

Attitudes and migration policy

SUMMARY

We are experiencing a wave of globalization that includes everything but labour. In this paper, we argue that this is the result of restrictive migration policies implemented by destination countries. In democratic societies individual attitudes of voters represent the foundations of policy making. To understand policy outcomes, we analyse the patterns and determinants of voters' opinions on immigration. We find that, across countries of different income levels, only a small minority of voters favour more open policies. Furthermore, our analysis supports the role played by economic channels in shaping public opinion. We next investigate how attitudes translate into policy outcomes, considering two alternative frameworks: the median voter and the interest groups model. On the one hand, the very low percentages of voters favouring immigration are, in light of the existing restrictive policies, consistent with the median voter framework. At the same time, given the extent of opposition to immigration that appears in public opinion, it is somewhat surprising in a median voter framework that immigration takes place at all. We find that interest-groups dynamics have the potential to explain this puzzle.

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From individual attitudes towards migrants to migration policy outcomes: Theory and evidence

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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 world-wide only one in six hundred individuals changes country of residence over a 12-month 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’ (Freeman, 2006; Pritchett, 2006). This is even more

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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.¹

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' decision 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.² 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 (Hamilton and Whalley, 1984; World Bank, 2006), a welfare-maximizing government should allow a substantially larger number of immigrants than the one actually observed. Hence, 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* in the receiving country, it has important effects on the distribution of income, creating winners and losers (Borjas, 1999). Therefore, 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 patterns and determinants of individual attitudes towards immigration, extending the existing literature along several dimensions. First of all, we supplement the 1995 round of the International Social Survey Programme (ISSP) dataset with the newly released 2003 survey to assess whether individual attitudes towards migration are still consistent with standard economic predictions in the post September 11 world. As it turns out, we find that economic drivers continue to play an important role and that they have not been overshadowed by emotional and, more in general, non-economic considerations in the aftermath of the 'war on terror'. Furthermore, the use of the newly

¹ See Findlay and O'Rourke (2003) and Obstfeld 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).

² For instance, Freeman (2006) has constructed a dataset that allows a broad comparison of wages for similar occupations 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 quintiles of the world distribution is about 12 on average across occupations. In purchasing power parity, it is about 4 to 5.

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 recognized as being important drivers of public policy, the literature does not provide *systematic* evidence on the link between individual attitudes and actual policies implemented.³ The second goal of this paper is thus to study whether voters' opinions towards migration can explain the restrictive migration policies in place in 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 round of the ISSP, we find that in more than 20 high- and middle-income countries, less than 10 percent of respondents who gave an opinion about migration were in favour of increasing the number of immigrants to their country. We find that the fraction of voters in favour of immigration is also very low in 2003, although slightly higher than in 1995. Given this pattern in migration attitudes, a median voter framework is broadly consistent with restrictive migration policies in place. Interestingly, we also find that migration outcomes across destination countries are correlated with the attitude of the median voter – and in general public opinion – in each country. Thus, policy-makers 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 migration is allowed to take place *at all*. In fact a simple median-voter model, applied to the attitudes we observe in the data, would predict the choice of close-to-zero flows, while actual arrivals are non-trivial in number. One very likely explanation of the discrepancy between voters' opinions and the actual size of migration flows is that the political process through which heterogeneous preferences are aggregated is richer than a simple referendum. In particular, domestic interest groups, many of which are pro-migration (Freeman, 1992; Joppke, 1998), 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 1990s, high-tech firms intensively and successfully lobbied the US Congress to increase the number of H1-B visas.⁴ More recently, hospitals and healthcare providers

³ 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).

⁴ '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).

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’, on the eve of the discussion about introducing a cap on migration from Bulgaria and Romania (Agence France Press, 30 August 2006).⁵

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*, 24 May 2006).

Surprisingly, there is very little systematic evidence in the empirical economics literature on the role played by interest groups in shaping immigration policy.⁶ The third goal of this paper is thus to investigate the impact of pressure groups and their role in shaping migration policy. To carry out this analysis, we focus on the US, a country which represents an ideal ground to assess the effect of pressure groups. Using a panel covering the period 1994 to 2005 and differentiating labour according to both skill levels and occupations, 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 – this effect is driven by substitutability – and to an increase in the inflow of foreign workers in different occupation/education cells – this effect is driven by complementarity.

Thus, to conclude, 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.

The remainder 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 analyses 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.

⁵ The signatories of the appeal included the head of the supermarket chain Sainsbury’s and the head of the European division of the investment bank Merrill Lynch.

⁶ The only papers that 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 analyses the role of pressure groups across sectors (rather than across occupations and skill levels as we do in this paper).

2. STYLIZED FACTS ON INTERNATIONAL MIGRATION AND MIGRATION POLICIES⁷

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 3% and close to 2%. 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 two 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 1% in its population. Ireland was second only to Spain which, in the same period, experienced a net inflow equal to 1.3% of its population.

The heterogeneity in the net migration flows is accompanied by large differences in the skill composition of immigrants. 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

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

⁷ The data in this section come from: the United Nations; 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).

Table 1. Net migration rate and skill composition of natives relative to immigrants

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.

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.⁸ In 2003 the same pattern holds for these countries, to

⁸ Notice that our skill measure is based on migration data which *excludes* illegal immigration. Therefore, our skill measure underestimates the skill composition of natives relative to immigrants in all countries characterized by illegal migration, which tends to be unskilled.

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.

Analysing the size and skill composition of the migrant population is crucial to explaining 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 UK, 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 into 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), in 2005, 56% of the individuals admitted by Canada entered under the economic category. The same figure is 68% for Australia and 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.⁹

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 that were members of the British Commonwealth. In comparison, labour market shortages have been driving migration policies in Germany, Austria and Switzerland, which traditionally have mainly tried to target temporary migrants (guest workers).

⁹ Data on the immigration channels come from: 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).

The new immigration countries of Western and Eastern Europe 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 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 can the sought talents be attracted.¹⁰

Finally, the data in Table 1 suggest that while – as many observers have pointed out (e.g., 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 negligible. In 2000, the US experienced an 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 analyse individual attitudes towards immigrants both from a theoretical and empirical point of view. We first investigate the patterns in individual

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 the cost of capital.' See also Faini (2006) and Pritchett (2006).

attitudes towards immigrants across destination countries in 1995 and 2003 (see Section 3.1). Second, we discuss a simple theoretical model of the determinants 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 empirical 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 Facchini and Mayda, 2008 and Mayda, 2006). 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, Column 9 in 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

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

Table 2. Summary statistics of individual attitudes towards immigration (ISSP 1995) and country-level variables

Country	Pro Immig Opinion						Average Pro Immig Opinion (7)	Median Pro Immig Opinion (8)	Average Pro-Immig Dummy (9)	Average educ years (10)	Median educ years (11)	Per capita GDP (12)	Relative skill mix (natives vs. imm) (13)	Net migration 2000 (14)
	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 (6)								
Austria	28.36	24.72	37.74	2.93	0.81	5.45	2.19	2	3.95	10.36	9	22 090	2.53	0.0011
Bulgaria	32.58	17.19	9.77	2.17	1.54	36.74	1.78	1	5.87			5609		-0.0012
Canada	16.48	20.58	32.89	12.17	5.99	11.9	2.67	3	20.61	14.76	15	23 085	1.67	0.0048
Czech Republic	39.75	25.75	21.14	1.9	0.27	11.2	1.84	2	2.44	12.91	12	12 426		0.0010
Germany	48.07	22.37	17.37	1.74	0.54	9.9	1.72	1	2.54	10.92	10	21 479	4.09	0.0028
Great Britain	40.1	23.77	25.89	2.8	1.06	6.38	1.94	2	4.13	11.32	11	19 465	2.25	0.0019
Hungary	55.95	24.19	13.51	0.71	0.71	4.94	1.59	1	1.48	10.49	11	9315		0.0020
Ireland	6.63	13.56	55.35	15.6	2.24	6.62	2.93	3	19.10	12.25	12	17 264	0.40	0.0047
Italy	41.76	30.31	19.87	2.56	0.82	4.67	1.85	2	3.55	11.03	12	20 513	0.64	0.0021
Japan	13.38	21.82	35.03	10.11	2.95	16.72	2.61	3	15.68	11.87	12	23 212		0.0004
Latvia	49.74	20.05	17.19	0.26	0.13	12.63	1.64	1	0.45	11.61	11	4919		-0.0047
Netherlands	26.37	30.99	30.79	4.42	0.68	6.75	2.16	2	5.47	12.69	12	20 812	2.69	0.0020
New Zealand	26.79	31.65	24.06	8.59	2.22	6.68	2.23	2	11.59	14.31	14	17 706		0.0010
Norway	29.53	29.26	27.32	5.7	1.21	6.98	2.14	2	7.43	12.66	12	24 694		0.0030
Philippines	31.91	27.14	25.63	7.2	3.77	4.36	2.20	2	11.47	9.39	10	3519		-0.0024
Poland	25.92	17.53	19.91	4.13	1.82	30.68	2.11	2	8.58	10.29	10	6606		-0.0004
Russia	16.08	22.15	22.28	3.99	1.46	34.05	2.28	2	8.25	11.19	11	7093		0.0032
Slovak Republic	30.22	24.51	24.3	1.81	0.65	18.51	2.00	2	3.02	11.84	12	8487		0.0003
Slovenia	29.92	29.92	31.76	1.35	0.39	6.66	2.06	2	1.86	10.68	11	12 978		0.0008
Spain	8.77	26.64	45.49	6.39	1.07	11.64	2.60	3	8.44	10.13	9	15 163	0.47	0.0033
Sweden	35.66	29.25	21.88	4.13	2.11	6.97	2.01	2	6.71	11.41	11	20 031	1.34	0.0014
USA	29.69	25.19	21.83	4.58	2.14	16.57	2.09	2	8.05	13.43	13	27 395		0.0044
Overall	29.60	24.59	26.27	4.82	1.60	13.12	2.13	2	7.39	11.68	12	15 630	1.79	0.0014

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.

Table 3. Summary statistics of individual attitudes towards immigration (ISSP 2003) and country-level variables

Country	Pro Immig Opinion						Average Pro Immig Opinion (7)	Median Pro Immig Opinion (8)	Average Pro-Immig Dummy (9)	Average educ years (10)	Median educ years (11)	Per capita GDP (12)	Relative skill mix (natives vs. imm) (13)
	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 (6)							
Australia	16.79	19.65	34.71	15.81	5.72	7.32	2.72	3	23.23	13.06	13	31 268	0.60
Austria	32.72	26.75	29.94	5.25	1.03	4.31	2.11	2	6.56	11.08	10	30 851	3.14
Bulgaria	16.17	18.89	20.11	2.26	0.85	41.72	2.19	2	5.32	11.11	11	7620	
Canada	10.21	18.65	34.51	19.92	5.99	10.72	2.92	3	29.02	13.46	13	30 433	1.01
Chile	22.78	37.23	29.23	4.84	1.61	4.31	2.22	2	6.74	10.71	12	10 298	
Czech Republic	26.19	30.95	4.76	2.38	2.38	33.34	1.86	2	7.14	13.15	12	17 891	2.64
Denmark	25.87	21.63	35.93	7.87	1.21	7.49	2.32	2	9.81	13.18	13	31 074	1.16
Finland	15.83	15.61	36.97	18.70	3.02	9.87	2.75	3	24.10	11.98	12	29 215	1.24
France	35.37	21.38	22.30	4.09	2.20	14.66	2.02	2	7.37	13.68	13	29 500	3.51
Germany	44.29	23.66	19.39	2.79	0.90	8.97	1.82	2	4.06	10.68	11	27 612	5.66
Great Britain	50.88	22.68	14.81	3.41	1.76	6.46	1.74	1	5.53	11.78	11	30 171	2.04
Hungary	34.38	30.56	27.23	1.67	0.39	5.77	1.97	2	2.18	10.74	11	15 728	0.67
Ireland	27.65	28.81	30.73	7.32	1.06	4.43	2.22	2	8.77	12.92	13	34 742	0.40
Israel	26.68	16.49	26.68	12.10	13.92	4.13	2.69	3	27.14	13.41	12	23 062	
Japan	20.15	22.32	28.58	8.44	2.36	18.15	2.40	2	13.19	12.03	12	27 710	
Latvia	26.36	24.09	30.01	1.51	0.63	17.40	2.10	2	2.60	12.69	12	10 666	
Netherlands	37.84	26.95	23.86	2.47	0.95	7.93	1.93	2	3.72	13.59	13	31 728	1.66
New Zealand	26.81	27.62	25.28	10.70	3.06	6.53	2.31	2	14.72	13.28	13	23 528	
Norway	36.37	29.80	19.28	5.01	1.13	8.41	1.96	2	6.71	13.45	13	37 561	1.42
Philippines	17.92	19.58	37.67	11.50	5.58	7.75	2.64	3	18.52	9.66	10	4519	
Poland	19.42	20.67	28.97	3.52	1.72	25.70	2.29	2	7.06	10.82	10	12 277	
Portugal	19.09	35.01	39.10	2.38	0.59	3.83	2.28	2	3.09	8.12	6	19 879	0.33
Russia	39.01	25.14	10.26	1.64	1.68	22.27	1.74	1	4.27	11.59	12	8902	
Slovak Republic	26.37	15.58	25.15	7.14	2.09	23.67	2.25	2	12.09	13.51	13	13 550	0.95
Slovenia	16.71	32.05	43.34	2.48	0.37	5.05	2.34	2	3.00	11.20	11	19 448	
South Korea	9.13	23.35	34.52	17.57	5.32	10.11	2.85	3	25.47	12.30	12	19 317	
Spain	13.20	35.16	35.66	5.80	2.44	7.74	2.45	2	8.93	10.00	10	24 556	0.55
Sweden	25.55	27.30	26.95	8.05	2.27	9.88	2.27	2	11.46	12.10	12	29 341	1.42
Switzerland	16.91	27.02	45.64	5.11	0.32	5.00	2.42	3	5.71	11.36	10	33 080	5.19
Taiwan	34.34	31.76	18.01	3.33	1.09	11.47	1.93	2	4.99	11.30	12	20 701	
Uruguay	6.17	20.35	46.41	12.80	5.89	8.38	2.91	3	20.40	9.12	9	8276	
USA	23.70	28.74	28.66	5.47	3.34	10.09	2.29	2	9.80	13.88	14	37 545	4.44
Venezuela	20.04	28.38	42.18	3.95	2.81	2.64	2.40	3	6.95			5040	
Overall	23.88	23.78	27.32	6.63	2.48	15.91	2.29	2	10.84	11.89	12	22 336	2.00

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.

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 are characterized by very low 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 US, 8.05% of the population welcomes increases in migration.

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 favours 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.

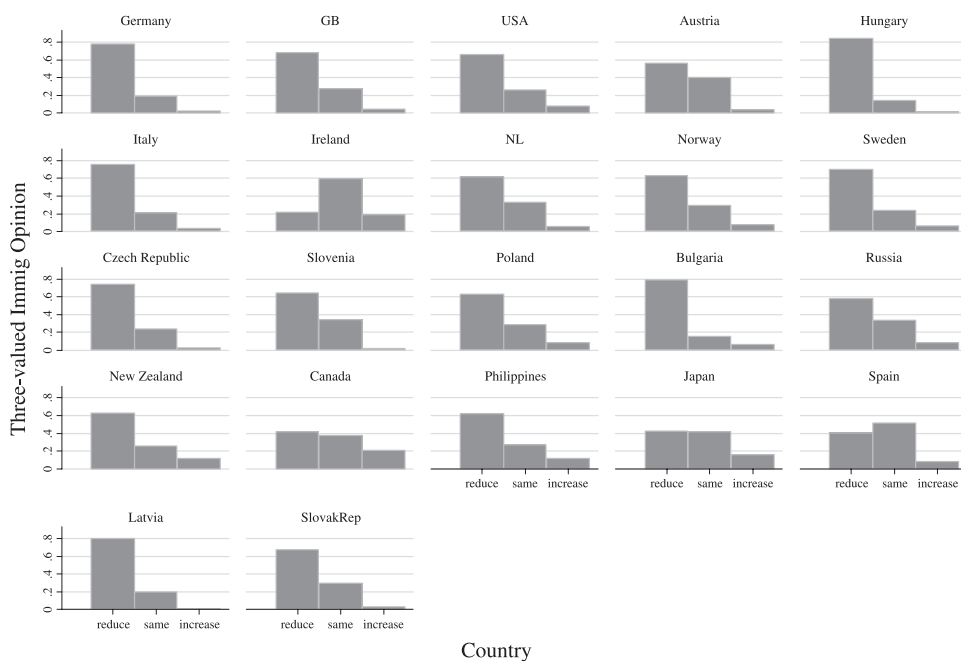


Figure 1. Variance of attitudes across categories within countries (ISSP 1995)

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

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 – agree 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. In particular, Column 9 in Table 3 shows that 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 Western European country among the top five most open countries towards migration. In the US, 9.8% of individuals favour 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

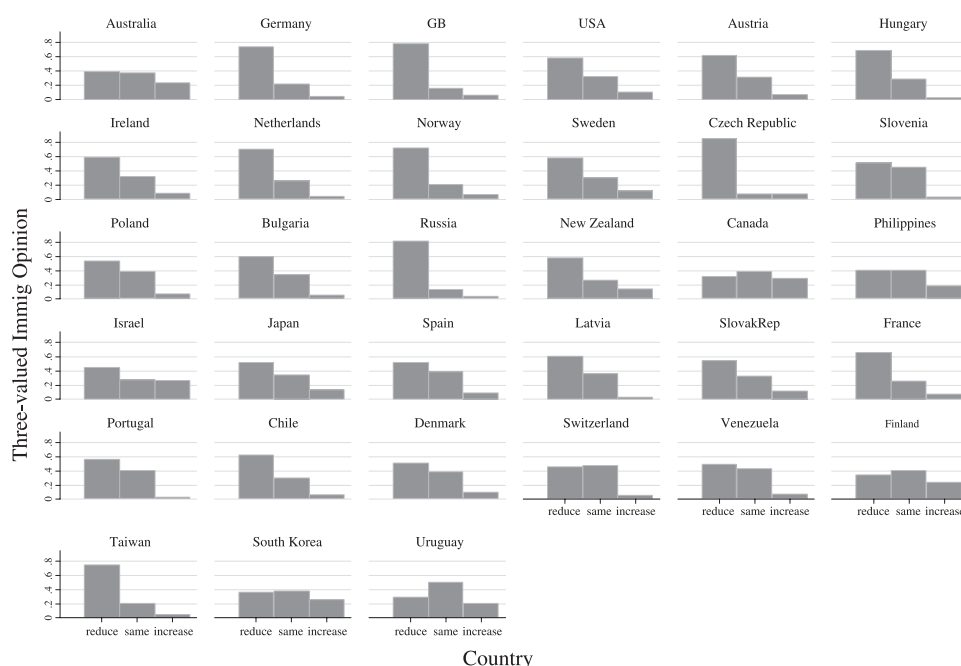


Figure 2. Variance of attitudes across categories within countries (ISSP 2003)

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

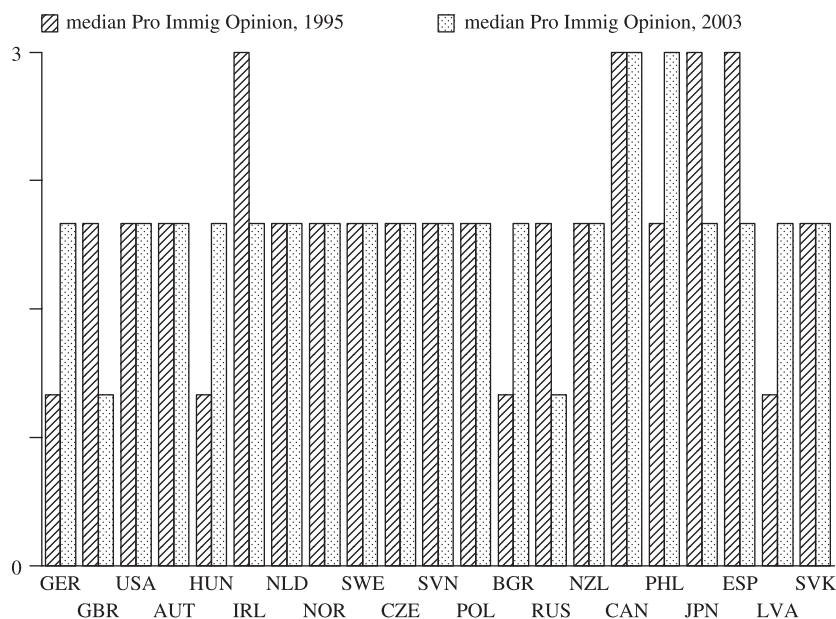


Figure 3. The median value of *Pro Immig Opinion* in 1995 vs. 2003

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

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. This is not surprising given that, between 1995 and 2005, Ireland turned from a net emigration country to the second largest receiver of immigrants in the sample (see Table 1) and – as we will see below (see Table 7) – in countries where migration rates increase over time, public opinion becomes less favourable to immigration. 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

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 3, 4 and 5 are based.

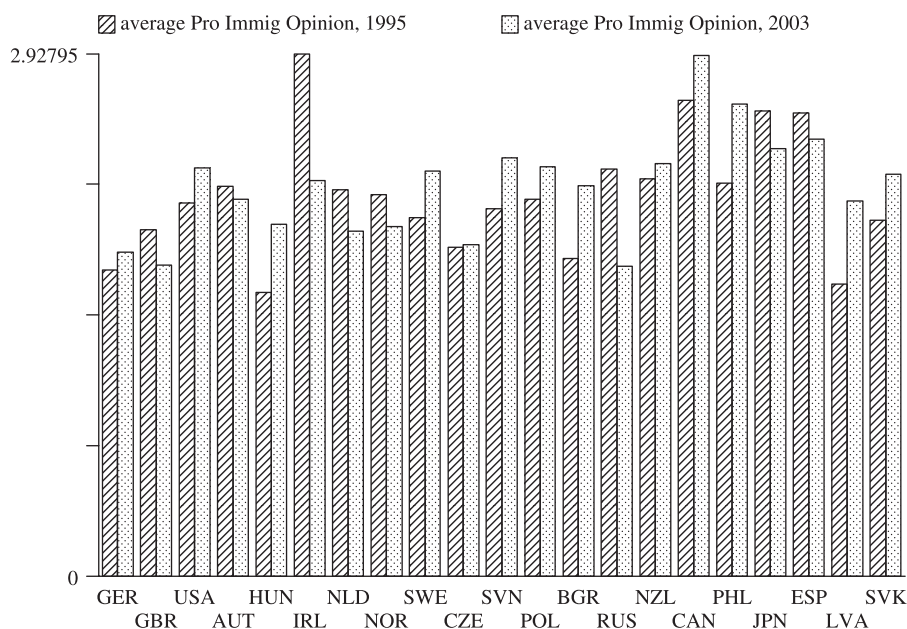


Figure 4. The average value of *Pro Immig Opinion* in 1995 vs. 2003

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

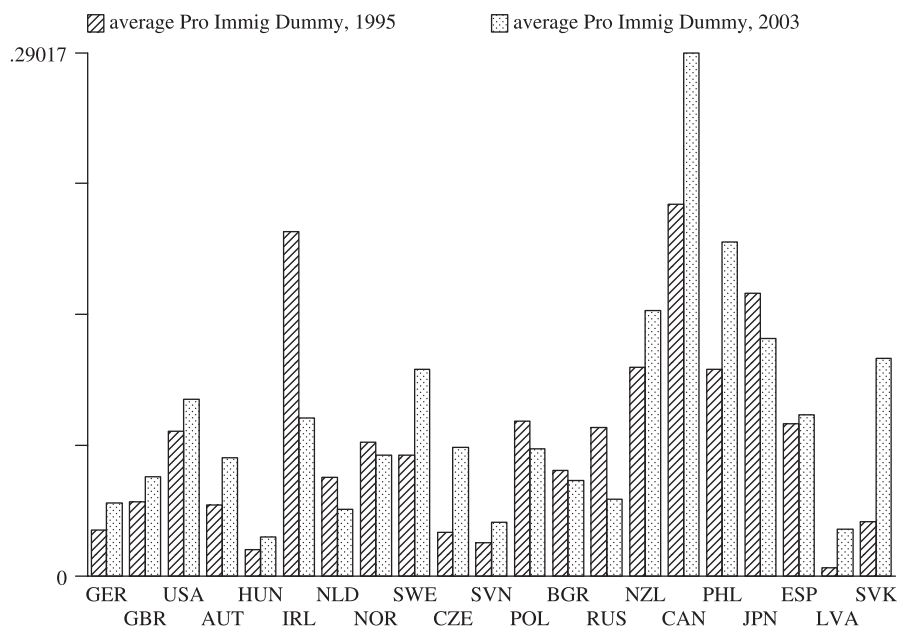


Figure 5. The average value of *Pro Immig Dummy* in 1995 vs. 2003

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

(Germany, Great Britain, United States, 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 US, 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 (Malchow-Moeller *et al.*, 2008). 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.

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 labour 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 labour 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 labour 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 (i.e., a demogrant). 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 addition, these income distribution effects will depend on the adjustment mechanism of the welfare state to migration. 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, for whom tax payments represent a larger fraction of net income. The opposite is true in the case of skilled immigration, in which case attitudes towards immigration will be positively correlated with income. In other words, under the *tax adjustment model*, any change in tax rates (either positive or negative, depending on the skill mix of migrants) will have a bigger impact on high-income individuals. If on the other hand the welfare state reacts through changes in the level of per capita benefits, to keep constant the tax rate (*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. The reason is that the demogrant represents a larger fraction of a poor individual's net 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. In other words, under the *benefit adjustment model*, any change in the per capita benefit (either negative or positive, depending on the skill mix of migrants) will have a larger effect on low-income individuals.

Finally, besides the labour market and the welfare state, there is a third economic channel that is relevant as a determinant of individual attitudes towards immigration,

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.

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) and Borjas (1999), 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 survey 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 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 non-economic 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 effects¹⁶ – 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.

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.

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.

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).

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	<i>Pro Immig Opinion</i>									
Age	-0.0037 0.0010**	-0.0037 0.0010**	-0.003 0.0009**	-0.0032 0.0010**	-0.0039 0.0011**	-0.0008 0.0011	-0.0008 0.0011	-0.0009 0.0013	-0.0019 0.0013	-0.0018 0.0011
Male	-0.0217 0.0257	-0.0249 0.0261	-0.0372 0.0279	-0.0209 0.0272	-0.0534 0.0329	0.021 0.0206	0.0166 0.0201	0.0046 0.0229	0.0227 0.0222	0.0172 0.0266
Citizen	-0.3082 0.0972**	-0.3051 0.0958**	-0.2147 0.0992*	-0.1555 0.1042	-0.3632 0.1325**	-0.1908 0.0646**	-0.1898 0.0649**	-0.2114 0.0800**	-0.207 0.0967*	-0.2987 0.1266*
Parents' foreign citizenship	0.2568 0.0470**	0.2534 0.0471**	0.2385 0.0461**	0.1334 0.0425**	0.229 0.0619**	0.2542 0.0196**	0.2552 0.0201**	0.2532 0.0241**	0.1297 0.0247**	0.219 0.0314**
Education (years of education)	0.0587 0.0081**	-0.4627 0.0824**	-0.5207 0.1193**	-0.269 0.1270*	-0.696 0.1566**	0.0565 0.0048**	-0.2225 0.0581**	-0.6969 0.2674**	-0.4899 0.2613+	-0.8082 0.2874**
Education*gdp		0.0539 0.0084**	0.0598 0.0121**	0.0315 0.0129*	0.0768 0.0158**		0.0279 0.0060**	0.074 0.0262**	0.0511 0.0255*	0.0843 0.0282**
Log of real income	0.0339 0.0158*	0.7311 0.3679*	1.2235 0.3939**	1.4351 0.2780**	1.5677 0.8295+	0.0517 0.0180**	-0.0841 0.3292	1.7827 0.8200*	2.0632 1.0329*	2.0485 1.1140+
Log of real income*gdp		-0.0715 0.0379+	-0.1212 0.0405**	-0.1443 0.0285**	-0.1557 0.0855+		0.0143 0.0335	-0.1665 0.0804*	-0.1973 0.1005*	-0.1922 0.1081+
Pro-immig crime				0.5855 0.0568**					0.5739 0.0355**	
Pro-immig culture				0.5811 0.0545**					0.6369 0.0435**	
Pro-immig economy				0.5747 0.0575**					0.569 0.0250**	
Upper social class					0.0546 0.0180**					0.0324 0.0105**
Trade union member					0.018 0.0317					-0.0516 0.0236*
Political affiliation with the right					-0.1409 0.0462**					-0.1911 0.0329**
Religious					0.0378 0.0122**					0.029 0.0057**
Observations	14 659	14 659	13 045	13 045	6043	23 801	23 801	17 943	17 943	10 956
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). 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. 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).

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 analyse 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 analyse 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. The theoretical model implies that the effect of individual skill and income should be a function of the relative skill composition of natives to immigrants. In particular, we will build the empirical (ordered probit) specification around the following latent regression:

$$y_{ic}^* = \beta_1 age_i + \beta_2 male_i + \beta_3 income_i + \beta_4 income_i \cdot RSC^c \\ + \beta_5 educ_i + \beta_6 educ_i \cdot RSC^c + \dots + \varepsilon$$

The probabilities of the five ordered categories in the ordered probit model are based on y_{ic}^* , which is unobserved. From theory we expect to find that the impact of education on pro-immigration preferences is positive in countries that receive unskilled immigrants ($\beta_6 > 0$) and negative in countries that receive skilled immigrants ($\beta_5 < 0$). Furthermore, if the tax adjustment model holds, the effect of individual income should be negative in countries that receive unskilled immigrants ($\beta_4 < 0$) and positive in countries that receive skilled immigrants ($\beta_3 > 0$). On the other hand, if

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).

the benefit adjustment model holds, the effect of individual income should be positive in countries that receive unskilled immigrants ($\beta_4 > 0$) and negative in countries that receive skilled immigrants ($\beta_3 < 0$).

Since the relative skill composition of natives to immigrants is not available for many countries in our samples, we use a proxy for it, the per capita GDP level in the 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 for all countries for which data is available. 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 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 data set. This represents an important robustness check of the results in the previous literature.²³

We next analyse 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

²¹ Table A1 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 US preferences towards migrants, Scheve and Slaughter (2001) find that US unskilled workers are more likely than skilled ones to oppose labour inflows, which is consistent with the fact that immigrants to the US 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.

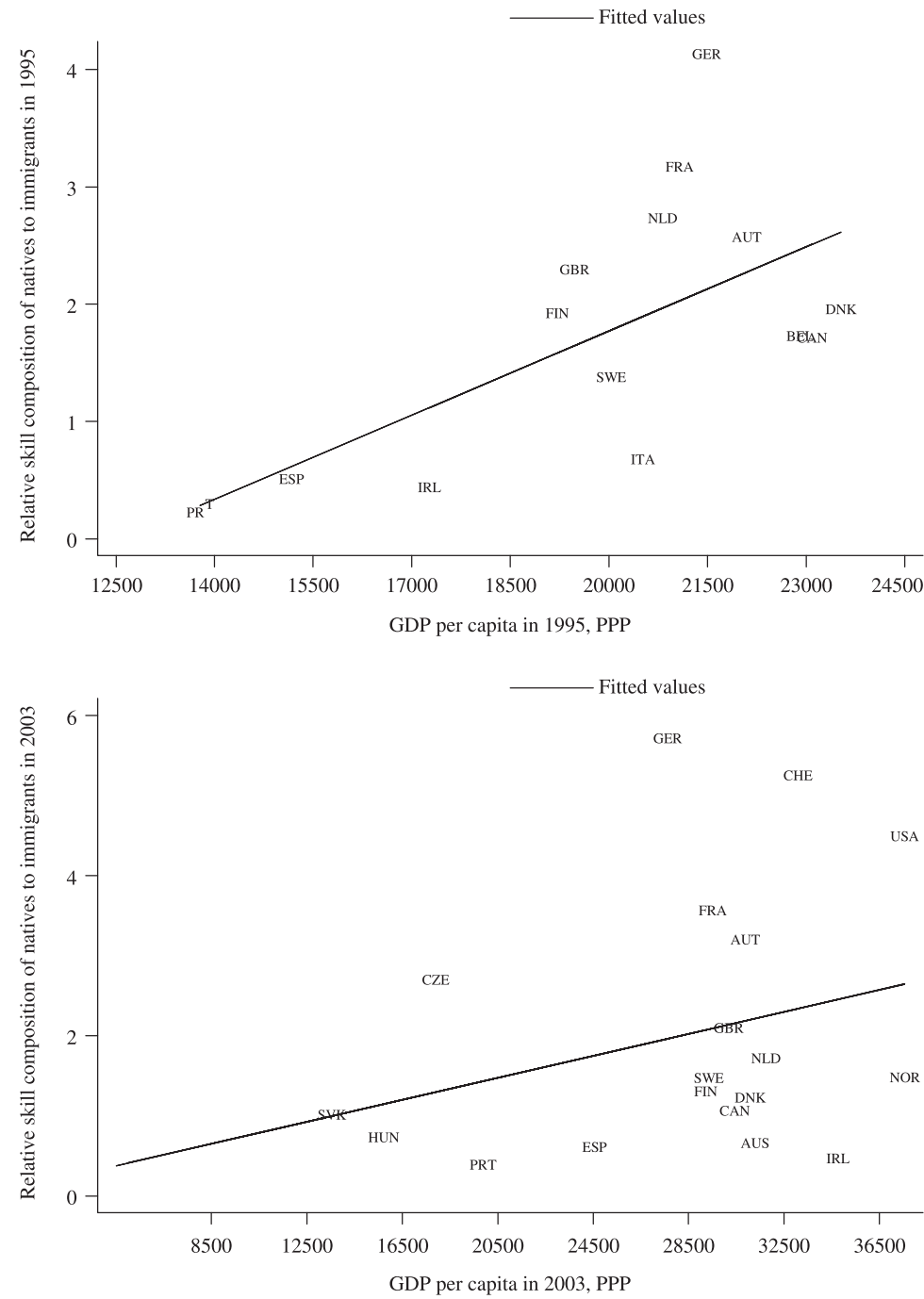


Figure 6. Per capita GDP and skill composition of natives relative to immigrants (1995 and 2003)

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

states²⁴ (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.²⁵ 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.²⁶ Both in 1995 and 2003, the income distribution effects of migration, through the labour-market and the welfare-state channels, work in opposite directions.²⁷

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 point of view.²⁸ First of all, we find that our results on the labour-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,

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.

²⁵ We find evidence that the labour-market and welfare-state effects are more pronounced in countries with larger immigrant inflows.

²⁶ Using US data, Hanson, Scheve and Slaughter (2007) 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 (2006, 2007) for the role played by welfare-state drivers relative to other economic and non-economic drivers of attitudes.

²⁷ We have calculated the threshold values of per capita GDP at which the impact of education and income changes sign. There is variation in these threshold values across specifications. For example, in regression (4′), where we consider both economic and non-economic drivers of attitudes in 2003, the threshold values for GDP per capita are equal to \$14,575 (for education) – which falls between the Slovak Republic and Hungary – and \$34,793 (for income) – which falls between Ireland and the US.

²⁸ *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.

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 (efficiency channel).

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* and *religious*.²⁹ 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.³⁰ Our findings on economic drivers are not qualitatively affected by the introduction of non-economic controls which have their own independent impact on public opinion. In addition, omitting the CC and NA observations from the estimation in Table 4 does not result in selection bias (see Tables 5 and 6 and Box 1).

We next investigate the importance of economic determinants relative to non-economic ones, in terms of variance explained. To this end, we estimate a simple linear probability model, using *Pro Immig Opinion* as the dependent variable. We start with a specification which only includes the non-economic regressors (*age*, *male*, *citizen*, *parents' foreign citizenship*, *pro immig crime*, *pro immig culture*, *upper social class*, *trade union member*, *political affiliation with the right*, *religious* plus country dummy variables). We next add the economic variables (*education*, *education*gdp*, *log of real income*, *log of real income*gdp*, *pro immig economy*). The difference between the two R^2 measures ($0.3198 - 0.2712 = 0.0486$ using the 1995 ISSP dataset, $0.3488 - 0.3049 = 0.0439$ using the 2003 ISSP dataset) is the fraction of the total variance which is explained by economic factors, after allowing for the contribution of non-economic determinants. If we repeat the same exercise including first the economic variables plus country dummy variables, and next the non-economic regressors, the R^2 increases by 0.0749 using the 1995 ISSP dataset and by 0.1159 using the 2003 ISSP dataset. Therefore, we find that the non-economic determinants are more important than the economic variables considered, in 1995 and especially in 2003, in terms of variance explained. In other words,

²⁹ *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).

³⁰ In a recent contribution using the 2002–03 round of the European Social Survey and, in particular, the questions revealing how aware individuals are of the consequences of migration, Malchow-Moeller *et al.* (2007) finds considerable evidence 'of economic self-interest playing a role among those who believe that immigration lowers wages, takes jobs away, disproportionately hurts the poor and/or puts public expenditures under pressure' (page 3).

Table 5. Heckman selection model (ISSP 1995)

Linear regression with country FE	1	2	3	1'	2'	3'
Dependent variable	<i>Pro Immig Opinion</i>					
Method	OLS	OLS	OLS	Heckman	Heckman	Heckman
Age	-0.0029 0.0005**	-0.0029 0.0005**	-0.0024 0.0005**	-0.0029 0.0005**	-0.0029 0.0005**	-0.0024 0.0005**
Male	-0.0188 0.0159	-0.021 0.0158	-0.0311 0.0168+	-0.0189 0.0166	-0.0207 0.0166	-0.0331 0.0180+
Citizen	-0.2603 0.0588**	-0.2571 0.0587**	-0.1953 0.0683**	-0.2606 0.0625**	-0.256 0.0625**	-0.2004 0.0700**
Parents' foreign citizenship	0.2242 0.0200**	0.2205 0.0199**	0.2099 0.0206**	0.2242 0.0200**	0.2204 0.0200**	0.2106 0.0207**
Education (years of education)	0.0499 0.0025**	-0.4135 0.0493**	-0.4948 0.0816**	0.0499 0.0026**	-0.4128 0.0512**	-0.5014 0.0841**
Education*gdp		0.0479 0.0051**	0.0562 0.0083**		0.0479 0.0053**	0.0569 0.0086**
Log of real income	0.0272 0.0128*	0.59 0.2415*	0.9813 0.4256*	0.0272 0.0132*	0.5884 0.2436*	0.9929 0.4269*
Log of real income*gdp		-0.0578 0.0249*	-0.0973 0.0432*		-0.0576 0.0252*	-0.0986 0.0434*
Inverse Mills' ratio				-0.0015 0.1396	0.0068 0.14	-0.0554 0.1736

Table 5. *Continued*

Selection equation				
Probit with country FE		1'	2'	3'
Dependent variable		<i>Immig select</i>		
Age		0.0019 0.0009*	0.0019 0.0009*	0.0022 0.0010*
Male		0.1043 0.0285**	0.1081 0.0286**	0.1263 0.0323**
Citizen		0.4257 0.0920**	0.4281 0.0922**	0.2801 0.1105*
Parents' foreign citizenship		-0.0341 0.0356	-0.031 0.0357	-0.044 0.0372
Education (years of education)		-0.0108 0.0045*	0.3277 0.0754**	0.3742 0.1422**
Education*gdp			-0.0354 0.0079**	-0.04 0.0145**
Log of real income		0.0687 0.0221**	-0.8834 0.3581*	-0.6732 0.7294
Log of real income*gdp			0.0992 0.0373**	0.078 0.074
Trade select		0.7817 0.0535**	0.7776 0.0536**	0.712 0.0603**
Observations	14 659	14 659	13 045	16 542
R-squared	0.17	0.18	0.18	16 542
				14 304

Notes: 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	<i>Pro Immig Opinion</i>					
Method	OLS	OLS	OLS	Heckman	Heckman	Heckman
Age	-0.0006 0.0004	-0.0006 0.0004	-0.0007 0.0005	-0.0005 0.0004	-0.0006 0.0004	-0.0006 0.0005
Male	0.0233 0.0134+	0.0195 0.0134	0.008 0.0153	0.0246 0.0142+	0.0199 0.0143	0.012 0.0167
Citizen	-0.1746 0.0483**	-0.1733 0.0482**	-0.1954 0.0544**	-0.1722 0.0492**	-0.1725 0.0491**	-0.1902 0.0551**
Parents' foreign citizenship	0.2402 0.0141**	0.2405 0.0141**	0.2366 0.0156**	0.2395 0.0143**	0.2403 0.0143**	0.2344 0.0160**
Education (years of education)	0.0519 0.0020**	-0.1989 0.0372**	-0.6183 0.0996**	0.0519 0.0020**	-0.1975 0.0410**	-0.6088 0.1009**
Education*gdp		0.0251 0.0037**	0.0658 0.0097**		0.025 0.0041**	0.0648 0.0099**
Log of real income	0.0471 0.0090**	-0.0633 0.1512	1.5134 0.4620**	0.0476 0.0092**	-0.065 0.1524	1.5028 0.4624**
Log of real income*gdp		0.0116 0.0152	-0.1411 0.0450**		0.0118 0.0153	-0.1399 0.0450**
Inverse Mills' ratio				0.0352 0.143	0.0122 0.1444	0.1084 0.18

Table 6. *Continued*

Selection equation						
Probit with country FE				1'	2'	3'
Dependent variable				Immig Select		
Age				0.0038 0.0008**	0.0038 0.0008**	0.0052 0.0009**
Male				0.1214 0.0238**	0.1259 0.0239**	0.1431 0.0289**
Citizen				0.2038 0.0756**	0.1959 0.0758**	0.1569 0.0893+
Parents' foreign citizenship				−0.0776 0.0252**	−0.0772 0.0252**	−0.0854 0.0280**
Education (years of education)				−0.0089 0.0036*	0.4205 0.0615**	0.2843 0.1821
Education*gdp					−0.0432 0.0062**	−0.0297 0.0178+
Log of real income				0.0486 0.0160**	−0.5007 0.2575+	−0.2821 0.8097
Log of real income*gdp					0.0548 0.0259*	0.0331 0.0788
Trade select				0.6899 0.0449**	0.6746 0.0451**	0.6539 0.0537**
Observations	23 801	23 801	17 943	26 382	26 382	19 487
R-squared	0.15	0.16	0.15			

Notes: 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.

Box 1: Do ‘Can’t choose’ and ‘Not available’ answers lead to selection bias?

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 (notice that we now estimate the main equation linearly rather than using an ordered probit model):

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

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

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 $y_j^{\text{select}} = 1$; $X \subseteq \mathcal{Z}$; (u_1, u_2) is independent of \mathcal{Z} with $u_1 \sim \mathcal{N}(0, 1)$, $u_2 \sim \mathcal{N}(0, 1)$, $\text{corr}(u_1, u_2) = \rho$. 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 $y_j^{\text{select}} = 0$ and *Pro Immig Opinion* is not observed. One possible explanation of this behaviour 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 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 NA 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 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 labour-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 labour-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.

while economic factors continue to play a significant role, after September 11 the importance of non-economic determinants, in terms of variance explained, increases. Notice, however, that the results of the variance exercise need to be interpreted with caution. The reason is that some of the non-economic variables are not exogenous and may be themselves affected by the economic determinants. For example, an individual may have negative feelings against immigrants from a cultural and security point of view because of the competition he/she feels from them in the labour market.

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 analyse 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 labour market and the welfare state, continue to play a significant role. In columns (1)–(2), we replicate our

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	<i>Pro Immig Opinion</i>								
Age	−0.0027 0.0013*	−0.0022 0.0013+	−0.0024 0.0013+	−0.0022 0.0013+	−0.0024 0.0013+	−0.0023 0.0013+	−0.0023 0.0013+	−0.0026 0.0011*	−0.0023 0.0012+
Male	−0.0058 0.0295	−0.0136 0.0325	−0.0195 0.0328	−0.0172 0.0329	−0.0205 0.0329	−0.014 0.0283	−0.0149 0.0283	−0.0282 0.0258	−0.0109 0.0283
Citizen	−0.2075 0.0513**	−0.1806 0.0639**	−0.1102 0.0963	−0.2012 0.0581**	−0.1298 0.0886	−0.2464 0.0455**	−0.2307 0.0527**	−0.2821 0.0832**	−0.2606 0.0348**
Parents' foreign citizenship	0.2555 0.0337**	0.2382 0.0335**	0.2511 0.0357**	0.2344 0.0335**	0.2475 0.0350**	0.2298 0.0312**	0.2324 0.0311**	0.2016 0.0370**	0.229 0.0325**
Education (years of education)	−0.3368 0.0802**	−0.3842 0.1473**	−0.4174 0.1504**	−0.3878 0.1396**	−0.4146 0.1462**	−0.4345 0.1472**	−0.4372 0.1483**	−0.6291 0.2346**	−0.3468 0.1473*
Education*gdp	0.0399 0.0083**	0.0445 0.0149**	0.0479 0.0151**	0.0449 0.0142**	0.0476 0.0147**	0.0497 0.0148**	0.05 0.0149**	0.0686 0.0233**	0.041 0.0148**
Log of real income	0.9045 0.8042	1.9053 0.7941*	−0.1008 0.8551	1.2078 0.7638	−0.1654 0.8158	1.3108 0.3224**	1.0066 0.4031*	2.9133 0.6033**	0.8701 0.7161
Log of real income*gdp	−0.0863 0.0819	−0.1851 0.0792*	0.0154 0.0863	−0.1152 0.0764	0.0219 0.0824	−0.1261 0.0322**	−0.0957 0.0402*	−0.2831 0.0604**	−0.083 0.0712
Per capita GDP			−0.0001 0.0000**		−0.0001 0.0000**		0.0000 0.0000		
Net migration rate				−33.4969 18.2045+	−16.2726 13.3194				
Per capita GDP growth						0.1328 0.0163**	0.1251 0.0229**		
Skill composition of natives vs. immigrants								0.0578 0.129	
Birth rate									−0.1834 0.0699**
Observations	29 009	24 117	24 117	24 117	24 117	24 117	24 117	17 968	24 117
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).

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 country observations in the sample). Finally, in regression (9), we investigate whether changes in demographic trends impact individual attitudes. Interestingly, we find that countries that 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 analyse 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.³¹ In Appendix 2 we use a similar median-voter framework and develop a theoretical model that gives predictions in terms of the *levels* of skilled and unskilled migration. In our model, skilled and unskilled labour 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. In addition, the median voter model predicts that migration policy should be correlated with the opinion of the median voter and, more in general, with public opinion. We next evaluate whether these predictions are consistent with the data in a number of different ways.

Our first piece of evidence consists of 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 observed across destination countries. Figures 7, 8 and 9 and Table 8 provide additional evidence, which is consistent with the median-voter model.³² In these figures and tables, we show that the variation in migration outcomes across countries can be explained by the variation in the opinion of the median voter and, in general, in public opinion across countries. In particular 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

³¹ 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) and Mayda and Patel (2007), while for a review of the literature that looks at the welfare-state dimension, see Krieger (2005).

³² 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 are 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 column 8 in Table 2 and is used in Figure 7). In Figure 8, we use the average *Pro Immig Opinion* (see column 7 in Table 2). Finally, in Figure 9 we use the fraction of voters in each country favourable 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 column 9 in Table 2).

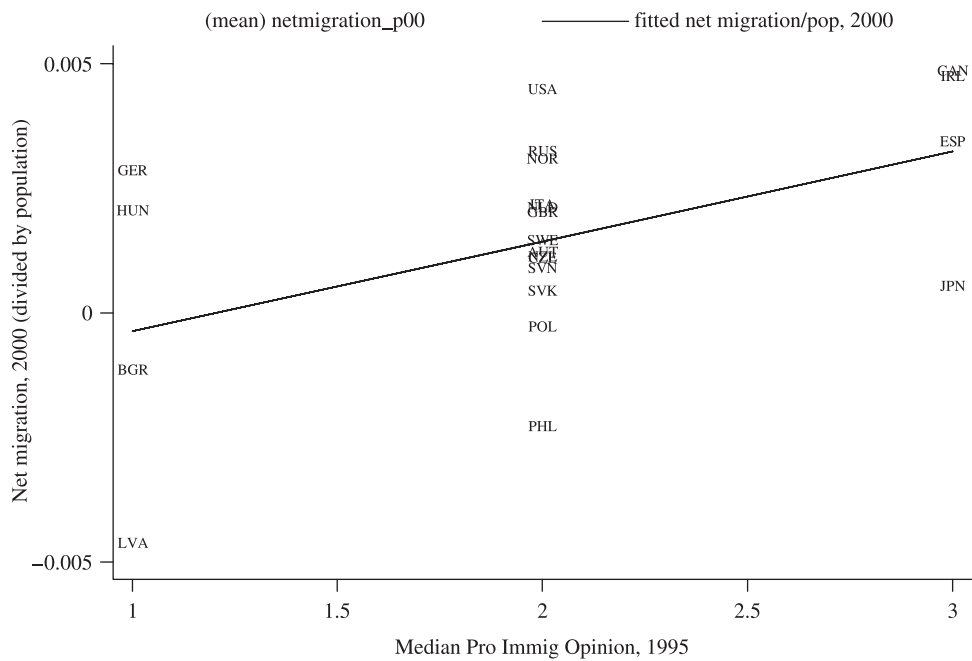


Figure 7. The impact of individual attitudes towards immigrants on migration inflows (ISSP 1995)

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

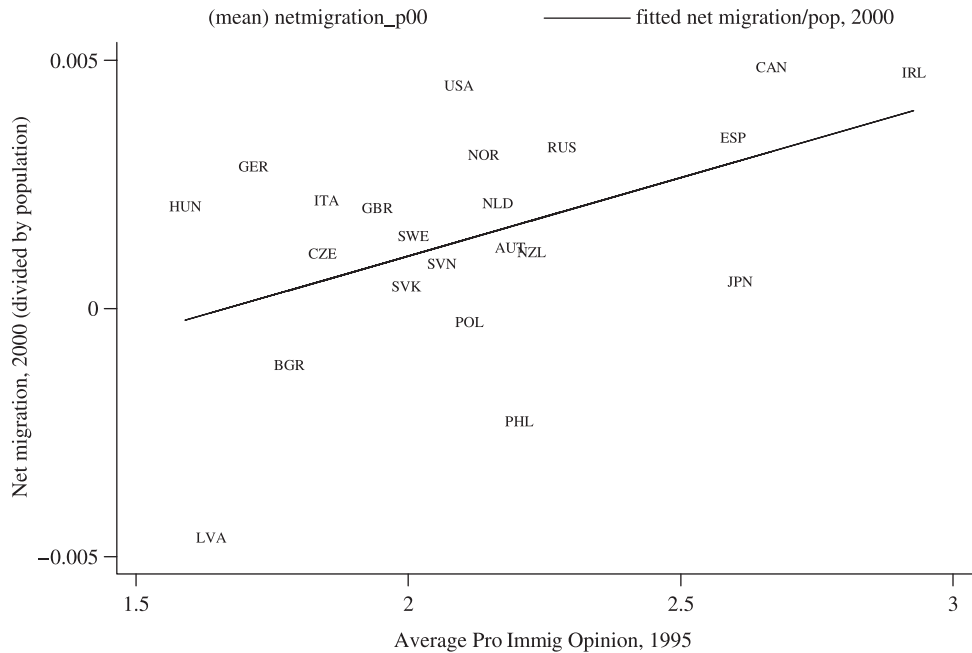


Figure 8. The impact of individual attitudes towards immigrants on migration inflows (ISSP 1995)

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

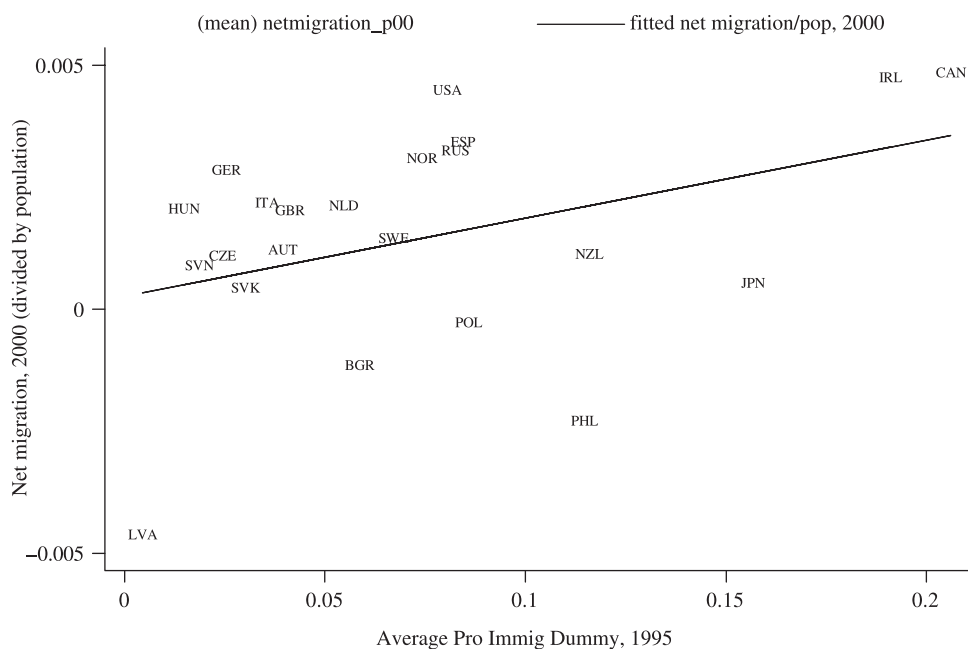


Figure 9. The impact of individual attitudes towards immigrants on migration inflows (ISSP 1995)

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 0.0015	-0.0053 0.0028+	0.0003 0.0008	0.0002 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%.

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 that 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 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, 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:

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

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.³³ The estimates of this regression are presented

³³ 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 children to become citizens and vote (that is, *jus soli* countries; see Bertocchi and Strozzi, 2008).

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 evaluating the model of endogenous migration-policy formation recently proposed by Facchini and Willmann (2005). In that model (see also 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 (decreasing) in the relative importance of the factor if the factor is (is not) politically organized, 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 US as the testing ground for our theory as, in that country, there exists substantial anecdotal evidence on the role played by organized groups in shaping migration policy. In particular, we analyse US 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 of 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 programme, associate degree/academic programme, 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 two 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 US, 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 H1-B visas was already filled on 2 April, the first day after the opening of the application receiving process for fiscal year 2007–08 (Rediff News, 4 April 2007). Finally, the total number of immigrants is a comprehensive measure of the number of immigrants who enter the US, legally or illegally, temporarily or permanently.

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 US 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 US 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 in the recent past. According to the US Department of State (2007), 161,643 H1-B visas were issued in 2001, while in 2003 only 107,916 were issued. Similarly, the number of visas handed out to temporary workers admitted to perform non-agricultural services (H2-B) was 58,215 in 2001, but it increased to 87,492 in 2005, 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 visas (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, 22,269 individuals have been admitted in the US in 2004 under the P1 visa category, reserved for 'internationally recognized athletes', 6,437 foreigners have been allowed to carry out their activities as 'workers with exceptional ability/achievement' (O1 visa class) while 8,806 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 US 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 US 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') of Appendix 2, 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:

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

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. 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 US have reversed their position towards immigration in 2000, switching from an anti-migration to a pro-migration stance.³⁴ As Watts (2002) points out, there are three main reasons for

³⁴ 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.

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 0.01942**	0.15203 0.01800**	0.12521 0.01679**	0.12521 0.02629**	0.12829 0.03154**	0.07648 0.01271**			
Number of natives*political organization (same cell)	−0.37664 0.06997**	−0.25691 0.05604**	−0.14344 0.04867**	−0.14344 0.07107*	−0.17738 0.05569**	0.05387 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; labourers.

the change in policy preferences of the main US union, the AFL-CIO. On the one hand, union leaders have grown increasingly aware of the importance of foreign immigrants in the rank and file of the union. Second, 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. As a result, we expect union membership rates to negatively affect the number of immigrants in a given cell before the year 2000, while the relationship should be weaker after 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:

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

where $o' \neq o$ given $s' \neq s$, 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 that particular occupation/skill category (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)).

Finally, there is another force in the interest groups framework which will work to increase the number of immigrants in a given cell, i.e. 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 and Mishra, 2007).³⁵

³⁵ The other main difference between the analysis in this paper and the analysis in Facchini, Mayda and Mishra (2007) is that here we focus on a long-run model, where the relevant unit of observation is the occupation/skill cell, while there we carry out a short-run, sector-specific analysis.

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 non-economic 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 in this paper points out that voters are indeed 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 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/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 of a given occupation/education category 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 occupation/education category is politically organized capital owners who will employ them (Facchini, Mayda and Mishra, 2007).

Of course, alternative hypotheses might help explain the public opinion puzzle. For example, another reason why migration flows continue to take place – notwithstanding the great opposition of voters in destination countries – is that policy-makers 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. Most destination countries manage migration through border enforcement rather than interior enforcement, although the latter is much more effective than the former. For example, Hanson and Spilimbergo (2001, p. 618) 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.’ Another explanation of the public opinion puzzle is that policy-makers do, indeed, take into account social welfare and therefore choose migration levels which are higher than desired by voters. This is a plausible alternative interpretation. Thus, 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 non-economic 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 non-economic 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.³⁶ 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).

From a non-economic 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. Civil society organizations are likely to play an important role in this direction. This is confirmed by the result we found on the positive impact of attending religious services on 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.

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 considerations. 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 are consistent with the *tax adjustment model*, the income distribution effects implied by this channel work in the opposite direction relative to the labour

³⁶ Notice that income distribution effects cannot be eliminated *ex ante* because they are a necessary condition for migration to generate aggregate efficiency gains.

market. In particular, individual skill and income – which capture, respectively, the labour market and welfare state channels – have opposite consequences 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 group dynamics are a force that push the economy towards the most desirable economic outcome, rather than bringing about additional distortions in international factor flows.

DISCUSSION

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How are attitudes towards migration formed? Do economic forces play a role in explaining individual attitudes towards migration policies? Do these attitudes affect actual migration policies adopted in various countries and if so through what channel? These are extremely relevant questions that are at the forefront of the current policy debate in Europe and the world at large, as population mobility has grown faster and faster worldwide. In his celebrated book on the causes of the divergent destinies of different economies, David Landes traces the success of North versus South America to different attitudes towards migration. Attitudes, through voting or some other political channel, may affect migration policies and ultimately the stock and quality of human capital available to a country. Hence, investigating the origin of the attitudes towards migration can be of first order importance for the long-run performance of an economy.

This paper addresses empirically these two important and interlinked questions – the sources and the effects of migration attitudes. Facchini and Mayda depart from a large literature in sociology and political science that has stressed the role of cultural forces in affecting attitudes towards migration. They instead focus on the role of individual-level economic costs and benefits of migration in shaping these beliefs. Rational and selfish individuals (the stereotype of economic modelling), concerned with their incomes only, should express beliefs on immigration and immigration policies that are consistent with the *direct* effects that immigration has on their *earnings*. Taking the economic approach, Facchini and Mayda identify two channels through which this may occur: because migrants change the relative wage of the incumbents; because migrants change the burden of taxation (share of benefits from the welfare system) of the local population. If an individual salary (tax burden) is adversely affected by the inflow of immigrants, individuals will

oppose immigration and this will be reflected in their beliefs. The reverse occurs if their salary (tax burden) is positively affected by immigration. Hence, according to this approach, differences in beliefs about immigrants are driven by the economic consequences entailed by immigration which impacts differentially self-interested individuals.

The way the existence of this channel is identified is by noticing that immigration will have differential effects on the hosting country population depending on the skill level of the locals and the skill composition of immigration. Through competitive forces, high skill workers' salaries will be adversely affected if immigrants are high skill but will be positively affected if immigrants are low skill; the opposite for local workers with low skill. If the skill level of local workers is captured by their level of education, one should then expect that education has a positive effect on beliefs about pro-immigration policies if the immigrants unskilled/skilled ratio, U , is high, and a negative effect when it is low. Similarly, immigration will affect beliefs differentially depending on the income level of the incumbent, as immigration will induce different effects on welfare taxes according to the income levels. If immigrants are high skill, high income locals will support migration as they will end up paying lower contributions; but they will oppose it if immigrants are low skill. The opposite is true for low income individuals. These channels are echoed in the press debate about immigration. In both cases there are redistributive effects which depend on the relative skill composition of immigrants. Individuals form utilitarian beliefs: if directly harmed by immigrants, they will form anti-immigration beliefs; if positively affected they will hold pro-immigration beliefs.

When confronted with the data, Facchini and Mayda find evidence that is consistent with these predictions. Education has a negative effect on pro-immigration beliefs but its interaction with the share of unskilled workers is positive; individual income is positively correlated with pro-immigration beliefs but its interaction with U is negative. All this is interesting and suggests that individuals do indeed take into account how immigration impacts them *directly* when expressing opinions about immigration policies. That is, there seems to be an individual economic channel that shapes these beliefs, which are not (only) driven by stereotypes, preconceptions, stubborn intolerance, or 'irrational' priors. This may not sound surprising but it is, when confronted with the sociological literature on migration where the emphasis is on the cultural component of attitudes.

Realistically, both features are very likely to matter and they are also likely to interact. For instance, a cultural predisposition against immigration may attenuate the direct positive effects that migration may have, or may lead individuals to ignore more general positive impacts that migration may have on the economy, for example because it raises average fertility in a country subject to population decline. What this paper really contributes to the debate is a proof that direct economic advantages and disadvantages are discounted by individuals when forming their opinions about immigration, suggesting that, among other things, a sensible migration policy needs to confront them for it to be successful.

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The authors start from the observation that migration is surprisingly small compared with the globalization taking place in trade and financial markets, and compared with what presumably would be economically efficient. The authors hypothesize that the reason is that voters oppose immigration. The paper presents evidence that voters' attitudes towards immigration to a large extent can be explained by economic factors. It also presents evidence that the median voters' attitudes map into policies and that interest groups' influence appear to be important as well. This is an important and topical area of research and I very much welcome such a paper in *Economic Policy*.

The paper extends the authors' previous work on the formation of attitudes towards immigration using not only the 1995 but also the 2003 issue of ISSP data. This gives two new types of results:

1. Previous results are confirmed: Individuals' attitudes are influenced by their own economic situation. In particular, the authors identify what they call a labour market channel and a welfare state channel. In rich countries (which typically receive low skill immigrants) well educated are more in favour of immigration; this is taken as evidence for the labour market effect (there is a complementarity in the labour market, so high skilled earn more when there are more low skilled workers). One wonders whether it also could be the case that well educated just are more 'cosmopolitan', regardless of labour market issues? In the same countries, higher income individuals are more against immigration; this is taken as evidence for the welfare state channel effect (they are afraid they have to pay higher taxes). A cautionary note may be that these channels are complicated, do individuals understand them? It would be interesting to see whether the individuals themselves believe in the channels that supposedly influence their attitudes.
2. The paper identifies time varying effects: It is shown that citizens of countries experiencing lower GDP growth and more immigration become less favourable to immigration.

The labour market channel roughly works as follows: Unskilled immigration depresses the unskilled wage, which is bad for the unskilled and good for the skilled. Skilled immigration depresses skilled wage, which is bad for the skilled and good for the unskilled. The labour market channel effect therefore should make the well educated relatively more in favour of unskilled immigration.

The welfare state channel is slightly more complicated: here the paper considers two extremes, one where the tax rate adjusts to immigration so that the benefit level is maintained and one where the benefit level adjusts given the tax rate. Neutralizing the labour market channel, the authors show that if the benefit level is unaffected and taxes adjust in response to immigration, all individuals prefer high skilled immigrants, but high-income individuals benefit the most from such immigrants, as the ensuing

tax-reduction benefits them disproportionately much. The authors find evidence for this welfare state channel, with tax adjustment effects, in the sense that in high income countries, which typically receive relatively unskilled immigrants, high income individuals are more opposed to immigration.

However, the framework is a bit open ended since it is *a priori* not clear which adjustment is the right one, tax-adjustment or benefit-adjustment. Whether taxes or benefits adjust is a political decision that is somehow decided by the political system. Furthermore, in the longer run, the electorate itself is also affected by immigration! It is not clear which time perspective voters take when forming attitudes towards immigration. If they take a long-run perspective, whether taxes or benefits adjust and what happens to the electorate may be important.

To illustrate the issue consider a small model of redistribution³⁷ where there is a distribution of skill in the population and immigration affects politics (and where we deliberately have chosen not to include labour market effects).

There is a continuum of individuals who all receive utility from consumption, c , and leisure, x . The utility of Mrs i is

$$u_i = c_i + V(x_i)$$

where $V(x_i) = x_i(2 - x_i)$.

A bit primitively, we model an individual's skill as given by her (efficiency) time endowment, $1 + e_i$, which can be used on leisure or labour supply, l_i ,

$$x_i + l_i = 1 + e_i$$

There is a distribution of e_i among the citizens, let the average be e , and the median e_m , where $e_m < e$.

The welfare state collects taxes and redistributes the proceeds in a lump sum manner. The per capita labour supply is l , the real wage one, so the government budget constraint is

$$b = \tau l$$

where b is benefits and τ the tax rate. The utility of Mrs i therefore is

$$u_i = (1 - \tau)l_i + b + V(1 + e_i - l_i)$$

Mrs i decides how much to work by maximizing utility over l_i , which gives

$$l_i(\tau) = e_i + \frac{1 - \tau}{2}$$

and her preferred tax rate therefore maximizes

$$u_i(\tau) = (1 - \tau)l_i(\tau) + b(\tau) + V((1 + e_i - l_i(\tau)))$$

³⁷ The model is a small extension of Persson and Tabellini's (2000) textbook model of redistribution and median voter politics.

Hence, the preferred tax rate is given by

$$\tau_i = \max[0, 2(e - e_i)]$$

The median voter's preferred tax rate is a Condorcet winner, and equals

$$\tau_m = 2(e - e_m) \quad (5)$$

Now we consider the consequences of immigration. Let $e(I)$ be the post immigration average e . Look at a scenario, corresponding to Facchini and Mayda's *tax adjustment scenario*, where the benefit rate is given and the tax rate adjusts to keep the government budget constraint fulfilled. Then taxes and labour supply adjust to the new levels $\hat{\tau}$ and \hat{l} so that

$$b = \hat{\tau} \hat{l}$$

where

$$\hat{l} = \left(e(I) + \frac{1 - \hat{\tau}}{2} \right)$$

This implies that

$$\frac{d\hat{\tau}}{de(I)} < 0$$

so *all individuals* prefer immigration if average skill $e(I)$ increases and dislike immigration if average skill decreases. Low skill immigration gives higher taxes, and it is quick to check that this hurts high skill individuals most. They will be relatively more opposed to immigration. This is the authors' welfare state channel in my simple model, which they find evidence for in Table 4.

Now, however, consider a more *long-run perspective*, where the time line is as follows. 1. First natives form attitudes on immigration. 2. Immigration takes place and natives (and perhaps also immigrants) vote on taxes (and implicitly benefits). When forming attitudes, natives take into account step 2.

Let the number of immigrants be I . Let the post immigration average skill be $e(I)$, the post immigration median voter's skill be $e_m(I)$; and her preferred tax rate be $\tau_m(I)$.

Look at Mrs i . Her indirect utility now is

$$u_i(I) = (1 - \tau_m(I))l_i(\tau_m(I)) + b(\tau_m(I)) + V((1 + e_i - l_i(\tau_m(I))))$$

Inserting (1) and differentiating we find that

$$u'_i(I) \geq 0 \text{ iff } (e_i - e_m(I))e'_m(I) - (e_i - e(I))e'(I) \geq 0 \quad (6)$$

Mrs i 's attitude towards immigration depends on her skill, and how immigration affects the average and the median skill.

Suppose first that the *electorate does not change* within the relevant time horizon. Maybe this is because immigrants are not allowed to vote, maybe because the relevant time horizon is so short that Mrs *i* does not take it into account. In this case $e'_m(I) = 0$, and

$$u'_i(I) \geq 0 \text{ iff } -(e_i - e(I))e'(I) \geq 0 \quad (7)$$

Mrs *i*'s attitude towards immigration then exclusively depends on whether she has above or below average skill. If her skill is above average, she prefers immigration if immigrants are relatively low skilled so that the average skill in the population decreases. The reason is that in this case the median voter reacts by lowering taxes and benefits and this benefits a high skilled individual. Low skilled natives prefer more immigration when the average skill increases, since this makes the median voter increase the tax rate and the benefit level. These effects run counter to the welfare channel effects highlighted by Facchini and Mayda.

If the *electorate changes* as a consequence of immigration, then Mrs *i* is fond of immigration if (2) is fulfilled. Her attitude is formed of two effects, the one we just discussed and the effect stemming from the change of the electorate. If her skill is higher than the median, she tends to like immigration if this increases the median voter's skill. The reason is that she finds that the median voter chooses a too high tax rate. When the median skill increases, the median voter tends to choose a lower tax rate.

The condition (2) directly leads to

$$\frac{du'_i(I)}{de_i} > 0 \text{ iff } e'_m(I) \geq e'(I)$$

We see that higher skill makes an individual relatively more fond of immigration if immigration affects the median voter's skill level more positively than the average skill level in the population. This implies that highly skilled individuals are against low skill immigration, if this decreases the median voter's skill level more than the average skill level. In this case the new electorate will vote for higher taxes, hurting the highly skilled. The results of Facchini and Mayda in Table 4, columns 3–5 are in accordance with this effect. It is truly a *political effect*. You could call it an endogenous tax-adjustment effect. Hence, we can rationalize Facchini and Mayda's results in several ways.

The bottom line here is not that I am claiming that the little toy model here contains the truth, nor that the *political effect* is the right one. But the effects of immigration on the welfare state and the consequences for different voters are complicated. The little model shows that, depending on the time perspective of voters, we may expect different results. So, I would go with caution in interpreting Facchini and Mayda's results as a confirmation of the 'welfare state channel effect' they focus on.

To understand these quite complicated issues, we need more information about what time perspective voters have. A related issue, already touched upon above, is whether voters understand the rather complicated effects at play.

Facchini and Mayda's paper forms a very stimulating and interesting contribution to an important debate and it touches upon a host of interesting issues where I am sure that the last word has not been written yet.

Panel discussion

The discussion was very lively as was to be expected on such a politically charged issue. But several methodological points were also discussed. Both Ekaterina Zhuravskaya and Diego Puga noticed that the analysis is performed on only two public opinion surveys in 1995 and 2003 and that the distribution of beliefs on migration could have been affected by the different position in the business cycle. Zhuravskaya also stressed that the relevance of the median voter perspective likely depends on political systems and on the level of democracy. Moreover, it would be important to take into account the effect of the media on the formation of public opinion, individual attitudes towards migration, and even on the evaluation of the economic impact of migration. Julia Darby added that in the UK the government actually tries to correct perceptions, although it is difficult to figure out if the effect is large. Other important considerations that affect attitudes relate to the crowding of public services or, as noticed by Jacques Melitz, to how well earlier immigrants have integrated in the community. Kevin O'Rourke would have liked the information on the employment status of those surveyed to be used besides the 'being religious' one to explain attitudes towards migration. Panel members stressed the potential role of other institutional features to explain attitudes towards migration. Gianmarco Ottaviano noticed that labour market flexibility can play an important role. Josef Zweimuller suggested analysing whether the role of the structure and generosity of unemployment benefit systems has an effect on attitudes to migration.

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 developed 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:

$$1 = c(w_U, w_S) \quad (1')$$

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

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

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:

$$\tau(w_U L_U + w_S L_S + E) = b(N + M) \quad (4')$$

Notice that individuals take as given the initial size of the welfare state (τ and b), i.e. we do not develop a political economy model of the extent of redistribution carried out within society. This implies that our analysis can be considered as a short-run view of the consequences of immigration. 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:

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

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

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

where $\hat{I}_j^n = dI_j^n/I_j^n$ 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

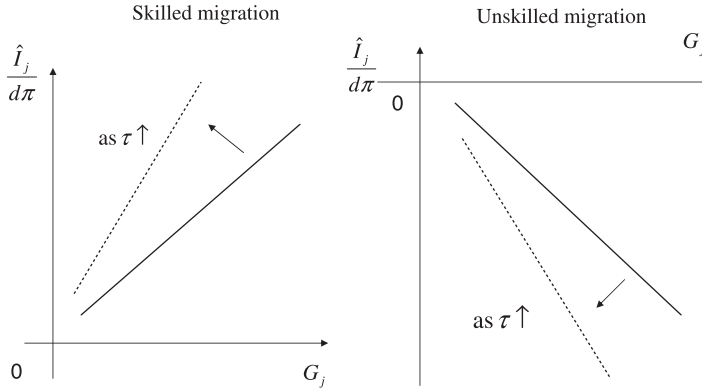


Figure A1. The tax adjustment model

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's labour market. It is easy to show that an unskilled native will see his wage decrease as a result of immigration ($\hat{w}_U/d\pi < 0$) 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* (see Figure A1), 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.

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:

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

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, $\beta_U = \psi_U/\phi_U$ and η_E is the share of the initial endowment

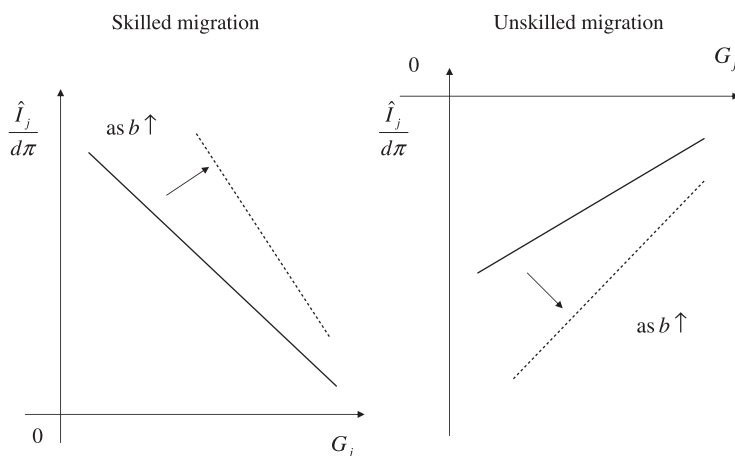


Figure A2. The benefit adjustment model

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

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

From here we can easily see that under the *tax adjustment model*, an inflow of skilled immigrants (implying that $\hat{\tau}/d\pi < 0$) is more desirable for an individual the higher is her pre-tax income. To the contrary, an inflow of unskilled immigrants (implying that $\hat{\tau}/d\pi > 0$) is more desirable for an individual the lower is her pre-tax income (see Figure A1). The intuition for this result is that, if the demogrant is held fixed, the cost of an inflow of unskilled immigrants (higher tax rate) 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 due to the decrease in the tax rate.

If we turn now to the *benefit adjustment model* (see Figure A2), 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:

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

Once again, assuming $\eta_E = 0$, 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 hypotheses we need to substitute equation (9') in (6') and obtain:

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

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 A2). 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. The reason is that the transfer represents a larger fraction of a low-income person's net income.

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 ($\sum_j \eta_j (\dot{w}_j / d\pi) = 0$) 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 ($\sum_j \eta_j (\dot{w}_j / \Delta\pi) = 0$), 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 only 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 λ_{ij} be the fraction of factor $j \in (s, u)$ supplied by agent i , with $\sum_j \lambda_{ij} d_i = 1$, 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 $\lambda_{ij} = 1 + (1 - \lambda_{ij'})$ 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:

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

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,³⁸ 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:

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

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. $\gamma_j = 1$. Equation (12') then simplifies to:

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

³⁸ This is a technical assumption we need to address the multidimensionality of the voting problem. See Helpman (1997) and Facchini and Testa (2008) for a discussion.

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 factor j in the population, i.e. if $\lambda_{mj} - 1 > 0$, then factor j will be protected, i.e. the imports of the factor will be limited by 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 favour of admitting skilled migrants and of restricting entry of unskilled migrants, that is, he will be in favour 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 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:

$$g_j(\omega) = \omega_j \lambda_j + \alpha_j \left[\pi + \sum_j \gamma_j T_j \right] \quad (14')$$

The government trades off aggregate welfare vis-à-vis political contribution and thus maximizes:

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

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:

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

	1	2	3	1'	2'	3'
Probit with country dummies Dependent variable	1995			2003		
	Pro Immig Dummy					
Age	-0.0057 0.0020**	-0.0069 0.0017**	-0.0048 0.0031	0.0003 0.0015	-0.0005 0.0017	-0.0009 0.0016
Male	0.047 0.0464	0.0607 0.0551	-0.0459 0.0611	0.1128 0.0301**	0.133 0.0328**	0.1188 0.0320**
Citizen	-0.1378 0.1655	-0.0977 0.1774	-0.4818 0.1699**	-0.1944 0.1394	-0.1885 0.1659	-0.3943 0.1840*
Parents' foreign citizenship	0.1614 0.0409**	0.0907 0.0404*	0.1178 0.0563*	0.2404 0.0271**	0.1343 0.0306**	0.2209 0.0343**
Education (years of education)	-0.025 0.0070**	-0.0443 0.0086**	-0.0226 0.0157	0.0283 0.0110**	0.0131 0.0104	0.0222 0.0157
Education*relative skill ratio	0.1011 0.0095**	0.0984 0.0108**	0.0976 0.0176**	0.0347 0.0157*	0.0229 0.0154	0.0376 0.0219+
Log of real income	0.1483 0.0587*	0.1689 0.0782*	0.0495 0.1073	0.1441 0.0559**	0.1124 0.0545*	0.16 0.0650*
Log of real income* relative skill ratio	-0.1655 0.0598**	-0.2016 0.0738**	-0.0233 0.106	-0.0979 0.0536+	-0.1081 0.0650+	-0.0931 0.0721
Pro-immig crime		0.4131 0.0867**			0.4648 0.0637**	
Pro-immig culture		0.4504 0.1315**			0.5708 0.0885**	
Pro-immig economy		0.6078 0.1050**			0.5703 0.0460**	
Upper social class			0.0477 0.0271+			0.0354 0.0140*
Trade union member			-0.1061 0.0814			-0.066 0.0378+
Political affiliation with the right			-0.1853 0.0886*			-0.2132 0.0362**
Religious			-0.0134 0.0324			0.0151 0.0052**
Observations	7753	7753	3415	16 475	16 475	10 376
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 regressions 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.

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

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

$$\phi_j^{-1}(q_j) - 1 = \left(\frac{I_j - \alpha_A}{a + \alpha_A} \right) \cdot \frac{l_i}{m'_j} \quad (17')$$

where I_j is an indicator that is equal to one if the factor is organized, and zero otherwise and α_A is the share of the population that is engaged in lobbying activities. 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 set-up, protection is a function of the relevance of the factor for the domestic economy. In particular, protection is positively correlated with the number of native workers if such workers are politically organized. The opposite is true if native workers are not politically organized. Finally, protection is 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 more so, the higher the number of native workers who own factor i), and the opposite is true if the two are substitutes.

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