instead lower their demand for redistribution since they are less likely to be on the receiving end of the welfare state.

The results above have many policy implications. One implication is that left-wing parties will have a harder time attracting voters when they propose policies that are at the same time open to immigration and strongly redistributive. Their hardcore base will agree with such policies, but they will have a hard time attracting moderate center-right voters. Another implication is that we should see new parties proposing pro-redistribution policies and anti-immigration policies, and this seems to be the case for 'populist' parties such as the Rassemblement (ex-Front) National in France, the Lega in Italy, or the AfD in Germany. Third, parties that are less favorable to redistribution may use immigration as a tool to promote less generous welfare policies, using the antipathy of voters towards immigrants. Alesina, Miano, and Stantcheva (2018) document the very large degree of negative misinformation about immigrants, which is widespread in the few countries they study. Anti-redistribution parties have an incentive to maintain and exaggerate this misinformation. Overall, the traditionally socially generous and inclusive policies of European countries face the dilemma of natives favoring them for themselves but opposing them for immigrants. There is the risk that this may induce policy adjustments in various directions, including trading-off the generosity of immigration policy and the generosity of the welfare state, or even adopting extreme policies discriminating against immigrants in terms of access to the welfare state.

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6 Appendix

6.1 Figures

Figure A.1: Population share of immigrants in Europe
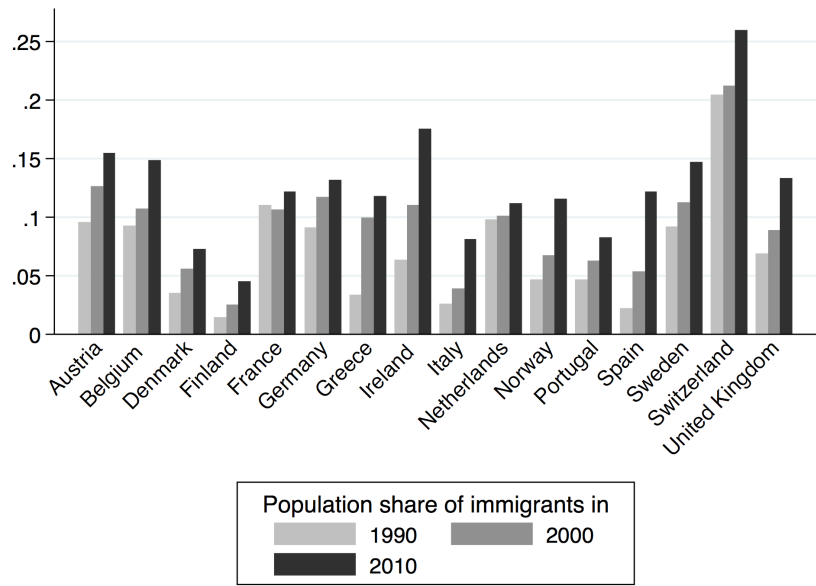
Figure A.2: Population share and origins of immigrants in Europe
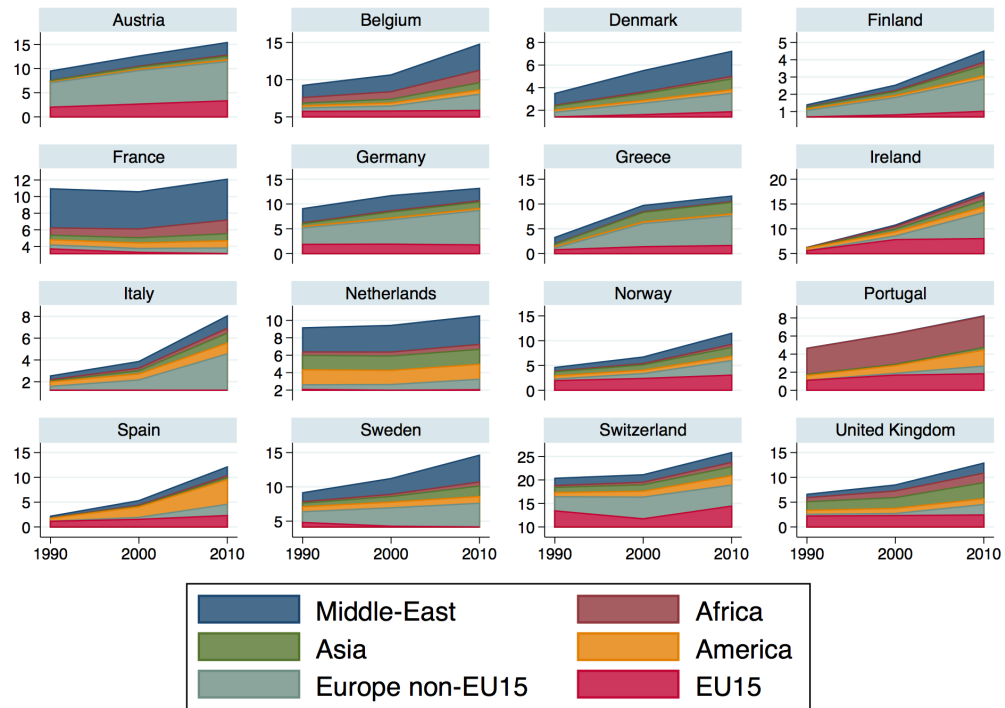
Figure A.3: Histogram of the 2010 share of immigrants at the regional level
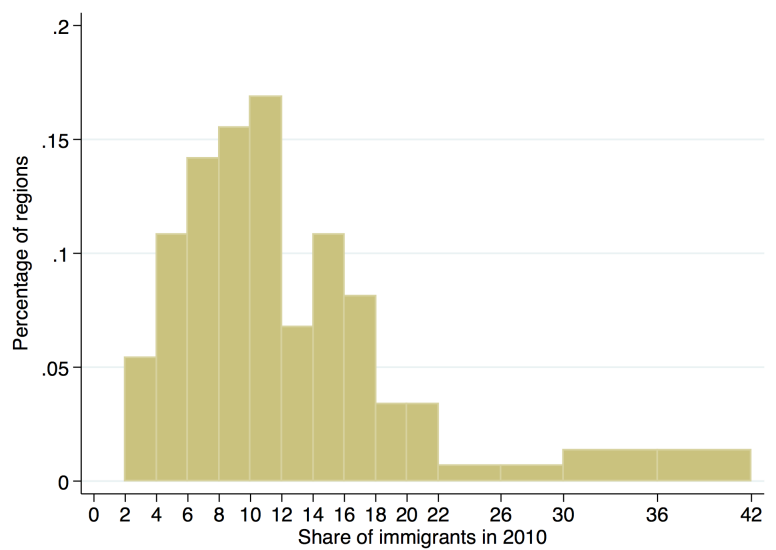
Figure A.4: Evolution over time in the support for redistribution (base 2002=1)
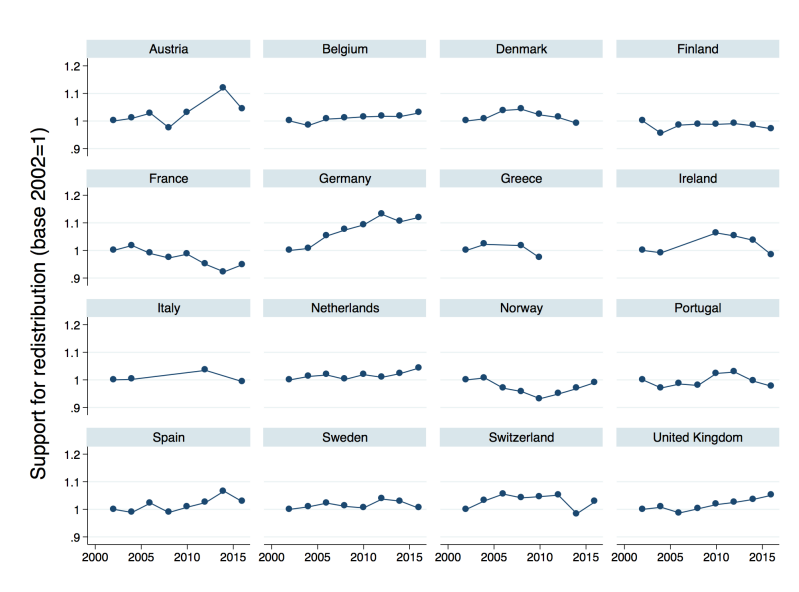
6.2 Tables

Table A.1: First-Stage of Shift-Share instrument

	Share of immigrants in 2010	Share of immigrants in 2010, squared
Predicted share of immigrants 2010	0.647***	-0.066
	(0.113)	(0.057)
Predicted share of immigrants, squared	0.371	0.971***
	(0.284)	(0.148)
R2	0.93	0.89
N	31,230	31,230
F-stat	122.51	75.56
Country-year FE	X	X
Regional control	X	X
Basic Indiv-controls	X	X

Note: Predicted share of immigrants is constructed using the conventional Shift-Share strategy, interacting 1990 locations of immigrants with subsequent aggregate migration flows in Europe. Standard errors are clustered at the NUTS regional level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table A.2: Regions with more than 20% immigrants in 2010

Country	NUTS2-code	Region's name	Share of immigrants
IE	IE021	Dublin	20,8
SE	SE11	Stockholm	21,2
ES	ES53	Balearic Islands	21,4
CH	CH05	Eastern Switzerland	21,9
FR	FR1	Paris Region	23,1
CH	CH03-CH04	Zurich and Northwestern Switzerland -	27,3
AT	AT13	Wien	30,3
CH	CH07	Ticino	32,7
UK	UKI	London	36,5
CH	CH01	Lake Geneva region	37,6
BE	BE1	Brussels region	42,4

Table A.3: Heterogeneous attitudinal response : at the Left, Center and Right of the political scale

Dep var. :	Index welfare attitudes				
	(1)	(2)	(3)	(4)	(5)
Share of immigrants in 2010	-2.395***	-2.572***	-2.581***	-2.488***	-2.519***
	(0.680)	(0.629)	(0.627)	(0.636)	(0.622)
Share of immigrants in 2010, squared	4.827***	4.298**	4.210**	3.993**	3.921**
	(1.813)	(1.881)	(1.886)	(1.886)	(1.834)
Leftist respondent * share. immigrants 2010	1.013***	0.968***	0.984***	0.971***	0.904***
	(0.355)	(0.349)	(0.342)	(0.340)	(0.324)
Rightist respondent * share. immigrants 2010	-0.302	-0.425*	-0.405	-0.389	-0.408*
	(0.259)	(0.245)	(0.248)	(0.240)	(0.227)
R2	0.21	0.21	0.23	0.24	0.28
N	31,230	31,230	31,230	31,230	31,230
Country-year FE	X	X	X	X	X
Regional control		X	X	X	X
Basic Indiv-controls			X	X	X
Income controls				X	X
Ideology controls					X

Note: Respondents placing themselves at the center of the political spectrum is the group of reference. Standard errors are clustered at the NUTS regional level. *** p<0.01, ** p<0.05, * p<0.1

Table A.4: The heterogeneity in attitudinal response across political affiliation is not explained by differences in income and education

Dep var. :	Index of welfare attitudes			
	(1)	(2)	(3)	(4)
Share of immigrants in 2010	-3.007***	-2.706***	-2.676***	-2.456***
	(0.605)	(0.587)	(0.603)	(0.589)
Share of immigrants in 2010, squared	3.527*	3.393*	3.389*	3.290*
	(1.847)	(1.840)	(1.857)	(1.848)
Leftist respondent * Share. immigrants 2010	1.005***	0.924***	0.921***	0.861***
	(0.311)	(0.298)	(0.311)	(0.300)
Tertiary educated * Share. immigrants 2010	0.608**	0.526*	0.560**	0.496*
	(0.289)	(0.283)	(0.273)	(0.271)
Household income in bottom quantile * Share. immigrants 2010	0.455*	0.481*	0.456*	0.479*
	(0.255)	(0.258)	(0.250)	(0.252)
Household income in 5th quantile * Share. immigrants 2010	0.080	0.055	0.060	0.041
	(0.289)	(0.289)	(0.283)	(0.284)
Think immigrants make the country a worse place to live* Sh. immigrants 2010		-0.643***		-0.545**
		(0.236)		(0.225)
Think immigrants should have no rights to welfare * Sh. immigrants 2010			-0.697**	-0.622**
			(0.305)	(0.296)
R2	0.28	0.28	0.28	0.29
N	30,468	30,468	30,468	30,468

Note: Each regression include country-year fixed effects, regional controls, basic individual controls, income and ideology controls. Each variable that is interacted with the share of immigrants is included in the controls of the regression. Standard errors are clustered at the NUTS regional level. *** p<0.01, ** p<0.05, * p<0.1

Table A.5: Size of Welfare State in destination countries

| | Share of national GDP (%) in Government | | |
	Total Revenues	Total Expenditures	Welfare Spending
France	49.59	52.04	33.44
Netherlands	42.69	43.53	25.16
Finland	52.81	49.41	32.10
Norway	55.09	45.86	29.98
Sweden	54.84	54.26	35.48
Austria	49.49	51.83	33.36
Belgium	49.27	49.73	28.78
Denmark	54.40	53.60	36.34
Germany	44.30	46.91	31.22
Greece	39.94	46.24	23.40
Ireland	34.69	33.06	19.94
Italy	44.29	47.07	27.64
Portugal	39.67	43.87	26.04
Spain	38.21	39.17	21.94
Switzerland	33.50	34.47	19.82
United Kingdom	36.20	37.10	24.26
Average	44.94	45.51	28.06

Government expenditures and revenues are drawn from EUROSTAT data and measured as average over the 1998-2004 period. Welfare spending is defined as the sum of expenditures in social protection (social transfers, safety net and aid , social housing,..), in health and education as defined by the COFOG Eurostat data

Table A.6: Descriptive statistics - Main variables

	mean	std-dev.	min	max
Dependent variables				
Index of welfare attitudes (PCA)	0.000	1.000	-5.039	2.674
V_1: Favors reduction in income differences	0.000	1.000	-2.691	1.166
V_2: Favors small differences in standard of living for a fair society	0.000	1.000	-2.624	1.478
V_3: Favors government responsibility for the standard of living for the old	0.000	1.000	-4.744	1.134
V_4: Favors government responsibility for the standard of living of the unemployed	0.000	1.000	-3.245	1.588
V_5: Favors government responsibility for child care services	0.000	1.000	-3.782	1.144
V_6: Disagrees that social benefits place too great strain on economy	0.000	1.000	-1.940	1.917
V_7: Disagrees that social benefits cost businesses too much	0.000	1.000	-1.899	1.947
V_8 :Disagrees that social benefits make people lazy	0.000	1.000	-1.761	1.870
Stock of immigrants at the regional level				
Share of immigrants in 1990	0.070	0.055	0.003	0.293
Share of immigrants in 2000	0.088	0.057	0.015	0.317
Share of immigrants in 2010	0.117	0.067	0.024	0.424
ESS country and rounds				
ESS round 2008	0.512	0.500	0.000	1.000
ESS round 2016	0.488	0.500	0.000	1.000
Country: Austria	0.066	0.249	0.000	1.000
Country: Belgium	0.077	0.267	0.000	1.000
Country: Denmark	0.035	0.184	0.000	1.000
Country: Finland	0.100	0.300	0.000	1.000
Country: France	0.083	0.276	0.000	1.000
Country: Germany	0.115	0.319	0.000	1.000
Country: Greece	0.025	0.156	0.000	1.000
Country: Ireland	0.032	0.175	0.000	1.000
Country: Italy	0.023	0.150	0.000	1.000
Country: Netherlands	0.077	0.266	0.000	1.000
Country: Norway	0.070	0.256	0.000	1.000
Country: Portugal	0.044	0.205	0.000	1.000
Country: Spain	0.060	0.238	0.000	1.000
Country: Sweden	0.073	0.260	0.000	1.000
Country: Switzerland	0.049	0.216	0.000	1.000
Country: United Kingdom	0.070	0.255	0.000	1.000
Observations	31230			

Table A.7: Descriptive statistics - Variables used in the regression controls and in the robustness and heterogeneity analysis

	mean	std-dev.	min	max
Control variables at the regional level				
Regional native population in 2010 (log)	14.569	0.947	10.882	16.503
Regional GDP PPP per capita in 2010 (log)	10.122	0.278	9.409	10.926
Regional unemployment rate in 2010 (20-64 yold)	7.200	4.552	1.900	29.500
Regional share tertiary educated in 2010 (natives,log)	-1.467	0.363	-2.783	-0.742
Control variables at the individual level				
Basic Indiv-controls				
Male	0.508	0.500	0.000	1.000
Born before 1929	0.025	0.157	0.000	1.000
Born betw 1930-1939	0.079	0.270	0.000	1.000
Born betw 1940-1949	0.150	0.357	0.000	1.000
Born betw 1950-1959	0.185	0.388	0.000	1.000
Born betw 1960-1969	0.200	0.400	0.000	1.000
Born betw 1970-1979	0.170	0.375	0.000	1.000
Born betw 1980-1989	0.134	0.341	0.000	1.000
Born after 1990	0.056	0.230	0.000	1.000
Less than lower secondary education (ISCED 0-1)	0.100	0.301	0.000	1.000
Lower secondary education completed (ISCED 2)	0.136	0.343	0.000	1.000
Upper secondary education completed (ISCED 3)	0.369	0.483	0.000	1.000
Post-secondary non-tertiary education completed (ISCED 4)	0.049	0.216	0.000	1.000
Tertiary education completed (ISCED 5-6)	0.346	0.476	0.000	1.000
Foreign-born	0.000	0.000	0.000	0.000
Parents immigrant from EU	0.018	0.132	0.000	1.000
Parents immigrant from non-EU	0.057	0.232	0.000	1.000
Highest parents' education: lower secondary	0.149	0.357	0.000	1.000
Highest parents' education: upper secondary	0.309	0.462	0.000	1.000
Highest parents' education: tertiary secondary	0.213	0.410	0.000	1.000
Number of children in household	7.195	1.269	1.000	9.000
Number of adults in household	0.798	0.685	0.000	6.000
Number of elderly in household	0.074	0.272	0.000	3.000
Live in suburbs of big city	0.131	0.338	0.000	1.000
Live in a small city	0.309	0.462	0.000	1.000
Live in a Village	0.312	0.463	0.000	1.000
Live in country side	0.082	0.274	0.000	1.000
Self-employed	0.086	0.280	0.000	1.000
Inactive	0.056	0.231	0.000	1.000
Attend school last week	0.042	0.202	0.000	1.000
Unemployed,looking for job	0.029	0.169	0.000	1.000
Unemployed, not looking for job	0.010	0.101	0.000	1.000
Permanently sick or disabled	0.025	0.155	0.000	1.000
Retired	0.244	0.429	0.000	1.000
Income controls				
Occupation - ISCO 88 2 digits	45.049	24.422	0.000	93.000
Household income quintile	2.863	1.362	1.000	5.000
Feeling about household's income nowadays	1.741	0.758	1.000	4.000
Ideology controls				
Important that people are treated equally and have equal opportunities	2.044	0.923	1.000	4.000
Important to help people and care for others well-being	2.097	0.885	1.000	4.000
Placement on left-right political scale	5.010	2.108	0.000	10.000
Most people try to take advantage of you, or try to be fair	6.198	2.042	0.000	10.000
Variables used in the robustness analysis				
Capital region	0.216	0.411	0.000	1.000
Federal country	0.368	0.482	0.000	1.000
Yearly GDP growth 1980-85 to 2000	0.026	0.022	-0.003	0.091
Yearly GDP growth 1965-70 to 2000	0.030	0.010	0.006	0.055
Import shock with China 2007-1991	-0.605	1.029	-4.233	2.231
Employment share of manufacturing in 1990	0.204	0.071	0.035	0.405
Regional share of poor households (log)	2.937	0.256	2.528	3.948
Public Hospital beds per capita (log)	6.155	0.415	5.145	7.159
Variables used in the heterogeneity analysis				
High Welfare State	0.543	0.498	0.000	1.000
Self-reported Leftist	0.350	0.477	0.000	1.000
Think immigrants make make country worse place to live	0.306	0.461	0.000	1.000
Think immigrants should have no rights to welfare s	0.359	0.480	0.000	1.000
Share of immigrants from EU15 countries in 2010	0.032	0.032	0.002	0.235
Share of immigrants from East and Central Europe in 2010	0.025	0.023	0.000	0.157
Share of immigrants from Middle-East in 2010	0.022	0.019	0.000	0.193
Share of immigrants from Africa in 2010	0.008	0.012	0.000	0.078
Share of immigrants from America in 2010	0.010	0.013	0.001	0.095
Share of immigrants from Asia in in 2010	0.012	0.010	0.001	0.090
Relative skill ratio in tertiary education (log)	0.022	0.403	-1.473	1.361
Relative skill ratio in top occupation (log)	-0.259	0.363	-1.740	0.573
Dissimilarity index	0.337	0.076	0.211	0.545

6.3 Data Appendix

Table A.8: Immigrant stocks by origin countries : data sources by destination country

| country | regional level | year 1991 | | year 2001 | | year 2011 | | data provider | weblink |
		sources	definition immigrants	sources	definition immigrants	sources	definition immigrants		
Austria	NUTS2 (Bundeslander)	Census 1991	citizenship	Census 2001	birthplace	Census 2011	birthplace	?STATISTIK AUSTRIA (STATcube)	http://www.statistik.at/
Belgium	NUTS3 (Arrondissements)	Census 1991	birthplace	Census 2001	birthplace	Census 2011	birthplace	Statistics Belgium	http://statbel.fgov.be/
Switzerland	NUTS 3 (Canton)	Census 1990	birthplace	Census 2000	birthplace	Census 2010	birthplace	Office federal de la statistique	http://www.statistique.admin.ch
Germany	NUTS1 (Lander)	Register 1991	citizenship	Register 2001	citizenship	Census 2011	birthplace	Statistisches Bundesamt DESTATIS	https://www.destatis.de
Denmark	NUTS3 (Landsdele)	Register 1991	birthplace	Register 2001	birthplace	Register 2011	birthplace	Statistics Denmark	http://www.statbank.dk/
Spain	NUTS3 (Provincias)	Census 1991	birthplace	Census 2001	birthplace	Census 2011	birthplace	Instituto Nacional de Estad?stica INE	http://www.ine.es/
Finland	NUTS3 (Maakunnat)	Register 1991	birthplace	Register 2001	birthplace	Register 2011	birthplace	Statistics Finland	https://www.stat.fi/
France	NUTS3 (Departements)	Census 1990	birthplace	Census 1999	birthplace	Census 2011	birthplace	Institut national de la statistique (Saphir)	https://www.insee.fr
Greece	NUTS3 (Nomoi)	Census 1991	citizenship	Census 2001	birthplace	Census 2011	birthplace	IPUMS international (10% extract)	https://international.ipums.org
Ireland	NUTS3	Census 1991	birthplace	Census 2002	birthplace	Census 2011	birthplace	IPUMS international (10% extract)	https://international.ipums.org
Italy	NUTS2 (Regioni)	Census 1991	birthplace	Census 2001	birthplace	Census 2011	birthplace	ISTAT (Laboratorio Adele)	http://www.istat.it/
Netherlands	NUTS2 (Provincies)	Register 1995	birthplace	Register 2001	birthplace	Register 2011	birthplace	Centraal Bureau voor de Statistiek CBS	https://www.cbs.nl/
Norway	NUTS2 (Regions)	Register 1991	birthplace	Register 2001	birthplace	Register 2011	birthplace	Statistics Norway	http://www.ssb.no/
Portugal	NUTS2 (Regions)	Census 1991	birthplace	Census 2001	birthplace	Census 2011	birthplace	IPUMS international (5% extract)	https://international.ipums.org
Sweden	NUTS2 (National areas)	Register 1991	birthplace	Register 2001	birthplace	Register 2011	birthplace	Statistics Sweden	http://www.scb.se/
United Kingdom	NUTS1	Census 1991	birthplace	Census 2001	birthplace	Census 2011	birthplace	Office for National Statistics	https://www.ons.gov.uk

Table A.9: Immigrant stocks by educational attainment : data sources by country

country	regional level	year 2001 sources	definition	year 2011 sources	definition
Austria	NUTS2 (Bundesl?nder)	Census 2001	birthplace	Census 2011	birthplace
Belgium	NUTS3 (Arrondissements)	ELFS 2001	birthplace	ELFS 2011	birthplace
Switzerland	NUTS 3 (Canton)	ELFS 2002	birthplace	ELFS 2011	birthplace
Germany	NUTS1 (Lander)	ELFS 2002	birthplace	ELFS 2011	birthplace
Denmark	NUTS3 (Landsdele)	Population register 2001	birthplace	Population register 2011	birthplace
Spain	NUTS3 (Provincias)	Census 2001	birthplace	Census 2012	birthplace
Finland	NUTS3 (Maakunnat - Landskap)	Population register 2001	birthplace	Population register 2011	birthplace
France	NUTS3 (Departements)	Census 1999	birthplace	Census 2011	birthplace
Greece	NUTS3 (Nomoi)	Census 2001	birthplace	Census 2011	birthplace
Ireland	NUTS3	Census 2002	birthplace	Census 2011	birthplace
Italy	NUTS2 (Regioni)	Census 2001	birthplace	Census 2011	birthplace
Netherlands	NUTS2 (Provincies)	Population register 2001	birthplace	Population register 2011	birthplace
Norway	NUTS2 (Regions)	Population register 2001	birthplace	Population register 2011	birthplace
Portugal	NUTS2(Regions)	Census 2001	birthplace	Census 2011	birthplace
Sweden	NUTS2 (National areas)	Population register 2001	birthplace	Population register 2011	birthplace
United Kingdom	NUTS1	Census 2001	birthplace	Census 2011	birthplace

ELFS: European Labor Force Survey

Table A.10: Lists of NUTS regions in the matched attitudinal immigrants stocks data

	Country	NUTS region	NUTS level	Region' s name
AT	Austria	AT11	2	Burgenland
AT	Austria	AT12	2	Nieder?sterreich
AT	Austria	AT13	2	Wien
AT	Austria	AT21	2	K?rnten
AT	Austria	AT22	2	Steiermark
AT	Austria	AT31	2	Ober?sterreich
AT	Austria	AT32	2	Salzburg
AT	Austria	AT33	2	Tirol
AT	Austria	AT34	2	Vorarlberg
BE	Belgium	BE1	1	Brussels region
BE	Belgium	BE2	1	Flemish region
BE	Belgium	BE3	1	Walloon region
CH	Switzerland	CH01	2	Lake Geneva region
CH	Switzerland	CH02	2	?Espace Mittelland
CH	Switzerland	CH03-CH04	2	Northwestern Switzerland - Zurich
CH	Switzerland	CH05	2	Eastern Switzerland
CH	Switzerland	CH06	2	Central Switzerland
CH	Switzerland	CH07	2	Ticino
DE	Germany	DE1	1	Baden-Wurttemberg
DE	Germany	DE2	1	Bayern
DE	Germany	DE3	1	Berlin
DE	Germany	DE4	1	Brandenburg
DE	Germany	DE5	1	Bremen
DE	Germany	DE6	1	Hamburg
DE	Germany	DE7	1	Hessen
DE	Germany	DE8	1	Mecklenburg-Vorpommern
DE	Germany	DE9	1	Niedersachsen
DE	Germany	DEA	1	Nordrhein-Westfalen
DE	Germany	DEB	1	Rheinland-Pfalz
DE	Germany	DEC	1	Saarland
DE	Germany	DED	1	Sachsen
DE	Germany	DEE	1	Sachsen-Anhalt
DE	Germany	DEF	1	Schleswig-Holstein
DE	Germany	DEG	1	Thuringen
DK	Denmark	DK01	2	Hovedstaden
DK	Denmark	DK02	2	Sj?lland
DK	Denmark	DK03	2	Syddanmark
DK	Denmark	DK04	2	Midtjylland
DK	Denmark	DK05	2	Nordjylland

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	Country	NUTS region	NUTS level	Region' s name
ES	Spain	ES11	2	Galicia
ES	Spain	ES12	2	Principado de Asturias
ES	Spain	ES13	2	Cantabria
ES	Spain	ES21	2	Pa?s Vasco
ES	Spain	ES22	2	Comunidad Foral de Navarra
ES	Spain	ES23	2	La Rioja
ES	Spain	ES24	2	Aragun
ES	Spain	ES30	2	Comunidad de Madrid
ES	Spain	ES41	2	Castilla y Le?n
ES	Spain	ES42	2	Castilla-La Mancha
ES	Spain	ES43	2	Extremadura
ES	Spain	ES51	2	Catalu?a
ES	Spain	ES52	2	Comunidad Valenciana
ES	Spain	ES53	2	Illes Balears
ES	Spain	ES61	2	Andaluc?a
ES	Spain	ES62	2	Regi?n de Murcia
ES	Spain	ES70	2	Canarias
FI	Finland	FI19	2	West Finland
FI	Finland	FI1B-FI1C	2	Helsinki-Uusimaa- South Finland
FI	Finland	FI1D	2	North & East Finland
FR	France	FR1	1	R?gion parisienne
FR	France	FR2	1	Bassin Parisien
FR	France	FR3	1	Nord
FR	France	FR4	1	Est
FR	France	FR5	1	Ouest
FR	France	FR6	1	Sud Ouest
FR	France	FR7	1	Centre Est
FR	France	FR8	1	M?diterran?e
GR	Greece	GR11	2	Anatoliki Makedonia, Thraki
GR	Greece	GR12	2	Kentriki Makedonia
GR	Greece	GR13	2	Dytiki Makedonia
GR	Greece	GR14	2	Thessalia
GR	Greece	GR21	2	Ipeiros
GR	Greece	GR22	2	Ionia Nissia
GR	Greece	GR23	2	Dytiki Ellada
GR	Greece	GR24	2	Sterea Ellada
GR	Greece	GR25	2	Peloponnisos
GR	Greece	GR30	2	Attiki
GR	Greece	GR41	2	Voreio Agaio
GR	Greece	GR42	2	Notio Agaio
GR	Greece	GR43	2	Kriti
IE	Ireland	IE011	3	Border
IE	Ireland	IE012	3	Midland
IE	Ireland	IE013	3	West
IE	Ireland	IE021	3	Dublin
IE	Ireland	IE022	3	Mid-East
IE	Ireland	IE023	3	Mid-West
IE	Ireland	IE024	3	South-East
IE	Ireland	IE025	3	South-West
IT	Italy	ITC1	2	Piemonte
IT	Italy	ITC3	2	Liguria
IT	Italy	ITC4	2	Lombardia
IT	Italy	ITF1	2	Abruzzo
IT	Italy	ITF3	2	Campania
IT	Italy	ITF4	2	Puglia
IT	Italy	ITF5	2	Basilicata
IT	Italy	ITF6	2	Calabria
IT	Italy	ITG1	2	Sicilia
IT	Italy	ITG2	2	Sardegna
IT	Italy	ITH1-ITH2	2	Trentino-Alto Adige- Sud Tirol
IT	Italy	ITH3	2	Veneto
IT	Italy	ITH4	2	Friuli-Venezia Giulia
IT	Italy	ITH5	2	Emilia-Romagna
IT	Italy	ITI1	2	Toscana
IT	Italy	ITI2	2	Umbria
IT	Italy	ITI3	2	Marche
IT	Italy	ITI4	2	Lazio
NL	Netherlands	NL11	2	Groningen
NL	Netherlands	NL12	2	Friesland
NL	Netherlands	NL13	2	Drenthe
NL	Netherlands	NL21	2	Overijssel
NL	Netherlands	NL22	2	Gelderland

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	Country	NUTS region	NUTS level	Region's name
NL	Netherlands	NL23	2	Flevoland
NL	Netherlands	NL31	2	Utrecht
NL	Netherlands	NL32	2	Noord-Holland
NL	Netherlands	NL33	2	Zuid-Holland
NL	Netherlands	NL34	2	Zeeland
NL	Netherlands	NL41	2	Noord-Brabant
NL	Netherlands	NL42	2	Limburg
NO	Norway	NO01	2	Oslo and Akershus
NO	Norway	NO02	2	Hedmark and Oppland
NO	Norway	NO03	2	South Eastern Norway
NO	Norway	NO04	2	Agder and Rogaland
NO	Norway	NO05	2	Western Norway
NO	Norway	NO06	2	Trondelag
NO	Norway	NO07	2	Northern Norway
PT	Portugal	PT11	2	Norte
PT	Portugal	PT15	2	Algarve
PT	Portugal	PT16	2	Centro
PT	Portugal	PT17	2	Lisboa e Vale do Tejo
PT	Portugal	PT18	2	Alentejo
SE	Sweden	SE11	2	Stockholm
SE	Sweden	SE12	2	?stra Mellansverige
SE	Sweden	SE21	2	Sm?land med ?arna
SE	Sweden	SE22	2	Sydsverige
SE	Sweden	SE23	2	V?stsverige
SE	Sweden	SE31	2	Norra Mellansverige
SE	Sweden	SE32	2	Mellersta Norrland
SE	Sweden	SE33	2	?vre Norrland
UK	United Kingdom	UKC	1	North East
UK	United Kingdom	UKD	1	North West
UK	United Kingdom	UKE	1	Yorkshire and The Humber
UK	United Kingdom	UKF	1	East Midlands
UK	United Kingdom	UKG	1	West Midlands
UK	United Kingdom	UKH	1	East of England
UK	United Kingdom	UKI	1	London
UK	United Kingdom	UKJ	1	South East
UK	United Kingdom	UKK	1	South West
UK	United Kingdom	UKL	1	Wales