Immigration and natives' attitudes towards the welfare state: Evidence from the European Social Survey

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Abstract

Does immigration reduce natives' support for the welfare state? Evidence from the European Social Survey (2002/2003) suggests a more qualified relation. For Europe as a whole, there is only weak evidence of a negative association between the perceived presence of immigrants and natives' support for the welfare state. However, this weak average relationship masks considerable heterogeneity across countries.

We distinguish two channels through which immigration could affect natives' support for the welfare state: a pure dislike of immigrants and concerns about the economic consequences of immigration. We find that natives who hold *both* negative views react much more negatively to a given perceived share of immigrants than natives who hold neither view. However, there is no clear pattern concerning the relative importance of the two channels.

Finally, we find that natives who hold either of these negative views of immigrants tend to be less supportive of the welfare state independently of the perceived *presence* of immigrants.

1 Introduction

Countries differ widely in many aspects of government spending and tax policy, in particular in their policies regarding redistribution and the welfare state. Among the possible explanations for these differences, some emphasis has been put lately on ethnic, cultural, or linguistic fractionalization as a deterrent to redistributive policies. A number of empirical studies have explored this link between ethnic fractionalization and redistribution.[1] For example, Alesina and Glaeser (2004) show that countries with greater ethnic diversity have significantly lower levels of redistribution as a share of GDP; they estimate that "about 50 percent of the gap between the United States and Europe may be due to racial fractionalization" (p. 134).

Over the last four decades, Europe has experienced large-scale immigration, often from countries with cultural, religious, or ethnic backgrounds that are quite different from those of the native population. Alesina and Glaeser (2004, 11) argue that this inflow will affect the European welfare state: "one natural implication of our conclusion that fractionalization reduces redistribution is that if Europe becomes more heterogeneous due to immigration, ethnic divisions will be used to challenge the generous welfare state."

We use survey data for 22 European countries from the 2002/2003 round of the European Social Survey to investigate the link between immigration and support for the welfare state. We want to find out (1) how the perceived *presence* of immigrants is related to natives' support for the welfare state, and how this relationship varies (2) with natives' *attitudes* towards immigrants and (3) across countries. The specificity of the present study lies in its emphasis on parameter heterogeneity and in the use of European instead of U.S. or Canadian data.

Our main result is that, for Europe as a whole, the association between the perceived *presence* of immigrants and natives' support for the welfare state is weak at best. We do find some evidence that natives who perceive the share of immigrants in the population to be high tend to be less supportive of the welfare state. But the association is very weak and not even statistically significant for two of our three dependent variables. To give an idea of the magnitude, an increase in the perceived share of immigrants of one standard

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[1]See the surveys by Alesina and La Ferrara (2005) and by Stichnoth and Van der Straeten (2008).

deviation (about 16 percentage points) is associated with a decrease in the probability of supporting the welfare state of about one percentage point. This is small compared to the associations we find for other covariates such as income or education.

However, although we find only weak evidence for a negative association between immigration and natives' support for the welfare state in general, it may well be that a negative association does exist for certain sub-groups of natives. In a second step we therefore interact the variables measuring the actual or perceived presence of immigrants with variables measuring natives' *attitudes* towards immigrants. Exploring this parameter heterogeneity is made possible by the rich set of such attitudinal variables in the European Social Survey.

We classify these variables into two categories to capture two broad channels through which attitudes towards immigrants may be related to the support for the welfare state. The first channel is one of pure taste or "differential altruism." If natives feel less close to immigrants than to other natives (or even actively dislike immigrants), they may be less willing to help them through redistribution and the welfare state. Whereas this first channel is about what immigrants *are* (at least in the perception of natives), the second channel is about what they *do* (again as perceived by natives). In particular, we are interested in how natives view the economic role of immigrants in general and their contribution to the welfare state in particular. We suspect that natives who believe that immigrants take undue advantage of the welfare state will react differently to a given share of immigrants in the population.[2] That such considerations of fairness affect people's support for redistribution has been amply demonstrated in the literature; for example, Fong et al. (2006) state that in general "people are willing to help the poor, but they withdraw support when they perceive that the poor may cheat or fail to cooperate by not trying hard enough to be self-sufficient and morally upstanding" (p. 3).

As expected, we find that the association between the perceived share of immigrants and support for the welfare state is most negative for natives who both dislike immigrants and express concern about the economic consequences of immigration. By contrast, the association is positive for those natives who

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[2]In the experimental studies on the effects of ethnic diversity on trust and trustworthiness, these two channels are referred to as preference-based and statistical discrimination; see Glaeser et al. (2000), Fershtman and Gneezy (2001), Bouckaert and Dhaene (2004), Habyarimana et al. (2006), Haile et al. (2006), Bornhorst et al. (2006), Falk and Zehnder (2007).

view immigration positively along both dimensions. There is no clear evidence concerning the relative importance of the two channels: often, the parameter estimates for the two intermediate types are not significantly different from another.

When we include the two channels also as main effects (instead of interacting them with the perceived share of immigrants), we find that attitudes towards immigration and attitudes towards the welfare state are strongly associated, but that this association is little affected by the (perceived) *presence* of immigrants.

A third contribution of our paper is to look at differences across countries within Europe. We find that the small average effect masks considerable heterogeneity across countries. However, the general result is preserved: the practical significance of the association between the perceived presence of immigrants and natives' support for the welfare state is small even in the countries for which the estimated coefficients are largest.

The rest of this paper is organized as follows. In section 2 we briefly review previous evidence. Then, in section 3, we set up a model to illustrate how the share of immigrants and the two channels of altruism and economic considerations may interact to influence natives' demand for redistribution. In sections 4 and 5 we present the data and discuss the specification. Section 6 presents the main results as well as a number of robustness checks. Section 7 concludes.

2 Previous studies

As noted in the introduction, most studies on the effects of immigration and ethnic diversity on attitudes towards the welfare state use data from the U.S., most often from the General Social Survey.

A first finding from these studies is that in the U.S., the support for the welfare state differs by "race." Alesina et al. (2001), Luttmer (2001), and Lind (2007) all find that blacks tend to be much more supportive of welfare spending than whites, even controlling for a number of observable characteristics. A recent article by Keely and Tan (2008) uses classification and regression trees to detect homogenous subgroups with respect to attitudes towards welfare spending and income redistribution. Applying these techniques on data from the General

Social Survey for the period 1978–2000, Keely and Tan confirm that the race of the respondent is important for classifying people with respect to attitudes towards the welfare state.

Second, in the U.S. *attitudes* towards blacks are an important predictor of attitudes towards the welfare state. Using data from the 1986 National Election Study, the 1994 General Social Survey, and the 1991 National Race and Politics Study, Gilens (1995, 1996, 1999) shows that racial stereotypes are important predictors of the support for welfare spending among white Americans. Also using data from the General Social Survey, Alesina et al. (2001) confirm Gilens' findings that racial attitudes are correlated with support for welfare spending: whites who believe that blacks are lazy tend to be less supportive of welfare spending, and whites who have had a black person over for dinner tend to be more supportive. Lind (2007) also shows evidence from the General Social Survey. For the period 1972–2002, he confirms that white respondents who do not mind having or actually have had an African-American at home tend to be more supportive of welfare spending. For the shorter time span from 1996 to 2002, Lind shows that blacks who feel closer to blacks tend to be more supportive, and blacks who feel closer to whites less supportive of welfare spending. For whites the interaction terms have the expected (opposite) signs, but are insignificant.

The picture is less clear concerning the relationship between the regional *population share* of Blacks and the support for the welfare state. On the one hand, Luttmer (2001) shows— using data from the General Social Survey for the years 1972 to 1993—that in the U.S. people are more likely to express support for welfare spending if they live in a neighborhood where the share of people of their own race among welfare recipients is high. This is true whatever the economic situation of the respondents, even among wealthy people who have only a very small risk of being welfare recipients themselves. On the other hand, Alesina et al. (2001), who also use data from the General Social Survey, find that support among whites is not significantly associated with the share of blacks in the population of the respondent's state. This difference with Luttmer's results may be due to the fact that Luttmer looks at shares of blacks among welfare recipients and not in the population as a whole. Moreover, Soroka et al. (2004) find for Canada that "the link [between regional ethnic diversity and support for social programs] is weak at best" (p. 50); "moving from 100% majority to 50% majority leads to a decrease in aggregate

support for unemployment and welfare of about .0025%" (p. 51).

3 Model

We assume that individuals' preferences for redistribution derive from considerations involving their own post-tax income, the average post-tax income of natives in the economy (denoted by c_N), and the average post-tax income of immigrants in the economy (denoted by c_I). More specifically, individuals evaluate the redistribution policy by computing the following weighted sum:

$$c + \alpha_N p_N c_N + \alpha_I p_I c_I$$

where p_N (respectively p_I) is the proportion of natives (respectively immigrants) in the economy, α_N (respectively α_I) is the weight given to natives' per capita post-tax income (respectively immigrants' post-tax income), with the assumption that $\alpha_N \geq \alpha_I$.

In our model, redistribution takes the very simple form of a basic income, which is financed through a tax that is proportional to (exogenous) income.

$$b = b(t) = t\overline{w},$$

where b is the basic income and $\overline{w}$ is the average pre-tax income in the economy.

With these assumptions, we can derive an individual's indirect preferences for the tax rate t:

$$
\begin{aligned}
V &= t\overline{w} + (1-t)w + \alpha_N p_N \left[t\overline{w} + (1-t)w_N \right] + \alpha_I p_I \left[t\overline{w} + (1-t)w_I \right] \\
&= w + \alpha_N p_N w_N + \alpha_I p_I w_I + t \left[(\overline{w} - w) + \alpha_N p_N (\overline{w} - w_N) + \alpha_I p_I (\overline{w} - w_I) \right]
\end{aligned}
$$

where w_N (respectively w_I) is natives' pre-tax income (respectively immigrants' pre-tax income). Since

$$
\begin{aligned}
\overline{w} &= p_N w_N + p_I w_I, \\
\overline{w} - w_N &= p_I (w_I - w_N) \\
\overline{w} - w_I &= p_N (w_N - w_I)
\end{aligned}
$$

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the indirect utility from taxation can be written as

$$V = [w + \alpha_N p_N w_N + \alpha_I p_I w_I]$$
$$+ t [(\overline{w} - w) - p_I(1 - p_I)(\alpha_N - \alpha_I)(w_N - w_I)]$$

We assume that all individuals correctly perceive the average income in the economy, $\overline{w}$, but that they have different perceptions regarding p_I and $(w_N - w_I)$ (we only require that these perceptions about natives' income, immigrants' income and the share of immigrants satisfy the equality $\overline{w} = p_N w_N + p_I w_I$). We conclude from this expression that the propensity to favor redistribution decreases with the individual's pre-tax income, w, and with the expression

$$p_I(1 - p_I)(\alpha_N - \alpha_I)(w_N - w_I).$$

Since
$$\frac{\partial V}{\partial t \partial p_I} = -(1 - 2p_I)(\alpha_N - \alpha_I)(w_N - w_I), \text{ and } p_I < 1/2$$

the propensity to favor redistribution depends on the interaction of two variables: whether the individual likes immigrants or not (through the $\alpha_N - \alpha_I$ term) and whether he thinks that immigrants are poorer than natives (through the $w_N - w_I$ term). The model predicts that the sign of the variable "perceived share of immigrants" is ambiguous: it depends on the perception of the relative income of immigrants versus natives. If an individual believes that immigrants are poorer than natives, his demand for redistribution should decrease with his perception of the number of immigrants in the country. And the effect, always negative, should be larger in absolute value the more he dislikes immigrants ($\alpha_N - \alpha_I$ large). On the other hand, if an individual believes that immigrants are richer than natives, his demand for redistribution should increase with his perception of the number of immigrants in the country. And the effect, always positive, should be larger the more he dislikes immigrants ($\alpha_N - \alpha_I$ large). Note that in the limit case where the individual makes no difference between the consumption of natives and immigrants in his utility function ($\alpha_N = \alpha_I$), his preferences for redistribution should not depend on his perception of the share of immigrants in the economy.

4   Data

4.1   The dataset

We use about 23000 observations for 22 countries from the first round of the European Social Survey (ESS); the data were collected in 2002 and 2003.[3]

Immigration was one of the special topics of the first round of the ESS, which therefore contains a large number of questions on attitudes towards and beliefs about immigration (see Card, Dustmann, and Preston (2003) for a description of the ESS immigration module.) In particular, the ESS contains a question on the *perceived* share of immigrants in the population, and a series of questions on attitudes towards immigration.

4.2   The dependent variables

We measure support for the welfare state using three different questions.

A first question asks whether "the government should take measures to reduce differences in income levels." Our second dependent variable measures the respondent's support for equal opportunities: "Here we briefly describe some people. Please read each description [and] tick the box on each line that shows how much each person is or is not like you. He (she) thinks it is important that every person in the world should be treated equally. He (she) believes everyone should have equal opportunities in life." Finally, we use a variable that measures the respondent's support for the poor: "To be a good citizen, how important would you say it is for a person to support people who are worse off than themselves?"

Figure 1 shows how the answers are distributed in the sample. Each of the three statements receives considerable support.

To simplify the presentation of the estimated marginal effects, we dichotomize the variables and estimate binary instead of ordered response models. The dummy variables equals one if a respondent answered one of the categories

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[3]The countries are Austria, Belgium, Switzerland, Czech Republic, Germany, Denmark, Spain, Finland, France, U.K., Greece, Hungary, Ireland, Israel, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Sweden, Slovenia. See the appendix for a more detailed description of the dataset.
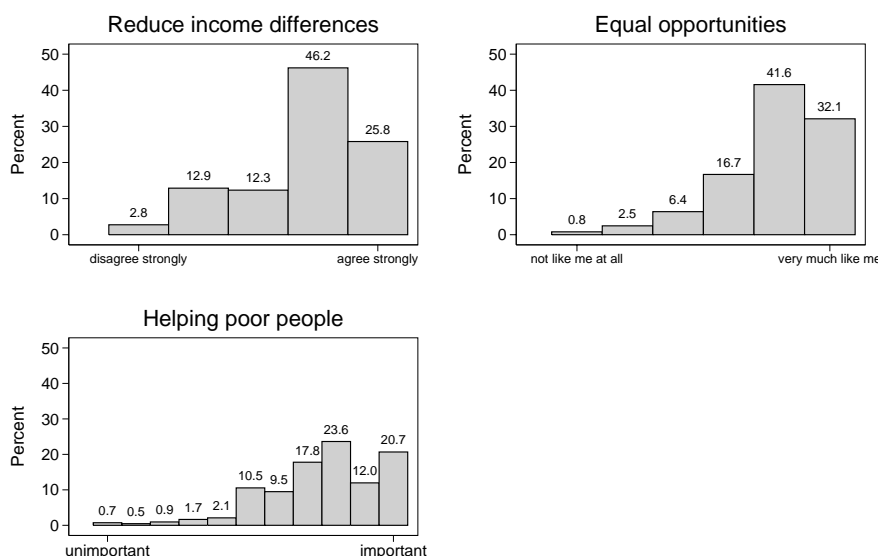
Figure 1: Distribution of the three dependent variables

above the neutral midpoint. For "reduce income differences," these are the two highest categories. There is no midpoint for "equal opportunites," but we choose to also group the two highest categories together. For the variable "helping poor people," we group the five highest categories together.

4.3 The perceived and actual presence of immigrants

Whereas previous studies have used the *actual* share of immigrants or ethnic minorities in the population or among welfare recipients, the European Social Survey allows us to use the *perceived* share of immigrants in the population as well. Respondents are asked: "out of every 100 people living in [country], how many do you think were born outside [country]?"

We believe that it is an advantage to have data on the perceived share, since it allows us to use variation between individuals, whereas previous studies could only use the much smaller variation in the actual share between regions. Also, it is arguably the perceived share and not the actual share that affects individuals' attitudes.

There is considerable variation in the perceived share of immigrants. The mean of the variable is 19.6, with a standard deviation of 17.4. Figure 2 shows a kernel density estimate; despite the smoothing, the spikes at focal

values such as 10, 20, or 30 percent are still visible. In general, the variation
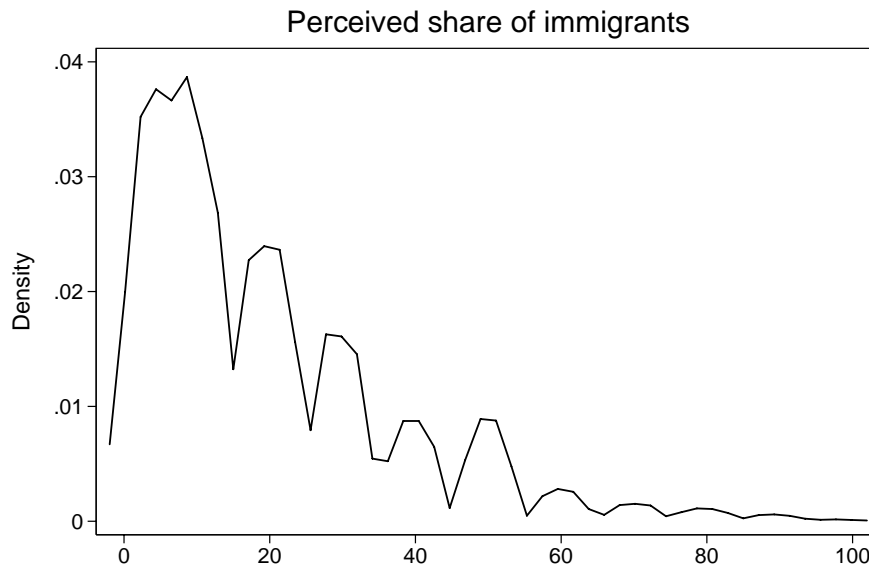
Figure 2: Kernel density estimate of the perceived share of immigrants

in the perceived share of immigrants results from two sources: differences in the actual share across countries, and errors of perception. Since we estimate our models including country dummies (which capture, among other things, differences in the institutions of the welfare state and in the actual share of immigrants), all the variation that we exploit in this paper stems from errors of perception.

As figure 3 shows, natives in all countries tend to overestimate the share of immigrants: the average perceived share lies everywhere above the 45 degree line.

We have run an OLS regression to explore the correlates of the perceived share. The results are reported in table 5 in the appendix. As expected, we find that more educated people perceive the true share more accurately. More surprisingly perhaps, women tend to report a higher perceived share. As already suggested by the graph, the average perceived share tends to increase almost one-by-one with the actual share. However, there are considerable differences between countries in the error of perception. For instance, French and British respondents stand out for overestimating the true share by particularly large amounts. These country differences are probably to some extent driven by the respondents understanding terms like immigrant, foreigner, ethnic minority

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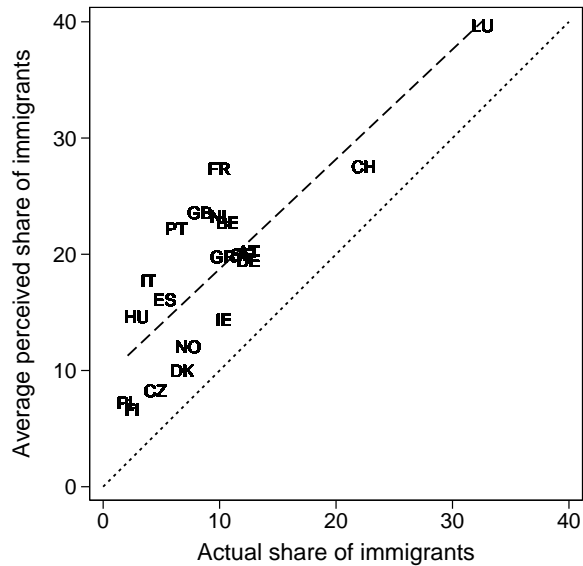
Figure 3: Relationship between the actual and the average perceived share

etc. differently, despite the careful design of the European Social Survey.

When using the perceived share of immigrants as a regressor in our models for the support for the welfare state, we always control for the correlates listed in table 5, which can be expected to have a direct effect on the support for the welfare state. Nevertheless, the perceived share may still be endogenous. Our results should therefore best be interpreted as descriptive.

4.4 Attitudes towards immigrants: the taste channel and the economic channel

One of the contributions of this paper is to distinguish between a taste channel and an economic channel when studying the relationship between attitudes towards immigrants and attitudes towards the welfare state.

Recall from the model in section 3 that the demand for redistribution (measured by the tax rate t in the model) will depend on the weight with which natives' and immigrants' income enter an individual's utility function (the term $\alpha_N - \alpha_I$ in equation (3)) and on the perceived difference in average income between natives and immigrants ($w_N - w_I$).

The first round of the European Social Survey, with its rich array of questions

on attitudes towards immigrants, allows to measure these channels in a number of ways.

We choose to measure $\alpha_N - \alpha_I$ (the taste channel) by the question "how much would you mind or not mind if [someone from a different race or ethnic group from most people in this country] married a close relative of yours?" There are eleven answer categories, from not mind at all to mind a lot, plus a "don't know" category that we code as missing.

To measure $w_N - w_I$ (the economic channel), our preferred question asks for the belief about immigrants' fiscal contribution: "most people who come to live here work and pay taxes. They also use health and welfare services. On balance, do you think people who come here take out more than they put in or put in more than they take out?" There are again eleven answer categories, from generally take out more to generally put in more, plus a "don't know" category coded as missing.[4]

We dichotomize both variables: the answer categories from 6 to 10 are recoded as 1, the remaining categories are recoded as 0. The interaction of the two binary variables creates four mutually exclusive types, the distribution of which is shown in figure 4.

First, there are natives who say they would not mind if an immigrant married into their family and who believe that immigrants' fiscal contribution is positive (we abbreviate this as "both positive" in figure 4). For these individuals, $\alpha_N - \alpha_I = 0$ and $w_N - w_I < 0$. Hence $\frac{\partial V}{\partial t \partial p_I} = 0$, that is, the share of immigrants in the population should not affect the demand for redistribution.

The second category are natives who say they would mind an immigrant marrying into their family but believe that immigrants' fiscal contribution is positive (abbreviated as "minds immigrant relatives" in the figure). For these individuals, $\alpha_N - \alpha_I > 0$ and $w_N - w_I < 0$. Hence $\frac{\partial V}{\partial t \partial p_I} > 0$, that is, the greater the share of immigrants in the population, the greater the demand for redistribution. The idea is that these natives dislike immigrants but believe them to be net payers, so by asking for more redistribution they believe that the burden will fall on immigrants whereas natives will benefit.

Third, there are natives who say they would not mind if an immigrant married into their family but who believe that immigrants' fiscal contribution is

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[4]In section 6.3, we check that our results are robust to the choice of variables for the two channels.

negative (abbreviated as "thinks immigrants take out more"). For this group, $\alpha_N - \alpha_I = 0$ and $w_N - w_I > 0$. Hence $\frac{\partial V}{\partial t \partial p_I}$ is again zero because these individuals do not make a distinction between immigrants and natives.

Finally, there are those natives who would not want an immigrant marrying into their family and who believe that immigrants' fiscal contribution is negative (abbreviated as "both negative"). Here, $\alpha_N - \alpha_I > 0$ and $w_N - w_I > 0$. Hence $\frac{\partial V}{\partial t \partial p_I} < 0$, that is, the greater the perceived share of immigrants in the population, the weaker the support for redistribution.
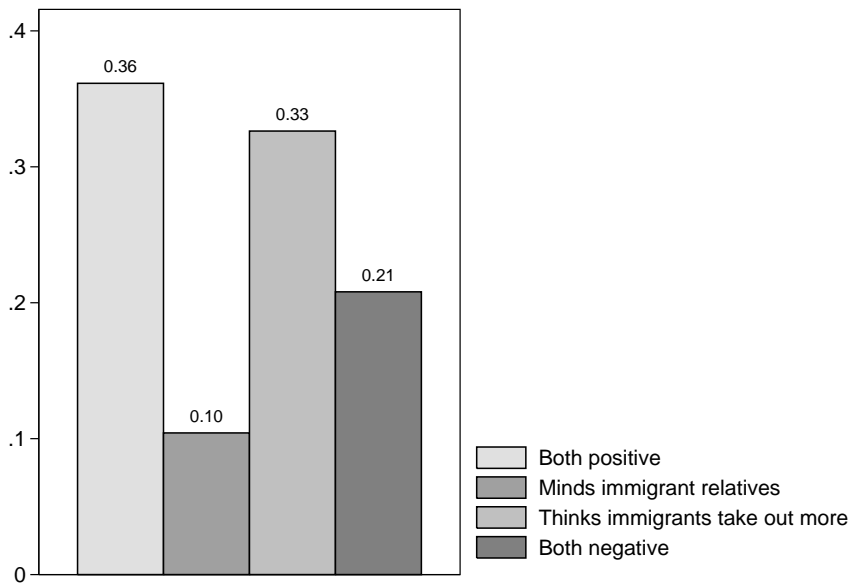
Figure 4: Shares of the four types in the sample

4.5   Control variables

We control for a standard set of demographic and socio-economic characteristics: age, age squared, gender, monthly household net income (in 9 categories), years of education, dummy variables for being unemployed or self-employed, household size, a dummy for having a child living in the household, marital status (in five categories), and dummies for living in a city, suburb, rural area, etc. Except in one robustness test in which we use the actual share of immigrants (for which there is no within-country variation), we also include country dummies. Table 4 in the appendix shows summary statistics for these control variables. Notice that we restrict our sample to natives and therefore do not control for immigration status.

5 Specification

The dependent variables have several ordered categories, which would call for an ordered response model. As mentioned, however, in order to keep the presentation of the estimated marginal effects simple, we dichotomize the dependent variables and estimate probit models.

The probit model can be derived from a latent variable model. Assume that individual i's true, unobserved attitude towards the welfare state can be modelled as

$$y_i^* = \mathbf{x_i'}\beta + \varepsilon_i \tag{1}$$

The vector x_i contains the share of immigrants in a country (as perceived by individual i), the control variables described in the last section, and an intercept that is allowed to vary across countries. We assume that the error terms ε_i follows a standard normal distribution, and that they are independent across, but not within countries. The asymptotic standard errors that we report below are therefore adjusted for clustering at the country level.

The answers y_i that we observe in the survey are assumed to be a function of the true, unobserved attitude. More precisely,

$$Y_i = \begin{cases} 1, & \text{if } y_i^* > 0; \\ 0, & \text{otherwise.} \end{cases} \tag{2}$$

That is, we model the probability that respondent i answers "very much like me" or "like me" to the question on the importance of equal opportunities as

$$P(y_i = 1 \mid x_i) = \Phi(x_i\beta) \tag{3}$$

where $\Phi(\cdot)$ is the cumulative distribution function of the standard normal distribution.

We are interested in the marginal effects

$$\frac{\partial P(y = 1 \mid x)}{\partial x_j} \tag{4}$$

for a continuous regressor x_j and

$$P(y = 1 \mid x_1, x_2, \dots, x_{k-1}, 1) - P(y = 1 \mid x_1, x_2, \dots, x_{k-1}, 0) \tag{5}$$

for a discrete regressor x_k. We report these marginal effects at the sample mean.

We first estimate the model for the whole sample; that is, we pool the observations and constrain all parameters to be the same across countries. The observations are weighted using the design weights and the population size weights provided by the European Social Survey. We then go on to explore the heterogeneity in the association between the perceived share of immigrants and support for the welfare state by allowing the coefficient on the perceived share to vary by country. Finally, we do a number of checks to explore the robustness of our results.

6   Results

6.1   Whole sample

Table A.4.3 reports estimated marginal effects (at the sample mean) for our probit models. All observations are pooled, and we constrain parameters to be the same across countries. There are nine columns, three for each dependent variable. The first column for each dependent variable corresponds to a model with individual controls and country dummies. The second column allows the coefficient on the perceived share to vary by the four subgroups described above. The third column constrains this coefficient to be the same for all individuals (as in the first column), but we allow the intercept to differ between these four types. The table reports results for selected variables only. Full estimation results are available from the authors upon request.

6.1.1   The average association between the perceived share and support for the welfare state is weak

A first lesson from table A.4.3 is that for the 22 European countries as a whole we find only very weak evidence for a negative relationship between immigration and natives' support for the welfare state. The estimated marginal effects for the three dependent variables are -0.0004, 0.00072, and -0.0007, of which only the last (for "help the poor") is statistically significantly different from zero. Even this last marginal effect is very small in size, however. When con-

Table 1: Results from probit models. Parameters constrained to be the same across countries

	Equal opportunities			Reduce income differences			Help the poor		
Perceived share	-.0004		-.00015	.00072		.00075	-.0007*		-.0006*
	(.00039)		(.00035)	(.00044)		(.0004)	(.00018)		(.00019)
Perceived share × Neither		.002*			.0016*			.00031	
		(.00026)			(.00029)			(.00032)	
Perceived share × Preference		-.0014*			.0011			-.00047	
		(.00051)			(.00086)			(.00068)	
Perceived share × Economic		-.00064*			.000091			-.0011*	
		(.00031)			(.00051)			(.00038)	
Perceived share × Both		-.0023*			.00022			-.0015*	
		(.00076)			(.001)			(.00024)	
Preference			-.12*			.013			-.021
			(.019)			(.014)			(.014)
Economic			-.072*			-.055*			-.038*
			(.016)			(.019)			(.011)
Both			-.15*			-.034			-.068*
			(.026)			(.031)			(.017)
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R²	.034	.042	.044	.094	.095	.097	.051	.054	.055
Observations	22285	22285	22285	23117	23117	23117	23117	23117	23117

The table reports estimated marginal effects at the sample mean. For the main effects of "preference," "economic," and "both," the omitted category is "neither." An asterisk denotes statistical significance at the 5% level. Asymptotic standard errors—adjusted for clustering at the country level—are shown in parentheses. The table contains only selected variables. Full results are available from the authors upon request.

trolling for demographic and socio-economic characteristics of the individual and when allowing for country-specific intercepts, an increase in the perceived share of immigrants of one standard deviation (about 16 percentage points) is associated with a decrease in the probability of wanting to help the poor of about one percentage point. To put this into perspective, recall from figure 1 above that about 82 percent of respondents declare that it is important to help the poor. Also, the estimated marginal effect of the perceived share of immigrants is much smaller than the association with, say, income or education. For instance, one standard deviation increase in the length of education (i.e., about four years) is associated with an increase in the support for equal opportunities by about four percentage points (not reported in the table). That is, measured in terms of standard deviations, the association with education is four times as strong as the association with the perceived share of immigrants.

6.1.2 The association differs with respect to personal dislike of immigrants and economic concerns about immigration

Now it may be that this small average effects masks differences between subgroups. In column 2 of each model, we therefore interact the perceived share with attitudes towards immigrants. As noted above, we would like to find out whether people who personally dislike immigrants (measured here by a question on whether the respondent would mind an immigrant marrying into his or her family) or people who are worried about the economic consequences of immigration (measured by a question about the fiscal contribution of immigrants) react more negatively to a given perceived share.

We find that the association does indeed differ between people with different views about immigration. For each of the three dependent variables, a Wald test (not reported) rejects the null hypotheses that all four coefficients are equal; another test shows that they are jointly (though not always individually) different from zero.

As expected, the starkest contrast is between the two extreme categories. The 36% of the sample (cf. figure 4) who do not mind having an immigrant marrying into their family and who do not think that the fiscal contribution of immigrants is negative tend to be *more* supportive of the welfare state the higher their perception of the share of immigrants in the population. By contrast, for the 21% of the sample who hold both negative views, the probability

of supporting the welfare state is estimated to go down by 0.0023 percentage points for the dependent variable "equal opportunity" and by 0.0015 percentage points for "helping the poor." Still, even for this subgroup of natives who hold the most negative views on immigrants, the perceived share of immigrants is only rather weakly related to their support for the welfare state. Even with a marginal effect of -0.0023 (the largest in absolute value that we find), an increase in the perceived share of immigrants of one standard deviation (about 16 percentage points) is associated with a decrease in the probability of favouring equal opportunities of only about 3.7 percentage points.

Although two of the marginal effects ("both channels" for "reduce income differences" and "neither channel" for "help the poor") are not statistically significant taken by themselves, the *difference* between individuals who hold neither view and individuals who hold both negative views is always statistically significant.[5] By contrast, the data do not allow us to disentangle which of the two channels is stronger. From the point estimates it seems that the preference channel is more important for "equal opportunities," while the economic channel seems to matter more for "helping the poor," but for neither model is the difference between these two parameters statistically significant (the p-values are 37.9, 27.8, and 40.0 percent).

6.1.3 The two channels matter by themselves, independently of the perceived presence of immigrants

Finally, we include the two channels and their interaction as main effects (column 3 for each dependent variable). We find that attitudes towards immigrants are important correlates of natives' support for the welfare state: people who hold negative views on immigrants tend to be less supportive of the welfare state, and this is true for all three dependent variables. The estimated marginal effects are jointly different from zero and, except for "help the poor," we reject the null hypothesis that they are all equal.

Many of the marginal effects are sizeable. For instance, for the dependent variable "equal opportunities", the belief that the fiscal contribution of immi-

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[5]We use Wald tests to test for the equality of these two parameters. The values of the test statistic are 52.4 for "equal opportunities," 2.2 for "reduce income differences," and 32.6 for "help the poor." The test statistic follows a $\chi^2(1)$ distribution. For "equal opportunities" and "help the poor" the null hypothesis of parameter equality is rejected at conventional levels, for "reduce income differences" at a level of 13.8%.

grants is negative is associated with a reduction in the response probability of 7.2 percentage points. Not wanting immigrants to marry into one's family is even associated with a reduction of 12 percentage points, and holding both negative views with a reduction of 15 percentage points in the response probability.

Concerning the relative importance of the two channels, we find that the preference channel is more important than the economic channel for "equal opportunities", whereas the reverse is true for "help the poor." However, a Wald test (not reported) shows that the difference is statistically significant only for "equal opportunities." For both these variables, holding *both* negative views is, as expected, associated with even less support for the welfare state.

By contrast, for "reduce income differences" we find the peculiar result that people who hold only the negative economic view tend to be less supportive of reducing income differences than are people who hold both negative views.

For neither variable can we reject the null hypothesis that the marginal effect of both channels is simply the sum of the two channels; that is, there is no evidence of an interaction effect of the two channels.

The association with the perceived share shows the same pattern as in the first column: there is no statistically significant association for "equal opportunities" and "reduce income differences," and for "help the poor" the association is, although statistically significant, very weak in practical terms.

In conclusion, the data suggest that for Europe as a whole attitudes towards immigration and attitudes towards the welfare state are strongly associated, but that this association is little affected by the (perceived) *presence* of immigrants.

6.2 Parameter heterogeneity across countries

So far, we have allowed our coefficient of interest to vary only with respect to individual attitudes towards immigration. Next, we allow the coefficient on the perceived share to differ across countries. As in the models above, we also allow for country differences in the intercept. Due to the large number of countries, we choose to present the main results graphically here; table 6 in the appendix contains the estimation results on which the figures are based.
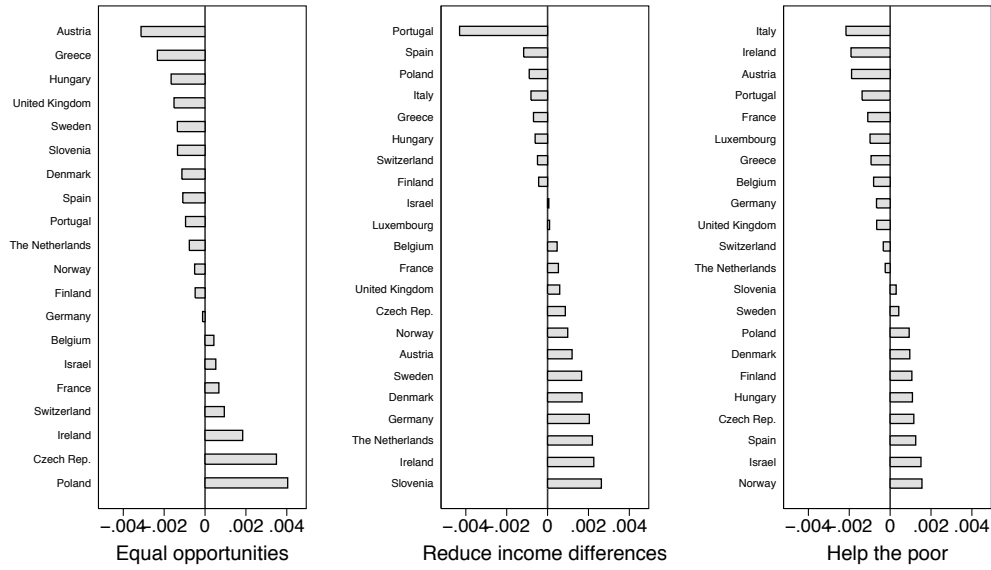
The figures show estimated marginal effects from probit models. Each figure corresponds to a different dependent variab[...]
The coefficient on the perceived share of immigrants is assumed to be country–specific.
All other parameters are constrained to be the same across countries.

Figure 5: Country differences in the association between the perceived share and natives' support for the welfare state

As figure 5 shows, the average marginal effect estimated above masks considerable heterogeneity across countries, and this is true for all three dependent variables. For "reduce income differences" the estimate based on a homogenous marginal effect is .00072; once heterogeneity by country is allowed, the estimates range from -0.004 for Portugal to 0.003 for Slovenia. For "equal opportunities", the homogenous marginal effect is -0.0004, which masks a range from -0.003 for Austria to 0.004 for Poland. Finally, for "help the poor" we estimate -0.0007 for the homogenous marginal effect, and country estimates that range from -0.002 for Italy to 0.002 for Norway. For each of the three dependent variables, a Wald test (not reported) rejects the null hypothesis that the coefficient of interest is the same across countries.

Concerning the size of the estimated marginal effects, the strongest negative association that we find is the -0.004 for Portugal and for the dependent variable "reduce income differences." The perceived share of immigrants in Portugal has a mean of 22.1 and a standard deviation of 19.2; our estimate therefore implies that in Portugal an increase in the perceived share of immigrants of one standard deviation is associated with a decrease in natives' support for reducing income differences by 7.7 percentage points. To put this into perspective,

86.1% of Portugese natives declare themselves in favour of the government reducing income differences.

We believe that these country differences are an interesting finding, which suggests that assuming homogenous parameters across geographical areas—while perhaps justified in previous studies that use U.S. or Canadian data—masks important differences across European countries in the relationship between the perceived share of immigrants and natives' support for the welfare state. *Explaining* these country differences is left for future work; any explanation would have to take into account that for some countries the sign of the estimated coefficient differs between the three dependent variables (see figure 6, which shows the same estimated marginal effects as figure 5, but now estimates are gouped by country and not by dependent variable). In Germany, for instance, natives tend to be more supportive of equal opportunities and reducing income differences, but less supportive of helping the poor the higher the perceived share of immigrants.
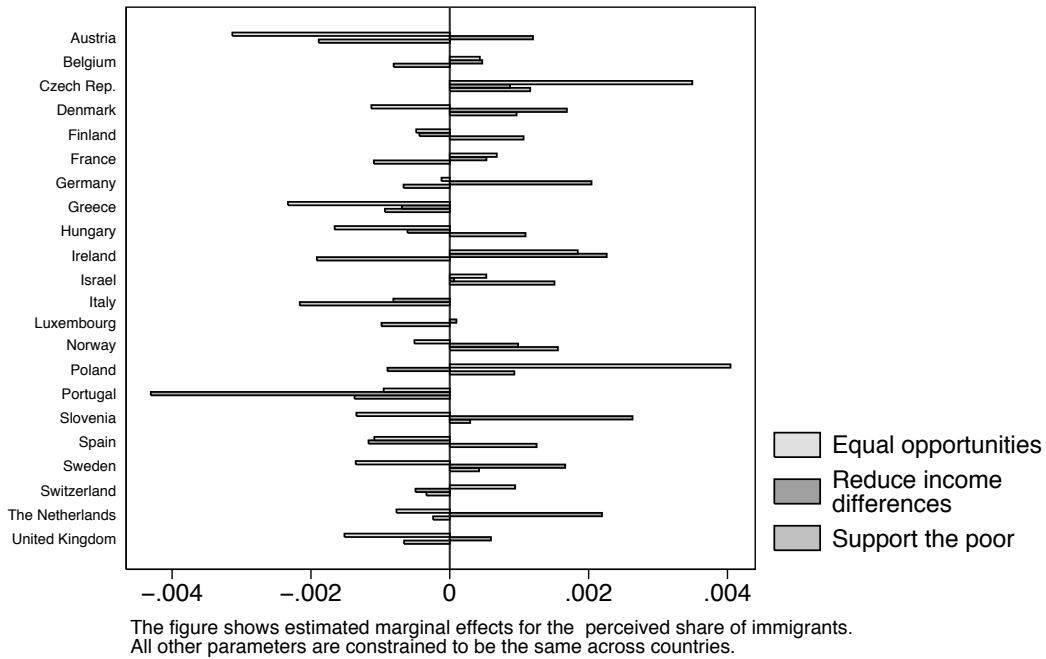

The figure shows estimated marginal effects for the perceived share of immigrants.
All other parameters are constrained to be the same across countries.

Figure 6: Estimated marginal effects by country for all three dependent variables

6.3   Robustness checks

We have done a number of tests to explore the robustness of our results.

First, we check whether our results are sensitive to how we measure the two channels. As noted above, our preferred variable for the taste channel is a question on whether the respondents would mind an immigrant marrying into their families. As alternative measures, we use information on whether the respondents have any immigrant friends, believe that immigrants undermine the country's culture, and whether they declare that there would be no members of ethnic minorities in their ideal neighbourhood.

For the economic channel, our preferred variables asks about the fiscal contribution of immigrants. Alternatively, we use information on whether respondents believe that immigration is bad for the economy as a whole and whether they find that unemployed immigrants should be made to leave. The wording of these questions is given in the appendix.

Our robustness check consists of estimating our model for each of these 12 combinations of variables. To keep the presentation simple, we run this test for the model in which parameters are assumed to be constant across countries and regions. As figures 7, 8, and 9 (reported in the appendix) show, our main findings are not sensitive to how we measure the channels. The association between the perceived share of immigrants and natives' support for redistribution is never very strong. Even for the type who holds both negative views, the mean estimated marginal effect over the twelve models is 0.0004 for "reduce income differences," -0.002 for "equal opportunities," and likewise -0.002 for "help the poor." Out of the 36 models (twelve combinations for each of the three dependent variables) the strongest negative marginal effect is -0.0027.

There is clear evidence of parameter heterogeneity between the two most extreme types: the association is positive for natives who hold both positive views, and negative for those who hold both negative views. The dependent variable "reduce income differences" constitutes an exception, though, at least for the type that holds both negative attitudes. This last case set aside, we find that the estimated marginal effects for the two extreme types are generally significantly different from zero and hence from each other. By contrast, we typically do not detect any statistically significant differences between the two intermediate types.

At the suggestion of a referee, we explore parameter heterogeneity with respect to *parents'* immigrant status: we interact the perceived share of immigrant with dummies for whether the neither, one, or both parents were born abroad (recall that respondents themselves are all natives in our sample). Table 2 shows the results of these estimates for each of the three depenent variables. The first row corresponds to natives whose both parents were already born in the country; rows 2 and 3 correspond to natives with one or two immigrant parents, respectively. The table shows that the (weak) evidence for a negative association between the perceived share of immigrants and natives support for the welfare state is in fact exclusively driven by natives whose both parents were already born in the country.

Table 2: All countries pooled, by parents' immigrant status

	Equal opp.	Egalitarian	Help the poor
Neither parent born abroad	-.00076*	.00069*	-.00056*
	(.00028)	(.00031)	(.00019)
One parent born abroad	.00082	-.00023	.00015
	(.00092)	(.00037)	(.00042)
Both parents born abroad	.0014*	.0006	.00036
	(.00068)	(.0005)	(.00035)
Individual controls	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes
Pseudo R^2	.037	.088	.057
Observations	22236	23062	23062

The table reports estimated marginal effects (at the sample mean) for the variable "perceived share of immigrants." This variable is interacted with dummy variables that indicate whether neither, one, or both parents of the respondent were born abroad. An asterisk denotes statistical significance at the 5% level. Asymptotic standard errors—adjusted for clustering at the country level—are shown in parentheses.

Finally, we estimate the model for nationals instead of natives. We look at natives in our main specification because the questions in the European Social Survey ask about immigrants (and not foreigners), but a case can be made that for political decisions it is the attitudes of nationals and not of natives that matter. In any case, the results (not reported here for the sake of brevity) are almost unchanged when the model is estimated for nationals instead of natives.

7 Conclusion

Using data from the European Social Survey (round 1, 2002/2003), we find a negative association between natives' perception of immigration and their support for the welfare state. But the association is very small and not robust. This finding is close to the result by Soroka, Johnston, and Banting (2004) for Canada. By contrast, we find that negative attitudes towards immigrants are quite strongly associated with less support for the the welfare state *independently of the perceived presence of immigrants*. Finally, we show that the average effect masks important differences between countries and regions. Explaining these differences is a promising direction for future work. Of course, it should be kept in mind that the three dependent variables that we use—the importance of equal opportunities, and support for helping the poor and for the government reducing income differences—do not capture the entire range of attitudes towards the welfare state.

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A Appendix

A.1 Summary statistics

Table 3: Summary statistics: country characteristics

	Population ('000s)	Foreign-born Actual (%)	Foreign-born Perceived (%)	Foreign nationals (%)
Austria	8102	12.5	20.2	8.8
Belgium	10356	10.7	22.6	8.2
Switzerland	7364	22.4	27.5	20.5
Czech Republic	10203	4.5	8.3	1.2
Germany	82536	12.5	19.4	8.9
Denmark	5384	6.8	10.0	5.0
Spain	41664	5.3	16.1	3.8
Finland	5206	2.5	6.6	1.7
France	61615	10.0	27.3	5.6
United Kingdom	59437	8.3	23.6	4.5
Greece	11006	10.3	19.7	7.0
Hungary	10142	2.9	14.6	0.9
Ireland	3964	10.4	14.3	5.9
Israel	6690	NA	37.7	NA
Italy	57321	3.9	17.7	2.3
Luxembourg	448	32.6	40.0	36.9
The Netherlands	16193	10.1	23.2	4.2
Norway	4552	7.3	12.0	4.3
Poland	38219	2.1	7.2	0.1
Portugal	10408	6.3	22.1	2.2
Sweden	8941	12.0	19.9	5.3
Slovenia	1995	NA	20.4	NA

SOURCES: Population figures, Gini coefficients, and shares of social expenditure in GDP (all for 2003) from Eurostat; shares of foreign-born and foreigners (circa 2000) from the OECD Factbook 2006; perceived share of the foreign-born in 2002/03 own calculations from the European Social Survey. For Switzerland, the Gini coefficient (for the year 2002) is from the Luxembourg Income Study. The population figure and the share of foreigners are from the Swiss Federal Statistical Office. The population figure for Israel is from the Israeli Central Bureau of Statistics.

Table 4: Summary statistics: individual characteristics

Variable	Mean	Std. Dev.	N
Perceived share of immigrants	19.568	17.363	31514
Age	46.504	18.382	37924
Years of education	11.774	3.972	37717
Household size	2.877	1.506	38227
Male	0.477		38270
Net income < 300 euros/month	0.085		30428
Net income 300 to 500 euros/month	0.09		30428
Net income 500 to 1000 euros/month	0.149		30428
Net income 1000 to 1500 euros/month	0.143		30428
Net income 1500 to 2000 euros/month	0.121		30428
Net income 2000 to 2500 euros/month	0.109		30428
Net income 2500 to 3000 euros/month	0.09		30428
Net income 3000 to 5000 euros/month	0.135		30428
Net income more than 5000 euros/month	0.079		30428
Unemployed	0.046		38270
Self-employed	0.123		38270
Armed forces	0.005		33386
Legislators, senior officials and managers	0.081		33386
Professionals	0.133		33386
Technicians and associate professionals	0.156		33386
Clerks	0.116		33386
Service workers and shop and market sales workers	0.144		33386
Skilled agricultural and fishery workers	0.048		33386
Craft and related trades workers	0.135		33386
Plant and machine operators and assemblers	0.078		33386
Elementary occupations	0.103		33386
Child in household	0.395		38270
Married	0.54		38081
Separated	0.014		38081
Divorced	0.064		38081
Widowed	0.091		38081
Never married	0.29		38081
Big city	0.173		38107
Suburb of big city	0.14		38107
Small city	0.295		38107
Village	0.323		38107
Farm	0.069		38107
Austria	0.054		38270
Belgium	0.045		38270
Switzerland	0.044		38270
Czech Republic	0.034		38270
Germany	0.071		38270
Denmark	0.037		38270
Spain	0.043		38270
Finland	0.051		38270
France	0.035		38270
United Kingdom	0.049		38270
Greece	0.06		38270
Hungary	0.043		38270
Ireland	0.05		38270
Israel	0.043		38270
Italy	0.031		38270
Luxembourg	0.028		38270
The Netherlands	0.058		38270
Norway	0.05		38270
Poland	0.054		38270
Portugal	0.037		38270
Sweden	0.047		38270
Slovenia	0.036		38270

A.2 Correlates of the perceived share of immigrants

Table 5: OLS estimates. Dependent variable: perceived share of immigrants in the population

	Coefficient	Standard error
Percent foreign-born	1.1*	(.032)
Age	-.19	(.094)
Age^2/100	.0014	(.00095)
Male	-4.6*	(.66)
Years of education	-.51*	(.11)
Net income 300 to 500 euros/month	-1.1	(1.1)
Net income 500 to 1000 euros/month	-1.4	(1.6)
Net income 1000 to 1500 euros/month	-2.6	(1.5)
Net income 1500 to 2000 euros/month	-2.8	(1.9)
Net income 2000 to 2500 euros/month	-4.3	(2.2)
Net income 2500 to 3000 euros/month	-3.5	(1.8)
Net income 3000 to 5000 euros/month	-4.3*	(2)
Net income more than 5000 euros/month	-5.4	(2.7)
Unemployed	.055	(1.1)
Self-employed	-1.2*	(.55)
Legislators, senior officials and managers	-.11	(1.1)
Professionals	-2	(1.4)
Technicians and associate professionals	-.14	(1.6)
Clerks	.69	(1.3)
Service workers and shop and market sales workers	3.8*	(1.7)
Skilled agricultural and fishery workers	.45	(1.5)
Craft and related trades workers	2.7*	(1.3)
Plant and machine operators and assemblers	3.4*	(1.4)
Elementary occupations	3.7*	(1.6)
Household size	.39	(.26)
Child in household	-.62	(.39)
Separated	2.6	(2.1)
Divorced	1.5*	(.39)
Widowed	.042	(.58)
Never married	-.095	(.51)
Suburb of big city	.58	(.95)
Small city	-.51	(.59)
Village	-1.8*	(.81)
Farm	-1.6	(1.2)
Belgium	3.9*	(.22)
Switzerland	-2.2*	(.64)
Czech Republic	-4.3*	(.32)
Germany	.58*	(.19)
Denmark	-2.1*	(.67)
Spain	2.6*	(.3)
Finland	-2.1*	(.46)
France	9.1*	(.24)
United Kingdom	8.6*	(.43)
Greece	.12	(.58)
Hungary	2.5*	(.86)
Ireland	-3.9*	(.31)
Italy	5.9*	(.44)
The Netherlands	7.4*	(.32)
Norway	-.55	(.8)
Poland	-4*	(.78)
Portugal	1.9*	(.83)
Sweden	.51*	(.21)
Constant	22*	(2.6)
Adjusted R^2	.2	
Observations	21434	

The table shows coefficient estimates from an OLS regression. The dependent variable is the perceived share of immigrants. An asterisk denotes statistical significance at the 5% level. Asymptotic standard errors—adjusted for clustering at the country level—in parentheses. Omitted reference categories: less than 300 euros per month (for income); armed forces (for occupation); married (for marital status); big city (for type of settlement); Austria (for the country dummies).

A.3 Country-specific coefficients on the variable "perceived share"

Table 6: Estimated marginal effects for "perceived share": results by country

	Equal opp.	Egalitarian	Help the poor
Austria	-.0031*	.0012*	-.0019*
	(.000058)	(.000078)	(.00014)
Belgium	.00043*	.00047*	-.00081*
	(.00007)	(.00012)	(.00012)
Switzerland	.00094*	-.00049*	-.00034*
	(.000094)	(.00011)	(.000086)
Czech Republic	.0035*	.00087*	.0012*
	(.0002)	(.00018)	(.0002)
Germany	-.00012*	.002*	-.00067*
	(.000049)	(.00012)	(.000091)
Denmark	-.0011*	.0017*	.00096*
	(.000085)	(.00021)	(.00018)
Spain	-.0011*	-.0012*	.0013*
	(.00014)	(.000092)	(.000096)
Finland	-.00048*	-.00044*	.0011*
	(.000082)	(.00017)	(.00015)
France	.00068*	.00053	-.0011*
	(.000093)	(.00028)	(.000098)
United Kingdom	-.0015*	.00059*	-.00066*
	(.000076)	(.00015)	(.000092)
Greece	-.0023*	-.00069*	-.00093*
	(.000072)	(.00011)	(.00012)
Hungary	-.0017*	-.00061*	.0011*
	(.000084)	(.00018)	(.00015)
Ireland	.0018*	.0023*	-.0019*
	(.00011)	(.00021)	(.000052)
Israel	.00053*	.000061	.0015*
	(.000068)	(.00012)	(.000073)
The Netherlands	-.00077*	.0022*	-.00024*
	(.000076)	(.00013)	(.000096)
Norway	-.00051*	.00098*	.0016*
	(.00012)	(.00023)	(.00012)
Poland	.004*	-.0009*	.00093*
	(.00018)	(.00026)	(.00015)
Portugal	-.00095*	-.0043*	-.0014*
	(.000092)	(.000083)	(.000089)
Sweden	-.0014*	.0017*	.00042*
	(.000089)	(.00009)	(.000090)
Slovenia	-.0013*	.0026*	.00029*
	(.000066)	(.000076)	(.000076)
Italy		-.00081*	-.0022*
		(.00021)	(.00013)
Luxembourg		.000096	-.00098*
		(.000096)	(.00013)
Individual controls	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes
Pseudo R^2	.037	.096	.053
Observations	22236	23062	23062

Results from a probit model in which both the intercept and the coefficient on the variable "perceived share" are allowed to be country-specific. The table reports estimated marginal effects for this variable, calculated at the sample mean. An asterisk denotes statistical significance at the 5% level. Asymptotic standard errors—adjusted for clustering at the country level—are shown in parentheses.

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A.4 Robustness check: different ways of measuring attitudes towards immigration

In one of the robustness checks we explore whether our results are sensitive to how we measure the personal dislike of immigrants and economic concerns about immigration. In the following we give the wording of questions that we use; the original variable names from the European Social Survey are given in parentheses.

A.4.1 Personal dislike of immigrants

Mind imm relative (ImDetMr) "And now thinking of people who have come to live in [country] from another country who are of a different race or ethnic group from most [country] people. How much would you mind or not mind if someone like this married a close relative of yours?"

Undermine culture (ImUEClt) "Would you say that [country]'s cultural life is generally undermined or enriched by people coming to live here from other countries?"

No imm friends (ImgFrnd) "Do you have any friends who have come to live in [country] from another country?"

No imm neighbours (IdEtAlv) "Suppose you were choosing where to live. Which of the three types of area on this card would you ideally wish to live in?" "An area where almost nobody was of a different race or ethnic group from most [country] people"

A.4.2 Economic concerns

Take out more (ImBleCo) "Most people who come to live here work and pay taxes. They also use health and welfare services. On balance, do you think people who come here take out more than they put in or put in more than they take out?"

Bad for economy (ImBGEco) "Would you say it is generally bad or good for [country]'s economy that people come to live here from other countries?"

Make unemployed leave (ImUnpLv) "If people who have come to live and

Table 7: Key to figures 7, 8, and 9

Number	Variable measuring the economic channel	Variable measuring the taste channel
1	Take out more	Mind imm relative
2	Take out more	No imm friends
3	Take out more	Undermine culture
4	Take out more	No imm neighbours
5	Bad for economy	Mind imm relative
6	Bad for economy	No imm friends
7	Bad for economy	Undermine culture
8	Bad for economy	No imm neighbours
9	Make unemployed leave	Mind imm relative
10	Make unemployed leave	No imm friends
11	Make unemployed leave	Undermine culture
12	Make unemployed leave	No imm neighbours

work here are unemployed for a long period, they should be made to leave."

A.4.3 Estimated marginal effects and their standard errors

To explore the robustness of our results, we try all twelve combinations of the four variables for personal dislike and the three variables for economic concerns. For each combination we estimate a probit model with support for the welfare state as the dependent variable and the perceived share of immigrants as regressor of interest. As in column 2 of table , this perceived share is interacted with the four types, abbreviated here as "neither," "preference," "economic," and "both."

Since we measure our dependent variable, support for the welfare state, in three different ways, we have a total of $12 \times 3 = 36$ models. The main results of these 36 models are presented graphically in figures 7, 8, and 9. Table 7 explains to which combination of variables each number in the figure corresponds.
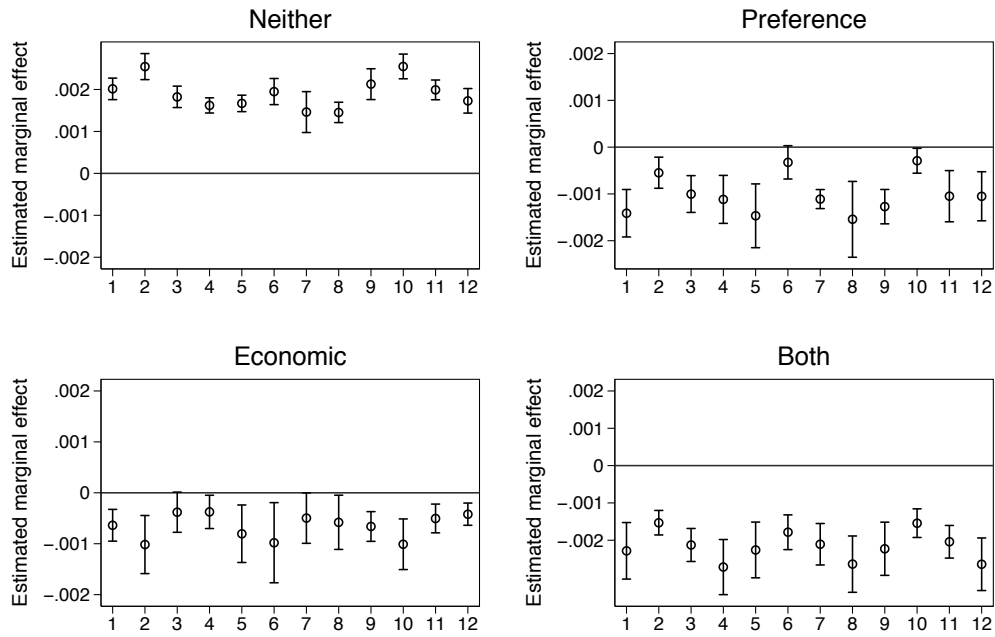
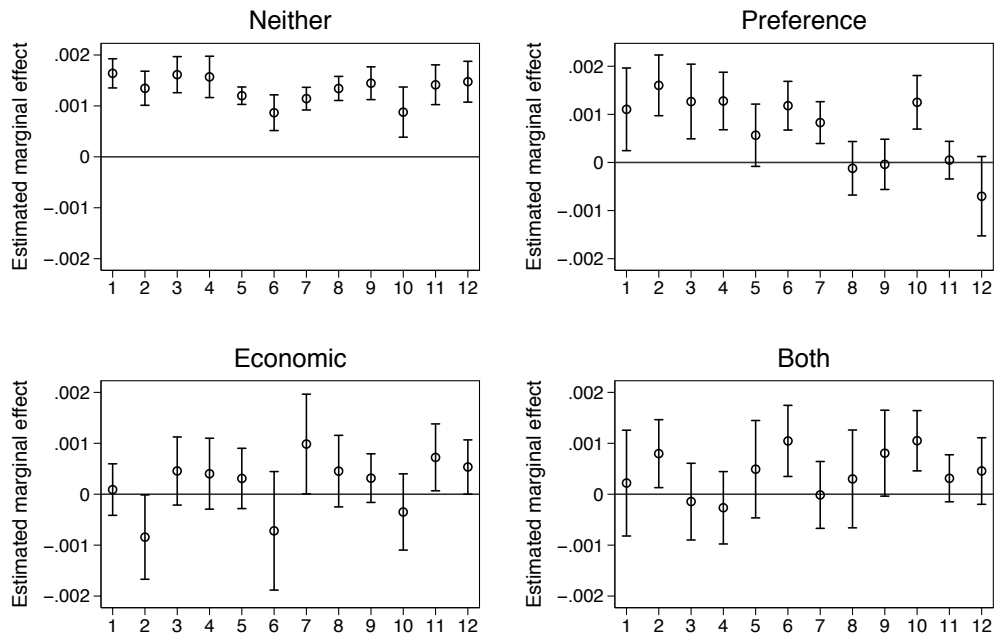Figure 7: Dependent variable: equal opportunities
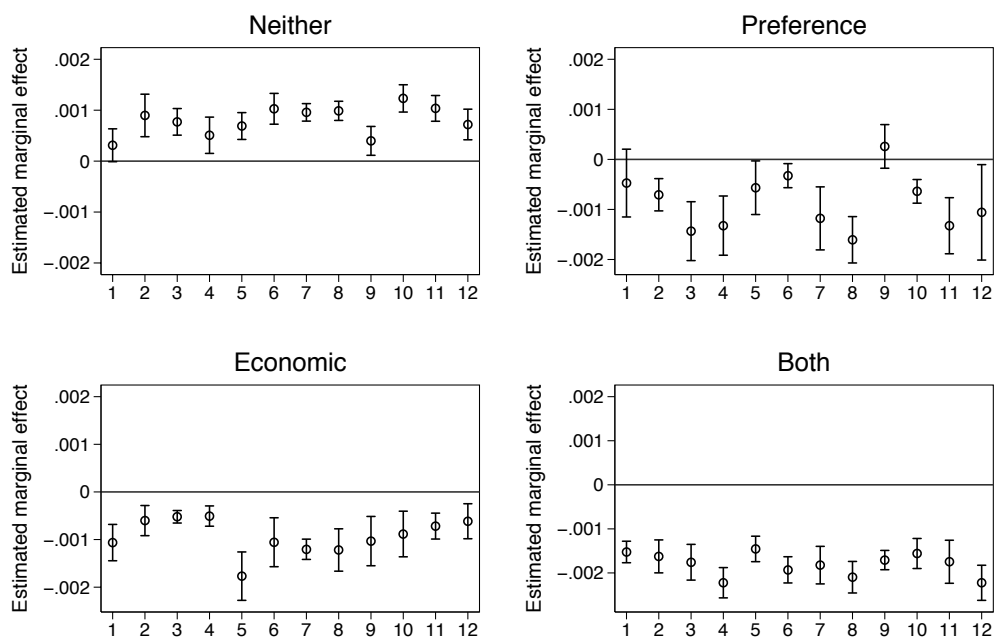

Figure 8: Dependent variable: reduce income differences

Figure 9: Dependent variable: support the poor