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From Individual Attitudes towards Migrants to Migration Policy Outcomes. Theory and Evidence

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From individual attitudes towards migrants to migration policy outcomes

Theory and evidence[1]

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Abstract

In democratic societies individual attitudes of voters represent the foundations of policy making. We start by analyzing patterns in public opinion on migration and find that, across countries of different income levels, only a small minority of voters favour more open migration policies. Next we investigate the determinants of voters' preferences towards immigration from a theoretical and empirical point of view. Our analysis supports the role played by economic channels (labour market, welfare state, efficiency gains). The second part of the paper examines how attitudes translate into a migration policy outcome. We consider two alternative political-economy frameworks: the median voter and the interest groups model. On the one hand, given the restrictive policies in place across destination countries, the very low fractions of voters favouring immigration represent evidence consistent with the median voter framework. At the same time, given the extent of individual-level opposition to immigration that appears in the data, it is somewhat puzzling, in a median-voter perspective, that migration flows take place at all. Interest-groups dynamics have the potential to explain this puzzle. We find evidence from regression analysis supporting both political-economy frameworks.

JEL classification: F22, J61.
Keywords : Immigration, Immigration Policy, Median Voter, Interest Groups, Political Economy

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1. Introduction

According to recent estimates (Goldin and Reinert 2006), about 11 million individuals migrate each year. Although this might look like a large number, it implies that worldwide only one in six hundred individuals changes country of residence over a twelve months period. The *stock* of migrants is larger though. The United Nations report that in 2000 about 175 million individuals, or 2.9% of the world population, lived outside their country of birth. Still, comparing these figures with the volume of trade as a share of world GDP or with the large flows of capital in international markets, many authors have concluded that what we are experiencing is a wave of globalization that includes "everything but labour" (Pritchett 2006, Freeman 2006). This is even more evident if we evaluate the current phenomenon in relation to the first wave of globalization, which took place between the end of the nineteenth and the beginning of the twentieth century.[2]

Observed migration flows are an equilibrium outcome resulting from a combination of demand and supply factors. On the supply side, flows are a function of migrants' decisions to move according to economic and non-economic incentives (Borjas (1987), Chiswick (1999), Clark, Hatton and Williamson (2007) and Mayda (2005)) while, on the demand side, flows are shaped by destination countries' migration policies. There is no indication that there has been a decrease in the willingness of workers to move across international borders. The income gap between poor sending countries and rich destination countries continues to be very pronounced.[3] Population growth in developing countries is much higher than in the rich world. Finally, transport and communication costs have drastically declined compared to one hundred years ago.

Restrictive migration policies thus appear to be key determinants of the limited flows actually observed. Leaving aside non-economic considerations, given the large efficiency gains brought about by migration to host countries (World Bank 2006 and Hamilton and Whalley 1984), a welfare maximizing government should allow a substantially larger number of immigrants than the one actually observed: that is, a purely normative economic framework is not well suited to explain the policies currently implemented by most destination countries. At the same time, standard economic theory suggests that, *whenever migration generates efficiency gains*, it has important effects on the distribution of income in the receiving country, creating winners and losers (Borjas 1999). Therefore,

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[2] See Findlay and O'Rourke (2003) and Obsfeld and Taylor (2003). For example, at its peak in 1910, almost 15% of the US population was foreign born. In 2000, after years of sustained inflows of immigrants, just over 10% of the US population was foreign born (Boeri, Hanson, and McCormick 2002).

[3] Jones (1997), for instance, finds that the correlation between GDP per capita (relative to the USA) in 1960 and in 1988 is about 1. Using a different perspective, Freeman (2006) has constructed a dataset that allows a broad comparison of wages for similar occupations across countries. Ranking earnings across countries, Freeman calculates that – when the nominal salary is converted into a common currency using nominal exchange rates – the ratio between the occupation-specific wage earned in the top and the bottom quintile of the world distribution is about 12 on average across occupations. In purchasing power parity, it is about 4 to 5.

political economy factors based on income distribution effects are likely to be key determinants of observed migration policy outcomes.

As pointed out by Rodrik (1995), individual preferences represent a key ingredient of a political economy model of policy outcomes in a democratic society. The first goal of this paper is thus to carry out an in depth investigation of the determinants of individual attitudes towards immigration, extending the existing literature along several dimensions. First of all, we supplement the 1995 round of the ISSP dataset with the newly released 2003 survey to assess whether individual attitudes towards migration in the post September 11 scenario are still consistent with the standard economic model. As it turns out, we find that economic drivers continue to play an important role and they have not been overshadowed by emotional and more general non economic considerations in the aftermath of the "war on terror". Furthermore, the use of the newly released dataset allows us to carry out a novel analysis of the determinants of attitudes over time, and in particular of the impact of country level, time varying variables.

Even though attitudes are recognised as being important drivers of public policy, the literature does not provide *systematic* evidence on the link between individual attitudes and actual policies implemented. [4] The second goal of this paper is thus to study whether voters' opinions towards migration can explain the restrictive migration policies in place in the majority of destination countries, if preferences are aggregated through a simple majority voting mechanism.

The answer we provide is yes, but only in part. In particular we find that, across countries of different income levels, only a small minority of voters favour more open migration policies. Based on the National Identity Module of the 1995 and 2003 rounds of the International Social Survey Programme, we find that in more than twenty high- and middle-income countries, less than 10 percent of respondents who gave an opinion about migration was in favour of increasing the number of immigrants to their country. Given this pattern in migration attitudes, a median voter framework is broadly consistent with restrictive migration policies in place. Interestingly, we find also that the variation in migration outcomes across destination countries is correlated with the attitudes of the median voter in each country. Thus, policymakers seem to take public opinion into account as they formulate migration policy.

At the same time, given the extent of opposition to immigration revealed by voters' attitudes, one might wonder why is migration allowed to take place *at all*. In fact, a simple median-voter model would predict the choice of close-to-zero flows, while actual arrivals are instead substantial. One very likely explanation of the discrepancy between voters' opinions and the actual size of migration flows is that the political process through

[4] We are aware of only one paper which tackles a similar question, Krishnakumar and Mueller (2007). To this end, the authors use a survey carried out in Switzerland after a popular initiative to limit the inflow of migrants which was defeated in the polls in 2000. The main result found by the authors is that there was a substantial "participation bias" in the vote: "Citizens in favour of immigration restrictions tend to participate much less in the vote than citizens against such restrictions." (page 5). For similar results, see also de Melo et al. (2004).

which heterogeneous preferences are aggregated is likely to be richer than a simple referendum. In particular, domestic interest groups, many of which are pro-migration (Freeman 1995, Joppke 1999) are likely to play an important role and in fact there is abundant anecdotal evidence supporting this view. For instance, during the dot com boom at the end of the nineties, high tech firms have intensively and successfully lobbied the US congress to increase the number of H1-B visas.[5] More recently, hospitals and healthcare providers have been able to secure an increase in the number of H1-C visas to be awarded to foreign nurses. Similarly, in the UK associations like the Business for New Europe group (BNE), have issued statements suggesting that "...the UK should continue with its open door policy", in the eve of the discussion on introducing a cap on migration from Bulgaria and Romania (Agence France Press, August 30 2006).[6]

Of course, not all pressure groups favour more open migration policies. Historically, US labour unions have been a very influential anti-immigration lobby, starting from the very birth of organized labour. More recently, the AFL-CIO supported measures to reduce illegal immigration that culminated in the 1986 Immigration Reform and Control Act. Similarly, during the recent debate on the nurse shortage, the American Nurses Association has strongly opposed a measure to increase the number of H1-C visas, pointing out that"…the provision would lead to a flood of nurse immigrants and would damage (..) the domestic work force" (New York Times, May 24 2006).

Surprisingly, there is very little systematic evidence in the empirical economics literature on the role played by interest groups in shaping immigration policy.[7] The third goal of this paper is thus to provide an attempt at measuring the impact of pressure groups in shaping migration policy. To carry out this analysis, we focus on the United States, a country, which represents an ideal ground to assess the effect of pressure groups. Using a panel covering the period 1994-2005 and differentiating labour according to both skill level and occupation, we find systematic evidence suggesting that the lobbying activity of organized labour leads to a reduction in the inflow of foreign workers in the same occupation/education cell and to an increase in the inflow of foreign workers in different occupation/education cells.

Thus, we find evidence suggesting that both political economy frameworks we have considered, the simple median voter model and the lobbying model, are helpful in understanding the process through which individual attitudes are mapped into immigration policy outcomes.

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[5] "Immigration policy today is driven by businesses that need more workers – skilled and unskilled, legal and illegal [...] During the annual debate on H1-B visas two years ago, Silicon Valley executives trooped before Congress, warning of a Y2K computer disaster unless the number of H1-B visas was increased." (Goldsborough 2000).

[6] The signatories of the appeal included the head of the supermarket chain Sainsbury's and the head of the European division of investment bank Merrill Lynch.

[7] The only paper which have looked at this question are Hanson and Spilimbergo (2001) which provides *indirect* political economy evidence on the role played by interest groups and Facchini Mayda and Mishra (2007) which analyzes the role of pressure groups across sectors rather than across occupations and skill levels.

The reminder of the paper is organized as follows. Section 2 reviews the main stylized facts on international migration and migration policies around the world. Section 3 analyzes individual attitudes towards immigration, and their evolution over time. Section 4 studies the link between individual attitudes and immigration policies, while section 5 concludes the paper and discusses the policy implications of our analysis.

2. Stylized facts on international migration and migration policies[8]

The analysis carried out in this paper is based on a sample of up to 34 countries that are included in the 1995 and 2003 rounds of the International Social Survey Programme. In this section we offer an overview of the characteristics of migration in these countries. These characteristics, and in particular the size and skill composition of the migrant population, affect the attitudes of natives towards immigration. We also discuss the main aspects of migration policies (and outcomes), which are themselves affected by voters' attitudes.

The data reported in Table 1 illustrate the existence of substantial heterogeneity in terms of net migration rates, defined as the difference between the number of immigrants and the number of emigrants divided by the destination country's population size. Most Western European states are today the receivers of positive migration flows, while several Eastern European countries are still net sources of emigrants. Among the main receivers of immigration in 1995 we find the Russian Federation and Israel, which saw their population increase by, respectively, a little over three per cent and close to two per cent. The fall of the Berlin wall and the collapse of the Soviet Union brought about a massive inflow of immigrants from former Soviet republics to Russia, and a large inflow of Russian Jews to Israel (Friedberg 2001). In the same year, Latvia was the country with the largest net population loss, followed by Bulgaria.

Migration flows show a remarkable degree of persistence over time and only 2 countries in our sample, namely Portugal and Ireland, changed their net position between 1995 and 2005. Interestingly, Ireland turned from a country of net emigration into the second largest receiver of immigrants in 2005, with an increase of almost one per cent in its population. Ireland was second only to Spain which, in the same period, experienced a net inflow equal to 1.3 per cent of its population.

The heterogeneity in the net migration flows is accompanied by large differences in the skill composition of immigrants as well. Our direct measure of skill composition, which is available only for a subset of the OECD countries in the sample, is defined using information on the schooling achievement of both the native and the migrant populations. In particular, the OECD collects information on the share of the population with less than secondary education, completed secondary education and tertiary education or above. Our measure of the relative skill composition of natives vs. immigrants is defined as

[8] The data in this section come from: SOPEMI (2005) (skill composition); Citizenship and Immigration Canada (www.cic.gc.ca); Australian Government (www.immi.gov.au); New Zealand Government (www.immigration.govt.nz); US Department of Homeland Security (www.dhs.gov).

$$RSC = \frac{\left(\frac{S_{2N} + S_{3N}}{S_{1N}} \right)}{\left(\frac{S_{2F} + S_{3F}}{S_{1F}} \right)}, \quad (1)$$

where S_{1j} S_{2j} and S_{3j} are, respectively, the share of the population of group j with less than secondary education, secondary education and tertiary or higher education in the native ($j=N$) and foreign ($j=F$) population. Thus, if $RSC=1$, the foreign and native populations are characterized by the same skill composition while if $RSC>(<)1$, the natives are instead more (less) skilled than the migrants.

As we can see from Table 1, in 1995 Portugal, Ireland, Spain and Italy are characterized by an immigrant population that – according to our measure – is more skilled than the native one.[9] In 2003 the same pattern holds for these countries, to which we need to add Australia, Hungary and the Slovak Republic. Migrants in the remainder of our sample are instead less skilled than the natives, and this is particularly evident in Germany, Switzerland and the USA.

Analyzing the size and skill composition of the migrant population is crucial to explain the preferences of natives towards immigration. At the same time, in a democratic society, we expect that individual attitudes, in the medium to long run, will be a key determinant of policy and outcomes. As the history of migration has been very different in the group of countries we are considering, to understand the immigration policies currently in place, it is useful to distinguish among three groups of destinations. On the one hand, we have the traditional settlement countries (Australia, Canada, New Zealand, and the United States), for which immigration has been a key factor for their establishment and development. We have then a second group, represented by Northern European countries, which have received large inflows of immigrants either due to colonial linkages or to active labour market recruitment policies (France, Germany, the Netherlands, Switzerland, Sweden, the United Kingdom, etc). The last group is represented instead by the new immigration countries of Western Europe (Italy, Spain, Portugal and Ireland) and of Eastern Europe (Czech Republic and Hungary). Traditionally, these countries have been net emigration countries, but strong economic performance has transformed them in net receivers of foreign workers.

Traditional immigration countries have had well developed migration policies for the past century. Currently, Australia, Canada and New Zealand have point systems in place that privilege the immigration of individuals with specific skills to fulfil the particular needs of the local labour markets. While other immigration channels are also important (i.e., family reunification and asylum seekers), in 2005, 56% of the individuals admitted by Canada entered under the economic category. The same figure is 68% for Australia and

[9] Notice that our skill measure is based on migration data which *excludes* illegal immigration. Therefore, our skill measure is characterized by a bias towards zero in all countries characterized by illegal migration, which tends to be unskilled.

61% in New Zealand. Since 1965 the United States have instead emphasized family reunification as the main channel of entry and, as a result, in 2005 only 22% of the total number of legal permanent residents admitted fell under the employment-based preference category.

Northern European receiving countries have implemented migration policies that varied substantially over time, and that have been the result of both long term colonial linkages and labour market shortages. The former have traditionally played a key role in shaping outcomes in France and the United Kingdom. The United Kingdom, for instance, maintained for a long time an open door policy towards citizens of countries members of the British Commonwealth. Labour market shortages have been driving instead migration policies in Germany, Austria and Switzerland, which traditionally have mainly tried to target temporary migrants (guest workers).

Southern and Eastern European countries have experienced net outflows of immigrants until very recently, and have just started to develop mechanisms to monitor and regulate immigration policies. In the case of Italy and Spain, migration policy has focused mainly on the organization of legal entry, and the limitation of illegal entry. Ireland has instead been particularly concerned with the regulation of large inflows of asylum seekers and with making the asylum procedures more transparent (Bauer, Lofstrom and Zimmermann 2000).

More recently most OECD countries have introduced active policies to promote the recruitment of skilled and highly skilled workers (SOPEMI 2005). For instance, in 2000 Germany introduced a "green card" especially targeted at IT professionals (SOPEMI 2002). France has recently signed a series of bilateral agreements to allow foreign young professionals to work in the country, subject to annual quotas. Even some Eastern European countries are undertaking steps to design a selective migration policy based on the specific needs of the local labour market. The Czech Republic, for instance, has introduced a pilot project known as "Active selection of qualified foreign workers" aimed at recruiting highly skilled foreigners willing to settle there permanently. More generally, an EU-wide debate on the introduction of a "blue card" has recently taken centre stage in the media. The main idea is that skill shortages in certain key areas need to be addressed in a systematic way and that, only by granting access to an EU-wide labour market, the sought-off talents can be attracted.[10]

Finally, the data in Table 1 suggest that while – as many observers have pointed out (Freeman 2006, Pritchett 2006) – the international movement of labour is in many ways small, especially when compared to trade and capital movements,[11] it is far from being

[10] The more general importance of coordinating migration policies at the EU level has been clearly spelled out in the 2005 The Hague program. See also Boeri and Bruecker (2005) for a discussion.

[11] Of course, assessing the relative importance of the flow of people, capital and goods presents a series of challenges, as no single unified metric is available for this purpose. One way of tackling this question is to consider the degree of price dispersion for similar goods/factor services. As Freeman (2006) points out "…differences in the dispersion of wages and prices suggest that globalization has not reduced the differences among similarly skilled workers as much as it has reduced price differences and differences in cost of capital." See also Faini (2006) and Pritchett (2006).

negligible. In 2000, the United States experienced a net inflow of permanent settlers in the order of 850,000 individuals. Similarly, 272,000 immigrants arrived in Italy in the same year, while Germany received about 650,000 immigrants (SOPEMI 2004). The relatively small size of migration flows is consistent with public opinion, which does not welcome increases in the number of immigrants in the majority of destination countries. At the same time, the non-trivial size of labour movements suggests that other forces – besides public opinion – are at work in shaping migration outcomes. As we will argue, interest groups are very likely to play an important role.

3. Individual attitudes towards immigrants

In this section we analyze individual attitudes towards immigrants both from a theoretical and empirical points of view. We first investigate the patterns in individual attitudes towards immigrants across destination countries (see Section 3.1). Second, we discuss a simple theoretical model of immigration attitudes, focusing in particular on the labour-market, welfare-state and efficiency channels (see section 3.2 and Appendix 1). Finally, we present the results on the determinants of immigration attitudes in 1995 and, more recently, in 2003 (see Section 3.3).

3.1 Patterns in individual attitudes towards immigrants

Are natives in favour of or against an increase in migration to their countries? Are there differences in public opinion towards immigration across destination countries? Table 2 presents the results based on the 1995 National Identity module of the International Social Survey Programme (ISSP) (see also Mayda 2006 and Facchini and Mayda 2007). In Table 3, we complement the 1995 table with summary statistics based on a newly released data set, the 2003 ISSP National Identity module.

To construct measures of attitudes towards immigration, we use respondents' answers in the two rounds of the ISSP survey to the following question: "There are different opinions about immigrants from other countries living in (respondent's country). By "immigrants" we mean people who come to settle in (respondent's country). Do you think the number of immigrants to (respondent's country) nowadays should be: (a) reduced a lot, (b) reduced a little, (c) remain the same as it is, (d) increased a little, or (e) increased a lot". The survey format also allows for "can't choose" and "not available" responses which we treat as missing values and thus exclude from the sample in our specifications. Interestingly, the fraction of missing values to the immigration question is at times large and varies substantially across countries. For example, many countries of the former Soviet bloc in the sample have fractions that exceed one third of the respondents. To investigate whether omitting missing values results in a selection bias and to understand why a respondent answers or not the immigration question, we will use a Heckman selection model (see section 3.3).

In 1995, in the sample of countries considered (see list in Table 2), individuals are on average very opposed to immigration: only 7.39% of individuals– who give an opinion

about migration – agree with the statement that the number of immigrants to their countries should be increased either a little or a lot. The average of the variable *Pro Immig Opinion* in the overall sample equals 2.13.[12] Finally, the median value of the same variable in the overall sample is equal to 2.

In addition, Table 2 clearly shows that there exists substantial variation across countries in terms of individual attitudes towards immigrants. In 1995, Canada and Ireland are the most open countries to migration (with, respectively, 20.61% and 19.10% of their population favouring an increase in the number of immigrants) while Latvia and Hungary are the most closed (with, respectively, 0.45% and 1.48% of their population supporting higher migration). In general, most Central and Eastern European countries have among the lowest percentages of voters favouring migration (Latvia, Hungary, Slovenia, Czech Republic, Slovak Republic). Among Western European countries, Italy (3.55%) and Germany (2.54%) have the most hostile public opinion to immigration. Besides Ireland, Spain is the Western European country whose citizenry is most receptive towards migrants (8.44%). Finally, in the United States, 8.05% of the population welcomes increases in migration (all these percentages appear in the tenth column from the left in Table 2).

The percentages above are calculated as averages of a dichotomous measure of pro-immigration preferences, *Pro Immig Dummy*, which is equal to one if the respondent favors an increase in migration, zero if the respondent thinks that the number of migrants should remain the same as it is or be reduced. However, this measure hides variation across the two categories which are grouped together (reduce, remain the same as it is). In several countries, these two groups are quite different. In order to investigate this variation, Figure 1 shows the variance of attitudes within countries across the three categories (reduce, remain the same as it is, increase), in 1995. We find that, while in a few countries the middle category (remain the same as it is) is substantial (Austria, Ireland, Canada, Japan, Spain), in the rest of the countries it is the first category (reduce) that dominates.

The 2003 data set, based on a larger sample of countries (see list of countries in Table 3), confirms that voters are indeed hostile to immigration on average: only 10.84% of individuals in the overall sample of countries – who give an opinion about migration – agrees that the number of immigrants should be increased either a little or a lot. The average of the variable *Pro Immig Opinion* in the overall sample equals 2.29. Finally, the median value of the same variable is, in the overall sample, again equal to 2.

As in 1995, there are substantial differences in attitudes towards immigrants across countries in 2003. For example in Canada and Israel, respectively, 29.02% and 27.14% of the population favours an increase in the number of immigrants, while in Hungary and Latvia these percentages are, respectively, equal to 2.18% and 2.60%. Among Western European countries, Portugal (3.09%), the Netherlands (3.72%) and Germany (4.06%) show the public opinion that is most hostile to immigration. Finland (24.10%) is the only

[12] *Pro Immig Opinion* uses answers to the immigration question and ranges from 1 (reduced a lot) to 5 (increased a lot).

Western European country among the top five most open countries towards migration. In the United States, 9.8% of individuals favours higher numbers of immigrants. In France, 7.37% of voters welcomes increases in migration. (See Figure 2 for the variance of attitudes within countries in 2003 across the three categories – reduce, remain the same as it is, increase).

The sample of countries on which the two tables of summary statistics are based are different. In order to compare the two years, we restrict the samples of countries to be the same in 1995 and 2003.[13] We find that, based on this sample, the fractions of voters in favour of relaxing immigration restrictions in 1995 and 2003 are, respectively, 7.57% and 8.74%. These two percentages are close but still significantly different at the 1% level, with the 2003 value higher than the 1995 one. Figures 3, 4 and 5 compare the values across countries for 1995 vs. 2003. They show, respectively, the median and average values of *Pro Immig Opinion* and the average value of *Pro Immig Dummy*. The three figures uncover interesting patterns of migration attitudes over time. Consider, for example, Figure 5. Noticeably, Ireland has experienced a substantial worsening of attitudes towards migrants between 1995 and 2003: the fraction of voters in favour of migration has dropped from 19.10% in 1995 to 8.77% in 2003. The other countries in which the fraction of individuals favouring migration has decreased are: the Netherlands, Norway, Poland, Bulgaria, Russia and Japan. On the other hand, in the remainder of our sample, which represents the majority of countries (Germany, Great Britain, U.S., Austria, Hungary, Sweden, Czech Republic, Slovenia, New Zealand, Canada, Philippines, Spain, Latvia, Slovak Republic), public opinion has become more favourable to migration. For example, in Canada the percentage of voters welcoming an increase in the number of immigrants has increased from 20.61% in 1995 to 29.02% in 2003. Remarkably, in the United States, voters have become more favourable to immigration, notwithstanding the September 11 attacks.

3.2 Understanding individual attitudes towards immigration

A growing literature investigates both the economic and non-economic determinants of individual preferences over different aspects of globalization and, in particular, over migration. The analysis of economic drivers is based on the income-distribution effects of international labour movements. The logic is that, assuming self-interest maximizing behaviour, individual attitudes in survey data sets reflect the impact of migration on each respondent's individual utility. Thus the analysis of attitudinal responses, combined with information on each individual's socio-economic characteristics, allows an *indirect* test of the income-distribution predictions of migration models. In addition, the availability in survey data sets of questions on values and on cultural and security issues makes it possible to investigate how international migration is perceived at the individual level from a non-economic point of view.

[13] We restrict the sample to the following countries: Austria, Bulgaria, Canada, Czech Republic, Germany, Great Britain, Hungary, Ireland, Japan, Latvia, Netherlands, New Zealand, Norway, Philippines, Poland, Russia, Slovak Republic, Slovenia, Spain, Sweden, US. These are also the countries on which Figures 1,2 and 3 are based.

The economic impact of immigration on individual attitudes can be analysed using the model developed in Appendix 1, which is based on Facchini and Mayda (2007). In particular, we consider a factor proportions analysis framework, where skilled and unskilled labour are combined according to a constant returns to scale production function to produce one good. The income distribution effects of migration can take place through two channels, the labour market and the welfare state.

Through the labour market, the model predicts that the income-distribution effects of migration depend on the skill composition of migrants relative to natives in the destination country. If immigrants are on average unskilled relative to natives, through the labour-market channel they will hurt unskilled natives and benefit skilled ones, as their arrival will induce an increase in the skilled wage and a decrease in the unskilled wage. At the same time, if immigrants are on average more skilled than natives, the income-distribution effects of migration through the labor market are reversed, i.e. unskilled workers end up benefiting from migration, while skilled workers are on the losing end. In other words, the extent to which immigrants and natives are on average complements or substitutes in the labor market plays a key role in shaping natives' attitudes towards inflows of foreign workers. Thus, in our empirical analysis we expect to find that, through the labor market channel, if migration is unskilled (relative to natives on average), attitudes will be positively correlated with the level of individual skill while, if migration is skilled, attitudes will be negatively correlated with the level of individual skill.

To understand the effects of immigration through the welfare state channel, we consider a simple redistributive system, in which all income is taxed at the same rate, and all individuals in the economy, i.e. natives and immigrants, are entitled to receive an equal lump sum per capita benefit. By construction, this simple welfare system redistributes resources from high-income individuals to low-income members of society. We hypothesize that immigration can affect the working of this system in two extreme directions.[14] On the one hand, migration can bring about changes in the tax rate, to keep the per capita benefits constant (*tax adjustment model*). On the other, the per capita benefits can adjust to keep the tax rate constant (*benefit adjustment model*).

If migration is unskilled, under both policy scenarios all natives will be negatively affected by the presence of foreign workers, through a welfare-state leakage effect. On the other hand, if immigration is skilled, all natives will benefit from a positive welfare spillover. However, the extent to which natives suffer (benefit) from unskilled (skilled) migration through the welfare state channel will differ according to each individual native's income level. That is, there will be income distribution effects. In particular, under the *tax adjustment model*, if migration is unskilled, attitudes towards immigration will be negatively correlated with income. Intuitively, as the tax rate needs to increase to keep the level of per capita benefits unchanged, the burden of migration falls disproportionately more on richer individuals. The opposite is true in the case of skilled

[14] We could of course consider a more general scenario, in which both types of adjustment do take place. In such a more general framework, what will matter is the extent to which one of the two adjustments dominates.

immigration, in which case attitudes towards immigration will be positively correlated with income. If on the other hand the welfare state reacts through changes in the level of per capita benefits, to keep constant the tax level (*benefit adjustment model*), an inflow of unskilled immigrants will have a disproportionately negative effect on those individuals that are at the receiving end of the welfare system, that is poorer individuals. Intuitively, the reduction in the demogrant will have a larger impact on the individuals with a smaller income. This implies that, under the benefit adjustment model, if immigration is unskilled, individual attitudes should be positively correlated with individual income. On the other hand, if immigration is skilled, individual attitudes should be negatively correlated with individual income.

Finally, besides the labor market and the welfare state, there is a third economic channel that is relevant as a determinant of individual attitudes towards immigration, i.e. the efficiency channel. If the inflow of immigrants is non marginal, there will be aggregate gains from migration, as pointed out by Berry and Soligo (1969), which will relax the government budget constraint by increasing the tax base. Thus all natives should be in favour of immigration through the efficiency channel.

3.3 Analysis of the determinants of individual attitudes towards immigrants

In this section, we extend the analysis carried out by Facchini and Mayda (2007), supplementing the 1995 National Identity module of the ISSP with the 2003 wave. This is an interesting exercise as in the post September 11 international environment it is not clear whether economic drivers of individual attitudes towards migration still play a significant role and they are not instead completely obfuscated by non economic drivers. Furthermore, doing so allows us to compare patterns and determinants of individual attitudes both across countries *and over time*.[15]

Regressions (1)-(5), Table 4 present the results on the determinants of individual attitudes towards immigrants based on the 1995 ISSP National Identity module. We complement the 1995 findings with the results based on the 2003 ISSP National Identity module (see regressions (1')-(5'), Table 4). Using the two data sets, we focus on both economic and noneconomic determinants of individual attitudes towards immigrants. We present the estimates of the coefficients of ordered probit models which control for country fixed effects – to account for unobserved, additive, country-specific effects[16] – and have standard errors clustered by country – to account for heteroskedasticity and correlation of individual observations within a country. Finally, in both sets of regressions, the dependent variable is *Pro Immig Opinion* which ranges between 1 and 5 and is higher the more pro-migration the individual is.

[15] In addition, in Facchini and Mayda (2007) the migration levels (and policy) are treated as exogenous. In the second part of this paper, instead, we study how individual attitudes translate into a migration policy outcome.

[16] Thus, the country-specific intercepts account for the impact of country-level variables which is homogeneous across fellow citizens, for example, the linear effect of migration policy, of the business cycle, of the size of migration flows, of the relative skill mix of migrants, etc.: thus, these variables cannot be introduced in the estimating equation linearly, otherwise they would be perfectly collinear with the country dummy variables.

The results in regressions (1)-(5), Table 4 are comparable to those obtained by Mayda (2006) and Facchini and Mayda (2007).[17] The estimates in regressions (1')-(5'), Table 4 are instead new. The two sets of regressions have the same format, which makes it easier to compare the results. Our general finding is that both economic and non-economic determinants matter in shaping individual attitudes towards immigrants, in both 1995 and 2003. In particular, we find evidence that is consistent with the three economic channels uncovered by the theoretical model: the labour market, the welfare state and the efficiency channels.

In regressions (1) and (1'), we constrain the coefficients on individual-level variables to be the same and investigate basic patterns in the data. As in previous work, we find that older individuals are less likely to favour migration in 1995. However, interestingly, we also find that this effect disappears in 2003. We do not find evidence of a gender effect neither in 1995 nor in 2003. Finally, in both years, foreigners are more likely to be pro-migration as well as individuals with parents who are foreign nationals (see coefficients on, respectively, *citizen* and *parents' foreign citizenship*[18]).

As pointed out by the theoretical model, the two key individual-level variables of the empirical analysis are the level of education – which captures the impact of labour-market effects on attitudes – and the level of income – which captures the effect of welfare-state considerations on attitudes. The two variables are clearly correlated, since well-educated individuals tend to have higher incomes. This implies that it is problematic to analyze the two channels independently from each other, since the exclusion of one of the two variables would produce an omitted variable bias in the estimation of the impact of the other variable.[19] On the other hand, while education and income are positively and significantly correlated,[20] they are far from being perfectly collinear, which makes it possible to analyze them together. Thus, in regressions (1) and (1'), we introduce *education* and *log of real income* together in the same specification. We find that both variables have a positive and significant impact on pro-migration attitudes, both in 1995 and 2003.

Regressions (2)-(5) and (2')-(5') are more closely related to the theoretical model, which suggests that the impact of education and income should be country-specific. In particular, the model implies that the effect of individual skill and income should be a function of the relative skill composition of natives to immigrants. Since this variable is not available for many countries in our samples, we use a proxy for it, the per capita GDP level in the

[17] Notice, however, that the results in this paper are slightly different from Mayda (2006) and Facchini and Mayda (2007) since here we control for a different set of variables and do not exclude foreign citizens from the analysis (although we control for whether an individual is foreign or national).

[18] *citizen* equals one if the individual is a citizen of the country where he/she is interviewed, zero otherwise. *parents' foreign citizenship* is coded as follows: 1=both parents are citizens; 2= only mother/father is citizen; 3=neither parents are citizens.

[19] As will become clear below, since under the tax adjustment model (which is the one consistent with the data) the two channels work in exactly the opposite directions, the bias would be towards zero.

[20] In the 1995 ISSP data set, the correlation is 0.25 (significant at the 1% level), while in the 2003 ISSP data set it is 0.38 (significant at the 1% level).

same year.[21] There are both theoretical and empirical reasons for using this proxy. In the standard international migration model with no productivity differences across countries, rich countries have a higher supply of skilled to unskilled labour than poor countries, therefore lower skilled wages and higher unskilled wages. This creates an incentive for unskilled migrants to move from low to high per capita GDP countries, while skilled migrants will tend to move in the opposite direction. Therefore, this simple model predicts that the relative skill composition of natives to immigrants is high in rich countries and low in poor countries. To take into account the fact that, in reality, there exist productivity differences across countries, we also provide empirical evidence that per capita GDP levels are positively associated with the relative skill mix of natives to immigrants. The top and bottom panels of Figure 6 illustrate this relationship for 1995 and 2003, respectively, using data on the relative skill composition and per capita GDP levels from Tables 1, 2 and 3.

Once we account for cross-country heterogeneity in terms of the impact of individual-level variables, we find that the level of individual skill affects migration preferences as predicted by the theoretical model (regressions (2) and (2')). Consistent with the labour-market channel, education has a *positive* impact on pro-migration attitudes in high per capita GDP countries – that receive unskilled migrants on average, relative to natives – and a *negative* impact in low per capita GDP countries – that receive skilled migrants on average, relative to natives.[22] In particular, this result continues to hold also when we use the 2003 wave of the ISSP and this represents an important robustness check of the results in the previous literature.[23]

We next analyze the role played by public finance considerations. Regressions (2) and (2') are based on the full sample of countries of each data set. Thus, it is not surprising that we do not find strong evidence for the welfare-state channel. However, once we restrict the sample to countries with well-developed Western-style welfare states[24]

[21] The table in the Appendix shows estimates of the model using a *direct* measure of the relative skill composition of natives to immigrants. However, as Tables 1, 2 and 3 show, this direct measure is only available for a very limited number of countries.

[22] The skill mix of immigrants, as proxied by per capita GDP, is one of the regressors of this specification. As pointed out in Section 2, the skill mix of immigrants is shaped by migration policy which, in turn, is a function of individual attitudes towards migration. However, in an individual-level analysis such as this one, reverse causality is not an issue, since each individual has an infinitesimal impact on the aggregate policy outcome. In addition, the impact of attitudes on policy outcomes will only take place in the medium to long run.

[23] Using data on U.S preferences towards migrants, Scheve and Slaughter (2001) finds that U.S. unskilled workers are more likely than skilled ones to oppose labour inflows, which is consistent with the fact that immigrants to the U.S. are on average unskilled. Using the 1995 ISSP data set, Mayda (2006) and O'Rourke and Sinnott (2005) find that individual skill and pro-immigration preferences are positively correlated in countries that receive unskilled migration and negatively correlated otherwise.

[24] In particular, we restrict the 1995 sample to the following countries: Austria, Canada, Czech Republic, East Germany, West Germany, Great Britain, Hungary, Ireland, Netherlands, New Zealand, Norway, Slovenia, Slovak Republic, Spain, Sweden, United States (Italy is excluded because there is no information available on individual income, Japan is excluded because there is no information on citizenship). We restrict the 2003 sample to the following countries: Australia, Austria, Canada, Czech Republic, Denmark, Finland, France, East Germany, West Germany, Great Britain, Hungary, Ireland, Japan, Netherlands, New Zealand, Norway, Portugal, Slovak Republic, Spain, Sweden, Switzerland, United States.

(regressions (3)-(5) and (3')-(5')), we find estimates which are in line with the welfare-state predictions of the theoretical model, in particular in the case of the *tax adjustment model*. Individual income has a negative impact on pro-migration attitudes in high per capita GDP countries – that receive unskilled migrants on average – and a positive impact on pro-migration attitudes in low per capita GDP countries – that receive skilled migrants on average. These results are robust to controlling for the labour-market channel and to using both the 1995 and 2003 data sets. Thus, the results of this paper using the newly available data set for 2003 strongly confirm the findings of the existing literature.[25] Both in 1995 and 2003, through the labour-market and the welfare-state channels, the income distribution effects of migration work in opposite directions.

In regressions (4) and (4'), we control for *pro-immig crime*, *pro-immig culture*, and *pro-immig economy*, which measure the perceived impact of migration (by the respondent) from respectively a crime, a cultural and a nation-wide economic points of view.[26] First of all, we find that our results on the labor-market and welfare-state channels are not affected by these controls. In addition, these three variables – which are higher the more positive the attitude of the individual towards migration along that particular dimension – are all positively associated with pro-migration attitudes, both in 1995 and 2003. In particular, the impact of *pro-immig economy* allows us to shed light on the efficiency channel since the question on which the variable is based asks the respondent about his/her perceived impact of migration on the economy as a whole. This variable has a large effect in both 1995 and 2003, which is evidence that, notwithstanding income-distribution effects, individuals are aware of the overall gains from migration. Overall gains from migration might be relevant for an individual either because of altruistic reasons or – as pointed out by the theoretical model – because of their effect on the tax base.

In columns (5) and (5'), we control for additional socio-economic/ideological background variables, i.e. *upper social class*, *trade union member*, *political affiliation with the right*

[25] Using U.S. data, Hanson, Scheve and Slaughter (2005) and Hanson (2005) find that the negative relationship between education and anti-immigrant preferences – driven by the labour market – becomes smaller in absolute value and sometimes positive in states with high exposure to immigrant fiscal pressure. Using the 1995 ISSP data set, Facchini and Mayda (2007) find that, in countries where immigrants are unskilled relative to natives, individual income is negatively correlated with pro-immigration preferences, while the correlation changes sign in destinations characterized by skilled migration. See also Dustmann and Preston (2004a, b) for the role played by welfare-state drivers relative to other economic and non-economic drivers of attitudes.

[26] *pro-immig crime* is based on responses to the following question: "How much do you agree or disagree with the following statement? Immigrants increase crime rates: 1=agree strongly; 5=disagree strongly." *pro-immig crime*=1 if answers to the above question are either (4) or (5); 0 otherwise. *pro-immig culture* is based on responses to the following question: "How much do you agree or disagree with the following statement? Immigrants make (respondent's country) more open to new ideas and cultures: 1=disagree strongly; 5=agree strongly." *pro-immig culture*=1 if answers to the above questions are either (4) or (5); 0 otherwise. *pro-immig economy* is based on responses to the following question: "How much do you agree or disagree with each of the following statements? Immigrants are generally good for (respondent's country's) economy: 1=disagree strongly, 5=agree strongly." *pro-immig economy*=1 if answers to the above questions are either 4 or 5; 0 otherwise"

and *religious*.[27] In both years, individuals belonging to upper social classes are more positive towards migration, while political affiliation with a right-wing party is associated with negative views. Trade union membership does not have a significant impact on attitudes in 1995 but it negatively and significantly impacts migration opinions in 2003. Finally, we find that *religious* has a positive and significant impact on pro-migration attitudes in both years. This result is not surprising and strengthens the existing evidence suggesting that being actively religious is correlated with the degree of tolerance towards others (Guiso, Sapienza and Zingales, 2003).

To conclude, the estimates in Table 4 confirm that the three economic channels affect public opinion on migration as predicted by the theoretical model. Our findings on economic drivers are not qualitatively affected by the introduction of non-economic controls which have their own independent impact on such public opinion.

Tables 5 and 6 provide an important robustness check of the results in Table 4. As already mentioned, the percentages of "can't choose" (CC) and "not available" (NA) responses in the two data sets are quite high and vary greatly across countries. Since the observations corresponding to these values are excluded from the samples, a lot of information is lost. Moreover – and this represents a more serious concern – omitting the CC and NA observations could result in inconsistent estimates due to a selection bias. To check whether this is the case we use a Heckman selection model. In particular, we consider the following specification:

$$y_j = x_j\beta + u_{1j} \qquad \text{(main equation)}$$

$$y_j^{select} = 1 \text{ if } z_j\gamma + u_{2j} \geq 0 \qquad \text{(selection equation)}$$

where z_j and y_j^{select} are observed for $\forall\, j$; y_j (which is equal to *Pro Immig Opinion*) is observed only if $y_j^{select} = 1$; $X \subseteq Z$; (u_1, u_2) is independent of Z with $u_1 \sim N(0,1)$, $u_2 \sim N(0,1)$, $corr(u_1, u_2) = \rho$. What the selection model captures is the fact that, for some individuals, the utility of not giving an answer to the migration question is greater than the utility of replying, thus $y_j^{select} = 0$ and *Pro Immig Opinion* is not observed. One possible explanation of this behavior is cultural attitude towards questioning: individuals in some countries may be on average reluctant to answer questions; in addition, within countries, some members of society may be less likely to express an opinion (for example, women). Another explanation is uncertainty of the correct answer, due to lack of knowledge on the topic. Given these explanations for the selection mechanism, it is possible that factors causing whether or not an individual gives an opinion also have an impact on immigration preferences. Hence, to the extent that we do not control for these

[27] *political affiliation with the right* is coded as follows: 1=far left, 2=centre left, 3=centre, 4=right, 5=far right. *religious* measures how often the individual attends religious services and ranges from 1 to 8 (1=never and 8= several times a week).

common determinants, the error terms u_1 and u_2 could be correlated. That is why it is necessary to test for selection bias.

In practice, we run the Heckman selection model in two steps: in the first stage, we estimate a probit equation (selection model) for whether an individual answers the migration question or not (see bottom panels of Tables 5 and 6); in the second stage, after excluding the CC and DK observations, we estimate a *linear* model (main model), controlling for the estimated inverse Mills ratio. In the selection model, we use all the same regressors as in the main model plus an additional variable, which makes identification possible: we use information on whether or not the individual gives an answer to a given question on trade policy in the survey. For both years, we check that this variable does not have a significant impact on the dependent variable in the main model.

We find that we cannot reject the null hypothesis of no selection bias. The inverse Mills' ratio is not significantly different from zero in 1995 nor in 2003. We also find that the estimates of the coefficients that capture the labor-market and welfare-state channels (education, income and their interaction with per capita GDP, respectively) do not change when we account for the selection mechanism (compare regressions (1)-(3) to regressions (1')-(3') (top panel, Tables 5 and 6). Finally, the selection equations (bottom panels, Tables 5 and 6) provide interesting evidence on why some individuals give their opinion while others do not. We find that older individuals are more likely to answer the migration question, as well as male respondents and citizens, both in 1995 and 2003. Second-generation immigrants are less likely to give an opinion on migration, although the effect is only significant in 2003. Interestingly, the impact of *education* and *log of real income* is reversed compared to the main equation. That is, those individuals who benefit through the labor-market and/or welfare-state channels are the ones who are the least likely to provide an opinion on migration. This is not surprising, given that usually it is those who lose who are more vocal.

To conclude our analysis of the determinants of migration attitudes, we exploit the time dimension in the data. We restrict our sample to the set of countries for which opinion data is available for both 1995 and 2003 and pool the two cross-sections of the ISSP survey. This allows us to analyze the impact of country-level variables that are time varying. The results are reported in Table 7. All specifications include both country fixed effects - to account for unobserved additive country-specific effects – and year effects – to control for aggregate shocks in any given year that are common across countries. Thus we are exploiting the within country variation after netting out year effects that are common across countries.

Overall, combining the two cross-sections, we find that the two main individual-level determinants of attitudes towards immigration, i.e. the labor market and the welfare state, continue to play a significant role. In columns (1)-(2), we replicate our previous analysis using the data set pooled over the two years. Regression (1) is based on the whole sample of countries, while regression (2) is restricted to the sample of countries with a well-developed Western-style welfare state. In specifications (3)-(9) we include time-varying,

country-level variables. We start by looking at the effect of per capita GDP (regression (3)), we next consider the impact of the net migration rate (regression (4)) and, finally, we control for both variables in equation (5). As it turns out, countries whose per capita GDP increases between 1995 and 2003 experience a deterioration in public opinion towards immigration. This surprising result can be at least in part explained by the results we obtain in the following two columns. First, the estimates show that countries which receive larger inflows of immigrants become less favourable to immigration. When we introduce both per capita GDP and the net migration rate in the same specification, although the coefficient on the former variable remains negative and significant, its magnitude in absolute value decreases. Thus one reason why countries with higher per capita GDP become more opposed to immigration is that they attract more immigrants – we find evidence consistent with this in our sample of countries – and, as regression (4) highlights, countries which receive larger inflows of foreigners become more hostile to migration.

Next, we control for the effect of growth of per capita GDP in regression (6). We find that, in countries where growth accelerates between 1995 and 2003, individuals become on average more favourable towards immigration. Interestingly, when we introduce both per capita GDP growth and the per capita GDP level in the same regression (column (7)), we find that the negative impact of per capita GDP disappears. This is consistent with the evidence in our sample that the growth rate of per capita GDP tends to decrease in countries that become richer between 1995 and 2003. In other words, one reason why in previous regressions per capita GDP had a negative impact on public opinion is that in countries that become richer, growth rates slow down and thus natives feel more strongly the competition of foreign workers. In specification (8), we do not find that changes over time in the relative skill composition of natives to migrants play a role (this might be due to the lower number of countries observations in the sample). Finally, in regression (9), we investigate whether changes in demographic trends impact individual attitudes. Interestingly, we find that countries which have experienced a decrease in birth rates are more open to inflows of foreigners. This result can be rationalized in a dynamic perspective by the potential role that migrants can play in sustaining pay as you go social security systems.

4. Mapping individual preferences into policy outcomes

In this section we carry out what is to the best of our knowledge one of the first attempts to analyze how individual attitudes towards migrants translate into migration policy outcomes. We first bring to the data a simple model of direct democracy in section 4.1, while we examine the performance of an interest groups model in section 4.2.

4.1 Does the median voter rule?

The median-voter approach has been pioneered by Benhabib (1996), which considers the human capital requirements that would be imposed on potential immigrants by an

income-maximizing community under majority voting.[28] In Appendix 2 we use a similar median-voter framework and develop a theoretical model which gives predictions in terms of the *levels* of skilled and unskilled migration. In our model, skilled and unskilled labor are combined to produce one single output good. As we show, if the median voter is unskilled, he will choose to admit an immigrant population, which is skilled compared to natives. On the other hand, if the median voter is skilled, he will choose to admit an immigrant population which is unskilled compared to natives. We next evaluate whether these predictions are consistent with the data in a number of different ways.

Our first piece of evidence is the summary statistics in Tables 2 and 3, which are broadly consistent with the median voter framework. They show that voters across countries are, on average, very much opposed to immigration, which in a median-voter framework is in line with the relatively small size of migration flows and stocks. Figures 7, 8 and 9 and Table 8 provide additional evidence, which is consistent with the median-voter model.[29] In Figure 7, we relate the opinion on immigration of the median voter in each country, in 1995, to the size of the net migration inflow to that country, divided by its population, in 2000. We find that the two variables are positively and significantly correlated (at the 5% level) with each other (the regression line in Figure 7 corresponds to column (1), Table 8).

In Figure 8 we consider the impact of average attitudes towards immigrants in each country in 1995 on the size of the net migration inflow to that country, divided by its population, in 2000. Once again, the correlation is positive and significant (at the 5% level) (the regression line in Figure 8 corresponds to column (2), Table 8). Finally in Figure 9, we look at the impact on net migration inflows in 2000 of the fraction of voters in each country favourable in 1995 to an increase in the number of immigrants. We find, once again, a positive and significant (at the 10% level) correlation between the two variables (the regression line in Figure 9 corresponds to column (3), Table 8).

Figures 7, 8 and 9 provide evidence which is broadly consistent with the median-voter framework. However, these figures (and the corresponding regression results in Table 8) treat the independent variable (attitudes) as given and exogenous. This assumption is likely to be problematic. Our estimates might be biased because of reverse causality: i.e., migration inflows may themselves affect attitudes. For example Mayda (2006) finds that, in countries with higher immigrant inflows, voters tend to be on average more opposed to

[28] Ortega (2005) extends this model to a dynamic setting. For a survey of the literature on the political economy of migration policy, see Facchini (2004), while for a review of the literature that looks at the welfare-state dimension, see Krieger (2005).

[29] Figures 7, 8 and 9 and Table 8 are based on the 1995 data set. We cannot extend this analysis using the 2003 dataset since recent data on migration inflows for the sample of countries considered is not yet available. Using the 1995 ISSP data set, we identify the median voter in each country using the *Pro Immig Opinion* variable: we rank individuals in each country according to their *Pro Immig Opinion* value and select the individual who corresponds to the 50th percentile (the opinion of this individual – median *Pro Immig Opinion* – appears in the nineth column from the left in Table 2 and is used in Figure 7). In Figure 8, we use the average *Pro Immig Opinion* (see eighth column from the left in Table 2). Finally, in Figure 9 we use the fraction of voters in each country favorable to an increase in the number of immigrants which we calculate by taking the average of the *Pro-Immig Dummy* variable in each country (see tenth column from the left in Table 2).

immigration. (Notice, however, that this reverse causality biases the coefficients in Table 8 towards zero, thus it is not problematic for our results.)

We address the endogeneity problem by relating the variation in attitudes across countries to the variation in exogenous factors. Consider Figure 7 (based on regression (1), Table 8), which is the most related to the median-voter model. We model the median-voter opinion variable using the predictions of the theoretical model of individual attitudes (see Appendix 1). This model makes predictions for the preferences of any voter on migration and, in particular, for the preferences of the median voter. In countries which receive unskilled migrants on average, the more educated the median voter is, the more favourable to migration she will be (that is, the higher the median-voter opinion variable) and therefore the higher the migration inflow. The opposite should be true in countries that receive skilled migrants on average: in these countries, the more educated the median voter is, the less favourable to migration she will be (that is, the lower the median-voter opinion variable) and therefore the lower the migration inflow. In other words, we estimate the following equation:

$$M_c = \beta_0 + \beta_1 educ_c^{MV} + \beta_2 educ_c^{MV} \cdot skillratio_c , \qquad (2)$$

where M_c is the net migration rate in country c, $educ_c^{MV}$ represents the education level of the median voter in country c, while $skillratio_c$ represents the skilled to unskilled labour ratio in the native relative to the immigrant population (the higher the $skillratio_c$, the more unskilled migrants are relative to natives on average). Once again, we use per capita GDP as a proxy for $skillratio_c$. According to the theoretical predictions, we expect to find $\beta_1 < 0$ and $\beta_2 > 0$. Since this specification of the model implies non-linear effects, it makes it easier to rule out possible omitted variable biases. In addition, and most importantly, we can treat education at the individual level as exogenous with respect to migration.[30] The estimates of this regression are presented in column (4), Table 8 and are consistent with our expectations. Although the number of country observations is very low, the results in Table 8 provide evidence which is broadly consistent with the median voter framework.

4.2 Do interest groups shape migration policy?

From the debate on the rules regulating the inflow of workers from new to old members of the European Union, to the discussions in the United States about H1-B visas and illegal immigrants, anecdotal evidence points at the important role played by interest groups in shaping destination countries' migration policy. Systematic evidence on the matter is scarce. The purpose of this section is to start filling this gap by empirically

[30] While the education level can be assumed as exogenous – with respect to migration – for any given individual, the education level of the median voter might be affected by migration because of a change in the identity of the median voter. However, this effect takes place only in the long run and only in countries where it is relatively easy for immigrants or their kids to become citizens and vote (that is, *jus soli* countries; see Bertocchi and Strozzi (2006)).

evaluating the model of endogenous migration-policy formation recently proposed by Facchini and Willmann (2005). In that model (see also bottom panel, Appendix 2) the authors consider the strategic interaction between organized factors – competing for protection – and the government as a common agency problem. In the first stage of the game, lobbies offer the incumbent politician contribution schedules that are contingent on the degree of protection that the politician will grant each factor. In the second stage, in choosing the optimal policy, the government trades off social welfare against contributions. In equilibrium, protection turns out to be higher for a lobbying than for a non-lobbying factor, it is increasing in the relative importance of the factor, while it is decreasing in the proportion of the population involved in lobbying. Furthermore, the protection level is determined by the degree of complementarity and substitutability between inputs. In particular, if two factors are complements (substitutes), allowing a larger inflow of one factor increases (decreases) the marginal product of the other. Therefore, a factor has an incentive to lobby against (in favour of) protection of a complement (substitute) factor, to secure a higher return for itself. In general, the lobbying of a factor has a detrimental effect on the degree of protection granted to its complements; the opposite is true in the case of lobbying substitutes.

In the model, the equilibrium protection level is characterized in a closed-form solution and can therefore be brought to the data. While the theoretical predictions apply to any factor (capital, for example), the focus of our empirical analysis is on restrictions of international labour mobility. We use the United States as the testing ground for our theory, as there exists substantial anecdotal evidence on the role played by organized groups in shaping migration policy in the country. In particular, we analyse U.S. immigration policy between 1994 and 2005 and differentiate labour according to the level of skill and to the type of occupation. We therefore treat each education/occupation cell as a different labour category. This fine classification, by distinguishing different occupations within the same education category, is very flexible in determining the relationships of complementarity and substitutability, since individuals with the same level of education but different occupations are likely not to be perfect substitutes for each other.

In this framework, the theoretical model predicts that migration restrictions in a given education/occupation cell are a function of the number of native workers in that cell and in any other education/occupation cell, as well as a function of the extent of political organization of that cell and all other labour categories. To construct these variables, we use the Integrated Public Use Microdata Series - Current Population Survey (CPS), which is based on the March Annual Demographic File and Income Supplement to the CPS. The data set contains individual-level information on a range of socio-economic characteristics, such as: education level; occupation; citizenship status; nativity (foreign-born vs. native-born); union membership, etc.

We define a person as native if he/she is native born, regardless of whether his/her parents are native-born or foreign-born. We define a person as immigrant if he/she is foreign born, no matter whether naturalized or non-citizen. Foreign-born individuals who are citizens only by virtue of being born to American parents are excluded from both

groups. We restrict the analysis to native and immigrant men and women, aged 18-64, who participate in the civilian labour force. We consider the respondent's highest level of educational attainment and focus on five different skill groups: high-school dropouts (individuals with no high-school diploma); high-school graduates; persons with some college (but no degree); college graduates (including associate degree/occupational program, associate degree/academic program, and bachelor's degree); and persons with more than college (master's degree, professional degree, and doctorate degree). We consider the individual's occupation based on the CPS *occ1950* variable and reclassify it into 15 broad occupation categories. Finally, we use information on each respondent's union membership status.

Based on this individual-level information, we calculate the total number of natives and immigrants, in each year, by skill/occupation cell and, in order to measure political organization, we construct union membership rates in each labour category (restricting the sample to natives). When we aggregate the individual-level information, we use sampling weights as recommended by IPUMS-CPS.

Notice that the predictions of the theoretical model are about migration restrictions. However, as the dependent variable of our empirical analysis, we will use the number of immigrants. This is not the most direct measure of migration restrictions. Ideally, we would want to use a policy measure – such as *ex ante* migration quotas – which are independent of supply-side factors. There are three main reasons why we use the overall number of immigrants as our policy variable. First of all, there is abundant anecdotal evidence suggesting that, for the United States, quotas are actually binding, which implies that changes in the number of migrants coincide with policy changes. For instance, in 2007 the annual cap of 65,000 H1B visas was already filled on April 2, the first day after the opening of the application receiving process for fiscal year 2007-2008 (Rediff News, April 4 2007). Secondly, the total number of immigrants is a comprehensive measure of the number of immigrants who enter the US, legally or illegally, temporarily or permanently. Third, for the most part, migration quotas are not publicly announced by U.S. policymakers at a disaggregate level (i.e., by occupation).

In the empirical analysis, we investigate the change in the number of immigrants over time, that is we carry out a fixed-effects estimation which uses the variation over time within education/occupation cells. This estimation strategy is consistent with the recent U.S. experience. By migration policy we refer to the broad policy outlines that set the number and criteria of admission of permanent legal immigrants, as well as the higher frequency changes in the number of temporary work visas, and the management of border and interior enforcement. While the *broad* policy outlines have not changed much throughout the period we are considering, in practice the number of workers allowed in the U.S. has changed substantially over this period. This is in part because of changes in the official migration policy through changes in the number of work-related visas issued every year and in part because of changes in the actual application of the policy guidelines (i.e. border control etc.). For example, the number of individuals legally admitted as temporary workers has varied considerably throughout the nineties. According to the INS Immigration Yearbook (2004), in 1990 100,446 individuals were

admitted on an H1B visa in the United States. The same figure for 2000 is equal to 355,605, a more than threefold increase in the number of highly skilled foreign workers allowed to temporarily work in the United States (see Table 24, page 101 of INS (2004)). Similarly, in 1995 11,394 temporary agricultural workers were admitted under the H2A visa, while in 2000 33,292 workers were admitted under the same category. 40,920 athletes or entertainers were admitted in 2000 (P visa category), in comparison to only 22,397 in 1995, and the list could go on much longer. Finally, the *application* of restrictions to migration has varied substantially from year to year. In particular, as Hanson and Spilimbergo (2001) have shown, US border enforcement softens when the sectors that use illegal immigrants expand.

To what extent does the occupation/education composition of immigrants directly reflect policy? In other words, is migration policy set along occupation/education lines? A large share of permanent immigration permits ("green cards") are issued for family reunification purposes and thus are not directly linked to specific occupations/education categories. At the same time, temporary work visa (which in many cases represent the first step towards a more permanent status) are often issued on the basis of specific education/occupation requirements. For instance, 7495 individuals have been admitted in the US in 2004 under the H1C visa category, reserved to "registered nurses", 27,127 foreigners have been allowed to carry out their activities as "workers with exceptional ability/achievement" (O1 visa class) while 21,571 individuals have been admitted under the R1 visa classification for "Religious workers", and the list could go on much longer. Border enforcement policies are also likely to focus on particular skills/occupation categories. For instance, it is well known and documented that illegal Mexican workers are very likely to end up working as "braceros" and border enforcement has been found to be much less strict whenever the demand for this type of workers expands (Hanson and Spilimbergo 2001). Finally, and most importantly, whether or not the political economy channel of migration policy works at the occupation/education level is part of the empirical test in the econometric analysis.

To summarize, in our main specification, the dependent variable of the empirical model is the yearly number of immigrants to the United States in each education/occupation category, between 1994 and 2005. If migration quotas are binding – which is likely to be the case in most education/occupation cells – the number of immigrants entering the United States in a given year represents the policy measure we are interested in. As regressors, we use the yearly number of natives in each education/occupation category, between 1994 and 2005, and the interaction of this number with a measure of their political organization.

From the basic specification introduced in equation (17'), we know that the extent of protection granted to a factor is positive if the factor is politically organized. On the other hand, the extent of protection granted to a factor is negative if the factor is not (or not enough) politically organized. In addition, if the factor is politically organized, protection is increasing with the number of natives (same cell). Therefore, if a factor is politically organized, we should find a negative relationship between the number of immigrants in that cell and the number of native workers of the same type. If the factor is not politically

organized, protection is decreasing with the number of natives (same cell). Therefore, if a factor is not politically organized, we should find a positive relationship between the number of immigrants in that category and the number of native workers of the same type. These predictions hold ceteris paribus, i.e. keeping fixed the extent of complementarity in production between domestic factors. Our main specification thus looks as follows:

$$M_{sot} = \beta_0 + \beta_1 N_{sot} + \beta_2 N_{sot} \cdot PO_{sot}, \qquad (3)$$

where s denotes the skill level, o the occupation, t the year, M the number of migrants, N the number of natives and PO their political organization status, as proxied by the union density in the education/occupation cell. According to the theoretical model, we expect $\beta_1 > 0$ and $\beta_2 < 0$. Regressions (1)-(4) in Table 9 present the results from estimation of equation (3). Column (1) provides evidence which is consistent with the model. The number of native workers increases protection (i.e., it reduces the number of immigrants) only if these workers are politically active. The opposite is true if these workers are not (or not enough) politically organized, in which case we find that the number of native workers is positively correlated with the number of immigrants.[31] Specification (1) controls for unobserved cell specific effects. In the following regressions, we test the robustness of these results by adding year effects (regression (2)), by using weights for the observations (regression (3)) and, finally, by clustering standard errors by cell, to account for correlation of observations over time within a cell (regression (4)). The estimates are of the same signs and significance levels as regression (1).

In columns (5) and (6), we investigate whether the impact of workers' political organization has changed over time. In particular, some unions in the U.S. have reversed their position towards immigration in 2000, switching from an anti-migration to a pro-migration stance.[32] We therefore divide our data into two subsamples, the period up to the year 2000 and the period after the year 2000. We find evidence which is consistent with this change. While the impact of politically organized workers is negative and significant for the former period, it becomes positive and insignificant in the latter period.

Next, we estimate a specification that accounts for the impact of lobbying activity by workers in other education/occupation cells:

[31] Thus our estimates identify a threshold value of the union density in a given education/occupation cell below which workers are defined as not politically organized.

[32] The reversal of the anti-immigration stance of the AFL-CIO occurred in February 2000, with a resolution approved by the Executive committee inviting the government to abolish the system of employer sanctions created by the 1986 Immigration Reform and Control Act. While the union did not explicitly propose an alternative system, this decision has been viewed by many observers as an important change in perspective. Watts (2002) points at three main reasons for the change in policy preferences of the AFL-CIO around the year 2000. On the one hand, union leaders have grown increasingly aware of the importance of foreign immigrants in the rank and file of the union. Secondly, they have become convinced of the state's inability to control immigration, and third, they have become concerned with the immigrants joining the black sector of the economy.

$$M_{sot} = \beta_0 + \beta_3 N_{s'o't} + \beta_4 N_{s'o't} \cdot PO_{s'o't}, \quad (4)$$

where $o' \neq o$ given $s' = s$, or $s' \neq s$, that is in the last two terms we consider the number of natives (and their union density) in cells with different occupations in the same education category or with different education. According to the model, we expect the signs of β_3 and β_4 to depend on whether workers across labour categories are complements or substitutes. We find evidence supporting the existence of complementarity between different types of labour. In particular, for a given cell, we find that the number of native workers in any other cell decreases the level of protection granted to the particular occupation/skill category we are considering. (i.e., it increases the number of immigrants to that cell) if workers in these other cells are politically organized. The opposite is true if workers in these other cells are not (or not enough) politically organized, in which case we find that the number of native workers in any other cell is negatively correlated with the number of immigrants (column (7)). Notice that the patterns in the signs of these coefficients exactly mirror the patterns of signs in previous regressions. These results are consistent with a relationship of complementarity, on average, between workers of a given education/experience level and workers of a different education level or with the same education level but a different occupation. Finally, the results in the last two columns of the table seem to suggest that the relationship of complementarity is driven by workers with different levels of education as opposed to workers with the same level of education but a different occupation (see columns (8) and (9)).

To conclude, another force in the interest groups framework which will work to increase the number of immigrants of a given cell is politically organized capital owners in the same cell. This is intuitive, given that capital is complemented by labour. The analysis of the impact of lobbying activity by capital owners at the sectoral level is the focus of our own work in progress (see Facchini, Mayda, Mishra 2007).[33]

5. Conclusions

Restrictive migration policies are the main determinant of the limited migration flows and stocks that can be observed around the world. As it has been pointed out by many observers, the migration restrictions currently in place cannot be explained within a purely economic, welfare-maximizing framework. Political economy factors – shaped by both economic and noneconomic drivers – are key to understand migration policy outcomes. Public opinion is most likely the main political-economy force that reduces the current size of migration inflows. Survey evidence points out that voters are on average very opposed to migration in the majority of destination countries, which is consistent with restrictive policies currently in place. In addition, we find evidence that the cross-country pattern in voters' preferences is correlated with destination countries' migration outcomes. In particular, countries where the median voter is more opposed to migration

[33] The other main difference between the analysis in this paper and in Facchini, Mayda and Mishra (2007) is that here we focus on the long run model, where the relevant unit of observation is the occupation/skill cell, while there we carry out a short run, sectoral analysis.

tend to implement more restrictive policies. This suggests that politicians take voters' attitudes towards migrants into account as they formulate their policies. In other words, we find evidence which is broadly consistent with the median voter framework.

However, based on the extent of opposition to immigration revealed by voters' attitudes, within a median-voter framework we would expect migration flows to be restricted to zero, while most countries in our sample are net receivers of non-negligible numbers of foreign workers. How can this public opinion puzzle, i.e. this large gap between individual opinions and actual policies and outcomes, be explained? In this paper we have suggested that pressure groups might be the answer. Anecdotal evidence and the empirical analysis we have carried out suggest that lobbies are very active in the migration policy arena, and that several pressure groups are actually pro-migration. In particular, we found that the number of foreign workers in a given cell is positively affected by politically-organized native workers in *other* education/occupation categories. This suggests that, for example, politically organized doctors will lobby the government and succeed in increasing the number of foreign nurses. In addition, another important factor which will work to increase the number of immigrants in a given cell is politically organized capital owners in the same cell (Facchini, Mayda and Mishra 2007).

Of course, alternative hypotheses might help explain the public opinion puzzle. For example, another reason for why migration flows continue to take place – notwithstanding the great opposition of voters in destination countries – is that policymakers may not have full control on migration inflows through their policies. In other words, migration pressure on the supply side might give rise to increasing inflows through illegal migration. We tend to believe that this is an unlikely explanation, that is we think that governments are not *willing* – rather than able – to block migration inflows. For example, the preferred tool by most destination countries to manage migration is border enforcement rather than interior enforcement, although the latter is much more effective than the former. For example, Hanson and Spilimbergo (2001) report that, "in 1990, … , less than 8 per cent of INS enforcement manpower was devoted to worksite inspections … The inefficiency of this enforcement strategy in terms of deterring illegal immigration has long been recognized." (p.618). Another explanation of the public opinion puzzle is that policymakers do, indeed, take into account social welfare and therefore choose migration levels which are higher than desired by voters. Our hypothesis on interest groups dynamics complements the latter explanation.

Several policy implications follow from the analysis in this paper. First, we have found that, consistently over the years, public opinion is very much opposed to immigration across a variety of destination countries. Both economic and noneconomic considerations explain this pattern in the data. From an economic point of view, the effects of immigration are not evenly distributed in the population. In other words, while a country as a whole might gain from migration, the distribution of income among natives is affected by the presence of immigrants. In addition, immigration has an impact on the native population through noneconomic channels, for example by affecting cultural diversity and perceived and factual levels of security.

Governments can do a great deal to affect the negative attitudes implied by these effects. To attenuate the adverse economic consequences of immigration and render the inflow of foreign workers in the labour market more broadly acceptable, governments can implement redistribution policies that compensate the losers by transferring to them some of the gains accrued to the winners. Similarly, in the context of the welfare state, public policy should be more focused on spreading more evenly the losses (in the case of unskilled immigration) or gains (in the case of skilled migration).[34]

From a noneconomic point of view, to the extent that the negative perceptions of immigration are not well-founded, education policies are clearly necessary. Promoting a culture of tolerance can be very effective in shaping attitudes towards globalization and civil society organizations are likely to play an important role in this direction. This is witnessed by the result we found on the positive impact of attending religious services on the immigration attitudes. If, on the other hand, immigration truly has a negative impact from, for example, a cultural and security point of view, the implications are different. Integration policies should be enacted to ease the absorption of the immigrant community in the destination country. In addition, a more selective migration policy can help reduce the negative effects in terms of crime and security.

Second, the results on the determinants of individual attitudes towards immigrants suggest that the income distribution effects of immigration – as perceived by individuals – are less pronounced than commonly believed, based only on labour market effects. In this paper and previous work (Facchini and Mayda 2007), we find evidence that another important channel affects public opinion, namely the welfare state. Since the data is consistent with the *tax adjustment model*, the income distribution effects implied by this channel work in the opposite direction relative to the labour market. In particular, individual skill and income have opposite effects on individual attitudes towards immigrants. Since education and income tend to be positively associated, the labour market and welfare state channels partially offset each other. For example, the very same skilled and high income German businessman may feel ambivalent regarding the arrival of unskilled immigrants since he might benefit from hiring them (labour market complementarity), but be hurt by paying their way through the welfare state.

Finally, and interestingly, the analysis in this paper of migration policy and outcomes suggest that, in the migration policy arena, complementarities that work through interest groups dynamics are a force that push the economy towards the most desirable economic outcome, rather than bringing about additional distortions in the international factor flows.

[34] Notice that income distribution effects cannot be eliminated ex ante because they are a necessary condition for migration to generate aggregate efficiency gains.

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Technical Appendix

Appendix 1: A model of individual attitudes towards immigration

To study the effect of immigration on individual attitudes we use a simplified version of the model lied out in Facchini and Mayda (2007). This framework will allow us to identify three channels through which migration can have an impact on individual attitudes: the labour market channel, the welfare state channel and the efficiency channel.

In a small open economy, two production factors, skilled (L_S) and unskilled labour (L_U) are combined using a constant returns to scale technology $F(L_S, L_U)$ to produce a single output *Y*. The economy is populated by a set *N* of natives (indexed by *n*) and a set *M* of immigrants (indexed by *m*). Each native is endowed with one unit of labour, either skilled or unskilled, and with an amount $e^n \in \{e^L, e^H\}$ of the output good, where $e^H > e^L$. Immigrants supply instead only one unit of skilled or unskilled labour. The total endowment of the numeraire good in the economy is thus equal to $\sum_n e^n = E$. The total supply of each skill is given instead by $L_j = \phi_j N + \varphi_j M$ with $j \in \{U, S\}$, where ϕ_j and φ_j are respectively the share of workers with skill profile *j* in the native and immigrant populations. The key variable to assess the effects of migration on individual attitudes is the migrants to native ratio $\pi = M/N$, which is assumed to be equal to zero in the initial equilibrium. Furthermore, we will hold the number of natives constant throughout the analysis. Setting the price of output equal to one, let w_U and w_S be, respectively, the unskilled and skilled wage, with $w_S > w_U$. Domestic equilibrium is characterized by the solution of the following system of equations:

$$1 = c(w_U, w_S) \tag{1'}$$

$$L_U = Y \frac{\partial c(w_U, w_S)}{\partial w_U} \tag{2'}$$

$$L_S = Y \frac{\partial c(w_U, w_S)}{\partial w_S} \tag{3'}$$

where $c(w_U, w_S)$ is the unit production cost and equation (1') is the zero profit condition, while equations (2') and (3') are the factor markets clearing conditions.

The presence of a redistributive welfare state in the host country is modelled by introducing an egalitarian income tax τ levied on all sources of income, the revenues of which are lump sum rebated to all residents through a per capita transfer *b*. The government budget constraint is thus given by:

$$\tau\left(w_U L_U + w_S L_S + E\right) = b(N + M) \tag{4'}$$

In the presence of a welfare state, the well being of a native *n* of skill level *j* is a function of her income net of taxes/transfers, which is given by:

$$I_j^n = (1-\tau)G_j^n + b \tag{5'}$$

where $G_j^n = w_j + e^n$. The effect of migration on her net income can thus be measured by

$$\frac{\hat{I}_j^n}{d\pi} = \frac{(1-\tau)w_j \dfrac{\hat{w}_j}{d\pi}}{I_j^n} - \frac{\tau G_j^n \dfrac{\hat{\tau}}{d\pi}}{I_j^n} + \frac{b\dfrac{\hat{b}}{d\pi}}{I_j^n} \tag{6'}$$

where $\hat{I}_j^n = \dfrac{dI_j^n}{I_j^n}$ etc. Thus, immigration will have an effect on the net income of a native through three channels. The first term on the right hand side of equation (6') represents the *labour market* channel, while the second and third terms capture the *welfare-state* channel. In particular, the second term represents the effect of migration through the adjustment of the tax level, and the third term captures instead the effect of immigration through adjustments in the government's transfer to residents.

How will different native individuals react to an inflow of foreign workers? First of all, domestic workers might face competition in the host country labour market. It is easy to show that an unskilled native will see his wage decrease as a result of immigration ($\dfrac{\hat{w}_U}{d\pi} < 0$) if and only if immigrants are relatively less skilled than natives. The opposite is true for skilled immigration. Thus, through the labour market, we expect skilled (unskilled) natives to be in favour of (against) immigration in countries where immigrants are unskilled compared to the native population. Vice-versa, in countries where immigrants are skilled compared to the natives, we expect unskilled (skilled) natives to be in favour of (against) immigration.

To gain some intuition for the importance of the type of welfare state response to immigration in shaping individual attitudes, we consider a simplified setting in which one of two possible adjustments occur. In the first, which we label the *tax adjustment model*, per capita benefits are held constant (thus the third term in equation (6') equals zero), while the tax rate reacts to maintain the government budget in equilibrium. In the second,

which we label the *benefit adjustment model*, tax rates are held constant (thus the second term in equation (6') equals zero) and the benefit level instead adjusts to restore the government budget's equilibrium.

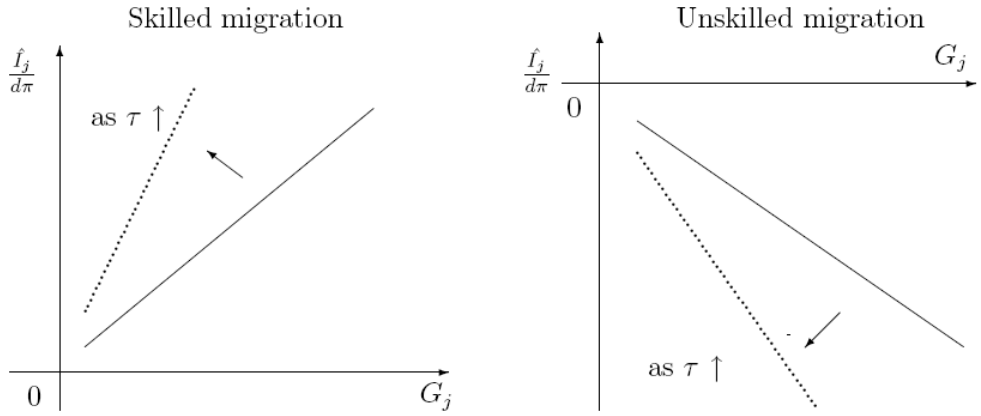


Figure 1': The tax adjustment model

Totally differentiating equation (4'), holding the benefit level constant (*tax adjustment model*), we obtain that $d\pi = \hat{\tau} + \sum_j \eta_j \hat{L}_j + \sum_j \eta_j \hat{w}_j$ and thus the effect of immigration on the tax level is given by

$$\frac{\hat{\tau}}{d\pi} = \frac{(\phi_U - \eta_U)(\beta_U - 1)}{(1-\phi_U)} + \frac{\eta_E(1-\psi_U)}{1-\phi_U} - \sum_j \eta_j \frac{\hat{w}_j}{d\pi} \qquad (7')$$

where $(\phi_U - \eta_U) > 0$ is the difference between the share of the unskilled in the initial population (ϕ_U) and their share in the initial GDP (η_U), ψ_U is the share of unskilled in the immigrant population, $\beta_U = \frac{\psi_U}{\phi_U}$ and η_E is the share of the initial endowment in total domestic income. If $\eta_E = 0$, and ignoring for now the effects of immigration through the labour market channel, it is easy to see that if immigration is low (high) skilled, i.e. if $\beta_U > 1$ ($\beta_U < 1$), immigration will lead to an increase (decrease) in the overall tax rates in order to keep the per capita benefit constant. To assess the effect of immigration on an individual characterized by a pre tax income level *G*, we need to substitute equation (7') in equation (6') and obtain

$$\frac{\hat{I}}{d\pi} = -\frac{G\tau}{b + G(1-\tau)}\left[\frac{\hat{\tau}}{d\pi}\right] \qquad (8')$$

From here we can easily see that under the *tax adjustment model*, *an inflow of skilled immigrants (implying that* $\frac{\hat{\tau}}{d\pi} < 0$*) is more desirable for an individual the higher is her*

pre-tax income. To the contrary, *an inflow of unskilled immigrants (implying that* $\frac{\hat{\tau}}{d\pi} > 0$*) is more desirable for an individual the lower is her pre-tax income* (see Figure 1). The intuition for this result is that, if the demogrant is held fixed, the cost of an inflow of unskilled immigrants will fall disproportionately more on higher income natives. Analogously, in the presence of skilled immigration, the higher income natives will be the largest beneficiaries, as they will enjoy a disproportionately larger decrease in their net tax burden.

If we turn now to the *benefit adjustment model*, totally differentiating equation (4') and holding the tax rate constant, we can show that the effect of an immigrant inflow on the per capita benefit is given by

$$\frac{\hat{b}}{d\pi} = \frac{(\phi_U - \eta_U)(1-\beta_U)}{(1-\phi_U)} + \frac{\eta_E(1-\psi_U)}{1-\phi_U} - \sum_j \eta_j \frac{\hat{w}_j}{d\pi} \qquad (9')$$

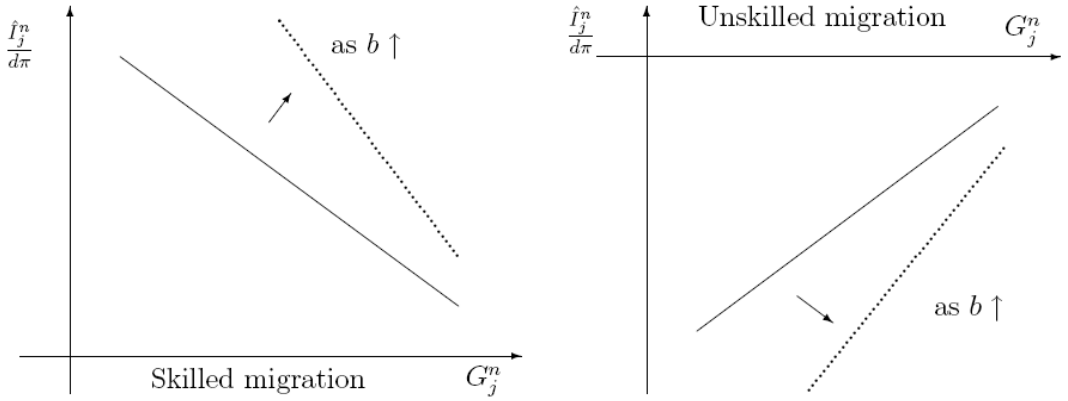


Figure 2': The benefit adjustment model

Once again, assuming η_E=0, and ignoring the labour market channel, it is easy to see that an inflow of unskilled (skilled) immigrants will lead to a decrease (increase) in the per capita benefit level. To assess the effect of immigration on an individual of pre tax income *G* under these hypothesis we need to substitute equation (9') in (6') and obtain

$$\frac{\hat{I}}{d\pi} = \frac{b\frac{\hat{b}}{d\pi}}{b + G(1-\tau)} \qquad (10')$$

From here it is easy to show that, under the *benefit adjustment model*, *an inflow of skilled immigrants is more desirable for an individual the lower is her pre-tax income*. To the contrary, *an inflow of unskilled immigrants is more desirable for an individual the higher*

is her pre-tax income (see Figure 2). To understand this result, notice that the reduction in the demogrant brought about by unskilled immigration will carry a larger impact on the individuals with a smaller income. If immigration is instead skilled, the resulting increase in the demogrant will disproportionately benefit lower-income individuals.

Notice that under both welfare-state scenarios, unless the skill composition of the migrant and native populations is identical, the effects of migration on the two dimensions of the welfare state are mediated by a third channel, the efficiency channel, that affects the size of the tax base. At the margin, labour is paid the value of its marginal product, so an infinitesimal inflow of immigrants will leave the total remuneration of the existing labour force unchanged ($\sum_j \eta_j \frac{\hat{w}_j}{d\pi} = 0$) and have no effect on the redistribution carried out by the welfare state. On the other hand, if the inflow of immigrants is large, the total remuneration of existing workers will increase ($\sum_j \eta_j \frac{\hat{w}_j}{\Delta\pi} > 0$), and relax the government budget constraint (these are the gains from migration pointed out first by Berry and Soligo (1969)).

Appendix 2: The political economy of international factor mobility

We outline here two simple models that can be used to understand the political economy of international factor mobility. Consider a small open economy, where GDP is produced using two factors: skilled (L_S) and unskilled labour (L_U), according to a production technology $Y=F(L_S, L_U)$. Production factors can relocate to the country from the rest of the world, but their flows are controlled by policies implemented by the national government. To take into account potential crowding effects, we assume that the production function exhibits decreasing returns to scale in the mobile factors. As a result, profits (π) are strictly positive in equilibrium. The country is populated by a continuum of agents and the total size of the population is normalized to one. Each agent in the interval [0,1] is indexed by *i*, and the domestic supply of each (mobile) factor is inelastic and equal to (l_S, l_U). For simplicity, we choose GDP as the numeraire, normalize international factor prices by setting them equal to 1 and assume the profits generated in the economy to be lump sum equally distributed among all citizens. Domestic factor prices are represented by $\omega = (\omega_S, \omega_U)$. We model restrictions to the relocation of production factors across countries as a quota, accompanied by a tax levied on the relocating factor. As a result, the relocating factor retains a share of the surplus associated with the relocation, while the remainder is captured by the host country's government in the form of additional tax revenues which are lump sum rebated to the domestic population.

A median voter model

Let $\lambda_{i,j}$ be the fraction of factor $j \in (s,u)$ supplied by agent *i*, with $\int \lambda_{i,j} di = 1$, for all *j*. Furthermore, assume that each agent is endowed with an identical amount of time, that

must be allocated to the supply of the two factors, that is $\lambda_{i,j} = 1 + (1 - \lambda_{i,j'})$ for all $i \in [0,1], j \neq j'$. As a result, the total endowment of the two factors in the economy is the same.

Let m_j be the quantity of factor *j* imported (exported, if negative) by the country and let γ_j be the share of the rent on factor *j* captured by the government and assume that the revenues from the policy are lump sum rebated to all citizens. The utility function of citizen *i* is then represented by

$$u_i(\omega) = \sum_j \lambda_{ij} l_j \omega_j + \sum_j \gamma_j T_j + \pi \qquad (11')$$

The first term captures factor income, the second represent the revenues of the policy ($T_j = (\omega_j - 1)m_j$) that are lump sum rebated to the agents and the third term captures the profits – which can also be interpreted as the return to an immobile factor. Assuming that the production function is separable in each input,[35] let $q_j = \phi_j(\omega_j)$ be the quota implemented by the government on the inflow of factor *j*, with $\phi'_j(\omega_j) < 0$. Given our assumptions, ϕ_j can be inverted, and we can express $\omega_j = \phi_j^{-1}(q_j)$. This means that a more restrictive quota leads to a higher domestic factor return. Let λ_{mj} be the share of the factor owned by the median voter. Assuming $u_i(\omega)$ to be strictly concave, we can derive the policy that maximizes the well being of the median voter, which is given by:

$$\phi^{-1}(q_j) - 1 = \frac{1}{\gamma_j m_j'}\left[L_j(1-\gamma_j) - (\lambda_{mj} - \gamma_j) l_j\right] \qquad (12')$$

To gain some intuition for this result, let us focus on the case in which rent capturing by the host country's government is complete, i.e. γ_j=1. Equation (12') then simplifies to:

$$\phi^{-1}(q_j) - 1 = -\frac{1}{m_j'}(\lambda_{mj} - 1) l_j \qquad (13')$$

The left hand side of (13') describes the amount of protection granted to the domestic factor in terms of the difference between the return prevailing on the domestic market and the return fetched by the factor on the international market. Obviously, the higher is the quota, the smaller is the amount of protection granted to the factor. Notice also that $-1/m_j'$ is positive, as the import demand is a decreasing function of the factor price. If the median voter owns more than the average share of the population of factor *j*, i.e. if $\lambda_{mj} - 1 > 0$, then factor *j* will be protected, i.e. the imports of the factor will be limited by

[35] This is a technical assumption we need to address the multidimensionality of the voting problem . See Helpman (1997) and Facchini and Testa (2006) for a discussion.

a quota that leads the domestic price to be higher than the price prevailing on international factor markets. At the same time, this implies that factor *j'* imports will be subsidized. In other words, if the median voter is more unskilled than average, he will be both in favor of admitting skilled migrants and of restricting entry of unskilled migrants, that is, he will be in favor of a migration inflow which is skilled compared to the native population. The protection received by the factor is increasing with the importance of the factor (l_j), while it is decreasing with the size of the distortion induced by protection, which is captured by the sensitivity of the import demand to price variations (m_j').

A Lobbying model

Consider now an alternative framework, which is a simplified version of the model developed in Facchini and Willmann (2005). Here, the policy choice, rather than the result of a direct democracy, is modelled as the outcome of the interaction between organized pressure groups and an elected politician. Assume that a subset Λ of the production factors is organized and lobbies an elected politician to shape policy towards factor movements. The game is modelled as a menu auction, where in the first stage organized groups offer the elected official contributions $C_i(\omega)$ that depend on the entire vector of domestic factor prices, while in the second stage the government chooses the policy to be implemented and receives the lobby's payments.

Each organized group maximizes the total income of its members, net of the contributions paid to the politician. Denoting by α_j the share of the population that owns factor *j*, the gross payoff received by each factor, lobbying or not, is given by:

$$g_j(\omega) = \omega_j \ell_j + \alpha_j[\pi + \sum_j \gamma_j T_j], \tag{14'}$$

The government trades off instead aggregate welfare vis a vis political contribution and thus maximizes:

$$W(\omega) = a\sum_{j\in J} g_j(\omega) + \sum_{j\in\Lambda} C_j(\omega), \tag{15'}$$

where *a* is the weight attached to aggregate welfare. Solving the game, we can show that the interaction between the organized groups and the government results in a policy towards factor mobility that takes the following form:

$$\phi_j^{-1}(q_j) - 1 = -\frac{1}{\gamma_j}\sum_{i\in I} F_{ji}\left[\frac{(I_i - \alpha_\Lambda)l_i}{a+\alpha_\Lambda} - (1-\gamma_i)(L_i - l_i)\right] \tag{16'}$$

To gain more intuition, let us assume once again that rent capturing is complete, i.e. γ_j=1 and that factors are neither complements nor substitute, i.e. that $F_{ji} = 0$. Equation (16') then becomes:

$$\phi_j^{-1}(q_j) - 1 = \left(\frac{I_j - \alpha_\Lambda}{a + \alpha_\Lambda} \right) \cdot \frac{l_j / m_j}{\varepsilon_j} \qquad (17')$$

where I_j is an indicator that is equal to one if the factor is organized, and zero otherwise, α_Λ is the share of the population that is engaged in lobbying activities, and ε_j is the import demand elasticity. Factor *j* thus receives positive protection, i.e. there is a positive differential between the domestic factor return and the international price as long as it is actively represented by a lobby. As in the median voter setup, protection is increasing in the relevance of the factor for the domestic economy, and is instead decreasing with the distortion introduced by the policy. What happens if we consider the more general situation in which production factors can be complements or substitutes? If factor *i* and *j* are complements then $F_{ji} > 0$, while if they are substitutes then $F_{ji} < 0$. From the first term in equation (16') we can then see that, if the two factors are complements, the lobbying efforts of factor *i* will have a detrimental effect on the protection granted to factor *j*, and the opposite is true if the two are substitutes.

Table 1: Net migration rate and skill composition of natives relative to immigrants (1995 and 2003)

Country	*Net migration rate* 1995	*Skill composition* 1995	*Net migration rate* 2005	*Skill composition* 2003
Australia	0.0057		0.0058	0.60
Austria	0.0066	2.53	0.0044	3.14
Bulgaria	-0.0083		-0.0011	
Canada	0.0044	1.67	0.0064	1.01
Chile	0.0001		0.0004	
Czech Republic	0.0002		0.0013	2.64
Denmark	0.0022	1.91	0.0017	1.16
Finland	0.0017	1.87	0.0013	1.24
France	0.0015	3.13	0.0024	3.51
Germany	0.0066	4.09	0.0024	5.66
Hungary	0.0020		0.0013	0.67
Ireland	-0.0001	0.40	0.0091	0.40
Israel	0.0175		0.0033	
Italy	0.0020	0.64	0.0038	
Japan	0.0004		0.0004	
Korea, Rep.	-0.0005		-0.0003	
Latvia	-0.0106		-0.0017	
Netherlands	0.0025	2.69	0.0014	1.66
New Zealand	0.0051		0.0050	
Norway	0.0019		0.0037	1.42
Philippines	-0.0026		-0.0022	
Poland	-0.0004		-0.0010	
Portugal	-0.0001	0.18	0.0052	0.33
Russia	0.0305		0.0013	
Slovak Republic	0.0003		0.0001	0.95
Slovenia	0.0038		0.0022	
South Africa	0.0058		0.0003	
Spain	0.0015	0.47	0.0131	0.55
Sweden	0.0034	1.34	0.0034	1.42
Switzerland	0.0057		0.0027	5.19
United Kingdom	0.0006	2.25	0.0031	2.04
United States	0.0039		0.0044	4.44
Uruguay	-0.0012		-0.0063	
Venezuela	0.0004		0.0003	

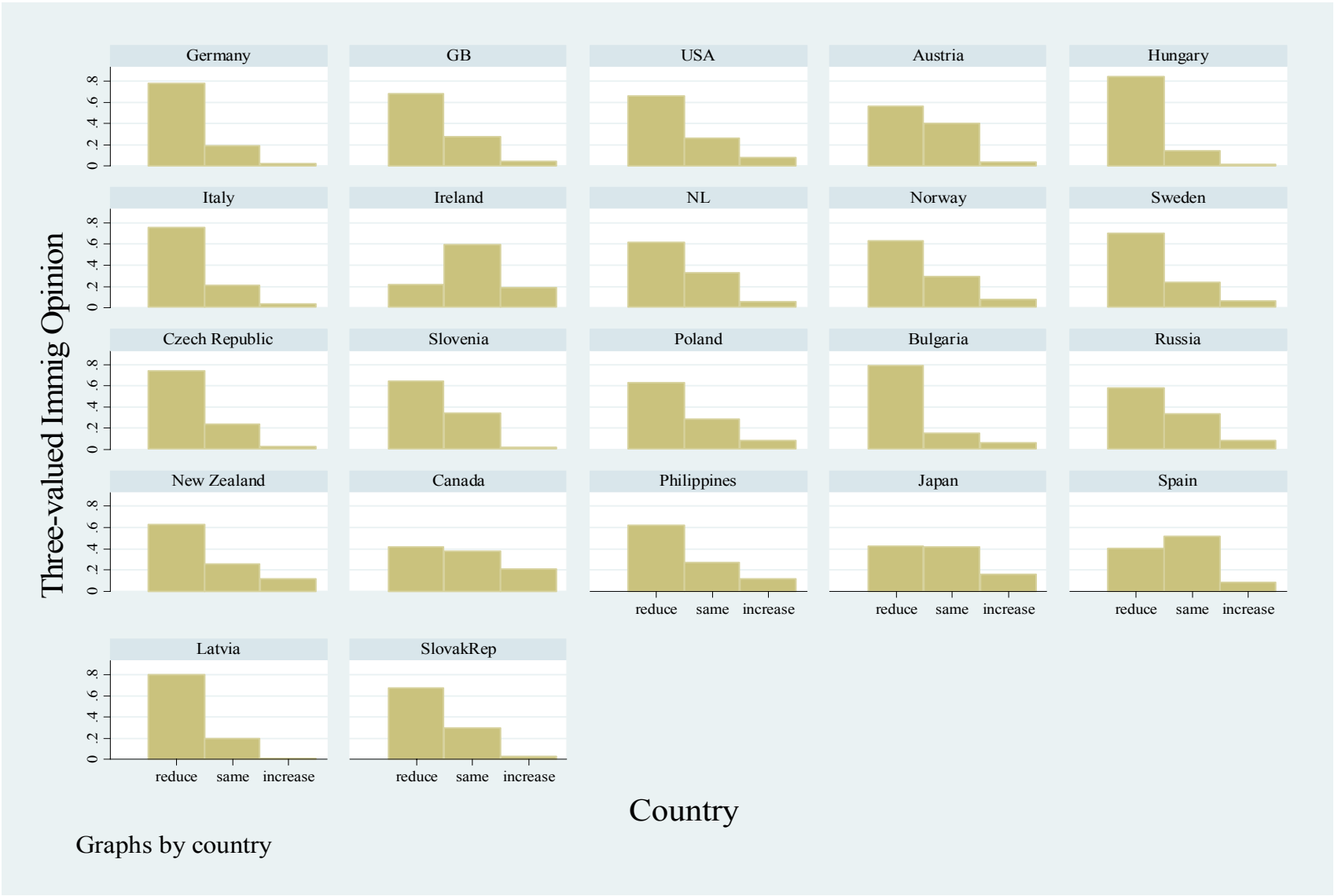
Data source: United Nations

Table 2: Summary Statistics of Individual Attitudes towards Immigration (ISSP 1995) and country-level variables

Country	*Pro Immig Opinion*													
	reduced a lot (1)	reduced a little (2)	remain the same as it is (3)	increased a little (4)	increased a lot (5)	missing values	*average Pro Immig Opinion*	*median Pro Immig Opinion*	*average Pro-Immig Dummy*	*average educ years*	*median educ years*	*per capita GDP*	*relative skill mix (natives vs. imm)*	*net migration 2000*
Austria	28.36	24.72	37.74	2.93	0.81	5.45	2.19	2	0.04	10.36	9	22090	2.53	0.0011
Bulgaria	32.58	17.19	9.77	2.17	1.54	36.74	1.78	1	0.06			5609		-0.0012
Canada	16.48	20.58	32.89	12.17	5.99	11.9	2.67	3	0.21	14.76	15	23085	1.67	0.0048
Czech Republic	39.75	25.75	21.14	1.9	0.27	11.2	1.84	2	0.02	12.91	12	12426		0.0010
Germany	48.07	22.37	17.37	1.74	0.54	9.9	1.72	1	0.03	10.92	10	21479	4.09	0.0028
Great Britain	40.1	23.77	25.89	2.8	1.06	6.38	1.94	2	0.04	11.32	11	19465	2.25	0.0019
Hungary	55.95	24.19	13.51	0.71	0.71	4.94	1.59	1	0.01	10.49	11	9315		0.0020
Ireland	6.63	13.56	55.35	15.6	2.24	6.62	2.93	3	0.19	12.25	12	17264	0.40	0.0047
Italy	41.76	30.31	19.87	2.56	0.82	4.67	1.85	2	0.04	11.03	12	20513	0.64	0.0021
Japan	13.38	21.82	35.03	10.11	2.95	16.72	2.61	3	0.16	11.87	12	23212		0.0004
Latvia	49.74	20.05	17.19	0.26	0.13	12.63	1.64	1	0.00	11.61	11	4919		-0.0047
Netherlands	26.37	30.99	30.79	4.42	0.68	6.75	2.16	2	0.05	12.69	12	20812	2.69	0.0020
New Zealand	26.79	31.65	24.06	8.59	2.22	6.68	2.23	2	0.12	14.31	14	17706		0.0010
Norway	29.53	29.26	27.32	5.7	1.21	6.98	2.14	2	0.07	12.66	12	24694		0.0030
Philippines	31.91	27.14	25.63	7.2	3.77	4.36	2.20	2	0.11	9.39	10	3519		-0.0024
Poland	25.92	17.53	19.91	4.13	1.82	30.68	2.11	2	0.09	10.29	10	6606		-0.0004
Russia	16.08	22.15	22.28	3.99	1.46	34.05	2.28	2	0.08	11.19	11	7093		0.0032
Slovak Republic	30.22	24.51	24.3	1.81	0.65	18.51	2.00	2	0.03	11.84	12	8487		0.0003
Slovenia	29.92	29.92	31.76	1.35	0.39	6.66	2.06	2	0.02	10.68	11	12978		0.0008
Spain	8.77	26.64	45.49	6.39	1.07	11.64	2.60	3	0.08	10.13	9	15163	0.47	0.0033
Sweden	35.66	29.25	21.88	4.13	2.11	6.97	2.01	2	0.07	11.41	11	20031	1.34	0.0014
USA	29.69	25.19	21.83	4.58	2.14	16.57	2.09	2	0.08	13.43	13	27395		0.0044

Data source: 1995 ISSP National Identity Module. The survey sample excludes non-citizens. *Pro Immig Opinion* uses answers to the immigration question ("Do you think the number of immigrants to (R's country) nowadays should be ...": reduced a lot, reduced a little, remain the same as it is, increased a little, increased a lot) and ranges from 1 (reduced a lot) to 5 (increased a lot). *Pro-Immig Dummy* equals one if *Pro Immig Opinion* is equal to 4 or 5, zero if *Pro Immig Opinion* is equal to 1, 2 or 3. Both variables exclude missing values. *net migration* is equal to the net migration inflow, divided by the destination country's population, in 2000 (source: United Nations). All other variables are for the year 1995.

Figure 1. Variance of attitudes across categories within countries (ISSP 1995)



Data source: 1995 ISSP National Identity Module. The survey sample excludes non-citizens.

Table 3: Summary Statistics of Individual Attitudes towards Immigration (ISSP 2003) and country-level variables

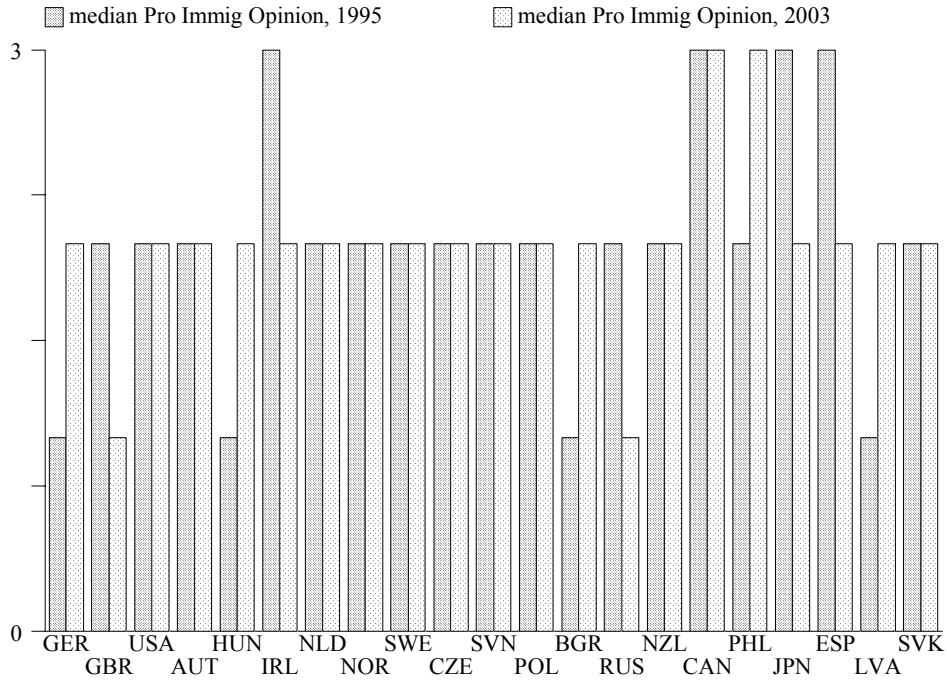
Country	*Pro Immig Opinion*												
	reduced a lot (**1**)	reduced a little (**2**)	remain the same as it is (**3**)	increased a little (**4**)	increased a lot (**5**)	missing values	*average Pro Immig Opinion*	*median Pro Immig Opinion*	*average Pro-Immig Dummy*	*average educ years*	*median educ years*	*per capita GDP*	*relative skill mix (natives vs. imm)*
Australia	16.79	19.65	34.71	15.81	5.72	7.32	2.72	3	0.23	13.06	13	31268	0.60
Austria	32.72	26.75	29.94	5.25	1.03	4.31	2.11	2	0.07	11.08	10	30851	3.14
Bulgaria	16.17	18.89	20.11	2.26	0.85	41.72	2.19	2	0.05	11.11	11	7620	
Canada	10.21	18.65	34.51	19.92	5.99	10.72	2.92	3	0.29	13.46	13	30433	1.01
Chile	22.78	37.23	29.23	4.84	1.61	4.31	2.22	2	0.07	10.71	12	10298	
Czech Republic	26.19	30.95	4.76	2.38	2.38	33.34	1.86	2	0.07	13.15	12	17891	2.64
Denmark	25.87	21.63	35.93	7.87	1.21	7.49	2.32	2	0.10	13.18	13	31074	1.16
Finland	15.83	15.61	36.97	18.70	3.02	9.87	2.75	3	0.24	11.98	12	29215	1.24
France	35.37	21.38	22.30	4.09	2.20	14.66	2.02	2	0.07	13.68	13	29500	3.51
Germany	44.29	23.66	19.39	2.79	0.90	8.97	1.82	2	0.04	10.68	11	27612	5.66
Great Britain	50.88	22.68	14.81	3.41	1.76	6.46	1.74	1	0.06	11.78	11	30171	2.04
Hungary	34.38	30.56	27.23	1.67	0.39	5.77	1.97	2	0.02	10.74	11	15728	0.67
Ireland	27.65	28.81	30.73	7.32	1.06	4.43	2.22	2	0.09	12.92	13	34742	0.40
Israel	26.68	16.49	26.68	12.10	13.92	4.13	2.69	3	0.27	13.41	12	23062	
Japan	20.15	22.32	28.58	8.44	2.36	18.15	2.40	2	0.13	12.03	12	27710	
Latvia	26.36	24.09	30.01	1.51	0.63	17.40	2.10	2	0.03	12.69	12	10666	
Netherlands	37.84	26.95	23.86	2.47	0.95	7.93	1.93	2	0.04	13.59	13	31728	1.66
New Zealand	26.81	27.62	25.28	10.70	3.06	6.53	2.31	2	0.15	13.28	13	23528	
Norway	36.37	29.80	19.28	5.01	1.13	8.41	1.96	2	0.07	13.45	13	37561	1.42
Philippines	17.92	19.58	37.67	11.50	5.58	7.75	2.64	3	0.19	9.66	10	4519	
Poland	19.42	20.67	28.97	3.52	1.72	25.70	2.29	2	0.07	10.82	10	12277	
Portugal	19.09	35.01	39.10	2.38	0.59	3.83	2.28	2	0.03	8.12	6	19879	0.33
Russia	39.01	25.14	10.26	1.64	1.68	22.27	1.74	1	0.04	11.59	12	8902	
Slovak Republic	26.37	15.58	25.15	7.14	2.09	23.67	2.25	2	0.12	13.51	13	13550	0.95
Slovenia	16.71	32.05	43.34	2.48	0.37	5.05	2.34	2	0.03	11.20	11	19448	
South Korea	9.13	23.35	34.52	17.57	5.32	10.11	2.85	3	0.25	12.30	12	19317	
Spain	13.20	35.16	35.66	5.80	2.44	7.74	2.45	2	0.09	10.00	10	24556	0.55
Sweden	25.55	27.30	26.95	8.05	2.27	9.88	2.27	2	0.11	12.10	12	29341	1.42
Switzerland	16.91	27.02	45.64	5.11	0.32	5.00	2.42	3	0.06	11.36	10	33080	5.19
Taiwan	34.34	31.76	18.01	3.33	1.09	11.47	1.93	2	0.05	11.30	12	20701	
Uruguay	6.17	20.35	46.41	12.80	5.89	8.38	2.91	3	0.20	9.12	9	8276	
USA	23.70	28.74	28.66	5.47	3.34	10.09	2.29	2	0.10	13.88	14	37545	4.44
Venezuela	20.04	28.38	42.18	3.95	2.81	2.64	2.40	3	0.07			5040	

Data source: 2003 ISSP National Identity Module. The survey sample excludes non-citizens. *Pro Immig Opinion* uses answers to the immigration question ("Do you think the number of immigrants to (R's country) should be ...": reduced a lot, reduced a little, remain the same as it is, increased a little, increased a lot) and ranges from 1 (reduced a lot) to 5 (increased a lot). *Pro-Immig Dummy* equals one if *Pro Immig Opinion* is equal to 4 or 5, zero if *Pro Immig Opinion* is equal to 1, 2 or 3. Both variables exclude missing values. All variables are for 2003.

Figure 2. Variance of attitudes across categories within countries (ISSP 2003)

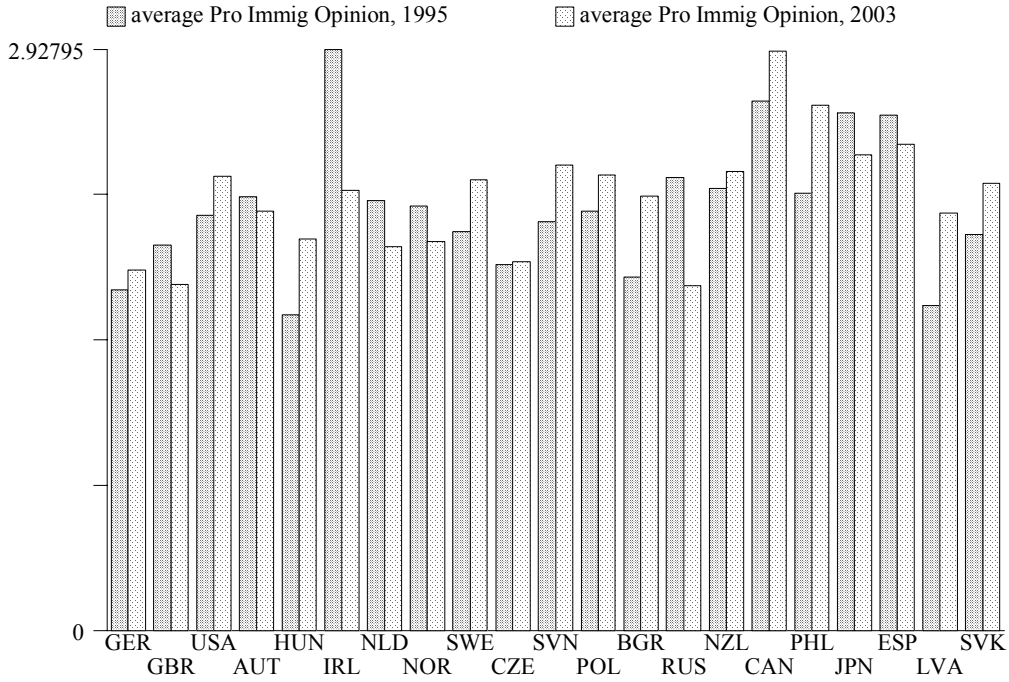
Data source: 2003 ISSP National Identity Module. The survey sample excludes non-citizens.

Figure 3. The median value of *Pro Immig Opinion* in 1995 vs. 2003



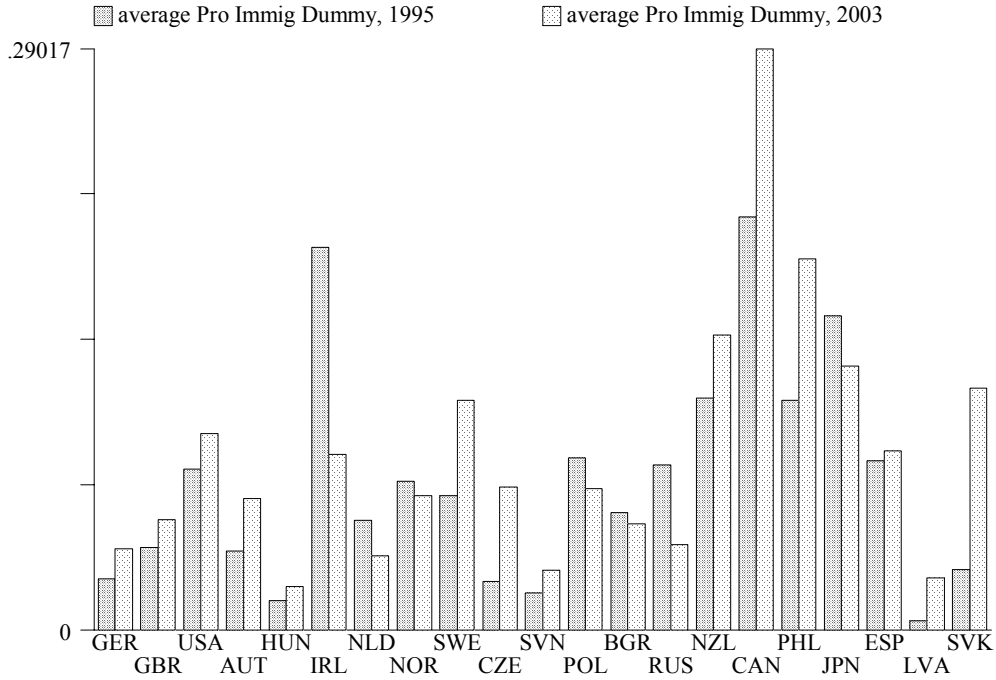
Data source: 1995 and 2003 ISSP National Identity Modules. The survey sample excludes non-citizens.

Figure 4. The average value of *Pro Immig Opinion* in 1995 vs. 2003



Data source: 1995 and 2003 ISSP National Identity Modules. The survey sample excludes non-citizens.

Figure 5. The average value of *Pro Immig Dummy* in 1995 vs. 2003



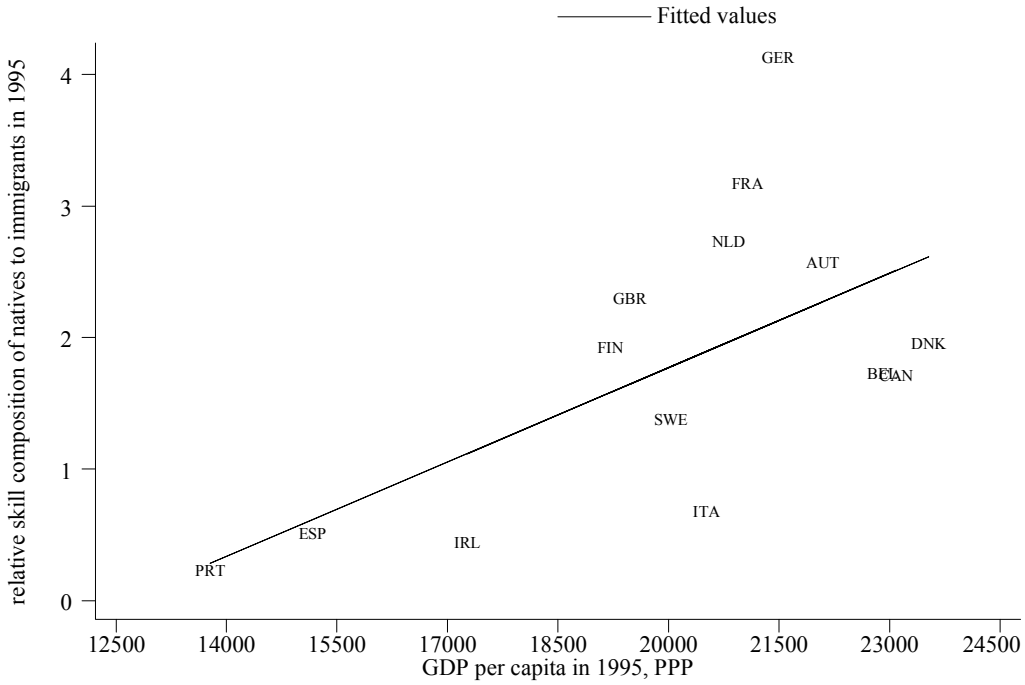
Data source: 1995 and 2003 ISSP National Identity Modules. The survey sample excludes non-citizens.

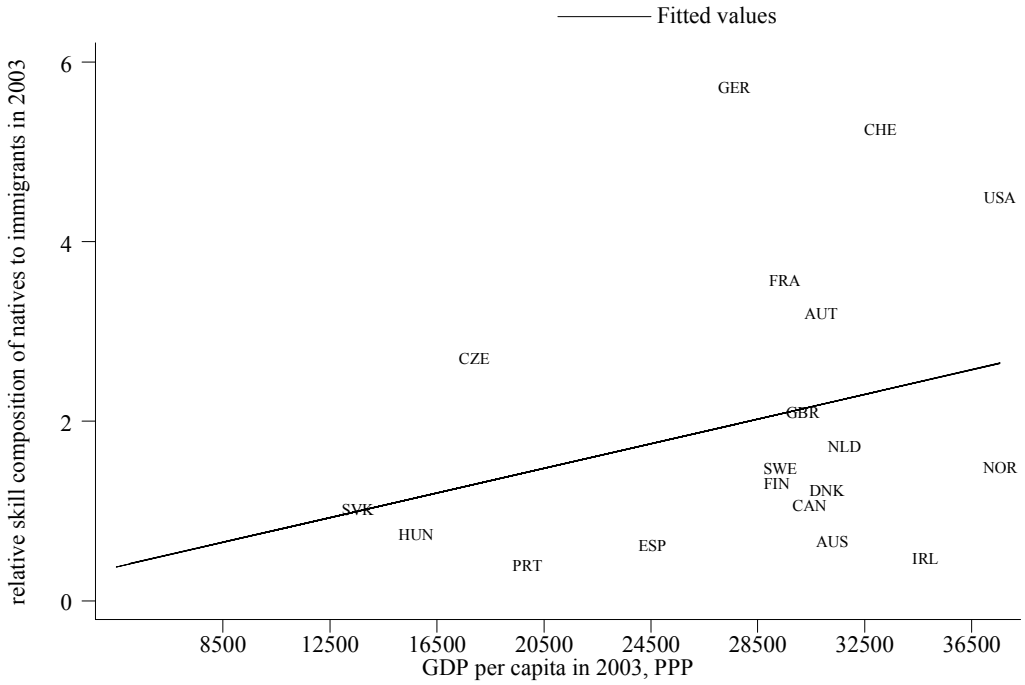
Table 4. Economic and non-economic determinants of attitudes (ISSP 1995 and 2003)

Ordered probit with country dummies	1	2	3	4	5	1'	2'	3'	4'	5'
	1995					2003				
Dependent variable	***Pro Immig Opinion***									
age	-0.0037	-0.0037	-0.003	-0.0032	-0.0039	-0.0008	-0.0008	-0.0009	-0.0019	-0.0018
	0.0010**	0.0010**	0.0009**	0.0010**	0.0011**	0.0011	0.0011	0.0013	0.0013	0.0011
male	-0.0217	-0.0249	-0.0372	-0.0209	-0.0534	0.021	0.0166	0.0046	0.0227	0.0172
	0.0257	0.0261	0.0279	0.0272	0.0329	0.0206	0.0201	0.0229	0.0222	0.0266
citizen	-0.3082	-0.3051	-0.2147	-0.1555	-0.3632	-0.1908	-0.1898	-0.2114	-0.207	-0.2987
	0.0972**	0.0958**	0.0992*	0.1042	0.1325**	0.0646**	0.0649**	0.0800**	0.0967*	0.1266*
parents' foreign citizenship	0.2568	0.2534	0.2385	0.1334	0.229	0.2542	0.2552	0.2532	0.1297	0.219
	0.0470**	0.0471**	0.0461**	0.0425**	0.0619**	0.0196**	0.0201**	0.0241**	0.0247**	0.0314**
education (years of education)	**0.0587**	**-0.4627**	**-0.5207**	**-0.269**	**-0.696**	**0.0565**	**-0.2225**	**-0.6969**	**-0.4899**	**-0.8082**
	0.0081**	**0.0824****	**0.1193****	**0.1270***	**0.1566****	**0.0048****	**0.0581****	**0.2674****	**0.2613+**	**0.2874****
education*gdp		**0.0539**	**0.0598**	**0.0315**	**0.0768**		**0.0279**	**0.074**	**0.0511**	**0.0843**
		0.0084**	**0.0121****	**0.0129***	**0.0158****		**0.0060****	**0.0262****	**0.0255***	**0.0282****
log of real income	**0.0339**	**0.7311**	**1.2235**	**1.4351**	**1.5677**	**0.0517**	**-0.0841**	**1.7827**	**2.0632**	**2.0485**
	0.0158*	**0.3679***	**0.3939****	**0.2780****	**0.8295+**	**0.0180****	**0.3292**	**0.8200***	**1.0329***	**1.1140+**
log of real income*gdp		**-0.0715**	**-0.1212**	**-0.1443**	**-0.1557**		**0.0143**	**-0.1665**	**-0.1973**	**-0.1922**
		0.0379+	**0.0405****	**0.0285****	**0.0855+**		**0.0335**	**0.0804***	**0.1005***	**0.1081+**
pro-immig crime				0.5855					0.5739	
				0.0568**					0.0355**	
pro-immig culture				0.5811					0.6369	
				0.0545**					0.0435**	
pro-immig economy				**0.5747**					**0.569**	
				0.0575**					**0.0250****	
upper social class					0.0546					0.0324
					0.0180**					0.0105**
trade union member					0.018					-0.0516
					0.0317					0.0236*
political affiliation with the right					-0.1409					-0.1911
					0.0462**					0.0329**
religious					0.0378					0.029
					0.0122**					0.0057**
Observations	14659	14659	13045	13045	6043	23801	23801	17943	17943	10956
Pseudo R-squared	0.07	0.07	0.07	0.15	0.07	0.06	0.06	0.06	0.14	0.07

Data source: 1995 and 2003 ISSP National Identity Module. The table reports coefficient estimates for ordered probit regressions (the cut-off points are not shown). Robus standard errors, clustered by country, are presented under each coefficient. + significant at 10%; * significant at 5%; ** significant at 1%. All regressions control for country fixed effects. Regressions (3)-(5) and (3')-(5') are restricted to countries with well-developed Western-style welfare states*gdp* is the log of per capita GDP in 1995 and 2003, PPP (current international dollars).

Figure 6. Per capita GDP and skill composition of natives relative to immigrants
(1995 and 2003)





Data source: World Development Indicators, World Bank and SOPEMI, OECD.

Table 5. Heckman selection model - ISSP 1995

Linear regression with country FE	**1**	**2**	**3**	**1'**	**2'**	**3'**
Dependent variable			***Pro Immig Opinion***			
Method	**OLS**	**OLS**	**OLS**	**Heckman**	**Heckman**	**Heckman**
age	-0.0029	-0.0029	-0.0024	-0.0029	-0.0029	-0.0024
	0.0005**	0.0005**	0.0005**	0.0005**	0.0005**	0.0005**
male	-0.0188	-0.021	-0.0311	-0.0189	-0.0207	-0.0331
	0.0159	0.0158	0.0168+	0.0166	0.0166	0.0180+
citizen	-0.2603	-0.2571	-0.1953	-0.2606	-0.256	-0.2004
	0.0588**	0.0587**	0.0683**	0.0625**	0.0625**	0.0700**
parents' foreign citizenship	0.2242	0.2205	0.2099	0.2242	0.2204	0.2106
	0.0200**	0.0199**	0.0206**	0.0200**	0.0200**	0.0207**
education (years of education)	**0.0499**	**-0.4135**	**-0.4948**	**0.0499**	**-0.4128**	**-0.5014**
	0.0025**	**0.0493****	**0.0816****	**0.0026****	**0.0512****	**0.0841****
education*gdp		**0.0479**	**0.0562**		**0.0479**	**0.0569**
		0.0051**	**0.0083****		**0.0053****	**0.0086****
log of real income	**0.0272**	**0.59**	**0.9813**	**0.0272**	**0.5884**	**0.9929**
	0.0128*	**0.2415***	**0.4256***	**0.0132***	**0.2436***	**0.4269***
log of real income*gdp		**-0.0578**	**-0.0973**		**-0.0576**	**-0.0986**
		0.0249*	0.0432*		0.0252*	0.0434*
inverse Mills' ratio				**-0.0015**	**0.0068**	**-0.0554**
				0.1396	**0.14**	**0.1736**
Selection equation						
Probit with country FE				**1'**	**2'**	**3'**
Dependent variable				***Immig Select***		
age				0.0019	0.0019	0.0022
				0.0009*	0.0009*	0.0010*
male				0.1043	0.1081	0.1263
				0.0285**	0.0286**	0.0323**
citizen				0.4257	0.4281	0.2801
				0.0920**	0.0922**	0.1105*
parents' foreign citizenship				-0.0341	-0.031	-0.044
				0.0356	0.0357	0.0372
education (years of education)				-0.0108	0.3277	0.3742
				0.0045*	0.0754**	0.1422**
education*gdp					-0.0354	-0.04
					0.0079**	0.0145**
log of real income				0.0687	-0.8834	-0.6732
				0.0221**	0.3581*	0.7294
log of real income*gdp					0.0992	0.078
					0.0373**	0.074
trade select				0.7817	0.7776	0.712
				0.0535**	0.0536**	0.0603**
Observations	14659	14659	13045	16542	16542	14304
R-squared	0.17	0.18	0.18			

Standard errors in parentheses. Constants not shown. + sign at 10%; * sign at 5%; ** sign at 1%. Regressions (3) and (3') are restricted to countries with well-developed Western-style welfare states.

Table 6. Heckman selection model - ISSP 2003

Linear regression with country FE	**1**	**2**	**3**	**1'**	**2'**	**3'**
Dependent variable			***Pro Immig Opinion***			
Method	**OLS**	**OLS**	**OLS**	**Heckman**	**Heckman**	**Heckman**
age	-0.0006	-0.0006	-0.0007	-0.0005	-0.0006	-0.0006
	0.0004	0.0004	0.0005	0.0004	0.0004	0.0005
male	0.0233	0.0195	0.008	0.0246	0.0199	0.012
	0.0134+	0.0134	0.0153	0.0142+	0.0143	0.0167
citizen	-0.1746	-0.1733	-0.1954	-0.1722	-0.1725	-0.1902
	0.0483**	0.0482**	0.0544**	0.0492**	0.0491**	0.0551**
parents' foreign citizenship	0.2402	0.2405	0.2366	0.2395	0.2403	0.2344
	0.0141**	0.0141**	0.0156**	0.0143**	0.0143**	0.0160**
education (years of education)	**0.0519**	**-0.1989**	**-0.6183**	**0.0519**	**-0.1975**	**-0.6088**
	0.0020**	**0.0372****	**0.0996****	**0.0020****	**0.0410****	**0.1009****
education*gdp		**0.0251**	**0.0658**		**0.025**	**0.0648**
		0.0037**	**0.0097****		**0.0041****	**0.0099****
log of real income	**0.0471**	**-0.0633**	**1.5134**	**0.0476**	**-0.065**	**1.5028**
	0.0090**	**0.1512**	**0.4620****	**0.0092****	**0.1524**	**0.4624****
log of real income*gdp		**0.0116**	**-0.1411**		**0.0118**	**-0.1399**
		0.0152	**0.0450****		**0.0153**	**0.0450****
inverse Mills' ratio				**0.0352**	**0.0122**	**0.1084**
				0.143	**0.1444**	**0.18**
Selection equation						
Probit with country FE				**1'**	**2'**	**3'**
Dependent variable					***Immig Select***	
age				0.0038	0.0038	0.0052
				0.0008**	0.0008**	0.0009**
male				0.1214	0.1259	0.1431
				0.0238**	0.0239**	0.0289**
citizen				0.2038	0.1959	0.1569
				0.0756**	0.0758**	0.0893+
parents' foreign citizenship				-0.0776	-0.0772	-0.0854
				0.0252**	0.0252**	0.0280**
education (years of education)				-0.0089	0.4205	0.2843
				0.0036*	0.0615**	0.1821
education*gdp					-0.0432	-0.0297
					0.0062**	0.0178+
log of real income				0.0486	-0.5007	-0.2821
				0.0160**	0.2575+	0.8097
log of real income*gdp					0.0548	0.0331
					0.0259*	0.0788
trade select				0.6899	0.6746	0.6539
				0.0449**	0.0451**	0.0537**
Observations	23801	23801	17943	26382	26382	19487
R-squared	0.15	0.16	0.15			

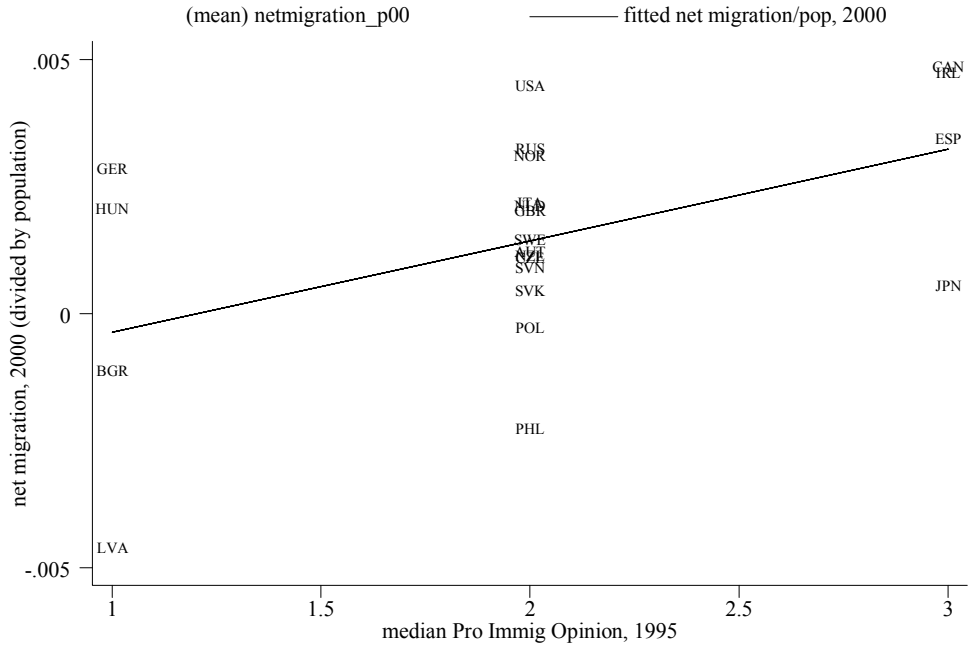
Standard errors in parentheses. Constants not shown. + sign at 10%; * sign at 5%; ** sign at 1%. Regressions (3) and (3') are restricted to countries with well-developed Western-style welfare states.

Table 7. Analysis over Time 1995-2003 (ISSP)

Ordered probit with country & year DV	1	2	3	4	5	6	7	8	9
Dependent variable	***Pro Immig Opinion***								
age	-0.0027	-0.0022	-0.0024	-0.0022	-0.0024	-0.0023	-0.0023	-0.0026	-0.0023
	0.0013*	0.0013+	0.0013+	0.0013+	0.0013+	0.0013+	0.0013+	0.0011*	0.0012+
male	-0.0058	-0.0136	-0.0195	-0.0172	-0.0205	-0.014	-0.0149	-0.0282	-0.0109
	0.0295	0.0325	0.0328	0.0329	0.0329	0.0283	0.0283	0.0258	0.0283
citizen	-0.2075	-0.1806	-0.1102	-0.2012	-0.1298	-0.2464	-0.2307	-0.2821	-0.2606
	0.0513**	0.0639**	0.0963	0.0581**	0.0886	0.0455**	0.0527**	0.0832**	0.0348**
parents' foreign citizenship	0.2555	0.2382	0.2511	0.2344	0.2475	0.2298	0.2324	0.2016	0.229
	0.0337**	0.0335**	0.0357**	0.0335**	0.0350**	0.0312**	0.0311**	0.0370**	0.0325**
education (years of education)	-0.3368	-0.3842	-0.4174	-0.3878	-0.4146	-0.4345	-0.4372	-0.6291	-0.3468
	0.0802**	0.1473**	0.1504**	0.1396**	0.1462**	0.1472**	0.1483**	0.2346**	0.1473*
education*gdp	0.0399	0.0445	0.0479	0.0449	0.0476	0.0497	0.05	0.0686	0.041
	0.0083**	0.0149**	0.0151**	0.0142**	0.0147**	0.0148**	0.0149**	0.0233**	0.0148**
log of real income	0.9045	1.9053	-0.1008	1.2078	-0.1654	1.3108	1.0066	2.9133	0.8701
	0.8042	0.7941*	0.8551	0.7638	0.8158	0.3224**	0.4031*	0.6033**	0.7161
log of real income*gdp	-0.0863	-0.1851	0.0154	-0.1152	0.0219	-0.1261	-0.0957	-0.2831	-0.083
	0.0819	0.0792*	0.0863	0.0764	0.0824	0.0322**	0.0402*	0.0604**	0.0712
per capita GDP			-0.0001		-0.0001		0		
			0.0000**		0.0000**		0		
net migration rate				-33.4969	-16.2726				
				18.2045+	13.3194				
per capita GDP growth						0.1328	0.1251		
						0.0163**	0.0229**		
skill composition of natives vs. immigrants								0.0578	
								0.129	
birth rate									-0.1834
									0.0699**
Observations	29009	24117	24117	24117	24117	24117	24117	17968	24117
Pseudo R-squared	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06

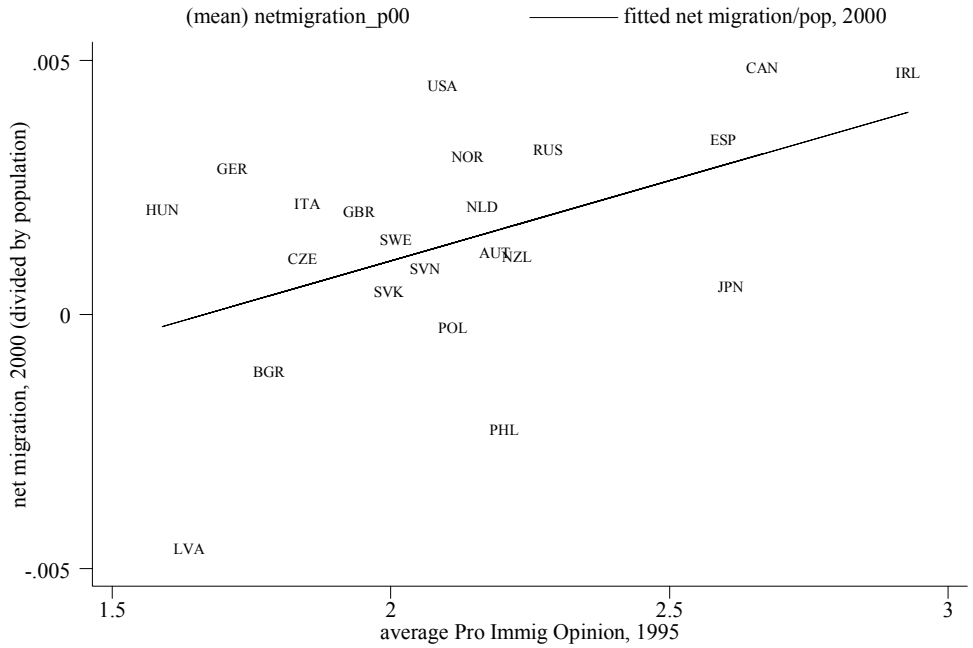
Data source: 1995 and 2003 ISSP National Identity Module. The table reports coefficient estimates for ordered probit regressions (the cut-off points are not shown). Robust standard errors, clustered by country, are presented under each coefficient. + significant at 10%; * significant at 5%; ** significant at 1%. All regressions control for country and year fixed effects. Regressions (2)-(9) are restricted to countries with well-developed Western-style welfare states*gdp* is the log of per capita GDP, PPP (constant international dollars). *per capita GDP* is the per capita GDP, PPP (constant international dollars).

Figure 7: The impact of individual attitudes towards immigrants on migration inflows (ISSP 1995)



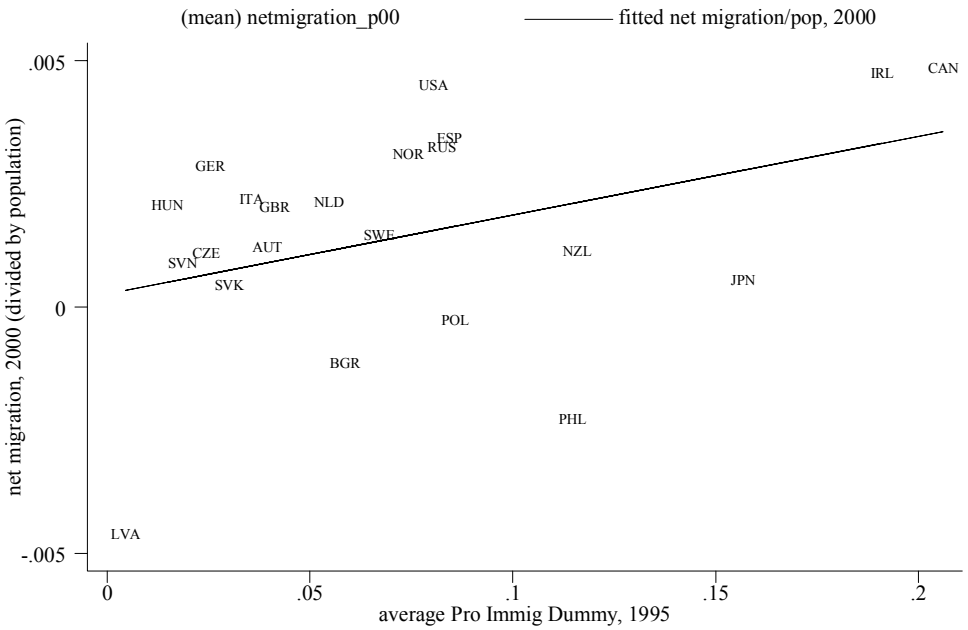
Data source: 1995 ISSP National Identity Module and United Nations.

Figure 8: The impact of individual attitudes towards immigrants on migration inflows (ISSP 1995)



Data source: 1995 ISSP National Identity Module and United Nations.

Figure 9: The impact of individual attitudes towards immigrants on migration inflows (ISSP 1995)



Data source: 1995 ISSP National Identity Module and United Nations.

Table 8. The impact of individual attitudes towards immigrants on migration inflows (ISSP 1995)

OLS	**1**	**2**	**3**	**4**
Dependent variable	**net migration, 2000 (divided by population)**			
median Immig Opinion	0.0018			
	0.0007*			
average Immig Opinion		0.0032		
		0.0013*		
average Pro Immig Dummy			0.016	
			0.0084+	
educyrs median voter				-0.0002
				0.0003
educyrs median voter*gdp				1.68E-08
				5.45e-09**
Constant	-0.0022	-0.0053	0.0003	0.0002
	0.0015	0.0028+	0.0008	0.0035
Observations	22	22	22	21
R-squared	0.24	0.23	0.15	0.42

Data source: 1995 ISSP National Identity Module and United Nations. Standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%

Table 9: The Political Economy of Immigration Restrictions in the United States (1994-2005)

Equation	1	2	3	4	5	6	7	8	9
					up to 2000	after 2000			
Dependent variable	**number of immigrants**								
number of natives (same cell)	0.19801	0.15203	0.12521	0.12521	0.12829	0.07648			
	0.01942**	0.01800**	0.01679**	0.02629**	0.03154**	0.01271**			
number of natives*political organization (same cell)	-0.37664	-0.25691	-0.14344	-0.14344	-0.17738	0.05387			
	0.06997**	0.05604**	0.04867**	0.07107*	0.05569**	0.05763			
number of other natives (any other cell)							-0.12667		
							0.01659**		
number of other natives*political org. (any other cell)							0.14891		
							0.04676**		
number of other natives (same education)								-0.00373	
								0.00673	
number of other natives*political org. (same education)								-0.00352	
								0.02292	
number of other natives (different education)									-0.0161
									0.00866+
number of other natives*political org. (different education)									0.04067
									0.02307+
Observations	830	830	830	830	481	349	830	830	830
R-squared	0.96	0.97	0.96	0.96	0.97	0.99	0.96	0.95	0.95
cell fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
year effects	no	yes	yes	yes	yes	yes	yes	yes	yes
aweights	no	no	yes	yes	yes	yes	yes	yes	yes
clustered standard errors (by cell)	no	no	no	yes	no	no	no	no	no

Data source: CPS 1994-2005. Robust standard errors in parentheses, unless clustered standard errors are used (see bottom of table). + significant at 10%; * significant at 5%; ** significant at 1%. Constant not shown. A cell is defined as a combination of an education level and occupation. We consider five education levels: high-school dropouts (individuals with no high-school diploma); high-school graduates; persons with some college (but no degree); college graduates (including associate degree/occupational program, associate degree/academic program, and bachelor's degree); and persons with more than college (master's degree, professional degree, and doctorate degree). We consider fifteen occupations: professional and technical – professors and instructors; professional and technical – engineers; professional and technical – nurses; professional and technical – scientists; professional and technical – social scientists; other professional and technical; farmers; managers, officials, proprietors; clerical and kindred; sales workers; craftsmen; operatives; service workers in private households; service workers not in households, laborers.

Table A1. Economic and non-economic determinants of attitudes using a *direct* measure of the relative skill composition (ISSP 1995 and 2003)

Probit with country dummies	**1**	**2**	**3**	**1'**	**2'**	**3'**
	1995			**2003**		
Dependent variable	***Pro Immig Dummy***					
age	-0.0057	-0.0069	-0.0048	0.0003	-0.0005	-0.0009
	0.0020**	0.0017**	0.0031	0.0015	0.0017	0.0016
male	0.047	0.0607	-0.0459	0.1128	0.133	0.1188
	0.0464	0.0551	0.0611	0.0301**	0.0328**	0.0320**
citizen	-0.1378	-0.0977	-0.4818	-0.1944	-0.1885	-0.3943
	0.1655	0.1774	0.1699**	0.1394	0.1659	0.1840*
parents' foreign citizenship	0.1614	0.0907	0.1178	0.2404	0.1343	0.2209
	0.0409**	0.0404*	0.0563*	0.0271**	0.0306**	0.0343**
education (years of education)	**-0.025**	**-0.0443**	**-0.0226**	**0.0283**	**0.0131**	**0.0222**
	0.0070**	**0.0086****	**0.0157**	**0.0110****	**0.0104**	**0.0157**
education*relative skill ratio	**0.1011**	**0.0984**	**0.0976**	**0.0347**	**0.0229**	**0.0376**
	0.0095**	**0.0108****	**0.0176****	**0.0157***	**0.0154**	**0.0219+**
log of real income	**0.1483**	**0.1689**	**0.0495**	**0.1441**	**0.1124**	**0.16**
	0.0587*	**0.0782***	**0.1073**	**0.0559****	**0.0545***	**0.0650***
log of real income*relative skill ratio	**-0.1655**	**-0.2016**	**-0.0233**	**-0.0979**	**-0.1081**	**-0.0931**
	0.0598**	**0.0738****	**0.106**	**0.0536+**	**0.0650+**	**0.0721**
pro-immig crime		0.4131			0.4648	
		0.0867**			0.0637**	
pro-immig culture		0.4504			0.5708	
		0.1315**			0.0885**	
pro-immig economy		0.6078			0.5703	
		0.1050**			0.0460**	
upper social class			0.0477			0.0354
			0.0271+			0.0140*
trade union member			-0.1061			-0.066
			0.0814			0.0378+
political affiliation with the right			-0.1853			-0.2132
			0.0886*			0.0362**
religious			-0.0134			0.0151
			0.0324			0.0052**
Observations	7753	7753	3415	16475	16475	10376
Pseudo R-squared	0.13	0.21	0.15	0.13	0.24	0.14

Data source: 1995 and 2003 ISSP National Identity Module. The table reports coefficient estimates for probit regressions. Robust standard errors, clustered by country, are presented under each coefficient. + significant at 10%; * significant at 5%; ** significant at 1%. All regressions control for country fixed effects. All the regression are restricted to countries with well-developed Western-style welfare states. The *relative skill ratio* is the log of one plus the relative skill composition, in 1995 and 2003 respectively.