



What Determines Attitudes to  
Immigration in European Countries?  
An Analysis at the Regional Level

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## **Abstract**

Different disciplines within the social sciences have produced large theoretical and empirical literatures to explain the determinants of anti-immigration attitudes. We bring together these literatures in a unified framework and identify testable hypothesis on what characteristics of the individual and of the local environment are likely to have an impact on anti-immigration attitudes.

While most of the previous literature focuses on the explanation of attitudes at the individual level, we focus on the impact on regional characteristics (the local context). Our aim is to explain why people living in different regions differ in terms of their attitudes towards immigration. We isolate the impact of regions from regressions using individual-level data and explain this residual regional heterogeneity in attitudes with aggregate level indicators of regional characteristics. We find that regions with a higher percentage of immigrants born outside the EU and a higher unemployment rate among the immigrant population show a higher probability that natives express negative attitudes to immigration. Regions with a higher unemployment rate among natives however, show less pronounced anti-immigrant attitudes.

*JEL Classification:* F22; J15; J61; R19

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## 1. Introduction

Academic research in different disciplines of the social sciences (political science, psychology, sociology and economics) has a long history of attempting to understand what determines attitudes of majority populations towards immigrants and ethnic minority groups, and how they vary across countries (see Blumer 1958; Noel and Pinkney 1964; Blalock 1967). The first contribution of our paper is a structured summary of the main theories and empirical evidence that emerge from these different strands of literature.

The increase in negative attitudes to immigration in recent years, likely due to growing international migration, has continued to fuel the debate as both academics and policy makers have not yet reached a consensus on what drives natives to view immigration as threatening and why otherwise similar people living in different countries tend to vary greatly in their opinions, even after controlling for socio-economic differences (Raijman et al. 2003).

Most of the literature focuses on individual and household characteristics that influence anti-immigration attitudes. Country and regional characteristics are generally included using multilevel models, in which the heterogeneity in individual attitudes across countries and regions is included using fixed or random effects. Fewer studies focus on the role of national characteristics in shaping anti-immigration attitudes, and even fewer of them analyse the role of regions within countries. Regional science shows that there are important differences in economic performance across regions, and even within one country immigrants tend to cluster within few areas (Dustmann and Preston 2001; Longhi et al. 2005); such regional differences would be lost if, as the majority of the literature has done up to now, we compare countries instead of regions. Furthermore, people are likely to form their opinions about immigration by drawing on the local/regional environment where they live rather than on the average characteristics of their country, which is often geographically large. Paraphrasing Tobler's first law of geography (see e.g. Anselin 1988), we could say that immigrants living far away matter, but those living close by matter even more.

Schlueter and Wagner (2008) test the impact of the size of the immigrant population on anti-immigrant attitudes in European regions and find that between regions, a larger size of the immigrant population increases negative reactions but within regions, more immigrants increase intergroup contact and reduce immigrant derogation. However, Rustenbach (2010) finds that the size of the immigrant population and the regional GDP have no impact on attitudes, whereas national foreign direct investment and unemployment are associated with

less negative attitudes towards immigrants. These studies use aggregated data that are provided by official statistics and therefore may be of relatively limited relevance for the specific scope of their analysis.

In this paper we combine individual and aggregate data to analyse what may contribute to cross-country and regional differences in attitudes to immigration; in doing this we also analyse the relevance of theories explaining the formation of anti-immigration attitudes. Our analysis focuses on European countries at the regional level (NUTS1). Regions at NUTS1 level are much more similar in size than EU countries, thus making the comparison across regions more meaningful than comparisons across countries. Regions of this size remain large enough to minimise bias that might be due to self-selection in the location decisions of natives within smaller geographical areas (see also Dustmann and Preston 2001).<sup>1</sup>

Our second contribution is to the empirical literature, which mostly uses multilevel models. We use a different modelling technique which helps us focus on the explanation of regional differences in anti-immigration attitudes. We use the European Social Survey (ESS) to estimate models at the individual level which include individual and household characteristics and a full set of region-time dummies capturing the residual impact of regional characteristics on natives' anti-immigration attitudes. We then explain these regional differences in the probability of expressing anti-immigration attitudes by regional characteristics, which are computed using individual data from the EU Labour Force Survey (LFS). This allows us to overcome the problem of biased standard errors in individual level models including aggregate characteristics (Moulton 1990).

Our third contribution is the use of individual level data (the EU LFS) for the construction of indicators of regional characteristics. While the previous empirical literature has relied on aggregated indicators published by e.g. Eurostat, by using the EU LFS we are able to compute regional characteristics that are more relevant for our hypothesis testing. For example, we are able to compute separate indicators for immigrants born within and outside the EU, we can include separate indicators for unemployment rates of natives and immigrants, as well as indicators of the share of natives and immigrants with different qualification levels.

We find that a larger percentage of immigrants in the region is associated with higher anti-immigration attitudes, but once we disaggregate the percentage of immigrants born within and outside the EU, results indicate that such reactions are mostly driven by the percentage of non EU immigrants. In agreement with Rustenbach (2010), higher regional

unemployment among natives is associated with more positive attitudes, although an increase in the unemployment rate of immigrants is associated with an increase in anti-immigration attitudes. Larger percentages of both natives and immigrants with low-level qualifications decrease anti-immigration attitudes.

## **2. Previous Literature on Attitudes towards Minorities**

### *2.1. Theories on Attitudes Formation*

Attitudes towards ethnic minorities and immigrants have been the focus of studies related to intergroup relations for many years. The issue of intergroup relations arises from the identification of one's identity and consequently from the line that separates and defines the boundaries between who is a native or part of the majority, and who is a foreigner or member of a minority. The identity of the minority groups can be formed around many characteristics. The differentiating factors can be race, language, or religion, which are highly correlated, but not limited, to specific countries and regions of origin of the immigrants. Other factors may be citizenship and nationality directly. Especially in the case of old colonial countries such as the UK and France and immigrant nations like the US, many earlier immigrants have now become citizens or are second or third generation "immigrants"; nevertheless, they are often still perceived as a minority out-group.

Theories on the formation of attitudes towards out-groups can be divided into two strands: the first strand includes social-psychological, affective or ideological explanations (e.g. Chandler and Tsai 2001; Hodson et al. 2009; Cohrs and Stelzl 2010; Duckitt and Sibley 2010), and the second includes rational-based group and labour market competition theories (e.g. Turner 1986; Slaughter and Scheve 2001; Scheepers et al. 2002; Tolsma et al. 2008; Schneider 2007).

Social-psychological explanations suggest that the starting point of conflict between groups is the need to be different and categorise people, while the driving force which leads to conflict between groups is an instinctive drive for social dominance (Krysan 2000). Social identity theories argue that people's sense of who they are stems from what groups they belong to or identify with (Sniderman et al. 2004). This identification often leads to in-group favouritism and a sense of group superiority which, when accompanied by a mentality of group dominance, results in generalisations about sets of negative group traits, usually referred to as stereotypes (Herbst and Glynn 2004). Stereotypes develop because they reinforce differentiation with members of the other group, they create extra boundaries

between groups and make it more difficult for members to shift sides. Analyses focusing on group identity find that contact with a minority group triggers a defensive reaction and feelings of threat (Krysan 2000; Quillian 1996). Perceived threat is then translated into an irrational antipathy which is accompanied by faulty generalisations such as prejudice, or an overreaction about the negative consequences of immigration (Quillian 1996; Kónya 2005; Pehrson and Green 2010).

Another psychological proposition about attitude formation focuses on the type of personality of the respondent, his or her emotional state and view about his or her own self (Hodson et al. 2009; Christ et al. 2010; Duckitt and Sibley 2010). This approach argues that an individual's personality affects basic processes of perception and judgment, which are inherent in the formation of attitudes. Perception of one's self might alter the level of political awareness, the interpretation of political stimuli and the interrelation of ideas. Thus, low self-esteem and anxiety can trigger a negative defensive reaction towards minority groups (Sniderman and Citrin 1971).

Rational explanations of attitudes towards out groups build upon the calculation of material and non-material costs and benefits for the native population, both at the aggregate and individual level (Citrin et al. 1997); the driving force behind the formation of an individual's attitude towards immigrants is essentially a cost-benefit analysis (Hempstead and Espenshade 1996). Costs and benefits might be either objective or perceived, but it is their evaluation which shapes an individual's negative or positive predisposition towards immigration. Such costs and benefits might be centred around an individual's interest, in respect to his or her personal characteristics, or the interests of the group he or she belongs to. Previous literature refers to those interests in many ways: some might derive from individual personal circumstances, such as labour market status and occupation, gender, age and income; others might be broader and include more general and sociotropic evaluations of interest resulting from a broader sense of community or national "good" (Oskamp and Schultz 2005). The utilitarian assumption is that people have an instinctive drive to be better off and since all these 'goods' come in limited amounts, their allocation across groups is what causes conflict (Citrin et al. 1997; Hempstead and Espenshade 1996). Conflict differentiates and separates individuals while placing them in distinct groups that in turn have distinct group interests. Theories that provide rational interest explanations for anti-immigration attitudes, such as realistic conflict (Bobo 1983), deprivation theory (Citrin et al. 1997) and labour market competition theories (Bonacich 1972), consider cost and benefit along with group interests as the key causal mechanisms leading to anti-immigration attitudes.

## *2.2. Empirical Implementation*

Attitudes towards minority groups can be classified into three groups: cognitive, affective, and behavioural (Kourilova 2011). The cognitive part, which relates to stereotypes, is captured in surveys by questions on how the respondent perceives minorities in terms of, for example, their intelligence, work ethic, propensity to commit crime (Burns and Gimpel 2000), or willingness to adapt to the customs of the host country (McDaniel et al. 2011). The affective part relates to prejudices and is captured in surveys by questions on whether the respondent is e.g. opposed to interethnic marriage, or is unwilling to socialise or work with people from the minority group (Tolsma et al. 2008). The behavioural part relates to discrimination and in surveys is captured by questions on the respondent's preferences to limit the population of a particular minority or to restrict certain employment, welfare or citizenship rights for the members of the minority (Raijman et al. 2003; Coenders et al. 2009; Levanon and Lewin-Epstein 2010).

Other questions that have been implemented in surveys refer to how respondents perceive the consequences of immigration in terms of taxes, availability of jobs, services, culture and so on (McDaniel et al. 2011). Since 2001, many survey questions also refer to government anti-terrorism policies which indirectly affect immigrants and minorities within countries that have been directly affected by terrorist attacks such as the US, Spain, and the UK (Kossowska et al. 2011).

While the questions related to stereotypes apply to minority groups that can be identified either by ethnicity or immigration status, the questions related to prejudices apply mostly when the minority group is defined by ethnicity. On the other hand, questions related to discrimination in political and employment rights only make sense when the minority group is defined by immigration status. In most empirical studies, however, there is no clear distinction between immigration status and ethnicity. Many papers that focus on attitudes towards immigrant rights use racial prejudices and stereotypes as a predictor for opposition to immigrant rights (Burns and Gimpel 2000; Raijman et al. 2003). For the United States, the literature focuses on attitudes towards specific ethnic groups and countries of origin, such as Hispanics, Blacks, Asians and Arabs, regardless of citizenship status (Berg 2009; Lyons et al. 2010). In studies of attitudes of Europeans on the other hand, the focus is placed mostly on immigration, sometimes with the conditional influence of the race and culture of the immigrants in question (e.g. Scheepers et al. 2002; Schneider 2007; Schlueter and Wagner 2008; Green et al. 2010; Pehrson and Green 2010; Rustenbach 2010; Gorodzeisky 2011).

Because of the data used, here we only focus on immigration status and leave the issue of ethnicity – and its relation with immigrant status – for other research (e.g. Markaki 2012).<sup>2</sup>

### *2.3. Empirical Findings: Individual and Household Characteristics*

In terms of individual characteristics, some studies find that gender differences in racial attitudes are small and limited mostly to attitudes to racial policies (e.g. Hughes and Tuch 2003), although some find that women are more opposed to immigrants than men (Hainmueller and Hiscox 2007). On the other hand, with regards to border control policies in the US, men appear to be more isolationists than women (e.g. Hempstead and Espenshade 1996). Recent studies have also shown that women seem to be more concerned than men about the social integration and economic assimilation of illegal immigrants (Hughes and Tuch 2003; Berg 2010; Correia 2010; Amuedo-Dorantes and Puttitanun 2011). Women also appear to have more exclusionary reactions to immigrants coming from poor countries in Europe (Gorodzeisky 2011) and to report feeling higher levels of economic threat from immigration, while men seem to be more prone to feelings of cultural threat (Pichler 2010).

Age appears to have a small and often statistically insignificant effect when all other causes are accounted for (Hempstead and Espenshade 1996; Hainmueller and Hiscox 2007). When age exerts significant influence, it is always positively correlated to prejudices and anti-immigration attitudes (Hempstead and Espenshade 1996; Burns and Gimpel 2000; Pichler 2010). Altogether, older individuals are more likely to support exclusion of out groups (Gorodzeisky 2011).

More educated individuals are less likely to express prejudice, negative stereotypes towards minorities and racism; they seem to be more favourable to immigrants regardless of their origin or skill level, and less likely to evaluate immigration as having a negative effect on culture, crime or the economy (Herrerros and Criado 2009). In the literature this is explained in two ways. First, according to the labour market competition theory, since immigrants mostly work in low-skilled manual jobs, they are likely to be complement – rather than substitute – to highly educated natives (e.g. Bonacich 1972; Bogard and Sherrod 2008; Hainmueller and Hiscox 2010). Second, the link between education and attitudes is rooted in the fact that educational systems tend to promote acceptance of different cultural values and beliefs (Hainmueller and Hiscox 2007).

Consistent with rational competition theories, employment status and income have been shown to be crucial predictors of attitudes to minorities. Unemployed people and blue collar workers are more likely to support the restriction of immigration from poorer countries



since these types of immigrants are more likely to be low-skill workers and more likely to compete with unemployed and blue-collar native workers (Gorodzeisky 2011). Individuals working in highly skilled occupations have been found to be less prejudiced towards out groups (e.g. Noel and Pinkney 1964).

In terms of psychological status, 'dark' personalities (i.e. the so-called Dark Triad of narcissism, Machiavellianism and psychopathy as subclinical personality traits discussed by Hodson et al. 2009) have been shown to be more likely to express prejudice and fears of threat from immigration, while social participation and community engagement tend to decrease prejudice and negative reactions (e.g. Noel and Pinkney 1964).

That part of the literature concerned with cultural distance and opposition to ethnic intermarriage has shown that people who have strong family networks are more resistant to ethnic intermarriage. This supports the idea that family cohesion promotes interactions with culturally similar persons, and that people from different cultural backgrounds can be seen as threatening the cultural identity of one's own group (Huijnk et al. 2010). In addition, opinions towards ethnic diversity have been found to be highly correlated with intergroup relations (McIntosh et al. 1995; Thomsen et al. 2008; Cohrs and Stelzl 2010; Duckitt and Sibley 2010; Morrison et al. 2010).

As mentioned above, in many cases negative attitudes towards ethnic minorities and stereotypes towards specific ethnic groups are used as a predictor of anti immigrant or restrictionist views: people who hold strong negative stereotypes towards different ethnic groups in relation to their work ethic or predisposition to violence are more likely to prefer restricting immigration in the host country (Burns and Gimpel 2000; Golebiowska 2007; Pearson 2010). Similarly, threat to cultural values seems to drive more opposition to immigration than economic threat such as possible negative impacts of immigration on employment or wages (Schneider, 2008). More recent studies have focused on the role of multiculturalism in the formation of national identity and intergroup relations. Multiculturalism, as the acknowledgement and appreciation of racial and ethnic differences, may generate both negative and positive reactions: some members of the dominant group perceive it as a threat to national identity while others perceive it as an encouragement to decrease prejudice (Morrison et al. 2010). Studies that have tried to reconcile this contradiction have found that multiculturalism increases perceptions of threat mostly among individuals with a strong national identity (e.g. Verkuyten 2009; Morrison et al. 2010).

#### *2.4. Empirical Findings: The Local Context*

The theories summarised in the previous sections also suggest that, besides individual characteristics, the local context is crucial when thinking about attitudes towards minorities and immigrants. The type of neighbourhood, area, city, region or country where an individual lives determine how many and what kind of immigrants or ethnic minorities he or she meets every day: the environment around the individual creates a filter which may condition the perceptions of the minority groups (Middleton 1976; Studlar 1977; Stein et al. 2000). Borjas (1999) has found that the perceived impact of immigration on the labour market depends on the health of the economy in the host country as well as on how the native workforce compares with the immigrants in terms of skills and the size of the groups. Analyses of contextual influences on attitudes towards immigrant and minority groups have suggested two main explanations, which lead to opposite predictions: intergroup competition and intergroup contact theories. Intergroup competition argues that natives and immigrants compete for scarce resources and privileges: the scarcer these resources and the larger the immigrant group, the bigger the threat (Quillian 1995; Rowthorn and Coleman 2004). Intergroup contact theories argue that regular contact between the two groups eases tensions and reduces prejudice and exclusionary views because the groups are more likely to become familiar with each other and develop relationships that would counteract stereotypes and feelings of threat (Berg 2009).

Empirical studies analysing these theories incorporate aggregate level data in their models. According to both theories, two basic aggregate sources of threat should be included in the model: the economic circumstances of the area and the size of the minority group relative to the native population (Stein et al. 2000). While intergroup contact theory predicts that higher concentrations of immigrants and exposure to an ethnically diverse environment will foster more positive feelings between the two groups (Marschall and Stolle 2004), intergroup conflict theory predicts the opposite effect.

Empirical findings remain contradictory but more recent studies have found that other contextual factors have an influence on the way contact between the groups results in either increased or decreased conflict. Higher concentrations of minority groups in prosperous areas, high status of natives and less segregated neighbourhoods lead to more positive relations (Branton and Jones 2005) while high concentrations of minorities in troubled and poor areas foster feelings of threat and increase conflict (Verkuyten et al. 2010; Vezzali et al. 2010; Vezzali and Giovannini 2011). These conditioning effects seem to hold for analyses at different geographical levels.

The preferred geographical level for this type of analysis depends on the focus of the study. Cross-national comparisons are broader in scope but may suffer from data incompatibilities and lack of detail; analyses at smaller geographical levels may be more comprehensive but less robust. Studies using contextual influences in municipalities, neighbourhoods and urban areas test both conflict and contact theories (e.g. Burns and Gimpel 2000; Rocha and Espino 2009) and find similar results as studies using countries and regions (Schlueter and Wagner 2008; Mirwaldt 2010).

Since Quillian's (1995) first cross-national study of attitudes towards immigrants, there have been numerous analyses focusing on country comparisons (Pettigrew 1998; Scheepers et al. 2002; Mayda 2006; Semyonov et al. 2006; Weldon 2006; Hainmueller and Hiscox 2007; Meuleman et al. 2009; Pichler 2010; Rustenbach 2010). Most of these studies test aggregate sources of competition at the regional and/or national level. Some find that a larger immigrant population increases both intergroup contact and perceived threat across regions, but also that intergroup contact reduces threat within regions (Schlueter and Wagner 2008). Schneider (2007) finds that the percentage of low-educated immigrants over the whole population has no effect on feelings of ethnic threat from immigration, while the percentage of non-western immigrants increases it. All studies agree that differences across countries and regions in the perception of ethnic threat are statistically significant and need to be accounted for, most often with the use of multi-level random or fixed effects models. Multi-level estimations focus on explaining attitudes at the individual-level while allowing for effects to vary across regions and/or countries in which individuals live. However, these estimations incorporate the heterogeneity across countries and regions rather than explain it. We address this gap in previous research by isolating the variation in anti-immigration attitudes across regions and explain it by aggregate measures of the regional context.

Finally, it has been shown that perceptions of the size of the out group have a stronger influence on attitudes than actual size does (e.g. Herda 2010). Respondents asked to estimate the percentage of immigrants in their country often overestimate the number of immigrants as much as 7 times, and negative reactions were largely influenced by this misconception rather than by the actual size of the out-group (Alba et al. 2005; Brade et al. 2008; Boomgaarden and Vliegenthart 2009).

It is clear that a large number of individual and regional characteristics are likely to play a role in shaping individual attitudes to immigration and cross-regional differences in such attitudes. In the next section we present our modelling strategy to explain cross-national and cross-regional differences in attitudes to immigration.

### **3. Data and Measurement**

#### *3.1. Individual-Characteristics*

The first part of our analysis uses individual data from the European Social Survey (ESS), which is a repeated cross sectional household survey focusing on attitudes but also including background demographic and labour market characteristics of respondents. The ESS started in 2002; data are collected at two-year intervals and cover up to 33 countries (see [www.europeansocialsurvey.org](http://www.europeansocialsurvey.org) for more details). In our analysis we use four rounds of data (2002, 2004, 2006, and 2008) and include respondents from 111 regions of 24 European countries (see Table 1). Table 1 shows the total number of valid observations for each of the 24 countries over the four rounds; the minimum and maximum number of observations by region and round within each country; the classification of regional boundaries used and the round in which the country participated in the ESS survey. Although most countries participated in all four rounds, we also keep those who participated only in some rounds; in some cases we exclude those rounds for which the data are not comparable with the EU LFS, which we use to compute the regional aggregates. For most countries we use regions at NUTS1 level, but we use NUTS2 in those cases where NUTS1 regions are too large geographically.

TABLE 1 ABOUT HERE

Anti-immigration attitudes are operationalised using three questions that ask respondents on a scale from 0 to 10 to evaluate immigration as being bad or good for the country's economy, which we call economic threat; as undermining or enriching the country's cultural life, which we call cultural threat; and as worsening or improving life in the country, which we call overall threat. We recode the ten-point scales into binary variables with the value one given to those who answer 0-4 (immigration is bad for the economy; undermining cultural life; worsening life in the country) while a value of zero is given to those who answer 5-10 (immigration is good for the economy; enriching cultural life; improving life in the country).

#### *3.2. Regional Characteristics*

Most of our aggregate indicators at the regional level are computed from the EU LFS, which

is a large sample survey of households providing quarterly data on individual characteristics of people aged 15 and over, with a focus on labour market activities (see <http://epp.eurostat.ec.europa.eu> for more details). The EU LFS is conducted in 33 countries, including all EU countries included in the ESS. We use the annual individual-level dataset with design and population corrective weights to compute aggregates at the regional level and separately for the different years of the ESS.

As already mentioned, conflict theory predicts anti-immigration attitudes to increase with immigrant group size, while contact theory expects diversity to promote familiarity and tolerance (Stein et al. 2000; Schlueter and Scheepers 2010). We test these theories by including in the models the percentage of immigrants over the whole population; and the percentages of immigrants born within and outside the EU to account for regional diversity in inter-group contact. There are clear differences in immigration across countries: while in most eastern European countries the proportion of immigrants is less than 2.5% in most western European countries the proportion of immigrants is around 7-10%.<sup>3</sup>

Since the literature suggests that regional job scarcity can trigger negative reactions to immigration due to labour market competition between natives and immigrants (Rustenbach 2010), we include in the models regional (ILO) unemployment rates for natives and immigrants. In almost all regions the unemployment rate among immigrants is higher than among natives. Labour market competition theories also suggest that highly skilled immigrants would provoke negative reactions in regions with highly skilled natives and vice versa (Gorodzeisky 2011), although social capital and contact theories would suggest that high education in either group will foster more positive reactions to immigration altogether (Herrerros and Criado 2009). To analyse these theories we compute the percentage of economically active immigrants and natives with high and low qualifications. In most countries the distribution of qualifications among immigrants is different than among natives, immigrants are polarised in terms of their qualification levels, with immigrants more likely to have either low or high, but not mid-level, qualifications.

Besides aggregate indicators computed using the EU LFS, we also include in our models aggregate measures collected from other sources. As suggested by previous literature, the overall performance and health of the economy in a given country can provide an indication of available resources as well as the potential capacity of the economy to integrate a growing workforce, and thereby might have an impact on the way the effects of immigration are being perceived (Quillian 1996). We include in our models the annual regional economic growth rate, which we compute using the regional GDP per capita

published by Eurostat. We prefer to use the growth rate rather than the GDP per capita (e.g. Rustenbach 2010) because of its focus on the annual performance of the regional economy rather than its initial capacity and because the growth rate is less dependent on the size of the economy and more likely to be comparable across countries and regions.

Recent research has shown that natives tend to over-estimate the size of the immigrant population in their country and suggests that this “innumeracy” – rather than the actual size of the immigrant population – is what drives negative reactions to immigration (Herda 2010). Round 1 of the ESS asks respondents to give an estimate of the percentage of immigrants in their country. We assume that people’s estimation of immigration in their country is likely to be informed by their perception of the number of immigrants living in their region. Therefore we compute the mean estimation within each region by aggregating the initial individual-level variable. We then compare the perceived (ESS) to the actual (EU LFS) proportion of immigrants and compute a dummy that takes a value of one if the difference between perceived and actual proportion of immigrants in the region is larger than 9% and zero otherwise. Since this question is asked only in round one, we assume that the average estimation of the proportion of immigrants does not change over time; however, we compare it with the actual proportion of immigrants computed from the EU LFS for each of the ESS rounds. Hence, the overestimation dummy may vary over time. For those countries that did not participate in round one we have no way to compute the overestimation dummy and we therefore always set it to zero (no overestimation). Because this variable may be seen as quite controversial, we run extensive sensitivity analyses around it (see Section 5.3).

#### 4. Modelling Strategy

We analyse cross-regional differences in anti-immigration attitudes using a two-step model similar to Bell et al. (2002). We model the probability that individual  $i$  expresses anti-immigration attitudes via the latent variable  $A_{irt}^*$ :

$$A_{irt}^* = X'_{irt}\beta + D_{rt} + \varepsilon_{rt} \tag{1}$$

The respondent expresses negative attitudes towards immigration if  $A_{irt}^*$  is greater than zero. However, what we observe are the three binary variables discussed in Section 3.1: economic threat, cultural threat and overall threat. We assume that  $\varepsilon_{rt}$  are i.i.d. and follow a multivariate normal distribution and estimate three separate probit models.

Since our focus is on natives' attitudes towards immigrants, we exclude non-natives. We include ethnic minorities and second generation immigrants but include controls for belonging to an ethnic minority and for having one or both parents born abroad. The other explanatory variables we include in  $X'_{irt}$  are dummies for individual characteristics such as gender, age group, activity status, whether has supervisory duties in the job, whether member of a union, whether has a job contract that is of unlimited duration as a proxy for job security, education level, and occupation (occupation is available in the ESS for both employed and unemployed respondents). We also include dummies for the region of residence (individuals are asked to classify the area where they live as a 'big city', as a 'suburb of a big city' or as a 'rural area', in comparison to a 'small city' and 'town'), and for evaluations of the economic situation (one dummy for those who are dissatisfied with the current state of their country's economy and one dummy for those who find it difficult to cope on their current income).

The models also include a full set of region-time dummies  $D_{rt}$  that refer to the respondents' region ( $r$ ) and round ( $t$ ) to capture remaining differences across regions and over time in the probability of expressing anti-immigration attitudes. The  $D_{rt}$  dummies are negatives for those regions-years in which anti-immigration attitudes are lower than what we would expect given the individual characteristics included in the model (i.e. given the socio-demographic composition of the regional population), and positive for those regions-years in which anti-immigration attitudes are higher.

In the second step we use the region-time dummies  $D_{rt}$  as dependent variables of an aggregated-level model. We model these regional differences in average residual anti-immigration attitudes ( $D_{rt}$ ) as estimated from equation (1) by aggregate level measures of regional conditions:

$$D_{rt} = \alpha + E'_{rt} \gamma + \eta_{rt} \tag{2}$$

where  $E'_{rt}$  include the percentage of immigrants (either overall or by country of origin, EU, non-EU); the percentage of unemployed among natives and among immigrants; the percentage of natives and of immigrants with low and with high qualifications; the annual growth rate of GDP and the dummy identifying those regions where natives tend on average to overestimate the proportion of immigrants. Since equation (2) is a linear model, we estimate it using OLS.

## 5. Empirical Results

### 5.1. Differences across Individuals

The results of the estimation of equation (1) are in Table 2 and are in line with expectations. Older people, those who are retired, those with less than lower secondary education, those working in elementary occupations and those who are dissatisfied with the current state of the economy or have difficulties coping on their current income are more likely to have negative views about immigration. Those with higher levels of education, those working in jobs with supervisory duties and those working as managers and senior officials are more likely to view immigration as positive. In line with labour market competition theories, individuals in paid work or unemployed are more likely to evaluate immigration as threatening, compared to those who are economically inactive.

Union members are less likely to report feeling any kind of threat; this may be due to intra-class solidarity or may be encouraged through anti-prejudice campaigns increasingly organised by unions in recent years. We find that people living in big cities are less likely to view immigration as harmful, whereas respondents living in rural areas are more prone to express feelings of threat. If big cities attract more immigrants looking for work and if higher population density promotes inter-group contact, these findings are in agreement with contact theory.

#### TABLE 2 ABOUT HERE

The models also include a full set of region-time dummies ( $D_{rt}$ ). The number of dummies is not the same across the three models because some were dropped due to collinearity, possibly due to small sample size within particular regions and rounds. The  $\chi^2$  tests at the bottom of Table 2 show that these dummies are jointly statistically significant, which suggests that there are residual – non-random – differences in anti-immigration attitudes across regions and over time that we cannot explain using the individual level variables.

The distribution of the region-time dummies is shown in Figure 1. In most cases the residual impact of the region-time dummies is relatively small, and the slight differences between the three distributions suggest that the contribution of the individual characteristics to the explanation of anti-immigration attitudes depend on the specific dependent variable we focus on.



## FIGURE 1 ABOUT HERE

Figures 2 3 and 4 geographically map the estimated region-time dummies in 2008 across the three measures of anti-immigration attitudes. Native respondents in regions shown in darker colours have higher estimated values in the  $D_{rt}$  dummies compared to those in regions with a lighter shade, after controlling for individual and household level characteristics. With few exceptions, anti-immigration attitudes vary widely, not only across regions of the same country but also across the three types of attitudes. For example, native respondents living in eastern regions of Poland are less likely to express feeling that immigration represents a threat to culture than what we would expect once controlling for individual characteristics, whereas the opposite is found for those living in central Europe. Similarly, those living in three regions in the northeast of Spain are less likely to express feelings of economic threat from immigration, compared to those in the neighbouring region of Cantabria and in Catalonia. These differences are reversed however, in the case of feelings of threat to the quality of life in the country.

## FIGURE 2, 3 AND 4 ABOUT HERE

This heterogeneity might be due to historical and cultural differences across regions and countries but may also be a response to regional variation in resources and in immigration. We address this question in the next section.

### *5.2. Differences across Regions*

The results of the estimation of equation (2), in which we model the region-time dummies as a function of regional factors, are shown in Table 3. The models in Columns (1) include the percentage of the immigrant population among the explanatory variables, while the models in Columns (2) distinguish between EU and non-EU immigrants. The table shows that the percentage of immigrants in the region has a small but statistically significant positive effect for economic, cultural and overall threat. A one percentage point increase in the percentage of immigrants in the region increases feelings that immigrants represent an economic threat by 1%, that they represent a cultural threat by 1.2%, and that they are a threat overall, by 1.5%. However, when we separate EU from non-EU immigrants the results suggest that it is the percentage of non-EU rather than EU immigrants that increases anti-immigration

attitudes. A one percentage point increase in the regional percentage of non-EU immigrants increases concerns over the impact of immigration on cultural life and life overall by 2.5% and on the economy by 1.8%.

A one percentage point increase in the unemployment rate of natives decreases feeling that immigrants represent a threat to the economy by 1%, to culture by 2% and to the overall quality of life by 2.2%. This is consistent with previous research showing that both the regional and national unemployment rates decrease anti-immigrant attitudes (Rustenbach 2010), although unemployment rates of immigrants and natives have opposite associations with attitudes. A one percentage point increase in the regional unemployment rate of immigrants increases concerns about the overall quality of life by 0.8%, suggesting that natives' concerns might be related to the economic situation of immigrants and whether they fare relatively well, thus not becoming an additional burden to the host country.

The percentages of highly qualified and economically active immigrants are not statistically significant, whereas a one percentage point increase in the percentage of natives who have high level qualifications reduces feelings of economic threat by about 1%. In contrast with labour market competition theories, a one percentage point increase in the proportion of natives with low level qualifications reduces feelings of economic threat from immigration by 0.5%. The same is found for the percentage of immigrants who have low-level qualifications. The regional growth rate does not appear to have any statistically significant impact on feelings of threat from immigration.

### TABLE 3 ABOUT HERE

The overestimation dummy consistently shows the largest coefficient in all models. Feelings that immigrants represent a threat are between 34 and 42% higher in regions where natives significantly overestimate the presence of immigrants.

### *5.3. Sensitivity Analysis*

Different econometric methods can be used to estimate the impact of individual, household, and regional characteristics on anti-immigration attitudes. In this paper we use a two-stage approach to estimate the impact of the regional characteristics; however, it is also possible to estimate the impact of both individual and aggregate level characteristics together in one stage rather than two by estimating individual level probit models with standard errors clustered by region and round. The results of these models are consistent with the findings

discussed in the main analysis, although one notable change relates to the impact of the economic growth in the region, which now seems to increase the probability that the respondent thinks that immigrants are a threat to the country's culture and quality of life. The inclusion of country dummies in these models, as expected, weakens the impact of the other regional characteristics, which remain statistically significant in the models analysing economic threat, but become statistically insignificant when estimating the propensity of native respondents to express feelings of threat to culture and life overall. This may suggest that differences across countries are likely to be more important than differences across regions in shaping fears that immigrants represent a threat to culture and life overall, while regional characteristics within each country are still relevant when discussing fears that immigrants represent a threat to the economy.

When these one-step models are estimated using OLS rather than probit the results change only little. The impact of the percentage of immigrants in the region is no longer statistically significant across the three dependent variables although the effect of the percentage of immigrants born outside the EU remains unchanged. The impact of economic growth in the region appears to increase feelings that immigrants are a threat to culture and life overall.

As discussed in section 4, for ease of interpretation we have recoded the original ESS dependent variables from a 10-point scale into binary variables. If we estimate the one-stage models using the original – rather than recoded – variables by means of OLS we find little differences in our results.

When we estimate our two-stage models, the dependent variables in the second stage – the residual effects represented by the estimated region-time dummies  $D_{rt}$  – represent effects that are estimated and may therefore be affected by measurement error, as we use the mean predicted effects and do not account for standard errors in their estimates. This may result in biased standard errors in the second stage models and may therefore lead to wrong inference. When we estimate the standard errors in the second stage models using bootstrap with 1,000 replications, our results remain unchanged. However, when we add country dummies in the second stage models, as expected almost all aggregate variables lose statistical significance, with the exception of the impact of the percentage of immigrants born outside the EU which remains a relevant predictor.

As already mentioned, the overestimation variable we use in our analysis is computed using ESS data (i.e. on a relatively small sample size), is available only for the first round and is not available for all countries. If we exclude this variable from the models most variables

remain unchanged with the exception of the measure of economic growth, which becomes negative and statistically significant. If we include overestimation as the difference between the regional average estimation of the percentage of immigrants and the regional percentage of immigrants computed from the EU LFS our results remain unchanged with the exception once again of the measure of economic growth, which becomes negative and statistically significant. If we compute the overestimation dummy at the country rather than at the regional level we find no major differences in the estimated effects of the regional variables apart from the impact of the percentage of immigrants born outside the EU, which becomes statistically insignificant.

In summary, our results are rather robust to changes in the model specification with the only exception of the measure of economic growth which varies its sign and statistical significance.

## **6. Conclusions**

In this paper we discuss the theoretical and empirical contributions to the literature on anti-immigration attitudes that have been proposed by different disciplines within the social sciences. We then empirically analyse differences in natives' anti-immigration attitudes across 111 regions of 24 European countries between 2002 and 2008 using individual level data from the European Social Survey and indicators of regional conditions computed from the EU Labour Force Survey. We measure anti-immigration attitudes by means of three measures that ask respondents to evaluate the impact of immigration on the country's economy, on culture, and on the quality of life overall. We control for individual and household level characteristics and isolate the residual impact of the region in native respondents' anti-immigration attitudes. We then explain the residual regional heterogeneity in attitudes with aggregate level measures of regional conditions that relate to population composition, economic performance, labour market and skills.

Rather than only analysing individual determinants, we use a two-stage estimation approach which helps us focus the analysis on the explanation of regional heterogeneity in attitudes. Furthermore, by computing the regional variables from the individual level dataset of the EU Labour Force Survey rather than relying on aggregate data, we are able to test new hypotheses on the impact of the regional context on anti-immigration attitudes. This allows us for example to account separately for immigrants born within and outside the EU, to

include unemployment rates of natives and immigrants, as well as proportions of natives and immigrants with low and high level qualifications.

Our findings suggest that an increase in the regional unemployment rate of immigrants and the percentage of immigrants born outside the EU are both associated with increased concerns in the population over the impact of immigration on the country. However, an increase in the regional unemployment of natives is associated with a decrease in feelings of threat from immigration. We also find that higher proportions of both natives and immigrants with low-level qualifications are associated with lower feelings of economic threat from immigration, while anti-immigration attitudes are significantly higher in regions where natives on average overestimate the level of immigration. Our findings thus contradict hypotheses based on economic competition and in particular, employment competition within the low-skilled, manual workforce. They also suggest that differences in anti-immigration attitudes across regions in Europe may not be as closely related to the current economic conditions of the region, as they might be driven by concerns over the conditions of the immigrant population in that region, in addition to an overall inflated estimation of the extent of immigration.

Finally, our empirical results indicate the need for future research to account for local conditions separately for natives and immigrants and for EU and non-EU immigrants, since their associations with anti-immigrant attitudes appear to diverge.

## Notes

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<sup>1</sup> It is possible that natives that are more likely to view immigrants as a threat are also more likely to move to neighbourhoods where fewer or no immigrants live, while natives who are more likely to have pro-immigrants attitudes are more likely to move to areas where the share of immigrants is higher. If this is the case, the correlation between anti-immigration attitudes and the share of immigrants is likely to be underestimated. Dustmann and Preston (2001) argue that this bias is unlikely to happen in larger regions (roughly NUTS1) and suggest using the share of immigrants in larger regions as an instrument for the share of immigrants in smaller regions (NUTS2 or NUTS3).

<sup>2</sup> This issue can be analysed by focussing on one country, such as the UK, with detailed data on both ethnicity and immigrant status. However, this would not allow cross-country comparisons.

<sup>3</sup> The aggregate figures discussed in Section 3.2. are not shown here, but are available on request.

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## Tables and Figures

Table 1. European Social Survey sample sizes

Country	Observations	Min	Max	ESS Round	Number of Regions	NUTS Level
Austria	4171	285	608	123	3	NUTS2
Belgium	4693	267	834	1234	2	NUTS1 <sup>a</sup>
Bulgaria	2264	91	372	34	6	NUTS2
Cyprus	1291	601	690	34	1	NUTS1
Czech Republic	3751	704	1620	12 4	1	NUTS1
Germany	8065	9	367	1234	16	NUTS1
Denmark	4666	1135	1195	1234	1	NUTS1
Estonia	2916	820	1145	234	1	NUTS1
Spain	4124	4	301	1234	16	NUTS2 <sup>b</sup>
Finland	6517	1534	1762	1234	1	NUTS1
France	3015	103	480	1234	7	NUTS1 <sup>c</sup>
United Kingdom	6305	41	273	1234	12	NUTS1
Greece	2909	62	429	12 4	4	NUTS1
Hungary	4142	230	463	1234	3	NUTS1
Ireland	4646	251	1112	1234	2	NUTS2
Italy	1362	66	192	12	5	NUTS1
Luxembourg	1270	532	738	12	1	NUTS1
Netherlands	5759	1284	1713	1234	1	Country
Norway	5580	1221	1588	1234	1	Country
Poland	3213	20	161	234	16	NUTS2
Portugal	4391	24	572	1234	5	NUTS1 <sup>d</sup>
Sweden	5534	1322	1446	1234	1	Country
Slovenia	3428	335	546	1234	2	NUTS2
Slovakia	3194	245	602	234	3	NUTS2 <sup>e</sup>
Total	97208				111	

a) Bruxelles merged with Vlaams Gewest; b) Ceuta, Melilla and Canaria excluded; c) City of Paris merged with Paris region; d) Acores and Madeira excluded; e) Bratislava city merged with region Zapadne Slovensko

Table 2. The impact of individual characteristics on anti-immigration attitudes

	(1) Economic threat	(2) Cultural threat	(3) Overall threat
Female	0.040** (0.003)	-0.010** (0.003)	0.005 (0.003)
Under 25 years old	0.002 (0.005)	-0.006 (0.005)	-0.027** (0.005)
26 to 39	0.016** (0.004)	-0.008* (0.004)	-0.007 (0.004)
Above 60	0.020** (0.006)	0.033** (0.005)	0.049** (0.006)
Unemployed	0.034** (0.008)	0.008 (0.008)	0.031** (0.008)
Employed/self-employed	0.010* (0.004)	0.006 (0.004)	0.010* (0.004)
Retired	0.023** (0.006)	0.027** (0.006)	0.024** (0.006)
Supervisory duties	-0.014** (0.004)	0.002 (0.003)	-0.001 (0.004)
Member of union	-0.010** (0.003)	-0.020** (0.003)	-0.016** (0.003)
Unlimited job contract	0.012** (0.004)	0.006 (0.003)	0.010* (0.004)
Less than lower secondary (ISCED 0-1)	0.035** (0.005)	0.038** (0.005)	0.038** (0.005)
Higher education (ISCED 5-6)	-0.114** (0.004)	-0.088** (0.004)	-0.102** (0.004)
Manager and senior officials	-0.054** (0.004)	-0.045** (0.004)	-0.047** (0.004)
Elementary Occupations	0.046** (0.004)	0.039** (0.004)	0.040** (0.004)
Difficult to cope on income	0.056** (0.004)	0.040** (0.004)	0.056** (0.004)
Dissatisfied with the economy	0.126** (0.003)	0.085** (0.003)	0.116** (0.003)
Big city residence	-0.018** (0.005)	-0.012** (0.004)	-0.002 (0.005)
Suburbs of big city	-0.010* (0.005)	-0.006 (0.005)	0.003 (0.005)
Rural residence	0.016** (0.004)	0.010** (0.003)	0.019** (0.004)
One or both parents foreign born	-0.032** (0.006)	-0.036** (0.006)	-0.040** (0.006)
Belong to an ethnic minority	-0.049** (0.010)	-0.040** (0.009)	-0.044** (0.010)
<i>Drt</i> dummies	375	369	375
Chi squared ( <i>Drt</i> )	3986.03	7128.53	5395.84

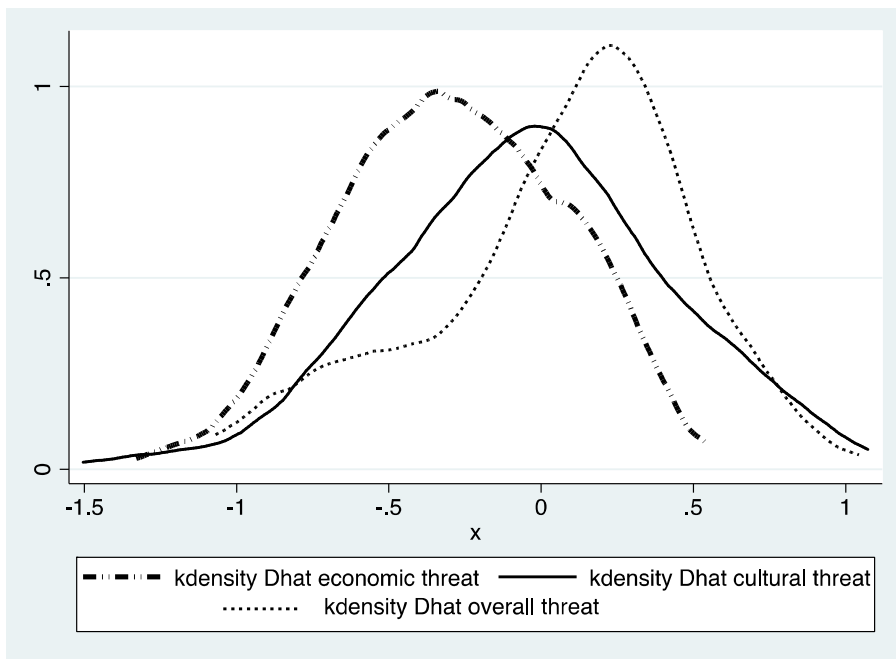
Prob > Chi2 ( $D_{rt}$ )	0.000	0.000	0.000
Observations	97130	97247	97246
Log likelihood	-58980	-50840	-58034

Entries are marginal effects from probit models, standard errors in parentheses; models include a full set of dummies  $D_{rt}$  for region ( $r$ ) and ESS round ( $t$ ); \* $p < 0.05$  \*\* $p < 0.01$ ; Reference categories are: male; 40 to 59 years old; other inactive; non supervisory duties; never been member of union; limited contract/no contract work or out of work; lower secondary, upper secondary and other education; admin, skilled trades and personal services; living comfortably/coping on present income; satisfied with current state of economy (5 to 10); town or small village.

Table 3. Regional determinants of feelings of threat

Predictors	$D_{rt}$ Economic Threat		$D_{rt}$ Cultural Threat		$D_{rt}$ Overall Threat	
	(1)	(2)	(1)	(2)	(1)	(2)
% Immigrants	0.010*		0.012*		0.015**	
	(0.004)		(0.005)		(0.004)	
% EU Immigrants		-0.006		-0.016		-0.006
		(0.008)		(0.010)		(0.008)
% Non EU Immigrants		0.018**		0.025**		0.025**
		(0.005)		(0.007)		(0.005)
% Natives unemployed	-0.011*	-0.012**	-0.020**	-0.021**	-0.022**	-0.023**
	(0.004)	(0.004)	(0.006)	(0.006)	(0.005)	(0.005)
% Immigrants unemployed	0.004	0.003	-0.003	-0.004	0.008**	0.008**
	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)
% Natives with low qualifications	-0.005**	-0.006**	-0.000	-0.001	0.001	0.000
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
% Immigrants with low qualifications	-0.004**	-0.004**	-0.004*	-0.004	-0.001	-0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
% Natives with high qualifications	-0.009**	-0.011**	0.002	-0.001	-0.001	-0.004
	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
% Immigrants high qualifications	-0.001	-0.000	-0.003	-0.002	-0.002	-0.001
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
% Change in GDP per capita	-0.004	-0.003	0.001	0.001	-0.005	-0.005
	(0.003)	(0.003)	(0.005)	(0.004)	(0.004)	(0.004)
Overestimation dummy	0.345**	0.355**	0.408**	0.425**	0.412**	0.424**
	(0.040)	(0.040)	(0.053)	(0.052)	(0.044)	(0.044)
Constant	0.065	0.082	0.034	0.065	-0.065	-0.041
	(0.108)	(0.108)	(0.143)	(0.141)	(0.120)	(0.119)
Observations	345	345	339	339	345	345
R <sup>2</sup>	0.312	0.324	0.276	0.298	0.423	0.436

OLS, standard errors in parentheses; \* $p < 0.05$  \*\* $p < 0.01$



Variable	Obs.	Mean	Std. Dev.	Min	Max
$\hat{D}_{rt}$ Economic threat	376	-0.293	0.367	-1.329	0.551
$\hat{D}_{rt}$ Cultural threat	370	-0.043	0.459	-1.504	1.074
$\hat{D}_{rt}$ Overall threat	376	0.057	0.437	-1.069	1.044

Figure 1. Residual impact of regions on threat

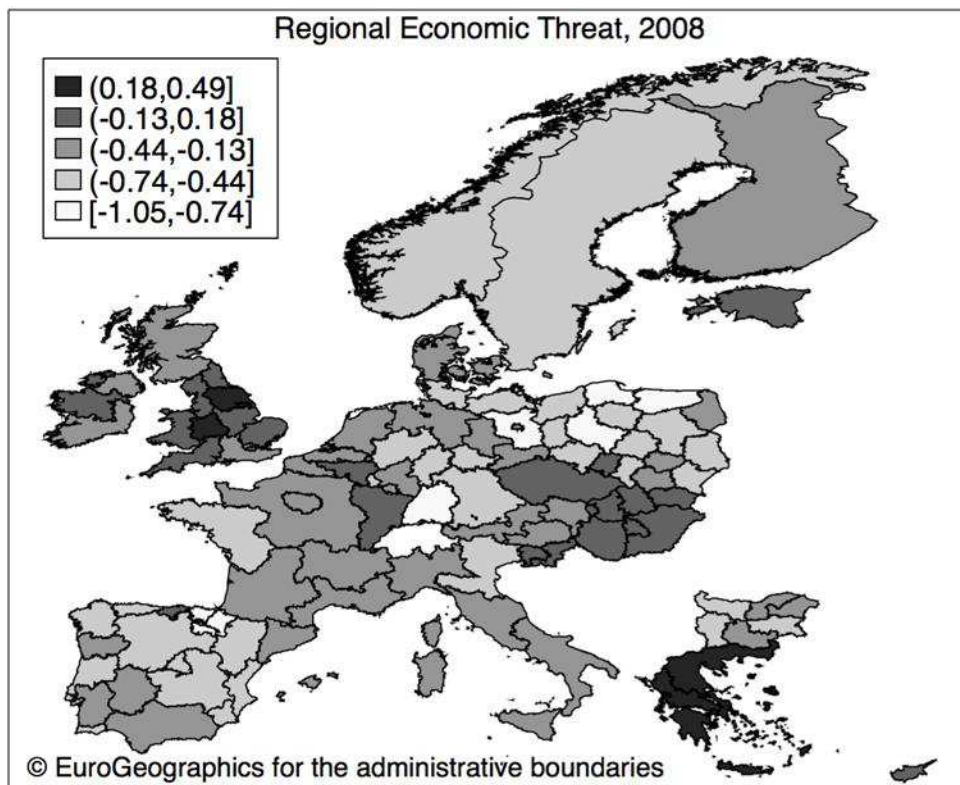


Figure 2. Mean residual impact of regions on economic threat in 2008 (five quintile groups)

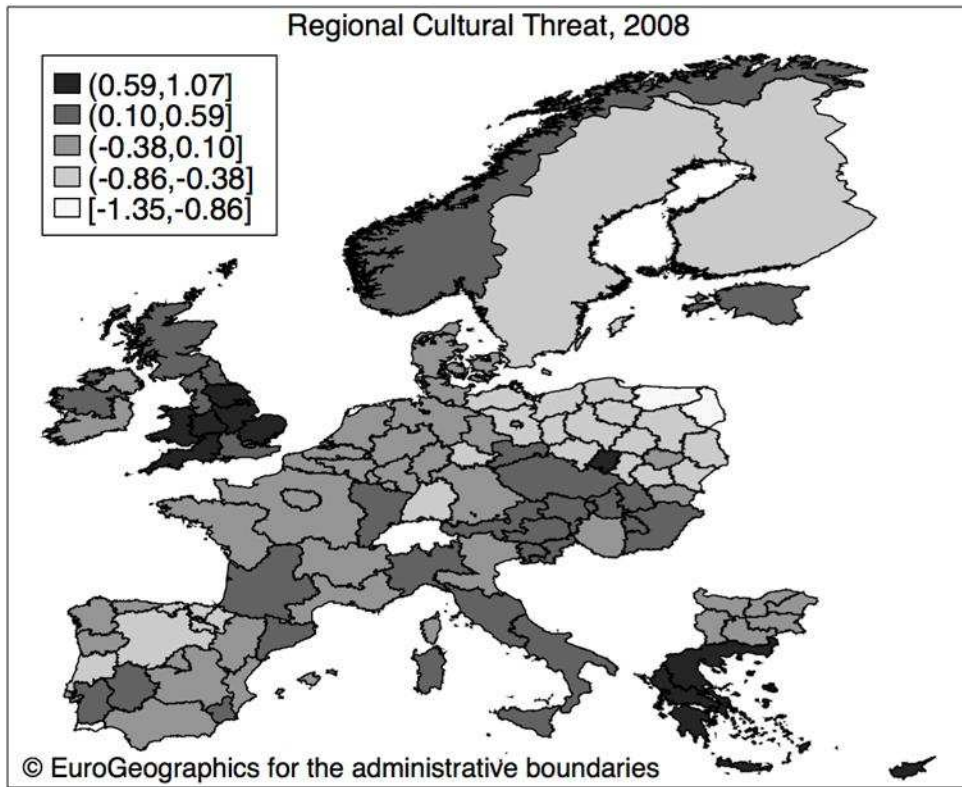


Figure 3. Mean residual impact of regions on cultural threat in 2008 (five quintile groups)

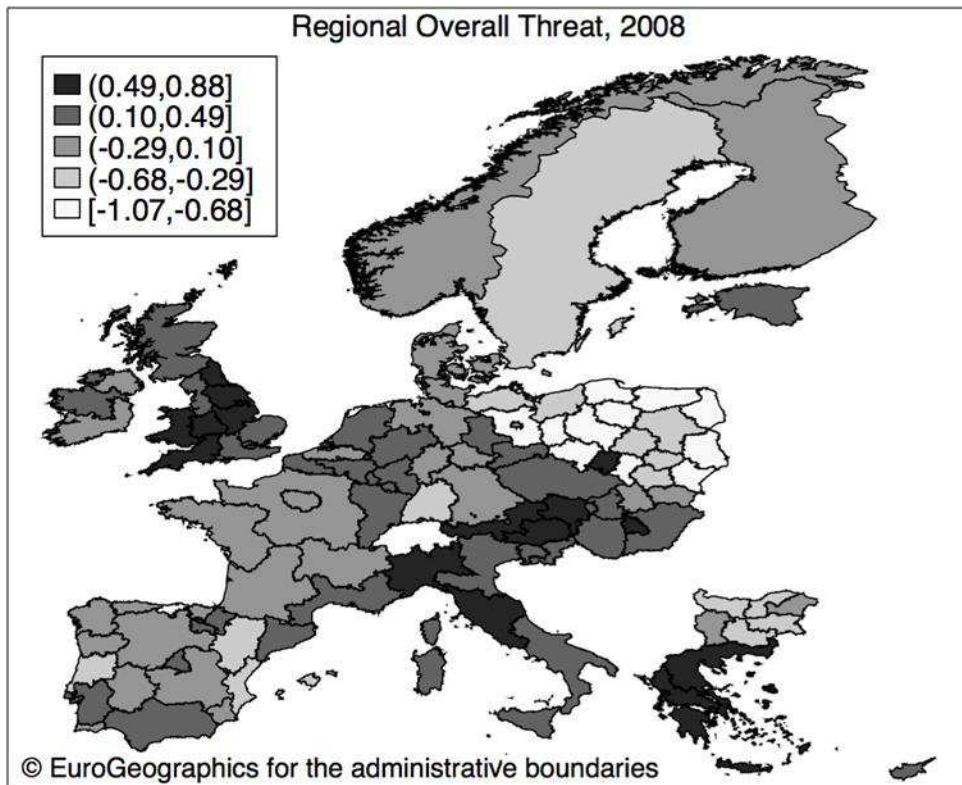


Figure 4. Mean residual impact of regions on overall threat in 2008 (five quintile groups)