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How the macroeconomic context impacts on attitudes to immigration: evidence from parallel time series

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- ▶ Joakim Ruist

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How the macroeconomic context impacts on attitudes to immigration: evidence from parallel time series

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Abstract

This study investigates the effects of the macroeconomic context on attitudes to immigration. Earlier studies do in most cases not provide significant empirical support for the existence of important such effects. In this article it is argued that this lack of consistent evidence is mainly due to the cross-national setup of these studies being vulnerable to estimation bias caused by country-specific factors. The present study instead analyzes attitude variation within countries over time, using parallel time series from 23 European countries that were observed biannually 2002-2012 in the European Social Survey. The results provide firm empirical support in favor of macroeconomic variation importantly affecting attitudes to immigration. As an illustration, the estimates indicate that the number of individuals in the average European country in 2012 who were against all immigration from poorer countries or of foreign ethnicities was 40% higher than it would have been if macroeconomic conditions in that year had been as good as they were in 2006.

Keywords: attitudes; immigration; macroeconomics; time series

JEL codes: F22, E32, J15

Introduction

It is commonly believed that public attitudes towards immigrants and immigration become more positive in good economic times and more negative in economic downturns. However the quantitative empirical literature has yet to provide consistent evidence that this is indeed the case, and if so to what extent. The common identification strategy in this literature is to regress a measure of attitudes to immigration on either GDP per capita or unemployment rates in a cross section of countries. The results reported in this literature include statistically significant coefficients with the expected as well as with the unexpected signs. Yet the majority of reported coefficients are not significant in either direction.

A main concern with the cross-national research design is that countries are few and highly heterogeneous. Hence cross-national identification strategies are vulnerable to bias in either direction from country-specific factors that are incidentally correlated with the explanatory variables. Such bias is a likely explanation for the widely diverging results obtained in the literature. In this context of few and heterogeneous countries an identification strategy based instead on time variation within countries has the important advantage that unknown country-specific factors are absorbed in country-specific intercepts. Yet only one study exists which applies this strategy (Meuleman, Davidov, and Billiet, 2009), and then between only two time periods and also without statistically significant results.

The present study fills this lacuna by conducting an analysis of how variation in macroeconomic conditions influenced the variation in attitudes to immigration over time within 23 European countries that were observed biannually 2002-2012 (with few holes) in the European Social Survey. As will be seen, with six time periods and with large time variation in macroeconomic conditions due to the post-2008 economic crisis, this strategy enables precise and robust estimation of the parameters of interest.

Previous literature

In theory it is simple to motivate the hypothesis that macroeconomic circumstances are important in shaping the pattern of attitudes to immigration in a country. We may expect unemployed individuals and individuals who feel at risk of being unemployed to be less welcoming to immigrants, whom they may perceive of as competing for the jobs that they want themselves. In a macroeconomic downturn the number of these individuals increases and hence the number of people who want to reduce immigration should increase as a mere mechanical effect. However the most popular theory on the issue focuses beyond these mechanical effects. Group threat theory, as formulated by Blumer (1958) and Blalock (1967), focuses on majority group members' identification with their own group, and on the perceived threat posed by minority group members towards the power and material resources of the majority group. Hence according to this theory an economic downturn should imply more negative attitudes towards minority groups also among majority group members who do not personally feel threatened.

While originally developed in the context of US race relations, group threat theory is general in its formulations of in- versus out-groups and serves as a standard theoretical backdrop to empirical investigations of European natives' attitudes towards immigrants or immigration. The pioneering empirical study on the impact of macroeconomic circumstances on attitudes to immigrants in Europe was done by Quillian (1995), who regressed a measure on prejudice against immigrants on the inverse of GDP per capita across twelve European countries that were observed in 1988. Similar estimation strategies were later applied by Scheepers, Gijssberts, and Coenders (2002), Semyonov, Raijman, and Gorodzeisky (2006), Sides and Citrin (2007), Semyonov, Raijman, and Gorodzeisky (2008), and Schneider (2008). The results of these studies include statistically significant effects with the expected as well as with the opposite signs. Semyonov, Raijman, and Gorodzeisky (2006) found that higher GDP

per capita implied significantly more negative attitudes in 1988, while Semyonov, Rajjman, and Gorodzeisky (2008) and Schneider (2008) found the opposite (i.e. the theoretically expected) relation in 2002. However the majority of estimates reported in this literature are not statistically significant in either direction.

The lack of statistically significant effects with the expected signs from the empirical literature on macroeconomic conditions and attitudes to immigration should not be taken as evidence that such effects do not exist. There are highly persistent differences in attitudes to immigration across European countries. With few countries it is difficult with a cross-country strategy to isolate the effect of interest through this heterogeneity. A standard way to overcome this problem is to instead use a within-country identification strategy, where persistent country-specific factors are absorbed into country-specific intercepts, and inference is made explicitly from the variation in attitudes over time within countries. However there exists only one study which applies this strategy. Meuleman, Davidov, and Billiet (2009) analyze changes in attitudes to immigration between 2002 and 2006 in 17 European countries. They do not find statistically significant evidence of an impact of GDP per capita or of unemployment rates on attitudes. This may not be surprising due to the limited statistical power obtained with only two time periods. As yet there exists no study that applies a within-country strategy to analyze the effects of macroeconomic variation on attitudes to immigration on longer time series. Filling this lacuna is the primary aim of the present study.

Data and variables

Attitudes to immigration

The measures of attitudes to immigration that are used in this study were obtained from the European Social Survey. This survey was conducted biannually 2002-2012 and covered most yet not all European countries in each year. The present study samples 23 countries that were

included in at least four of the six survey waves. The sample includes 127 country-by-year combinations, i.e. there are 11 holes in the country-by-year matrix (this matrix is shown in the appendix). Only native individuals are sampled, since the objective is to study native attitudes towards immigration. The sampled individuals are slightly unevenly distributed over countries and years. Weights are used in all data analysis to make each country-by-year cell equally influential on the results that are produced. Thus the objective is to produce results that are representative of the average European country, not the average European individual.

The primary measure of attitudes to immigration is obtained from the survey question:

- (1) Is [country] made a worse or a better place to live by people coming to live here from other countries?

Answers were coded on a 0-10 scale with 10 being the most positive reply. The question thus represents an overall assessment about the respondents' perception of whether immigration is bad or good for their country. This question is complemented by two similar questions which focus on more narrowly defined impacts of immigration:

- (2) Would you say it is generally bad or good for [country's] economy that people come to live here from other countries?
- (3) Would you say that [country's] cultural life is generally undermined or enriched by people coming to live here from other countries?

Answer codes were the same as to Question (1). Including these two questions in the empirical analysis serves the purpose of checking the consistency of the empirical results regarding Question (1). Under the hypothesis that perceived group threat makes answers to Question (1) sensitive to macroeconomic variation, answers to Question (2) should be equally or even more sensitive. On the other hand there is no reason why the same should apply to the answers to Question (3).

While Questions (1)-(3) are constructed to elicit perceptions regarding the impact of immigration, two further questions are included which elicit opinions on immigration policy.

These are:

- (4) To what extent do you think [country] should allow people from the poorer countries outside Europe to come and live here?
- (5) To what extent do you think [country] should allow people of a different race or ethnic group from most [country] people to come and live here?

These two questions had four response alternatives:

1. Allow many
2. Allow some
3. Allow few
4. Allow none

Attitudes towards immigration policy are no less – perhaps even more – interesting than perceptions regarding the impact of immigration. Yet due to the ambiguity of the response alternatives these two questions produce lower-quality data and hence they are chosen as a secondary rather than the primary objects of analysis.

Macro-level variables

Three indicators are used to measure business cycle variation by country and year: the real (i.e. inflation-adjusted) GDP per capita growth rate, the unemployment rate, and government debt. All three variables are recorded as annual measures. Annual measures are deemed most suitable since the European Social Survey was always undertaken in the autumn and hence the yearly values should well reflect respondents' perceptions of the macroeconomic situation at the time of the survey. Notably it is these perceptions that have a hypothetical impact on

attitudes to immigration. A rise in public debt would not affect public attitudes to anything if the public did not know it happened. Real GDP per capita growth rates are obtained from the World Bank's World Development Indicators. Unemployment rates and government debt as share of GDP are obtained from Eurostat. Swiss government debt figures are taken from the Swiss federal statistical office, since Eurostat does not publish these data.

Some regressions will include immigration rates as control variables. Data quality and coverage of these rates is somewhat more limited. Therefore two different data sources are used: Eurostat and the OECD International Migration Database. These two sources use different measures of immigration rates and have partly different coverage. Using any of the sources, immigration rates in year T are measured as averages over the years T and T-1. A two-year average is chosen because information on the current immigration rate is not as immediately available to the public as information on the macroeconomic indicators. It may also reduce measurement error. Arguably though, all limitations to accurate measurement of immigration rates decrease the potential of time variation in these rates to bias any of the empirical results, since such bias can only exist if survey respondents know what this variation looks like.

Analysis and results

Descriptive overview

Table 1 shows summary statistics of the variables that are included in the empirical analysis. The first column reports the mean of each variable. Due to the weighing of individuals this mean across individuals is identical to the mean across country-by-year means. The second column reports the standard deviation across individuals, while the third reports the standard deviation across the country-by-year means. The variables *impact overall*, *impact on economy*, and *impact on culture* measure responses to Questions (1)-(3). The variables

immigration bad and *immigration good* measure the shares of the most negative (codes 0-2) and the most positive (codes 8-10) responses respectively on the 0-10 scale. The variables *allow none/many poor/ethnic* measure the shares of the most negative (code 4) and the most positive (code 1) responses to Questions (4) and (5).

We see in Table 1 that the average responses to Questions (1)-(3) are quite close to 5, which is the center of the scale. In general people are slightly more positive regarding the cultural than the economic or overall impact of immigration. We also see that the average of *immigration bad* corresponds well to those of the *allow none* variables, and that of *immigration good* to those of the *allow many* variables. These impact assessments and policy preferences are also strongly correlated across individuals.

We use the post-2008 macroeconomic downturn in Europe to illustrate graphically the link between changes in macroeconomic circumstances and attitudes to immigration. This downturn affected all European countries, yet to very different degrees. How this relates to changes in attitudes to immigration is shown in Figure 1. The vertical axis in the figure shows the change in the average reply to Question (1) by country between the pre-crisis years 2004/06 and the crisis years 2010/12 (or only one of the years in each pair for the countries that were not observed in both). The horizontal axis shows the change in the growth rate over the same period. The figure shows the expected relationship. Higher growth implies significantly more positive attitudes. The p value of the implied regression line is 0.006, and if the outlier Greece is excluded it is 0.027.

Figure 1 thus provides a first indication that the hypothesized link between variation over time in macroeconomic circumstances and attitudes to immigration may indeed be important. Yet this graph has few data points and thus limited statistical power. Hence we move now to an empirical investigation that exploits all the time variation that is present in the data.

Empirical model

We analyze the impact of macroeconomic variation by country on attitudes to immigration using the regression equation:

$$Y_{ict} = \alpha_c + \gamma_t + \delta Z_{ict} + \beta X_{ct} + \varepsilon_{ict}$$

where Y_{ict} is the attitude of individual i in country c who is observed in year t . The vector α_c includes a specific intercept for each country; hence it absorbs all time-invariant country-specific factors that may otherwise bias the results. The vector γ_t includes a dummy for each year; hence no causal inference will be made from pan-European trends in the dependent or independent variables. The vector Z_{ict} includes a set of dummy variables for individual socio-economic characteristics: one for having obtained tertiary education, one for being unemployed, and two age dummies – one for being 36-64 years of age, and one for being 65+ years of age (up to 35 years of age thus being the base level). Here we are primarily interested in the coefficients β on the vector X_{ct} of country-by-year characteristics; specifically on the three macroeconomic indicators growth, unemployment, and debt. Finally ε_{ict} is the error term. All standard errors are clustered at the country level to control for arbitrary correlations within countries.

Two assumptions are crucial for the coefficients β to correctly identify the causal effects of macroeconomic variation on attitudes to immigration. First there must be no reverse causality from attitudes to immigration to the macroeconomic variables. Such causality may plausibly exist over a longer time horizon: more open countries generally tend to grow faster (see e.g. Sala-I-Martin, 1997). However such causality would be unlikely in the present case. This is because the analysis is limited to biannual variation, whereas positive macroeconomic effects of openness probably only materialize over a longer time horizon. The second crucial assumption is that there are no important variables omitted from the regression equation that

are correlated with both its dependent and independent variables. The one possible such variable identified is the immigration rate. Everything else equal, immigration rates fall in economic downturns. A fall in the immigration rate which is not itself motivated by changes in native attitudes to immigration may in turn decrease the extent of negative attitudes to immigration. Hence omitting immigration rates from the estimation equation might bias the coefficients on the macroeconomic variables towards zero, i.e. their importance might be underestimated. Immigration rates will therefore be included as a control variable in X_{ct} in some specifications.

Results

The basic regression results are shown in Table 2. The dependent variable is the individual overall assessment of the impact of immigration on a 0-10 scale with 10 being the most positive reply (Question 1). The regression results strongly confirm the theoretical expectations. The first column confirms the positive relation between growth and attitudes. The coefficient is quite large. A one-standard deviation change in the growth rate is associated with a 0.19 standard deviations (as measured across countries) change in average attitudes. Similar results are reported in column (2) where all three macroeconomic indicators are included on the right hand side of the regression equation. All three coefficients have the expected signs, although that on the unemployment rate is not significant. The joint significance of the three variables— as given by the F test reported in the bottom of the table — is very high.

In columns (3) and (4) we add each of the immigration rate measures to the right hand side of the regression equation. This does not substantially affect the results concerning the macroeconomic variables. The coefficients on the immigration rates themselves have the expected negative signs, yet they are far from being significant.

No single country or year is crucial for obtaining the results reported in Table 2. The three macroeconomic variables remain jointly significant in column (2) if any random year or any random two countries are excluded.

The analysis presented here treats the dependent variable as being measured on an interval scale, i.e. the “attitudinal distance” between any two adjacent codes on the 0-10 scale is interpreted as equally long. This should be a reasonable treatment given that there are as many as eleven codes. However in case this treatment is incorrect, an ordered probit model would be more appropriate than the linear model used here. Yet very similar results (not reported) have been obtained using an ordered probit, so we may conclude that a linear model is appropriate.

Since the relatively small number of countries (23) possibly makes the clustered standard errors of the regression coefficients reported here too large, the standard errors have also been calculated using the wild bootstrapping method of Cameron, Gelbach, and Miller (2008). This did not make the standard errors grow noticeably.

Results by socioeconomic characteristics

Turning to the coefficients on the individual socioeconomic characteristics, the results in Table 2 confirm the results of numerous previous studies: attitudes to immigration are more negative among less educated, unemployed, and older individuals. A further interesting question is then whether these characteristics also affect how strongly attitudes vary with the macroeconomic context. To answer this question, we add an interaction between the growth rate and each of the four individual-level covariates to the regression equation. We expect the coefficient on the interaction with tertiary education to be negative, and that with being unemployed to be positive. This is because less-educated and unemployed individuals would feel the increased competition for economic resources due to an economic downturn more

strongly. There are no prior hypotheses regarding the interaction terms with the age dummies, since younger individuals would feel more strongly the competition on the labor market, whereas older individuals may possibly feel more strongly the competition for public funds (pensions).

The regression results are shown in Table 3. The two interaction terms with statistically significant coefficients are those on being unemployed and on being in the oldest (65+) age group. The interaction with being unemployed has the expected positive sign, whereas it turns out that attitudes of older individuals are less sensitive to macroeconomic variation compared with those of younger individuals.

Attitudes regarding economic and cultural effects

The analysis presented thus far has shown that within-country variation in macroeconomic indicators and attitudes to immigration are strongly correlated. In this subsection we analyze further the appropriateness of the causal interpretation of this result. We do this by conducting similar analysis on the responses to Questions (2) and (3) about the impact of immigration on the economy and cultural life respectively. If the impact of the macroeconomic context on attitudes is indeed motivated by economic concerns, then we should find similar effects on attitudes regarding the economic effects of immigration. Yet any effects on attitudes regarding the impact on cultural life should be smaller or nonexistent.

The results of this analysis are shown in Table 4. In columns (1) and (2) growth is the only macroeconomic indicator included in the regressions. As expected, we see a large difference between the coefficients on that variable depending on whether we have perceptions of economic (column 1) or cultural (column 2) impact on the left hand side. The coefficient in column (1) is similar in size to the corresponding coefficient in Table 2, while that in column (2) is only one-fourth as large and not statistically significant. In columns (3) and (4) we

include all three macroeconomic variables simultaneously. Again we find substantially larger and more significant effects on economic than on cultural perceptions. In column (3) all three coefficients are significant at the 1% level. Yet in column (4) none of them is significant at the 5% level, and neither are the three jointly significant according to the F test reported in the bottom row. These results strongly support the causal interpretation of the results of this study.

Negative and positive extremes

When analyzing attitudes to immigration we are often specifically interested in the extent of very negative attitudes, since these are the attitudes that are most often translated into visible and influential political forces. It is thus of interest to see if the effect of macroeconomic variation on attitudes is predominantly an effect on the extent of negative or positive attitudes, or both. To analyze this we substitute the variables *immigration bad* (indicates codes 0-2) and *immigration good* (indicates codes 8-10) for *impact overall* (indicates actual code) on the left hand side of the regression equation. The results thus obtained are shown in Table 5. We see that macroeconomic variation significantly affects the extent of both negative and positive attitudes. The coefficients are larger on the negative side, yet the differences are not significant.

Attitudes regarding immigration policy

The analysis presented thus far refers to how macroeconomic variation affects public assessments regarding the impact of immigration. Arguably, a no less important question is how it affects public attitudes to actual immigration policy. Indeed the primary reason for the choice of primary unit of analysis in this study is technical. Overall assessments are measured on an easily interpreted 0-10 scale, while three of the four response alternatives to the immigration policy questions are quite ambiguous and this might render the responses more

arbitrary. However this is not a problem with the completely unambiguous response alternative (4) that no immigration should be allowed. Hence although we cannot analyze the impact of macroeconomic variation on something like an “average” attitude towards immigration policy, we can analyze its impact on the prevalence of this response, i.e. the most negative policy preferences.

To this end, for each of the two immigration policy questions we create a dummy variable that takes the value one if the individual gives response alternative (4) – allow none – and the value zero otherwise, and place this variable on the left hand side of the regression equation. The results thus obtained are shown in the first two columns of Table 6. Only the results for Question (4) regarding immigration from the poorer countries outside Europe are reported, since the results for Question (5) were as good as identical. The results indicate that the impact of macroeconomic variation on immigration policy preferences is perhaps even larger than that on assessments of the impact of immigration. The coefficients in Table 6 are directly comparable to those on *immigration bad* in Table 5, since both independent variables measure the prevalence of the most negative attitudes and have highly similar averages (see Table 1). The coefficients are consistently larger in Table 6 than in table 5, although the differences are not significant.

A concrete way to illustrate the importance of macroeconomic variation in shaping the prevalence of the opinion that no immigration from the poorer countries outside Europe should be allowed is to use the estimated parameters from Table 6 to calculate the attitudinal impact of the post-2008 economic downturn. To this end we compare the actual prevalence of this opinion in the bad economic year 2012 to the predicted prevalence in a counterfactual case in which macroeconomic indicators are the same in 2012 as they were in the good economic year 2006. This exercise indicates that the economic downturn increased the

number of individuals who prefer no immigration by a substantial amount: approximately 40%

For comparison columns (3) and (4) of Table 6 show the corresponding estimates regarding the impact of macroeconomic variation on the prevalence of response alternative (1) – allow many immigrants from the poorer countries outside Europe. These estimates are substantially smaller and never significant. Most plausibly this is primarily due to the ambiguity of the response alternative “many”, since we saw in Table 5 that macroeconomic variation substantially impacted also on the most positive assessments of the overall impact of immigration.

Summary and discussion

The link between macroeconomic circumstances and attitudes to immigration has been elusive through almost two decades of empirical research. Most studies have not reported any statistically significant effects. In the present study it is argued that this is due to cross-national identification strategies being vulnerable to estimation bias from omitted, country-specific factors. The present study uses a different strategy, i.e. to identify the parameters of interest from variation over time within countries in macroeconomic conditions and attitudes to immigration. Several measures of attitudes to immigration are obtained biannually 2002-2012 for 23 European countries in the European Social Survey, and variation in these attitudes is related to macroeconomic variation.

The empirical results indicate that macroeconomic conditions do have a sizeable impact on attitudes to immigration. The estimates imply that the number of individuals in the average European country in 2012 who opposed all immigration from poor countries was approximately 40% higher than it would have been if macroeconomic conditions in that year had been as good as they were in 2006. As further evidence that the estimated correlations

between worsening macroeconomic conditions and more negative attitudes to immigration indeed reflect increased perceived economic threat among natives, similar-sized or even larger effects are estimated on perceptions regarding the economic impact of immigration. Yet no significant effects are estimated on perceptions regarding the cultural impact.

A further interesting question is whether the effects that have been identified in this study are similar across countries or if there are specific country characteristics which make them stronger or weaker. A set of regressions – the results of which are not reported in this article – have sought to answer this question by interacting the explanatory macroeconomic variables with country characteristics such as geography (East vs. West), income levels, size of the welfare sectors, rate of immigration, rate of refugee immigration, and immigrants' labor market integration. The coefficients on most of these interaction terms were statistically non-significant. There was a sometimes significant correlation indicating that effects were largest in countries where immigrants were better integrated on the labor market (i.e. where the immigrant-native unemployment gap was smallest). However verifying this result and probing the reasons for it is left for future research with longer time series and more statistical power.

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Tables

Table 1. Summary statistics

	Mean	St. dev.	Mean st. dev.	Obs.
General attitudes				
<i>impact overall</i>	4.79	2.24	0.719	214,150
<i>impact on economy</i>	4.79	2.39	0.670	214,276
<i>impact on culture</i>	5.50	2.49	0.875	214,192
Negative attitudes				
<i>immigration bad</i>	0.160	0.367	0.090	214,150
<i>allow none poor</i>	0.167	0.373	0.107	216,815
<i>allow none ethnic</i>	0.144	0.351	0.090	217,392
Positive attitudes				
<i>immigration good</i>	0.117	0.321	0.070	214,150
<i>allow many poor</i>	0.110	0.314	0.074	216,815
<i>allow many ethnic</i>	0.117	0.322	0.074	217,392
Country-by-year variables				
<i>growth</i>	0.017		0.026	127
<i>unemployment</i>	0.080		0.040	127
<i>debt (share of GDP)</i>	0.543		0.257	127
<i>immigration rate Eurostat</i>	0.0086		0.0058	120
<i>immigration rate Oecd</i>	0.0067		0.0050	114

Notes: The column “St. dev.” reports the standard deviation across individuals. The column “Mean st. dev.” reports the standard deviation across country-by-year means.

Table 2. Impact of economy on overall assessment of immigration

	(1)	(2)	(3)	(4)
Country-level variables				
<i>growth</i>	5.27*	4.40*	3.81	2.08
	(2.05)	(1.90)	(2.05)	(1.39)
<i>unemployment</i>		-0.61	-1.02	-0.25
		(1.26)	(1.16)	(0.99)
<i>debt</i>		-0.51**	-0.58**	-0.63**
		(0.17)	(0.18)	(0.21)
<i>immigration rate Eurostat</i>			-10.2	
			(10.2)	
<i>immigration rate Oecd</i>				-8.04
				(8.68)
Individual-level variables				
<i>tertiary education</i>	0.81**	0.81**	0.82**	0.85**
	(0.07)	(0.07)	(0.07)	(0.07)
<i>unemployed</i>	-0.32**	-0.31**	-0.32**	-0.31**
	(0.05)	(0.04)	(0.04)	(0.04)
<i>agegroup2</i>	-0.25**	-0.25**	-0.24**	-0.24**
	(0.05)	(0.05)	(0.05)	(0.05)
<i>agegroup3</i>	-0.57**	-0.57**	-0.57**	-0.59**
	(0.08)	(0.08)	(0.08)	(0.08)
Country fixed effects	X	X	X	X
Year fixed effects	X	X	X	X
N.o. individuals	212,425	212,425	200,218	193,752
N.o. country-by-year	127	127	120	114
F (growth + unemployment + debt)		12.1**	10.0**	10.8**

Notes: Standard errors in parentheses are clustered at the country level. * P < 0.05, ** P < 0.01

Table 3. Impact on overall assessment by socioeconomic characteristics

Country-level variables	
<i>growth</i>	7.32** (1.49)
Individual-level variables	
<i>tertiary education</i>	0.86** (0.06)
<i>unemployed</i>	-0.36** (0.05)
<i>agegroup2</i>	-0.23** (0.05)
<i>agegroup3</i>	-0.49** (0.08)
Interactions	
<i>growth # tertiary education</i>	-3.01 (1.81)
<i>growth # unemployed</i>	2.82* (1.27)
<i>growth # agegroup2</i>	-0.87 (0.93)
<i>growth # agegroup3</i>	-5.40** (1.29)
Country fixed effects	X
Year fixed effects	X

Notes: Standard errors in parentheses are clustered at the country level. * P < 0.05, ** P < 0.01. Number of individuals: 212,425. Number of country-by-year: 127.

Table 4. Impact of economy on assessments regarding the economy and cultural life

	economy (1)	culture (2)	economy (3)	culture (4)
Country-level variables				
<i>growth</i>	6.64** (1.76)	1.58 (1.53)	4.63** (1.35)	1.38 (1.53)
<i>unemployment</i>			-3.55** 1.23	0.82 (1.29)
<i>debt</i>			-0.69** (0.22)	-0.34 (0.26)
Individual-level variables				
<i>tertiary education</i>	1.04** (0.05)	1.04** (0.07)	1.03** (0.05)	1.04** (0.07)
<i>unemployed</i>	-0.40** (0.05)	-0.23** (0.04)	-0.38** (0.04)	-0.23** (0.04)
<i>agegroup2</i>	-0.18** (0.05)	-0.22** (0.05)	-0.17** (0.05)	-0.22** (0.05)
<i>agegroup3</i>	-0.40** (0.08)	-0.68** (0.07)	-0.40** (0.08)	-0.68** (0.07)
Country fixed effects	X	X	X	X
Year fixed effects	X	X	X	X
N.o. individuals	212,542	212,469	212,542	212,469
F (growth + unemployment + debt)			15.0**	1.66

Notes: Standard errors in parentheses are clustered at the country level. * P < 0.05, ** P < 0.01. Number of country-by-year: 127.

Table 5. Impact of economy on most negative and most positive attitudes

	Negative (codes 0-2)		Positive (codes 8-10)	
	(1)	(2)	(3)	(4)
Country-level variables				
<i>growth</i>	-0.65*	-0.54	0.44**	0.38*
	(0.31)	(0.28)	(0.15)	(0.15)
<i>unemployment</i>		0.031		-0.058
		(0.15)		(0.12)
<i>debt</i>		0.074**		-0.037
		(0.025)		(0.018)
Individual-level variables				
<i>tertiary education</i>	-0.087**	-0.086**	0.072**	0.071**
	(0.008)	(0.008)	(0.012)	(0.012)
<i>unemployed</i>	0.055**	0.053**	-0.010	-0.009
	(0.007)	(0.007)	(0.005)	(0.005)
<i>agegroup2</i>	0.043**	0.043**	-0.008*	-0.008*
	(0.006)	(0.006)	(0.004)	(0.004)
<i>agegroup3</i>	0.077**	0.077**	-0.035**	-0.035**
	(0.010)	(0.010)	(0.007)	(0.007)
Country fixed effects	X	X	X	X
Year fixed effects	X	X	X	X
F (growth + unemployment + debt)		7.71**		5.10**

Notes: Standard errors in parentheses are clustered at the country level. * P < 0.05, ** P < 0.01. Number of individuals: 212,425. Number of country-by-year: 127.

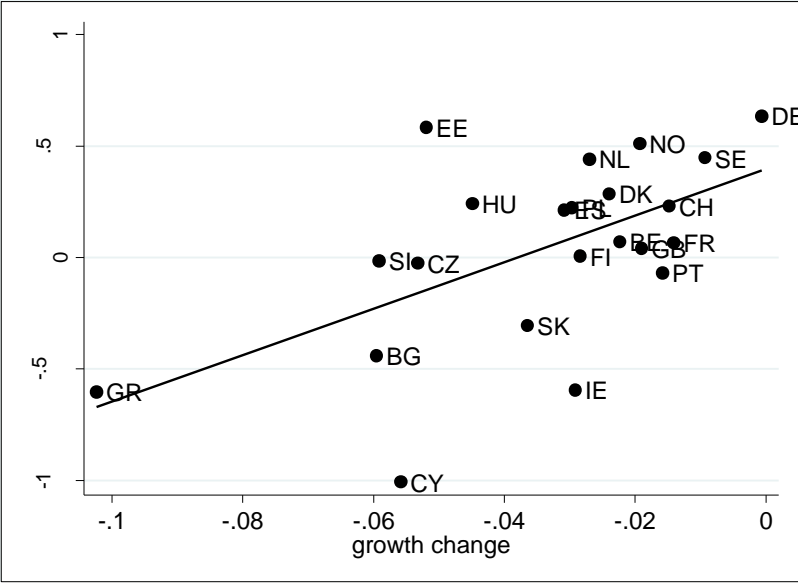
Table 6. Impact of economy on immigration policy preferences

	Allow none		Allow many	
	(1)	(2)	(3)	(4)
Country-level variables				
<i>growth</i>	-0.82*	-0.62*	0.20	0.14
	(0.29)	(0.25)	(0.16)	(0.13)
<i>unemployment</i>		0.17		-0.22
		(0.17)		(0.22)
<i>debt</i>		0.11**		0.010
		(0.03)		(0.028)
Individual-level variables				
<i>tertiary education</i>	-0.084**	-0.084**	0.057**	0.057**
	(0.007)	(0.007)	(0.009)	(0.009)
<i>unemployed</i>	0.052**	0.050**	0.006	0.007
	(0.007)	(0.006)	(0.005)	(0.005)
<i>agegroup2</i>	0.055**	0.054**	-0.040**	-0.040**
	(0.007)	(0.007)	(0.004)	(0.004)
<i>agegroup3</i>	0.11**	0.11**	-0.078**	-0.078**
	(0.01)	(0.01)	(0.008)	(0.008)
Country fixed effects	X	X	X	X
Year fixed effects	X	X	X	X
F (growth + unemployment + debt)		9.06**		0.72

Notes: Standard errors in parentheses are clustered at the country level. * P < 0.05, ** P < 0.01. Number of individuals: 215,048. Number of country-by-year: 127.

Figures

Figure 1. Growth rate and attitude changes by country between 2004/06 and 2010/12



Appendix – Sampled countries and years

	2002	2004	2006	2008	2010	2012
Austria	X	X	X	X		
Belgium	X	X	X	X	X	X
Bulgaria			X	X	X	X
Cyprus			X	X	X	X
Czech Republic	X	X		X	X	X
Denmark	X	X	X	X	X	X
Estonia		X	X	X	X	X
Finland	X	X	X	X	X	X
France	X	X	X	X	X	X
Germany	X	X	X	X	X	X
Greece	X	X		X	X	
Hungary	X	X	X	X	X	X
Ireland	X	X	X	X	X	X
Netherlands	X	X	X	X	X	X
Norway	X	X	X	X	X	X
Poland	X	X	X	X	X	X
Portugal	X	X	X	X	X	X
Slovak Republic		X	X	X	X	X
Slovenia	X	X	X	X	X	X
Spain	X	X	X	X	X	X
Sweden	X	X	X	X	X	X
Switzerland	X	X	X	X	X	X
United Kingdom	X	X	X	X	X	X