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How are attitudes towards immigrants in Europe shaped by regional contexts? A study of the conditioning relationship between immigrants' concentration and socioeconomic environment

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Abstract

Research on the relationship between the local share of immigrants and natives' attitudes towards immigration has neglected the conditioning role of the socioeconomic environment. In this paper, we use data from the European Social Survey (2014) in combination with aggregated data collected at the NUTS3 geographical level on 12 European countries to study this relationship. We find that an increase in the concentration of immigrants leads to more positive attitudes towards immigrants, and that this effect decreases as the socioeconomic conditions of areas worsen. In the most deprived areas (lowest GDP per capita, highest unemployment rate), however, a higher concentration of immigrants does not have an effect on attitudes.

Keywords

1. Introduction

The relationship between the spatial location of immigrants and attitudes towards immigration remains a key issue in the migration research agenda (Kaufmann and Harris, 2015; Tam Cho and Baer, 2011) and, more generally, in the public and policy debate. Specifically, a key question is whether an increase in the physical presence of immigrants – in the streets, in the neighbourhoods, at work, on the bus, at school – exerts a positive or a negative effect on how the majoritarian populations in destination countries perceive these immigrants.

Studies find that individuals who reside in neighbourhoods or small areas (i.e. provinces, small regions) with a higher immigrant concentration have, in general, more positive views towards immigration compared to individuals who live in native majoritarian areas (for an overview see Kaufmann and Harris (2015)). Contact theory, which states that prejudice can reduce by means of (positive) contact with others, is a commonly used framework for explaining this finding (Pettigrew, 1998; Pettigrew and Tropp, 2006). However, this effect might not always occur. Following the arguments posed by Quillian (1995), we argue that the socioeconomic characteristics of the area might affect this relationship (see also Branton and Jones, 2005; Hjerm, 2009). While contact with immigrants might be positive for attitudes in areas that are better off – e.g. with more availability of jobs, better infrastructure, etc. – a higher presence of immigrants might bring no or even a negative effect on attitudes in areas with poorer (i.e. scarcer) resources. Competition or threat – rather than positive contact – would be the main explanatory effect (Blumer, 1958).

Using data from the European Social Survey (2014), a cross-national dataset covering the most common destination countries in Europe, in combination with aggregated data collected at the NUTS3[1] level (small regions), the study answers the following questions:

- What is the relationship between attitudes towards immigration and immigrant concentration in the area of residence?
- Does this relationship vary according to the socioeconomic levels of the areas? If so, in which way?

Our study is innovative in different ways. First, to our knowledge, this question has not been explored yet at the European level and with such small geographies. On the one hand, previous studies based on cross-national data from Europe in combination with aggregated data collected at different NUTS levels (including NUTS3) explore only the effect of immigrant concentration (Semyonov and Glikman, 2009; Weber, 2015; Markaki and Longhi, 2013), but not how it interacts with the socioeconomic characteristics of areas. On the other hand, while the highly cited work by Quillian (1995) and, more recently, the work by Hjerm (2007) – also based on cross-national data – do explore the interaction between immigrant concentration and socioeconomic characteristics of areas, this is done only at the country level.

The second innovative aspect of this study refers precisely to the type of the geographical areas we study. Thanks to permission granted by the board of European Social Survey, we use NUTS3 rather than countries or other intermediate geographies (which are often a much commonly used by researchers, given their accessibility). A recent study shows that, in general, the lower the geographical measure we use to measure the concentration of immigrants, the more positive attitudes are (Kaufmann and Harris, 2015), a phenomenon that is attributed to contact theory (Pettigrew, 1998). Indeed, Weber (2015) finds a positive effect at the NUTS3 level with data from the European Values Study (2008). By using NUTS3 geographies, we intentionally wanted to confirm the finding that concentration plays a positive role on attitudes (which we do), and then see how (and if) this relationship changes when we

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[1]   Nomenclature of territorial units for statistics.

move from more to less socioeconomically affluent contexts (which we also do). In other words, if contact theory appears as a potential relevant mechanism, then the next step – and main aim of this article – is to disentangle in which contexts it is.

The third value added by our study, finally, regards how we deal with the conditionality, which is not only relevant from a methodological perspective, but also from a theoretical point of view. The striking majority of research base their findings on the interpretation of the interaction between immigrant concentration and socioeconomic context (e.g. Quillian, 1995; Branton and Jones, 2005; Hjerm, 2007; Hjerm, 2009; Oliver and Mendelberg, 2000). In other words, they generalise the findings to the entire distribution. However, when studying interaction terms it is important to evaluate whether the effect is statistically significant throughout the distribution or only in one part of it (Brambor et al., 2006). This is relevant, because it allows to conclude in which contexts relationships work and in which contexts they do not.

Our findings reveal an interaction effect between immigrant concentration and socioeconomic conditions of neighbourhoods, which goes in the expected direction. However, and in line with the third value added of this study, we show that this interaction effect is significant only after a certain threshold of socioeconomic conditions has been crossed. In other words, while the increase in the immigrant concentration has a more positive effect on attitudes in better-off areas compared to areas with more intermediate socioeconomic conditions, in the poorest areas, the increase in the concentration of immigrants has no effect on attitudes.

The paper is organized as follows. Section 2 presents the theory and previous studies, with a particular focus on cross-national studies and those that have dealt with the interaction between immigrant and socioeconomic neighbourhood compositions. In section 3 we present the data and methodology. Sections 4 and 5 present, respectively, our empirical findings and robustness checks. Finally, we conclude and briefly discuss policy implications of our study in section 6.

2. Theoretical background

Whether individuals hold more positive or more negative attitudes towards immigrants depends on a high range of factors, which go from individual characteristics such as age, education and socioeconomic status (Ceobanu and Escandell, 2010), to more contextual and macro characteristics, such as those measured at the regional (Markaki and Longhi, 2013) and country levels (Callens and Meuleman, 2017; Ruist, 2016). A particularity of these studies, and of many social science studies in general, is that conditionality – that is, when the relationship between two variables depends on the values of a third variable – is often a secondary aspect of the analyses. That is, an individual's education, or a country's GDP or the number of immigrants in a region, are considered as additive explanations of attitudes. However, as the literature on intersectionality has highlighted for the analysis of class, gender and race inequalities (Crenshaw, 1991; Collins, 2015; Zuccotti and O'Reilly, 2018), it is often the case that some relationships hold – or become stronger or milder – for some specific groups or in determined contexts. In terms of our research, there is a large number of studies that have explored whether the level of immigrants' concentration in the area of residence has an effect on the attitudes of native individuals living in those areas (for a review see: Kaufmann and Harris, 2015). Yet, and with some important exceptions that we describe below (see e.g. Hjerm, 2009; Branton and Jones, 2005; Quillian, 1995), these studies often do not consider the complexities of the context, especially as regards the socioeconomic characteristics of areas. Our study aims at bringing evidence in this research agenda, by studying the combined role of socioeconomic resources and immigrant concentration at the local level on attitudes towards immigration.

Attitudes & context: key explanatory mechanisms

Independently of whether we are studying the impact of individual characteristics or of context characteristics on attitudes, when trying to disentangle the mechanics behind these relationships of great importance is whether immigrants appear as a threat or not. The more an immigrant appears as a menace to an individual's or group's socioeconomic status, religion or culture, the more negative these views will be. Conversely, the more an individual or a group identifies with other individuals' or groups' values, or the more an individual has acquired the tools connected to tolerance and acceptance of diversity, the more these views will be positive. A relevant question is, therefore, what triggers threat? Or conversely, what triggers tolerant attitudes?

Studies that analyse the relationship between the immigrant composition of areas and attitudes towards immigration often discuss two potential theories that explain how this relationship might occur. These studies do not necessarily assume (and, in most cases, do not measure) daily contact between immigrants and native populations. However, their common guiding premise is that the physical presence of immigrants in the area of residence (varied types have been used: neighbourhood, provinces, regions, countries etc.) may influence how individuals think of them.

According to **intergroup contact theories** (Pettigrew, 1998; Pettigrew and Tropp, 2006), exposure or contact with members of other groups, which inevitably happens in areas with a higher share of immigrant population, should lead to greater familiarity with these groups and, hence, to enhance linking for those groups. Although Allport (1954) argues that some conditions (equal status between the groups in the situation, common goals, intergroup cooperation, and the support of authorities, law, or custom) are necessary for intergroup contact to exert positive effects on attitudes, Pettigrew and Tropp (2006) show that positive attitudes may develop even if those conditions are not present. In contrast, **intergroup threat theories**, suggest that increased contact or exposure with immigrants will lead to increased negative views towards them (Quillian, 1995). Feelings of threat may emerge for different reasons. Social-psychological explanations argue that individuals create their own identities by means of identifying themselves with – while, at the same time, differentiating themselves from – different types of groups. Next to the creation of identities, the development of prejudices and stereotyping also emerges as a parallel process (Blumer, 1958). The arrival of individuals who come with different cultures, who speak a different language, who behave differently, constitute per se a potential threat to these group identities. At the same time, threat might also emerge through more rational reasoning, especially in terms of cost-benefit relationships (Markaki and Longhi, 2013; Citrin et al., 1997). For example, a concern about the personal socioeconomic situation, or that of the area of residence or the country, might lead to see immigrants as a competitors for scarce resources (Coenders and Scheepers, 2008; Blalock, 1967). That is, as increased numbers of ethnic or racial minorities compete for jobs, housing, and other economic resources, the majoritarian population might increasingly feel that their economic well-being and dominance are threatened (Wang and Todak, 2018).

While apparently divergent, these theories do not necessarily have to be opposites. A key issue as to whether one of the two theories prevails refers to the conditions under which such contact or exposure occurs. Intergroup contact under conditions that imply a risk to the individuals' or groups' identity, or socioeconomic wellbeing does not necessarily mean that attitudes towards immigration will be negative. However, these conditions may increase the chances of less positive attitudes, compared to individuals immersed in contexts where exchanges occur with greater mutual understanding, or less competition for resources. This is in fact why we look at the socioeconomic conditions of areas. Our main hypothesis, which follows the arguments posed by previous studies (Hjerm, 2007; Hjerm, 2009; Branton and Jones, 2005; Quillian, 1995), is that the expected positive attitudes associated with the presence of immigrants (which we expect to find at the NUTS3 level) will be lower or even null in areas where socioeconomic resources are poorer.

Previous studies

The link between the migrant composition of geographical areas and attitudes towards migration has been explored by a large number of studies (Branton and Jones, 2005; Hjerm, 2009; Markaki and Longhi, 2013; Kaufmann and Harris, 2015; Weber, 2015). These studies are varied in terms of the geographical areas from where migrant shares are obtained (neighbourhoods, cities, provinces, countries), the migrants for whom shares are calculated (all, EU, non-EU) and the nature of the study (for a single country, for pooled countries).

Whether there is (or is not) a relationship between the migrant composition of areas and attitudes is a matter of debate. In a systematic review, Kaufmann and Harris (2015) argue that, in general, the smaller the geographical areas under study is, the more positive attitudes towards immigration are. In line with this argument, a recent cross-national study based on the European Values Study demonstrates this when moving from country or NUTS1/NUTS2 levels to NUTS3 level[2] (Weber, 2015), which is also the geography used in the present study. In other words, it finds a positive correlation between the national proportion of immigrants and perceived threat and a negative relationship between both variables when the proportion of immigrants is measured at the NUTS3 level.

Some studies have broadened the analysis by exploring how the effect of an area's immigrant composition on attitudes interacts with the socioeconomic characteristics of areas. In a highly cited research based on data from the Eurobarometer, Quillian (1995) shows that in Western Europe prejudice is more likely when there is both a large foreign presence and poor economic conditions – measured in terms of GDP per capita – in a country, compared to a situation in which both factors were considered independently, as additive effects (i.e. rather than interacted). However, a more recent study based on a larger sample (22 countries, rather than 12) and more recent data (European Social Survey) does not find an interaction effect between share of immigration and socioeconomic conditions of countries (Hjerm, 2007). When moving to lower-level geographies, the results seem to be more in line with Quillian's findings. For example, Hjerm (2009) finds for Sweden that people have stronger anti-immigrant attitudes in municipalities where unemployment is high and the proportion of foreign-born people is larger. Similar findings are observed in Branton and Jones (2005), who study attitudes towards immigration policy in the US. Our study follows the arguments of these studies: it explores the effect of the interaction between immigrant concentration and socioeconomic characteristics of areas (percentage unemployed and GDP) on attitudes towards immigration in twelve European countries.

3. Methodology

Data and key variables

For our analysis, we use the seventh round of the European Social Survey (ESS henceforth), carried out in 2014-2015. The ESS is a standardized cross-sectional survey collecting information on attitudes toward immigrants and other relevant individuals' socio-demographic characteristics across 21 European countries. This survey is representative of all individuals above 15 years of age in each country. The ESS is appropriate to conduct cross-country comparisons since it does not present problems of measurement equivalence across countries, at least in the indicators we use in this study, i.e. those measuring attitudes towards immigrants (Davidov et al., 2018). We chose the seventh round because it has a special module on immigration and, hence, a wider range of variables on attitudes (this module was only implemented once before, in 2002). In addition, the difficulties associated with obtaining NUTS3 geographies for ESS respondents, plus those related to finding contextual data at the NUTS3 level (most of it available for 2011), made us restrain our analysis to one ESS wave rather than to multiple ones.

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[2]   See section 3 for additional details on NUTS geographies.

We focus our analysis on native individuals, defined here as those born in the European countries under study and who have at least one parent born in the same country. Attitudes towards immigrants are measured using a combination of seven questions for which respondents need to provide an evaluation on whether immigrants worsen or improve the life in the country, and more specifically, on whether immigrants present an economic, cultural/religious or public threat to the country. Table A1 in appendix shows the precise formulation of these questions/items. For each question, individuals need to position themselves in a scale that ranges from zero (negative attitudes) to 10 (positive attitudes). Our dependent variable, *attitudes towards immigrants*, is a normalized variable (ranges from 0 to 1, where 1 refers to attitudes that are more positive) that combines the scores of all seven questions.[3] A Cronbach Alfa test gives a score equal to 0.86. In alternative to this specification, and for some analyses only, we have also used an indicator of attitudes that captures *economic threat* specifically. This variable is a summary of three questions measuring attitudes on economic issues only (questions 1, 2 and 3 in Table A1), and varies between 0 and 1 (where 1 is less economic threat). A Cronbach Alfa test gives a score equal to 0.76.

Data on contextual characteristics were obtained for NUTS3 geographies. NUTS, Nomenclature of Territorial Units for Statistics, are standardized geographies that are often used for the elaboration and presentation of cross-national statistics in Europe. Although they can be very varied in terms of the population they contain[4] (see Table A2 in the appendix), there are three main reasons for choosing these geographies. First, they are the most detailed geography that can be attached to ESS data: in some cases, this geographical reference was already included as a variable in ESS data; in other cases, we obtained this information through a special license provided to us by the ESS coordination. Overall, we were able to obtain 422 NUTS3 areas from 12 European countries. Second, the use of these geographies mean that we can have an expectation in terms of the effect of the concentration of immigrants. It has been argued that the smaller the geography used, the more positive the attitudes are (Kaufmann and Harris, 2015), and there is evidence that this positive effect is found when the share of immigrants is measured at the NUTS3 level (Weber, 2015).

Thirdly, although competition for social services, like schools and housing, occur at a lower level (i.e. municipality or even the neighbourhood), competition for jobs – and the greater exposure to diverse individuals that this implies – takes place at a higher geographical level, due to higher mobility (Oliver and Mendelberg, 2000).

Contextual, and key independent, variables used in this study are immigrant concentration, operationalized as *share of immigrants* in NUTS3, and *socioeconomic characteristics* of NUTS3. Specifically, we used the share of all immigrants over the total population, and the share of EU27 and non-EU27 immigrants (for additional analyses); unemployment rate and GDP per capita were used to identify areas' socioeconomic characteristics. All contextual variables refer to the year 2011. Data on immigration, which is based on information on country of birth, was obtained from EUROSTAT (Census Hub)[5]; unemployment rate and GDP per capita was obtained from the official statistics of the twelve countries under analysis (see Table A4 in appendix for the sources of the data).

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[3] Note that a value is obtained even with missing responses in some of the questions.

[4] The definition of NUTS3 includes areas with a size between 150.000 and 800.000 inhabitants.

[5] Census data for year 2011 is the closest to 2014-2015 (years of the survey) we could obtain for all countries. https://ec.europa.eu/eurostat/web/population-and-housing-census/census-data/2011-census. There is a mismatch between the year of ESS (2014) and the year of contextual variables and census (2011). We think that this short time lag does not distort our baseline results as we do not expect relevant distributional changes in the shares of immigrants across NUTS3 provinces and relevant changes in the contextual variables between 2011 and 2014 at the NUTS3 level. Moreover, for most of the countries, ESS (2014) collects information on attitudes just before the start of the massive inflow of immigrants in 2015. One exception is Poland where the interviews where collected from April to September 2015. Excluding Poland from the estimates does not change significantly the results. Results are available upon request.

Table 1. Descriptive statistics

Countries	(A) Attitudes (NUTS3)				(B) GDP per capita/000 (NUTS3)				(C) Unemployment % (NUTS3)				(D) Migrant's % (NUTS3)				Number of observations
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	
Austria	0.43	0.06	0.23	0.52	36	9	19.4	47.8	5.6	2.1	2.5	10	14.4	7.8	4.92	30.5	1392
Czech Republic	0.39	0.02	0.35	0.43	15.8	6.4	11.5	32.6	6.8	1.97	3.6	10	6.8	3.5	2.66	14.9	1728
Germany	0.53	0.06	0.34	0.65	31.1	12.8	16.7	100	7.6	3.61	1.8	16.8	12.6	5.4	3.63	31.4	2469
Estonia	0.51	0.004	0.5	0.52	13	4.7	8.3	18.2	12	0.8	11.2	13.8	12	5.4	6.36	18	1185
Finland	0.54	0.025	0.49	0.64	36.5	8	26.7	49.4	9.6	2.2	2.85	13.4	3.4	2	1.4	12.8	1928
Hungary	0.42	0.037	0.36	0.51	10.2	6	4.5	22.2	11	3.2	6.2	18.2	3.9	1.9	1.49	7.3	1431
Ireland	0.49	0.03	0.45	0.52	36.5	13.6	20.9	56.6	19.3	2.2	17	22.8	16.7	2.4	13.5	20	1749
Latvia	0.49	0.034	0.44	0.57	10	3	5.9	14.6	13.1	1.45	12	16	5.6	3.2	227	11	1838
Poland	0.51	0.05	0.39	0.61	10.3	5.4	5.5	28.7	7.7	2.7	3.2	15	1.5	1.3	0.39	5.2	1121
Slovenia	0.47	0.033	0.38	0.54	17.5	4.5	11.8	25.2	11.8	2.65	9	18.5	10.6	3.2	5.21	21.6	851
Spain	0.48	0.038	0.38	0.6	22.6	5	15.9	34.2	21.3	5.8	10	33.5	11.4	5.2	3.4	21	1507
Sweden	0.59	0.024	0.53	0.68	42.8	9.3	32.7	60	7.7	1.1	6	9.6	13.8	4.7	4.7	21.1	1450
															Total		**16858**

Source: Own calculations. ESS (2014); Census (2011); National Statistical Offices

Table 1 shows descriptive statistics of our main dependent (attitudes) and independent (context) variables; dispersion and min-max measures are calculated for NUTS3 geographies. Column (A) displays the statistics concerning attitudes towards immigrants. In countries such as Sweden, Finland and Germany, views towards immigrants are more positive, on average; while in Austria, Czech Republic and Hungary, views are more negative. The dispersion (standard deviation) of attitudes across NUTS3 areas is the highest in Austria, Germany and Poland. This dispersion is more evident when we look at the difference between the lowest average attitudes and the highest average attitudes in NUTS3 in each country: Austria, Germany and Poland present the highest variation (the difference between max and min is, respectively, 0.29, 0.31 and 0.22 points). Other countries like Estonia, Czech Republic and Sweden show a low variation in attitudes across NUTS3. In column (B), column (C) and column (D) are displayed the statistics of GDP per capita, unemployment rate and migration rate, respectively. NUTS3 differ considerably with respect to these contextual variables. For example, the dispersion of the GDP per capita across NUTS3 is more than one third of the mean in Ireland and Germany; while the dispersion of unemployment rate is half of the mean in Germany and one third in Czech Republic. The dispersion of the share of immigrants is about half of the mean in Austria, Germany and Estonia. Overall, these statistics show that a study at a more aggregate level would ignore this important heterogeneity in contextual characteristics.

Estimation method and possible scenarios

To test our research question, we use an OLS regression as our primary estimation method[6]. We check the robustness of our results using alternative methods and specifications (see section 4). The model specification is as follows:

$$Attitudes_{in} = \beta_0 + \beta_1 ShareMig_n + \beta_2 SocioEcon'_n + \beta_3 ShareMig_n * SocioEcon'_n + \beta_4 X'_{in} + \epsilon_{in}$$

(Equation 1)

where the dependent variable measures attitudes of individual *i*, residing in NUTS3 geography *n*. As explained before, this is a continuous variable that ranges between 0 and 1, where 1 is more positive attitudes. Our main explanatory variable is the interaction between the variable $ShareMig_n$, measured as the share of immigrants at the NUTS3 level, and the vector $SocioEcon'_n$, which includes (in alternate models) unemployment rate at the NUTS3 level and the logarithm of GDP per capita at the NUTS3 level. The latter contextual variables are widely used by the literature as measures of the economic situation of an area and its level of development/wealth, respectively (Markaki and Longhi, 2013; Weber, 2015). This interaction should capture the extent to which the local socioeconomic environment moderates the effect of the share of immigrants on attitudes. The vector X'_{in} includes individual-level variables commonly used by the literature on attitudes towards immigration (Pardos-Prado, 2011; Ceobanu and Escandell, 2010; O'Rourke and Sinnott, 2006). These include Age (number of years), Female (equal to 1 if the respondent is female, 0 otherwise), Parent foreign born (equal to 1 if at least one of the parents of the respondents was born abroad), a set of dummies following the ISCED classification of education[7] to measure educational attainment, a set of dummies (Employed, Unemployed, In education, Inactive) to control for the activity status, a set of dummies that capture political orientation (Left, Centre, Right), the ISEI index (Ganzeboom et al., 1992; Ganzeboom and Treiman, 1996) that measures occupational status and a set of dummies (City, City suburbs, Small town, Rural) for the typology of the area of residence. We also include in the estimations country fixed effects,

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[6] Note that this method does not take into account the spatial dependence of anti-immigration attitudes across NUTS3 geographies (Czaika and Di Lillo, 2018).

[7] https://ec.europa.eu/eurostat/statistics-explained/index.php/International_Standard_Classification_of_Education_(ISCED)

to control for additional unobserved factors that might affect attitudes of individuals across countries. For more details on the definition of variables, refer to Table A4 in appendix.

There are different possible scenarios that may come out from the analysis, which will depend not only on the main effects of contextual variables but also on the interaction effect. Below we present some possible scenarios, which will help the reader interpret the results of the analysis later on. These scenarios correspond also to different interpretations in terms of the extent of threat and contact explanations. Figure 1 shows different graphs in which the marginal effect of the share of immigrants is plotted against the unemployment rate (black line); in all cases the relationship is plotted following the article's main expectation, that is, more positive attitudes in better off areas. In the first case (Graph A), the effect of share of immigrants on attitudes is always positive (the line is above the 0 line) but decreases as the share of unemployed people increases. This implies that an increase of immigrants has a positive effect on attitudes across all levels of the socioeconomic characteristics of areas; however, this effect is less strong in areas with a higher share of unemployed people. In the second case (Graph B), the effect of share of immigrants on attitudes is always negative (the line is below the 0 line) and increases as the share of unemployed people increases. This implies that an increase of immigrants has a negative effect on attitudes across all levels of the socioeconomic characteristics of areas; and that this effect is stronger in areas with a higher share of unemployed people. These different results might imply that contact theory prevails in the first case, while threat theory prevails in the second case, although both mechanisms probably take place simultaneously in both scenarios. The third scenario (Graphs C) is a mix of both. Here an increase in immigrants is only positive in areas that have from middle to low unemployment rates, while in areas that have from middle to high unemployment rates, an increase of immigrants has a negative effect on attitudes.

Figure 1. The marginal effect of the share of immigrants on attitudes conditional on the unemployment rate. Three different scenarios
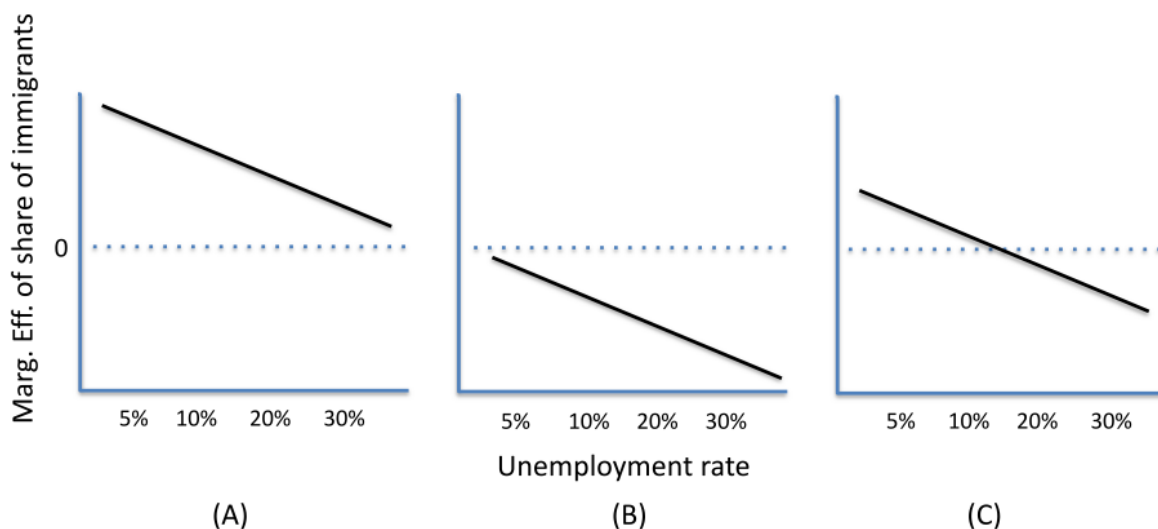
Next to paying attention to the entire distribution of our independent variables and how and where the interaction takes place, our analysis also allows identifying where the interaction is statistically significant. This is because we can plot confidence intervals in the graphs. Therefore, independently of which scenario we get in our analysis (A, B or C), it might be the case that some effects are statistically significant only in some parts of the unemployment distribution. The analysis shows this pattern very clearly, as we discuss later on.

4. Empirical results

In Table 2 we present the results of our baseline model having as a dependent variable the general attitudes score. In model 1 and model 2 we explore the main effects of immigrants' share and of contextual variables (i.e. unemployment rate and GDP per capita, respectively) on attitudes, unconditional of individual-level controls. Consistent with the contact theory, a higher share of immigrants in the NUTS3 area of residence has a positive effect on attitudes towards immigrants. The coefficients of contextual variables show a negative association between the unemployment rate (model 1) and attitudes, and a positive association, though not significant, between the GDP per capita and attitudes (model 2). Overall, results suggest that in areas with a less favourable socioeconomic environment individuals express, on average, more negative attitudes.

The main research question of this paper is explored in models 3 – 6. In these models we question whether the effect of share of immigrants on attitudes depends on the socioeconomic environment. To do this, we consider in the baseline estimations the interaction between the percentage of immigrants and each of the two contextual variables. In models 3 – 4 and models 5 – 6, we check the conditioning effect of contextual variables in estimations without and with individual level controls, respectively. The coefficient of the interaction between the percentage of immigrants and unemployment rate is negative and statistically significant at conventional level (model 3 and model 5). It suggests that the positive effect of the share of immigrants on attitudes is decreasing in the labour market conditions of the area. A clearer illustration of this effect is showed in Graph 1 in Figure 2, which resembles scenario 3. Graph 1 displays the marginal effect of the share of immigrants on the attitudes towards immigrants, conditional on the level of unemployment rate in the NUTS3 areas. The higher the unemployment rate, the lower the positive effect of contact with immigrants and of exposure to ethnically diverse environment. However, this only applies to one part of the distribution. In other words, the conditioning effect of unemployment rate is relevant only for areas that are relatively better off, i.e. those with an unemployment rates between 1.8 per cent and 12.1 per cent[8]. This result suggests that in extremely deprived areas additional immigrants do not produce further intolerance towards immigrants. One explanation for this result could be a high degree of residential and/or labour market segregation of immigrants in these areas which reduces both contact with natives and the threat of job competition (or competition for economic resources). Similarly, especially in the U.S., it has been demonstrated that minority group segregation diminishes the impact of material threat on attitudes towards black people (Oliver and Mendelberg, 2000) or preferences towards Latino immigrants (Rocha and Espino, 2009).

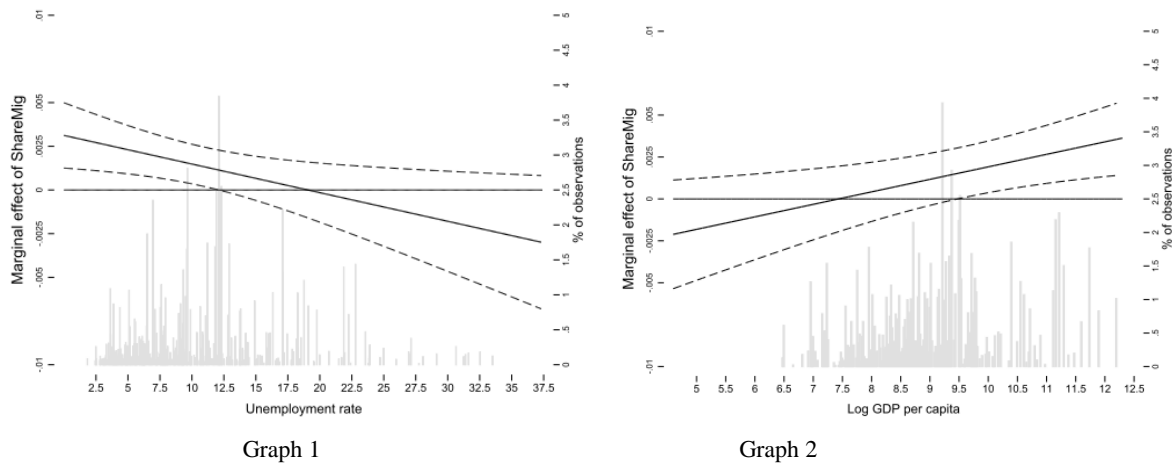
[8] The coefficient of an interaction is statistically significant across the values of the conditioning variable when the upper and lower bound of the 95% confidence interval (dashed lines in the graph) are both above or below the flat 0 line.

Table 2. Does the socioeconomic context condition the relationship between share of immigrants and attitudes?

VARIABLES	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
ShareMig	0.00291***	0.00224***	0.00478***	-0.00489*	0.00312***	-0.00554*
	(0.000576)	(0.000700)	(0.000934)	(0.00279)	(0.000947)	(0.00292)
Unemployment	-0.00168**		-2.03e-05		0.000717	
	(0.000758)		(0.000951)		(0.000894)	
LogGDPpc		0.00567*		-0.00143		-0.0103**
		(0.00323)		(0.00495)		(0.00461)
ShareMig *Unemployment			-0.000175***		-0.000164**	
			(6.71e-05)		(6.80e-05)	
ShareMig *LogGDPpc				0.00072**		0.00074***
				(0.00028)		(0.000279)
Age					-0.000323**	-0.000331**
					(0.000147)	(0.000147)
Male					0.00142	0.00182
					(0.00238)	(0.00238)
ISCED 2					0.0145***	0.0167***
					(0.00552)	(0.00566)
ISCED 3B					0.0148**	0.0166**
					(0.00674)	(0.00676)
ISCED 3A					0.0338***	0.0346***
					(0.00594)	(0.00595)
ISCED 4					0.0496***	0.0511***
					(0.00666)	(0.00673)
ISCED 5_1					0.0663***	0.0675***
					(0.00695)	(0.00694)
ISCED 5_2					0.0823***	0.0835***
					(0.00714)	(0.00714)
ISEI					0.000898***	0.000904***
					(6.99e-05)	(6.95e-05)
Unemployed					-0.0329***	-0.0328***
					(0.00701)	(0.00697)
In education					0.0457***	0.0458***
					(0.00581)	(0.00578)
Inactive					-0.00951***	-0.00913***
					(0.00324)	(0.00322)
Parent foreign born					0.0202***	0.0205***
					(0.00711)	(0.00701)
Centre					-0.0200***	-0.0198***
					(0.00389)	(0.00379)
Right					-0.0275***	-0.0272***
					(0.00555)	(0.00548)
City suburbs					-0.00633	-0.00841
					(0.00667)	(0.00621)
Small town					-0.00726	-0.00990*
					(0.00652)	(0.00578)
Rural					-0.00605	-0.00836
					(0.00682)	(0.00625)
Constant	0.392***	0.366***	0.372***	0.380***	0.366***	0.402***
	(0.0136)	(0.0122)	(0.0152)	(0.0176)	(0.0208)	(0.0224)
Observations	16,634	16,858	16,634	16,858	16,634	16,858
R-squared	0.130	0.129	0.131	0.130	0.212	0.210

Dependent variable: Attitudes score. The estimation method used is OLS. Country dummies included in the estimations. Errors are clustered at the NUTS3 level. Reference categories: For activity is employed; for education level is ISCED 1 (less than lower secondary); for urban agglomeration is urban; for political orientation is left wing. Country dummies included in the estimations. Error clustered at the NUTS3 level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure 2. Illustrations of marginal effects

Graph 1   Graph 2

The socioeconomic context measured by the GDP per capita tells a similar story. The coefficient of the interaction between the percentage of immigrants and GDP per capita is positive and statistically significant at the 5 per cent level (model 6). Graph 2 displays the marginal effects of the share of immigrants on attitudes, conditional on the wealth of the areas measured in terms of GDP per capita. As in Graph 1, we find that a higher share of immigrants produces a positive effect on attitudes only in wealthier areas (with approximately more than 25.000 euros per capita). This result suggests that in richer areas natives and immigrants mix more and social contact may alleviate prejudice and counteract stereotypes. In addition, competition for jobs and public services such as schooling, social housing or health care might be less harsh in contexts with more job opportunities and a more developed infrastructure.

The results also reveal that the magnitude of both the main effects of share of immigrants and of the interaction effects are rather low (see model 5 and model 6). Referring to the coefficients in model 5, a sample average increase in share of immigrants by 10 per cent produces a direct increase of 0.03 in the attitude's score. Holding the share of immigrants at this average level, a change from the lowest unemployment level in the sample (1.8 per cent) to the highest unemployment level (12.1 per cent), erodes almost 2/3 of the direct (positive) effect of the share of immigrants, decreasing the attitudes score by 0.02 (from 0.031 to 0.011).

With regard to the effect of the other individual characteristics on attitudes, they are in line with previous literature (see Ceobanu and Escandell, 2010: for an overview). Individuals with a higher educational attainment tend to have more positive attitudes towards immigrants. Compared to lower than secondary (ISCED 1, reference category in Table 2), the effect of education level on attitudes goes from 0.014 of lower secondary (ISCED 2) to 0.082 of higher tertiary (ISCED 5_2). Occupational classification, which is strongly related to the educational level shows the same positive relationship with attitudes. According to the literature, better educated individuals are more tolerant and have higher personal security and autonomy (Dražanová, 2017), have higher acceptance of diversity and higher exposure to foreign cultures (Hainmueller and Hiscox, 2007). Our results also corroborate the evidence that individuals in more vulnerable situations (i.e. unemployed, low-skilled) may perceive immigrants as competitors in the labour market and therefore, have more negative attitudes towards immigrants.

Table 3. Does the socioeconomic context condition the relationship between share of EU 27 and Non-EU 27 immigrants and attitudes?

VARIABLES	Model (1) Atti	Model (2) Atti	Model (3) Econ	Model (4) Econ
ShareMig EU27	0.00694***		0.00722***	
	(0.00212)		(0.00231)	
Unemployment	0.000508	0.000159	0.000162	-0.000309
	(0.000874)	(0.000843)	(0.000980)	(0.00097)
ShareMig EU27*Unemployment	-0.000336***		-0.000330**	
	(0.000124)		(0.000150)	
ShareMig nonEU27		0.00380**		0.00335**
		(0.00147)		(0.00162)
ShareMig nonEU27* Unemployment		-0.000196*		-0.000168
		(0.000115)		(0.000130)
Constant	0.369***	0.378***	0.320***	0.334***
	(0.0176)	(0.0172)	(0.0197)	(0.0192)
Observations	16,634	16,634	16,583	16,858
R-squared	0.212	0.211	0.197	0.196

Dependent variable: Attitudes score. The estimation method used is OLS. All independent variables of Table 2 are included in the estimations. Country dummies included in the estimations. Error clustered at the NUTS3 level. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Individuals having a parent born abroad show more favourable attitudes towards immigrants; while those with more conservative ideologies have stronger anti-immigrant sentiment (see also Bohman, 2011; Cohrs and Stelzl, 2010). Compared to those declaring to be placed in the left-side of the political spectrum, centrists and those having right-wing political orientation have lower attitudes towards immigrants. Finally, results show that demographic characteristics such as age, gender and place of residence are not relevant predictors of attitudes.

In Table 3 we estimate the baseline models of Table 2 using the share of EU 27 immigrants and the share of non-EU 27 immigrants and their interactions with unemployment rate in model 1 and model 2, respectively. The conditioning effect of unemployment on attitudes is more relevant, both in magnitude and significance, for the EU 27 immigrants compared to the non-EU 27 immigrants. The same effect is found in model 3 and model 4, where the dependent variable is attitude towards immigrants on economic issues. These results suggest that economic concerns may influence anti-immigrant attitudes towards those immigrants perceived as competitors in the labour market (Mayda, 2006; Hainmueller and Hiscox, 2007). Indeed, irrespective of the average level of skills, EU 27 immigrants have similar education to natives and their human capital might be easily transferable in the European labour market (Basilio et al., 2017). Moreover, in areas with high unemployment, competition for jobs may exert further downward pressure on the wages of natives; and consequently, nourish more negative attitudes towards foreign competitors. Table A3 in appendix shows that results are qualitatively similar for GDP per capita.

5. Robustness checks

The results presented above might be affected by endogeneity. Endogeneity concerns arise because attitudes towards immigrants may both condition and be conditioned by the location choice of natives and immigrants. For instance, natives with more positive attitudes would prefer to live in areas with a higher share of immigrants while those with strong anti-immigrant sentiments will avoid residing in these areas. Also, immigrants would prefer to live in areas where environment is less hostile towards them. If this is the case, our results may be biased towards a more positive relationship between attitudes and share of immigrants (i.e. contact theory). The results on the conditioning effect of contextual variables would be biased as well. To address this source of endogeneity, Dustmann and Preston (2001)

suggest to instrument the share of immigrants at a given geography, with the share of immigrants at higher geographies[9]

In our study we instrument the share of immigrants at NUTS3 geography with the share of immigrants NUTS1 geography; we also instrument the interactions with two additional variables expressing the interaction between socioeconomic variables (unemployment rate and GDP per capita) and the share of immigrants, also measured at the NUTS1 geography.

In Table 4, model 1 and model 2 show the results of estimations using the 2SLS method. In model 1, the results essentially confirm the findings of the OLS method, with no changes in the sign and statistical significance of the coefficient of the interaction between unemployment rate and share of immigrants. In model 2, the coefficient of the interaction between GDP per capita and share of immigrants differs, in statistical significance but not in sign, from the result we obtained using the OLS method. It indicates that the previous finding using the OLS method might be potentially driven by endogeneity.

We perform statistical tests to check the endogeneity of our regressors and the appropriateness of the instruments. The endogeneity test allows for clustered errors. Results in model 1 and model 2 show that the immigrant' share and its interaction with unemployment rate and GDP per capita are endogenous as the test is rejected at 2 per cent and 1 percent, respectively. Moreover, the Stock-Wright and Anderson-Rubin tests, both robust to weak instruments, show that the endogenous coefficients in the structural equation are both significantly different from 0[10].

Table 4: Robustness checks

VARIABLES	Model (1) 2SLS	Model (2) 2SLS	Model (3) MM OLS	Model (4) MM OLS	Model (5) M-Level	Model (6) M-Level
ShareMig	0.00602***	-0.0263	0.00281***	-0.00222	0.00342***	-0.00127
	(0.00174)	(0.0318)	(0.000557)	(0.00168)	(0.000862)	(0.00351)
Unemployment	0.00182		0.000374		-0.000337	
	(0.00132)		(0.000596)		(0.000939)	
ShareMig *Unemployment	-0.000245**		-0.000133***		-0.000185***	
	(0.000119)		(4.31e-05)		(6.72e-05)	
LogGDPpc		-0.0394		-0.00448*		-0.00125
		(0.0281)		(0.00239)		(0.00529)
ShareMig *LogGDPpc		0.00309		0.000387**		0.000312
		(0.00313)		(0.000168)		(0.000371)
Constant	0.319***	0.707***	0.401***	0.449***	0.452***	0.454***
	(0.0291)	(0.272)	(0.0133)	(0.0239)	(0.0203)	(0.0486)
Observations	16,634	16,858	16,634	16,858	16,634	16,858
R-squared	0.209	0.197				
SD NUTS3 level					0.0011	.0012

Dependent variable: Attitudes score. The estimation methods used are Instrumental variables and MM OLS. All independent variables of Table 2 are included in the estimations. Country dummies included in the estimations. Errors clustered at the NUTS3 level for IV estimations. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

It is widely known that the OLS method may attribute an excessive predictive power to observations with a high residual (outliers). This potentially leads to a distorted parameter estimation. To deal with

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[9] The validity of the instrument is based on the assumption that people's sorting (based on attitudes) outside sufficiently large areas is less likely to be due to limited mobility. Dustmann and Preston (2001) list among possible reasons that might restrict mobility outside a given area; travel time to work, proximity to family and friends. Also note that people's movement within these areas is not an issue as it does not alter the overall immigrant's share. Moreover, the share of immigrants in larger areas is highly correlated with the share of immigrants in smaller areas.

[10] The test for weak instruments (with clustered errors) is less conclusive in our case. The Kleibergen-Paap F statistic does not show up in the output of our estimations. However, even if this statistic was available, it is not clear in the literature if it could be compared with the Stock and Yogo tables showing the critical values of acceptance (Cameron and Miller, 2015).

this issue, we estimate the baseline model using the OLS method with outlier robust MM estimator proposed by Verardi and Croux (2009).The results presented in model 3 and model 4 do not differ significantly from those obtained by using the OLS method (model 5 and model 6 in Table 2). Finally, in model 5 and 6, we use the multilevel linear regression method to check the robustness of our results[11]. Results are similar to those obtained using the OLS method only for unemployment rate and its interaction with share of immigrants (model 5 in Table 2).

6. Conclusions

Whether and how a higher presence of immigrants in the area of residence affects individuals' perceptions of immigrants has been a matter of great interest, both to researchers and to policy makers. Studies that have dealt with this question have often based their explanations on contact and threat theories. They have asked: Does a higher presence of immigrants promote contact and, hence, mutual understanding and more positive attitudes? Or does it create feelings of threat associated with the development of different types of fears? However, and with some exceptions, these studies have often disregarded the complexities of the environment in which individuals live.

Using data from the European Social Survey (ESS7), in combination with aggregated data at the NUTS3 level, this study has set out to address this research gap. It explores whether the relationship between immigrant concentration and attitudes is conditioned by the socioeconomic characteristics of areas. To our knowledge, this is the first study that has addressed this research question from a cross-national perspective and with such low-level geographies. It is also one of the few that explores the conditionality by paying attention to the entire distribution, allowing therefore to know precisely in which socioeconomic contexts a certain type of relationship between immigrant concentration and attitudes hold.

We find that the relationship between attitudes towards immigration and immigrant concentration is conditioned by the socioeconomic status of areas. Specifically, an increase in the concentration of immigrants leads, on average, to more positive attitudes towards immigrants. However, this effect decreases in areas with poorer socioeconomic conditions. An important aspect of our findings is that these effects only apply when comparing areas with medium socioeconomic conditions to those with good socioeconomic conditions. In the most deprived areas (lowest GDP per capita, highest unemployment rate) an increase in the concentration of immigrants does not seem to exert an influence on attitudes (at least not from a statistical point of view).

From a theoretical perspective the results suggest, first of all, that contact theory is probably a suitable framework for explaining attitudes at the local level. In line with Weber (2015), who also uses NUTS3 geographies, we find a positive effect of immigrant concentration on attitudes. At the same time, the fact that attitudes become less positive as local socioeconomic conditions worsen might be an indication of threat explanations emerging. In other words, even if the effect of concentration on attitudes remains positive, a reduction in this effect indicates that the local socioeconomic context might put a threshold to the optimism regarding the presence of immigrants. Another important finding of this study is that in areas where one would expect threat mechanisms to occur to a greater extent – i.e. areas with the poorest socioeconomic conditions, where competition for public services and jobs is probably the highest – an increase of immigrants does not seem to influence attitudes. As argued before, this might be connected to how individuals are distributed in space and to what extent job segregation exists. It is nevertheless an outcome that would need further investigation.

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[11] This method is widely used in the literature for similar research questions. However, compared to OLS, this method makes stronger assumptions on the distribution of errors (Primo et al., 2007). Hence, as long as the main problem we want to address is the non-independence of errors at the NUTS3 level, we preferred to use OLS with clustering as a baseline method.

From a policy perspective, our work contributes to the vivid debate on the optimal settlement of incoming immigrants and asylum seekers. Policy research has often focused on the spatial distribution of immigrants and the impact this may have on a series of objective and subjective outcomes, both for the immigrants themselves and the wider society. Our work emphasizes that a policy promoting the spatial distribution of immigrants should consider the socioeconomic characteristics of the areas in which they will reside. Essentially, this study suggests that immigrants' location in areas that have higher socioeconomic resources might foster immigrants' acceptance by the native population and, therefore, be a good strategy for improving a society's social cohesion.

Appendix

Table A1. Questions on attitudes

	Response values (range 0-10)
Question 1 Would you say it is generally bad or good for [country]'s economy that people come to live here from other countries?	Bad for the economy (0) Good for the economy (10)
Question 2 Would you say that people who come to live here generally take jobs away from workers in [country], or generally help to create new jobs?	Take jobs away (0) Create new jobs (10)
Question 3 Most people who come to live here work and pay taxes. They also use health and welfare services. On balance, do you think people who come here take out more than they put in or put in more than they take out?	Generally, take out more (0) Generally, put in more (10)
Question 4 Would you say that [country]'s cultural life is generally undermined or enriched by people coming to live here from other countries?	Cultural life undermined (0) Cultural life enriched (10)
Question 5 Do you think the religious beliefs and practices in [country] are generally undermined enriched or by people coming to live here from other countries?	Religious beliefs and practices undermined (0) Religious beliefs and practices enriched (10)
Question 6 Is [country] made a worse or a better place to live by people coming to live here from other countries?	Worse place to live (0) Better place to live (10)
Question 7 Are [country]'s crime problems made worse or better by people coming to live here from other countries?	Crime problems made worse (0) Crime problems made better (10)

Source: ESS (2014) Appendix A7: Variables and questions

Table A2. Descriptive statistics of NUTS3 regions.

Country	Number of NUTS3	Average population per NUTS3	Min population	Max population
Austria	34	246422	31614	1713143
Czech Republic	14	741809	293630	1283322
Germany	170	276696	37879	3246990
Estonia	5	258843	125282	552801
Finland	19	279690	27794	1504007
Hungary	20	496389	202312	1726594
Ireland	8	565644	281610	1244673
Latvia	10	304339	110057	810392
Poland	59	644519	270755	1691446
Slovenia	12	170849	44222	533213
Spain	50	919384	81190	6419345
Sweden	21	447313	57215	2076271

Source: ESS 7

Table A3. Does the context condition the relationship between immigrant's concentration (EU 27 vs. Non-EU 27) and attitudes?

VARIABLES	Model (1) Atti	Model (2) Atti	Model (3) Econ	Model (4) Econ
Pmig EU27	-0.0157*** (0.00575)		-0.0191*** (0.00644)	
Pmig nonEU27		-0.00562 (0.00463)		-0.00748 (0.00513)
LogGDPpc	-0.00798** (0.00353)	-0.00782 (0.00525)	-0.00956** (0.00415)	-0.00817 (0.00579)
Pmig EU27*LogGDPpc	0.00192*** (0.000553)		0.00230*** (0.000618)	
Pmig nonEU27*LogGDPpc		0.000813* (0.000467)		0.000984* (0.000520)
Constant	0.369*** (0.0200)	0.378*** (0.0202)	0.422*** (0.0445)	0.407*** (0.0546)
Observations	16,634	16,634	16,804	16,804
R-squared	0.212	0.211	0.195	0.194

Dependent variable: Attitudes score. The estimation method used is OLS. All independent variables of Table 1 are included in the estimations. Country dummies included in the estimations. Error clustered at the NUTS3 level. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table A4. Definition of variables employed in the empirical analysis.

Variables Dependent variable	Definition	Source
Attitudes	Normalised scores of all 7 questions in Table A1. The alternative definition includes only the first 3 questions	ESS (2014)
Age	Number of years of the respondent	ESS (2014)
Female	Gender of the respondent (equal to 1 if female, 0 otherwise)	ESS (2014)
Parent foreign born	Dummy variable equal to 1 if the respondent has either the mother or the father born abroad, and 0 otherwise.	ESS (2014)
ISCED	7 dummy variables measuring the educational attainment of the respondent according to the ISCED classification.	ESS (2014)
ISEI	Continuous variable measuring the occupational status of respondents according to the ISEI 08 scale.	Ganzeboom and Treiman (1996)
Left, Centre, Right	3 dummy variables for the political orientation on respondents.	ESS (2014)
Employed, Unemployed, In education, Inactive	Dummy variables measuring the activity status of respondents.	ESS (2014)
City, City suburbs, Small town, Rural	Dummy variables capturing the typology of the area of residence of respondents.	ESS (2014)
ShareMig	Percentage of foreign-born individuals over the whole population of the NUTS3 area.	CENSUS (2011)
Unemployment	Percentage of unemployed individuals over the active population of the NUTS3 area.	National statistical offices (2011)
LogGDPpc	Logarithm of gross domestic product of the NUTS3 area.	National statistical offices (2011)

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