Immigration and Preferences for Redistribution in Europe [1]

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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. It is 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 using a standard shift-share approach.

Keywords: Immigration, income redistribution, population heterogeneity, welfare systems
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.[2] 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 a major source of political contention. Milton Friedman famously argued that you can't have both massive immigration and a generous Welfare system. As Europe is becoming more diverse, one may therefore ask whether immigration will make Europeans less supportive of redistribution.

To answer this question, 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) and match it with attitudinal data from the 2008 and 2016 rounds of the European Social Survey. We then investigate the relationship between immigration and natives' attitudes to redistribution by exploiting within-country variation in the share of immigrants. Our main results are the following.

First, we find that regional exposure to immigration affects natives' perception of the number of immigrants at the national level and, hence, their perception as to the identity (natives v. immigrants) of potential beneficiaries of the welfare state. Second, we show that native respondents display lower support for redistribution when the share of immigrants in their residence region is higher. The size of the immigration coefficient is comparable in magnitude to that of well-established individual determinants of preferences for redistribution such as income or education (Alesina and Giuliano, 2011). Third, we address – at least partly – endogeneity concerns (especially, endogenous location choices) by including country fixed-effects (thereby controlling for time-invariant determinants of immigrants' choice of country) and a rich set of regional controls in the regressions. Still, the residual variation in the share of immigrants that remains after including these controls could be correlated with unobserved confounders, or it could be that some of these control variables, such as regional GDP or unemployment rate, are themselves affected by immigration. From this perspective,

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[2]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.

it is reassuring that the regression coefficients are remarkably stable to the inclusion of different sets of controls (see Table 3 in section 4.1). Fourth, our heterogeneity analysis shows important differentiated effects by type of regions, respondents, and immigrants. Actually, the negative association between immigration and attitudes to redistribution is mainly driven by: i) destination countries with more generous welfare states (e.g., Nordic countries and France) relative to countries with small welfare states (e.g., the UK or Ireland); ii) native individuals placing themselves at the center/right of the political spectrum, holding negative views about immigrants, and who are less educated (in line with the "educated preferences" theory (Hainmueller and Hiscox, 2007)) or belong to the middle or upper income classes; iii) immigrants originating from the Middle-East and Northern Africa as well as from Eastern and Central Europe, especially if these have low formal education and work in low-skill occupations.[3] 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.

Overall, our results are broadly consistent with group loyalty effects, that is, with the fact that individuals prefer to redistribute towards the in-group (people of same race, culture, or nationality) and less so towards the out-group. However, they are not exclusive of other channels that determine natives' attitudinal responses to immigration. For example, native taxpayers may fear of having to pay for the welfare benefits of (poorer) immigrants often portrayed as free-riding on the welfare system, or may be concerned by the perceived tighter labor market competition or the higher risks of downward income mobility induced by immigration. To insure against such risks, native workers may actually demand more redistribution. Conversely, if 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 as they are less likely to be on the receiving end of the welfare state. We do not attempt to disentangle these different channels.

The 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) –

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[3]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 expanding the welfare state while low-skill immigration has the opposite effect.

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 how close one feels to one's own racial group. With more specific reference to immigration, Tabellini (2020) shows that the large inflows of immigrants to the United States in the late 19th 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".[4] 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 places in which individuals tend to be more favorable towards redistribution, this would generate an upward bias in our estimates. In any event, we discuss this issue in Section 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

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[4] 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)).

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 last two studies, we focus on *actual exposure* to immigration at the regional level, possibly but not necessarily implying direct contact with immigrants, and investigate the attitudinal response to such exposure in terms of attitudes to redistribution.[5]

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).[6]

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

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 ed-

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[5]See also the related literature on the effects of immigration on election outcomes, which includes several important contributions for countries such as Denmark (Dustmann et al., 2019; Harmon, 2018), Austria (Halla et al., 2017; Steinmayr, 2020), Germany (Otto and Steinhardt, 2014) or Italy (Barone et al., 2016).

[6] 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 without country fixed-effects.

ucational 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.1 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.[7] For countries not taking periodic censuses but keeping population registers, we extracted data from those registers.[8] 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.2 in the appendix.[9]

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 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.[10]

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

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[7]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.

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

[9]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.

[10]For example in mainland France, NUTS1 mirrors the 9 French areas "Zones d'études et d'aménagement du territoire" while the NUTS2 corresponds to the 22 French "Régions" and NUTS3 to the 96 French "Départements".

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 $t-20$. [11]

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

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[11]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.

number of immigrants by individual origin.[12] 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. This occupational data is available for every country used in the analysis expect for Austria, Belgium and France.[13]

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 this data is the population at the census tract level.[14] We aggregate this data at the regional level

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[12]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.

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

[14]For details, see https://bluehub.jrc.ec.europa.eu/datachallenge/data

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.[15] We use the 2008 and 2016 rounds of the ESS 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.[16] We use this index as the main dependent variable in the analysis of

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[15]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 (2012).

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

the relationship between immigration and 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.

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

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 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.[17] 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.3 in the appendix provides the exhaustive list of the regions included in the analysis.[18]

Estimation sample Given our focus natives' preferences 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.[19]

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[17]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).

[18]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.

[19] This sample represents 70% of the initial sample because it keeps observations where all control vari-

2.4 Descriptive Statistics

All variables used in the empirical analysis are described in Table A.4 and Table A.5 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.

Figure 1: Population share of immigrants in 2010
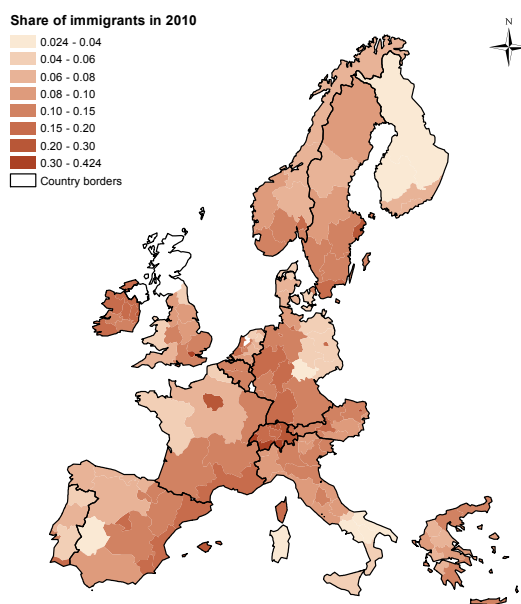
Preferences for redistribution Average support for redistribution, as measured by the index of Welfare attitudes, is also heterogeneous across European regions. Figure 2 shows

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ables 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.

Figure 2: Index of support for redistribution (2008, 2016)
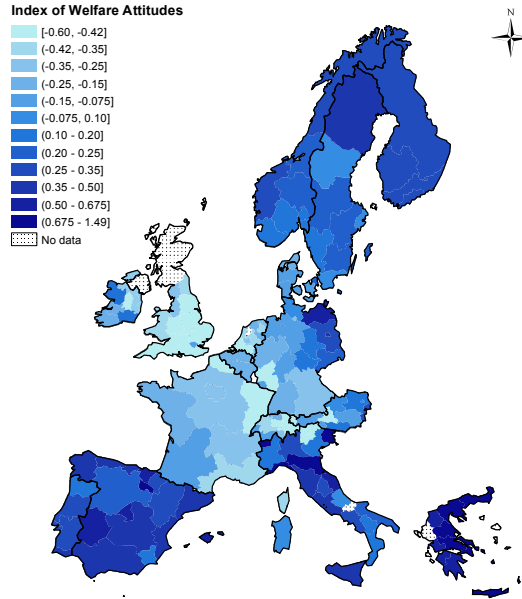
that there is a significant within-country variability in the index of Welfare attitudes.[20] The ESS also allows to examine the evolution of attitudes over time for only one variable of the index, namely variable V_1, which measures the support for reduction in income differences and is available for every biannual rounds of the survey from 2002 onward. See Figure A.4 in the appendix.

3   Empirical strategy

3.1   Specification

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

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

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[20]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)

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.[21] Importantly, the regression includes country fixed-effects $\delta_{c,s}$ 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 (urban or rural). 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[22] or to the individual's political views.[23] All variables used in the empirical analysis are described in Table A.4 and Table A.5 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 will test for non-linearities in the estimation along the distribution of immigrants' shares. 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' shares, and not variation over time. Having attitudinal data in both 2008 and 2016, we could in theory examine how changes in immigration levels relate to 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

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

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

[23] 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".

cross-sectional regressions might be more appropriate to capture the long-term relationship between immigration and support for redistribution.

3.2 Endogeneity concerns

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 relation to 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 our 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 control for 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 prospects 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.[24] We address this concern by: (i) controlling for long-run regional GDP growth between the 1960s and the 2000s, (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

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

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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 take place within regions.

4   Results

4.1   Main findings

We begin by establishing that 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, if respondents think 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 natives' perceptions about the identity of potential welfare recipients (natives v. non-natives) is partly determined by what they observe locally, i.e. by the local composition of the population.

We next turn to examine the shape of the function $f(Mig_r)$ in specification 1. Figure 3 represents the relationship between the share of immigrants and 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 association tappers off and seems to even become positive

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***	0.324***	0.306***	0.310***	0.303***
	(0.039)	(0.053)	(0.048)	(0.045)	(0.044)
R2	0.14	0.14	0.21	0.22	0.24
N	32,365	32,365	32,365	32,365	32,365
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. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

when immigrants' shares become higher than 30%, although estimates are too imprecise to reject a zero correlation.[25] This U-shaped pattern suggests a non-linear relationship between immigrants' shares and natives' attitudes to reditribution; it can be approximated with a quadratic function, that we adopt for the rest of the empirical analysis.

Table 3 presents the OLS estimates. 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 reaches its minimum when the immigrants' share is between

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

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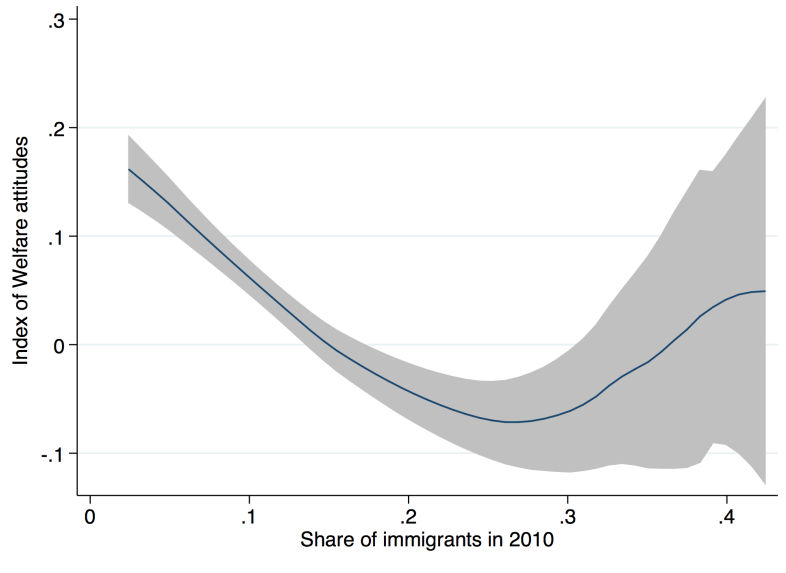
Notes: Kernel-weighted local polynomial fit controlling for country-year fixed effects and regional variables Z_r. We perform these estimations using the `semipar` command provided by the statistical software Stata 15, based on Robinson (1988)'s estimator

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, a one standard-deviation increase in the share of immigrants from 0% to 6% is associated with a 12.3% of a standard-deviation decrease in natives' support for redistribution. In order to assess the relative size of this association, note that moving a household from the bottom to the top quintile of the income distribution is associated with a decrease in support for redistribution of 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%) is associated with a reduction in the support for redistribution equals to 22% of a standard-deviation, which is two-third as large as the change in attitudes associates with an equivalent increase in household income.

The U-shaped relationship uncovered is interesting as it suggests that salience may play an important role in shaping the attitudinal response to immigration. The estimated co-efficients (column 5) imply that, for example, an increase from zero to 5 percent in the

Table 3: Immigration and Attitudes towards Redistribution

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. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

immigrants' share correlates with a reaction against redistribution 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 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 A.6 in the appendix 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

As a further robustness check, 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

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

where $\alpha_{o,r}$ 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 arguably strong assumption that the unobserved regional characteristics that attracted immigrants until 1990 have no persistent confounding effects on attitudinal outcomes in 2008 and 2016.[26]

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.7 in the appendix for first-stage results).[27] Table A.8 presents the second-stage results. We find that the 2SLS estimates are very similar to the OLS

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[26]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 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 (2020). The instrument may yet also suffer from the problems raised by Jaeger et al. (2018), as it could conflate the short- and long-run responses to immigration shocks.

[27]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.

estimates, confirming a negative U-shape pattern in the relationship between support for redistribution and immigration.

4.2.3 Sensitivity to additional controls and sample restriction

We now examine the robustness of the results to controlling for the potential confounders discussed in section 3.2. Table A.9 presents the results, with the baseline estimates in column 1 as a reminder. With respect to the concern 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 concern 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 the choice of attitudinal outcome

Finally, we look at the robustness of the results when using as attitudinal outcome each of the eight variables that compose our index of Welfare attitudes. Table A.10 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).

The ESS contains two other variables that could be used to measure preferences for redistribution: Attitudinal support for a basic income scheme and support for extra benefits for parents to help combine work and family. Given that they are only available in the 2016 round of the survey, we did not include them in the composite index. In any case we check that we obtain similar results when using these alternative attitudinal outcomes (see Table A.11 in the appendix).

4.2.5 Additional checks

Given that the survey questions are ordinal, the OLS specification makes a linearity assumption. We test the robustness of the results to using an ordered probit specification instead. In Table A.12, we find a significant U-shaped relationship between the share of immigrants and preferences for redistribution, consistent with the baseline OLS estimates. Also, the ESS survey contains few respondents by region (about 100 in each round).[28] This type of measurement error may be a source of concern, which we address by restricting the sample to regions where at least 200 respondents were interviewed in total (either in 2008 or 2016). We obtain very similar results – see Table A.13 in the appendix.

4.3 Heterogeneity

4.3.1 Receiving countries

We begin by examining the heterogeneity in the results according to 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.[29] Figure 4 displays the semi-parametric results for High and Low Welfare States, respectively, using the same Robinson (1988) semi-parametric regressions as before. Within High Welfare States, an increase in the immigrants' share is significantly negatively associated with natives' support for redistribution. 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.[30] Table 4 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

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[28]Table A.3 in the appendix that displays the number of respondents for each regions.

[29]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.14 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.

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

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).

Figure 4: Semi-parametric estimates by receiving countries
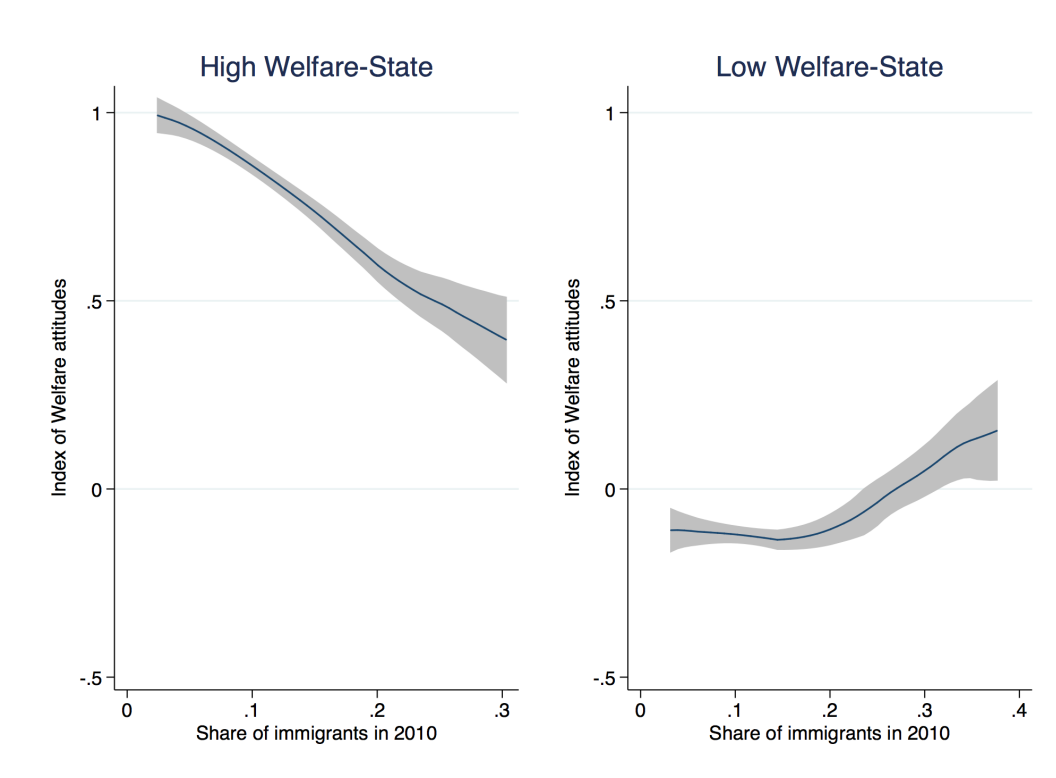
Notes: Kernel-weighted local polynomial fit controlling for country-year fixed effects and regional variables Z_r. We perform these estimations using the `semipar` command provided by the statistical software Stata 15, based on Robinson (1988)' s estimator *High Welfare State* are countries with a GDP 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.

Is the fact that immigration triggers stronger anti-redistribution reactions in High Welfare States related to greater salience of welfare issues in countries with higher levels of redistribution, or is it due to differences in the selection of immigrants? As Table A.15 in the appendix documents, immigrants living in High Welfare States tend to originate less from EU15 countries and more from East and Central Europe and from the Middle-East relative to immigrants in Low Welfare States. Also, they tend to be less skilled than those in Low Welfare States, both in absolute terms and relative to natives. Can these differences in immigrants' origins and skills explain the heterogeneous response to immigration between

Table 4: Heterogeneity 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

High and Low Welfare States ? In Table A.16 in the appendix , we examine the sensitivity of the coefficients on the interaction between the share of immigrants and a *High Welfare State* dummy to controlling for the origins and skills of immigrants. These modified specifications (column 2 to 4) allow for the coefficient on immigration to differ across regions hosting immigrants with different characteristics. From the baseline specification (column 1) to the specification with the full list of immigrant characteristics controls (column 4), the coefficient on immigration in High Welfare States drops substantially, from -1.75 to -0.75, but remains significantly negative. This suggests that the difference in immigrant composition could explain a substantial part (more than 50%) of the difference between High and Low Welfare States, but probably not all of it, which likely also results from differences in salience.

4.3.2 Natives' individual characteristics

Education and income Table 5 explores how the association between immigration and preferences for redistribution varies with native individuals' characteristics and, in particular, with their education and income. As column 1 of Table 5 shows, the association is less

negative amongst tertiary-educated individuals. This finding is consistent 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 anti-redistribution effect of immigration is less negative among the lower income classes (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 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.[31] 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 the least negative attitudinal responses among poor individuals without tertiary education. This could be due to low-income, low-educated natives being most exposed to tighter labor market competition with immigrants, leading them to demand more redistribution as insurance (or compensation) against higher risks of downward income mobility. We find the exact opposite (i.e., most negative coefficients) for natives with no tertiary education belonging to the middle and upper income classes.

Political affiliation. Column 1 of Table 6 shows that the attitudinal response to immigration depends largely on 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 response to immigration is 40% less negative 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.[32]

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[31] 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.

[32] Table A.17 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

Table 5: 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. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Attitudes towards immigrants Columns 2 and 3 of Table 6 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), or who consider that migrants should have no rights to welfare until they become citizens, lower their support for redistribution significantly more in response to higher levels of immigration. The coefficients of the regressions indicate that the anti-redistribution response to immigration is about 50% stronger for natives with anti-immigrant views relative to other natives.

Table A.18 in appendix shows that the results along the left-right political divide remain

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individuals placing themselves at the center of the political spectrum (another 33% of the respondents). So the relevant cleavage appears to be between leftist and center-rightist individuals.

Table 6: 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

unchanged in magnitude when we add interactions controlling for respondents' education levels, incomes, and views about immigrants. The differences in attitudinal response between rightist and leftist natives cannot be accounted for by differences along those dimensions.

Given that political affiliations and attitudes towards immigrants may be sensitive to immigration levels (Mayda, 2006), we complement the heterogeneity analysis above by using an exogenous individual characteristic known to be strongly correlated with political views, namely, age, and show in Table 7 that people older than 65, who tend to be more conservative on average, display a stronger anti-redistribution response to immigration (column 1). In the same spirit, we use self-reported preferences/values that are unlikely to change with immigration and find that people who report more traditionalist views (column 2) or who self-report as being more religious (column 3) have a stronger anti-redistribution response to immigration. This is in contrast to people who have a strong aversion to inequality (column 4) or express more openness toward different opinions (column 5).[33]

Finally, we also examine whether the salience of the immigration issue in the public

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[33] The exact wording of the question is the following: "It is important to you to listen to people who are different from you. Even when you disagree with them, you still want to understand them."

Table 7: Heterogeneity: Age and self-reported values

Dep var. :	Index welfare attitudes				
	(1)	(2)	(3)	(4)	(5)
Share of immigrants in 2010	-2.528***	-2.564***	-2.119***	-3.013***	-2.774***
	(0.653)	(0.670)	(0.697)	(0.608)	(0.659)
Share of immigrants in 2010, squared	4.773**	4.731**	4.655**	4.703**	4.720**
	(1.978)	(2.009)	(1.952)	(1.886)	(2.035)
Share of immigrants in 2010* Older than 65	-0.515**				
	(0.213)				
Older than 65	0.008				
	(0.043)				
Share of immigrants in 2010* Traditionalist		-0.514*			
		(0.300)			
Traditionalist		0.046			
		(0.034)			
Share of immigrants in 2010* Religious			-0.519**		
			(0.230)		
Religious			-0.155***		
			(0.032)		
Share of immigrants in 2010* Inequality averse				0.691**	
				(0.315)	
Inequality averse				0.336***	
				(0.036)	
Share of immigrants in 2010* Tolerant					0.340**
					(0.148)
Tolerant					0.168***
					(0.024)
R2	0.15	0.15	0.16	0.19	0.16
N	31,230	31,190	31,186	31,230	31,230

Note: All regressions include country fixed-effects interacted with ESS rounds dummies, regional controls, socio-economic individual controls and income controls. The variable *Traditionalist* is a binary taking one if the respondents thinks it is very important (value=1 on a 6 points-scale) to follow traditions and customs. The variable *Inequality averse* is a binary taking one if the respondents thinks it is very important (value=1 on a 6 points-scale) that people are treated equally and have equal opportunities. The variable *Tolerant* is a binary taking one if the respondents thinks it is very important (value=1 on a 6 points-scale) to understand different people (even she/he disagrees with them) The variable *Religious* is a binary taking one if the respondents self-reports as quite religious (value=2 or more on a 11 points-scale) Standard errors are clustered at the NUTS regional level. *** p<0.01, ** p<0.05, * p<0.1

debate makes a difference by comparing the attitudinal response to immigration before and after the Syrian refugee crisis. We find no significant difference between the 2016 and 2008 estimates (Table A.19 in appendix).

4.3.3   Immigrants' characteristics

Origin countries   We investigate the relationship between immigration and preferences for redistribution by immigrants' country of origin. We examine origins by broad continental regions: EU15, Eastern and Central Europe,[34], Asia, Middle-East and North-Africa, Sub-Saharan Africa, and the Americas. Column 3 of Table 8 reveals that the attitudinal coefficient associated to immigrants from the Middle-East is significantly more negative than the one associated to immigrants from other origin countries. The estimates suggest that while an increase from 0% to 1% in the share of non-Middle-Eastern immigrants is correlated with a reduction in the support for redistribution by 1.67% of a standard-deviation in attitudes, an equivalent increase in the share of Middle-Eastern immigrants is correlated with an additional 3.16% decrease (i.e., almost three times larger). 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).[35]

Education and occupational skills   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 take the immigrant-native ratio in this skill ratio in order to measure the skill gap (the extent to which immigrants are more or less skilled relative to natives). Panel A of Table 9 shows that this measure is positively and significantly associated with natives' support for redistribution. This means that a higher proportion of more educated immigrants (relative to natives) tends to mitigate the anti-redistribution response to immigration. In other words, tertiary-educated immigrants generate a less negative attitudinal response relative to non-tertiary educated immigrants. The estimates in Column 4 of Panel A suggest that in terms of natives' support for redistribution, a one-standard-deviation increase in the relative

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[34]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

[35]Note that the coefficient for immigrants from the Americas or from Asia is not significantly different from zero

Table 8: Heterogeneity: 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

skill ratio between immigrants and natives can offset an increase from 0% to 4% in the share of immigrants.[36] 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 9 shows that this

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[36]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

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.

Table 9: Heterogeneity: 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. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

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 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.[37] In addition, the presence of immigrant enclaves in a region may increase salience and perceived cultural threats.

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 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 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.[38]

In Table 10 we jointly introduce the share of immigrants and our index 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). Note however that we find no significant interaction effect between segregation and the share of immigrants.

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[37]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).

[38] 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 10: Heterogeneity: 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

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 Europe. While population diversity may have important economic benefits in the long run (Ortega and Peri, 2014; Alesina et al., 2016; Sequeira et al., 2020; Tabellini, 2020), in the short-run immigration and diversity are perceived by many as a threat to social cohesion and, in turn, as putting welfare systems at risk. This paper shows that the rise of immigration in Europe correlates with attitudinal shifts against redistribution among European-born voters. This is especially the case for respondents with center-right political views and low education, living in regions of countries with large welfare systems, and exhibiting high levels of residential segregation between immigrants and natives; this is also more the case when immigrants are less skilled or come from Middle-Eastern or Eastern-European countries.

One implication of the above analysis is that left-wing parties will find it difficult to attract 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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