Welfare Leakage and Immigration Policy

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Abstract: *This paper analyzes the interaction between the welfare state and immigration policy. We establish a negative relationship between the number of dependents and the extent of the welfare state due to the leakage of benefits. We also explain the determination of immigration policy as the outcome of a lobbying game between domestic interest groups and the government. Our results indicate that there is evidence for welfare leakage and for lobbying as a determinant of immigration policy. In our baseline specification, a 10 percentage points increase in the share of dependents leads to a 7–10 percentage point decrease in the labor tax rate. Furthermore, an increase by 10 percentage points in union density leads to a decrease of one percentage point in the share of immigrants in the population. In the context of EU enlargement and the ensuing migration flows, our model predicts a reduction in the size of the welfare state in the old member countries. (*JEL* H5, J1, J61)*

1 Introduction

The welfare state is an important component of any modern, industrialized society. From the early beginnings in the 19th century, its pervasiveness has increased over the course of the last hundred years to reach levels that have caused concern and prompted reform in many countries. These reforms are ongoing and it is hence important, today more than ever, to understand the forces that shape the welfare state. While normative economic analysis remains mired in the subjective nature of redistributive questions, political economy approaches have been fruitfully applied to the task.

Standard theory of the determinants of the size of the government in a direct democracy highlight the relationship between the scope of redistribution, i.e. the extent of the welfare state, and pre-tax income inequality. Two interpretations have been suggested to explain this dependence: Lovell (1975) emphasizes the size of the government as a provider of public goods, while others such as Meltzer and Richard (1981) emphasize the role of the government in

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redistributing income. See Persson and Tabellini (1999) for a survey. As Razin, Sadka and Swagel (2002a; 2002b) have recently pointed out, a third potential channel is the leakage of welfare benefits to groups such as immigrants or the elderly.

In this paper, we describe the working of fiscal leakage in an intuitive way. Think of the population as composed of three different types of agents: Unskilled and skilled workers, both actively involved in the production process, and dependents who do not earn wages. Redistribution takes the form of a linear tax on labor income the proceeds of which are rebated back to the population by means of a uniform transfer. The extent of this redistribution is decided by a policymaker who represents the interest of the median voter. As the number of dependents increases, the implicit return of the welfare system for the median voter declines, making the system itself less attractive. The median voter hence chooses to reduce the extent of the welfare state.

This question is not of merely theoretical importance, as the recent demographic trends in most western countries show. The progressive aging of the population is well documented and has been recognized as a reason for concern on many dimensions. We report some of the evidence on this trend, and discuss its implications. We also illustrate the growing importance of immigration, which has equally been on the rise. However, this trend is likely to be a mixed blessing, because immigrants are younger but also on average less skilled than the native population.

The rise of immigration has forced countries to actively define their policies in this area. We borrow from Facchini and Willmann (2004) to explain the formation of such policies as the result of lobbying and complementarities in production. Domestic factors are assumed to lobby the government for protection, offering to pay contributions in exchange for limiting the inflow of foreign factors. The policymaker then trades off national welfare against lobbying contributions, when selecting the optimal immigration policy. Complementarities among factors play an important role because substitutes lobby on behalf of each other, whereas a factor lobbies against protection for its complement.

In the context at hand, we regard immigrants as complementary to the domestic skilled workers and as substitutes for the domestic unskilled. The former hence lobby in favor of immigration, whereas the latter lobby against it. The resulting policy depends on the relative political influence of the two lobbies.

We assess the relevance of our theoretical analysis by estimating a system of equations on a panel of OECD countries. Our evidence provides support for the effect of dependents in reducing the size of the welfare state. This finding confirms previous work by Razin, Sadka and Swagel (2002b). The evidence on

the immigration equation confirms that both lobbying and complementarities play the predicted role in determining migration policy.

In the context of the recent EU enlargement, substantial westward migration flows have been predicted once transition periods end. Since most observers expect these immigrants to be on average less skilled than their Western European hosts, our model predicts that the influx will lead to a reduction in the size of the welfare systems in the old member countries.

The remainder of this paper is organized as follows: In Section 2 we provide a theoretical discussion of welfare leakage. Section 3 presents the stylized facts on aging and immigration. In Section 4, we analyze the formation of immigration policy. Section 5 presents the empirical results. In Section 6, we discuss the effects of EU enlargement, and section 7 offers concluding remarks.

2   Welfare leakage

One of the characteristics of modern, industrialized economies is the existence of an elaborate welfare state that has developed over the course of the last century. The defining component of these welfare systems is the extensive redistribution of income from the rich to the poor by means of either cash or in kind transfers. The analysis of the determinats of the welfare state goes back to Meltzer and Richard (1981) who consider the role of the government in redistributing income in a majority voting framework. For a survey of this literature see Persson and Tabellini (2000). In more recent work, Razin, Sadka and Swagel (2002a; 2002b) emphasize the potential leakage of welfare benefits to low-income groups such as immigrants as a factor limiting the size of the welfare state.

In this section we want to provide a synopsis of the argument because it is important empirically as our empirical analysis will show. The notion that the presence of additional low-income individuals reduces the size of the welfare state might well appear counter-intuitive at first thought. After all, one would expect that additional funds are needed to pay the benefits for these individuals. Their presence should therefore increase the size of the welfare state instead of reducing it. This argument misses an important consideration, though, namely that the presence of the additional recipients negatively affects the rentability of the system for the rest of the population. Clearly, the additional drain on resources reduces the "return" for everyone else, and in particular, those groups wielding political power will hence decide to reduce the extent of the system.

Let us develop this argument more formally. It will prove convenient to think of the population as being comprised of three groups: the skilled, the unskilled, and a third group, which we label the dependents. The former earn a wage of w_s, whereas the unskilled workforce earns a wage of w_u. Clearly, the skilled wage exceeds the unskilled wage, or in other words, skilled individuals earn a skill premium. As for the third group, these individuals have an even lower earned income than the unskilled workforce. In the extreme, we can think of them as not having any earned income at all. This group represents different types of dependents: There are the elderly who no longer earn wages, the immigrants who (on average) earn a lower wage than the domestic unskilled workforce, and so on.[1]

How does the redistribution carried out through the welfare state affect these groups? Every real world welfare system incorporates a multitude of programs and operates on many dimensions. We focus on one aspect that most of these programs have in common. They tend to redistribute from those who earn high incomes to those who do not. We incorporate this common aspect in a straightforward way: A flat income tax is levied on everyone's earned income, and the proceeds are rebated uniformly to the population. In other words, everyone pays the same percentage of their income in taxes, which implies that the skilled who earn high wages pay more taxes than the unskilled, while the third group that has no taxable income contributes nothing. On the other hand, everyone receives the same transfer. Our simple welfare system thus amounts to collecting net contributions from the skilled group and paying net benefits to the unskilled, and even higher benefits to those individuals who we subsumed under dependents.

If we abstract from inter-temporal redistribution – which is beyond the scope of a simple model and would not substantially alter its conclusions – the redistribution mechanism outlined above has to satisfy a budget constraint. That is, the benefit payments cannot exceed the tax revenue collected. In addition, we recognize that redistribution entails an efficiency loss. We incorporate these welfare costs as follows: Of the tax revenue collected, only a fraction is available for redistribution. As long as the tax rate is zero and no redistribution is carried out, this fraction is one, implying that there is no cost. As the tax rate rises, so does the efficiency loss and hence the fraction of tax revenue available for redistribution decreases.[2] Taking into account both these

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[1] Considering immigrants as dependents might seem extreme, and one should take into account the skill, and not only the quantity dimension of immigration. We base this simplifying assumption on the empirical evidence that immigrants are more likely to be dependent on the welfare system. For further evidence, see Boeri, Hanson and McCormick (2002).

[2] It does so more than proportionally since the marginal efficiency cost is increasing.

arguments, the per capita transfer payment equals a fraction of the average per capita tax payment.

Before analyzing the effects of additional dependents, let us first investigate how the size of the welfare state is determined under the status quo. Suppose that the decisive median voter is unskilled. Her stance on redistribution depends on the following comparison: Any increase in the tax rate forces her to pay more taxes but at the same time she receives a higher transfer payment in return. The transfer corresponds to the average tax payment minus the efficiency cost. Her stance thus depends on how her income compares to the average income, taking into account marginal changes in efficiency loss brought about by changes in the tax rate. Since income distributions are typically skewed to the right[3], the income of the decisive median voter usually falls short of the average income. This implies that she will want to raise the tax until the additional pay-off in terms of net-benefit payment is off-set by the increase in per capita inefficiency. This results in a positive level of redistribution from rich to poor.

The question at the heart of our analysis is how the politically chosen level of redistribution is affected by an increase in the number of dependents, be it due to a rise in immigration, or to population aging. How does such a change affect the decision of the unskilled median voter? An increase in the number of dependents lowers the average earned income and thus the per capita tax revenue. Consequently, the uniform transfer paid to all individuals decreases as well. From the perspective of the median voter, the welfare system now yields a lower net return. Before the change, any decrease in the tax rate would have pushed the marginal benefit of taxation above its marginal cost. Now, this is no longer the case because the marginal net pay-off is suddenly lower. The median voter will thus use her political clout to lower the tax rate until the previous equality of marginal benefit and marginal cost is restored.

The driving force behind this result is the leakage of welfare benefits to a larger number of dependents. It is this leakage that reduces the attractiveness of the welfare system for the rest of the population. In response, the political process will bring about a readjustment in the size of the welfare state. Given its lower return, the policymaker will scale back the system to the point where the marginal pay-off from a change in the tax rate again equals the marginal cost.

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[3] This means that there is a large number of people who earn average or below average income, but ranks thin quickly at the millionaire or billionaire level.

3 Dependents

To emphasize the relevance of the above considerations, in this section we consider the empirical evidence on the quantitative importance of different groups of dependents. Two trends characterize the recent demographic developments in rich countries: On the one hand, the population is growing older, on the other, many countries are experiencing an often unprecedented increase in the number of foreign born residents. As we will see, these trends appear to be shared by all countries in our sample, notwithstanding considerable differences in many other socio-economic characteristics.

Figure 1

Elderly in the population
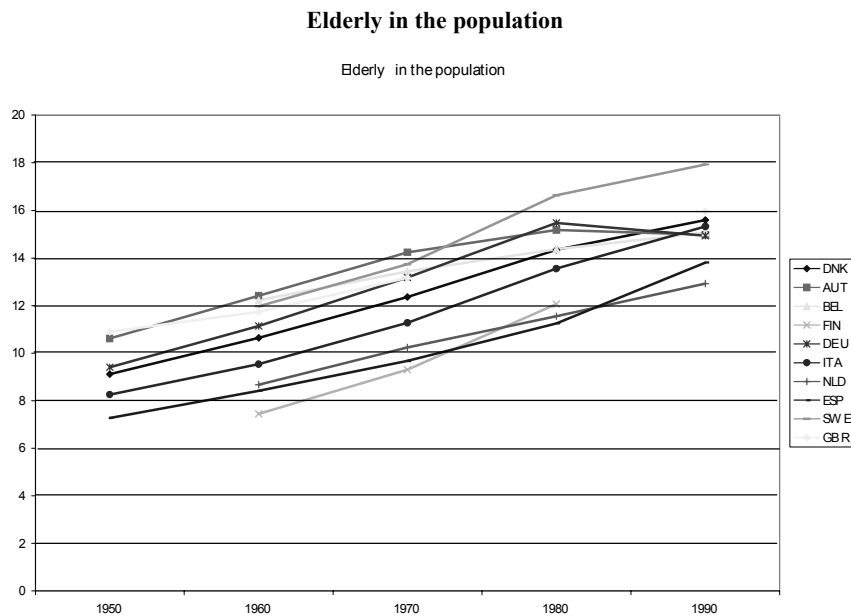
Elderly in the population

Figure 1 presents evidence on the aging of the population. We have calculated the share of the population aged 64 or above. As we can see clearly from the diagram, the importance of the elderly as a group has increased substantially over time, from the immediate post-war period to the present time. While on average in 1950 the elderly represented only 9.3 percent of the total population, by 1990 their share had increased to over 15 percent. This trend is not

likely to be reverted in the near future. While differences in the levels persist among countries, it is remarkable that the time path is common to every country in our sample.

Figure 2

Immigrants in the population
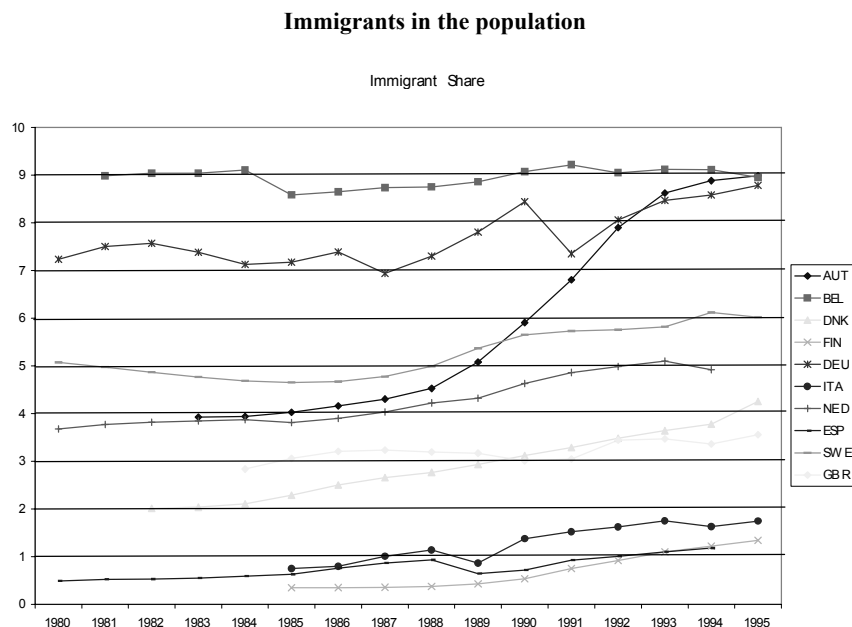
Immigrant Share

The second group of dependents, whose number has increased dramatically in many countries are foreign born immigrants. By the end of our period, the average share of immigrants in the total population of the Western European countries in our sample had increased to 5.5 percent of the total. In countries like Belgium, Austria and Germany the foreign born share of the population has reached 9 percent. These levels are of the same order of magnitude as in traditional immigration countries such as the United States of America. Given the rigidities of European labor markets, it is therefore not surprising that policy makers face growing pressure to define and implement an active immigration policy.

4 Determinants of migration

In our age of globalization, migration is on its way to become as widespread a phenomenon as commodity trade and capital mobility. Declining transportation costs as well as increased cultural interaction have considerably reduced the hurdles that used to hinder labor mobility. Realizing its increasing importance, economists have researched the driving forces behind migration as well as its economic effects. As a result, there exists a considerable body of literature on the topic. However, as of now, no standard, unified framework has emerged. One of the dimensions along which approaches differ is whether they analyze migration from the perspective of the source country as opposed to the perspective of the destination country. In a sense, this dichotomy corresponds to a supply side versus demand side analysis. The literature also distinguishes the so-called "pull" and "push" factors of migration. Pull factors are attractors within the destination country that pull in immigrants, whereas push factors are circumstances in the source countries that drive would-be migrants to leave.

When it comes to the interaction of migration and the welfare state, one argument often heard in public debate is the view that immigrants are drawn towards the generous welfare systems of the receiving countries. The fact that it is mostly the opponents of immigration who propose this view does not taint its validity. One of the pre-eminent scholars of migration, George Borjas, counts among the supporters of this view. He has advanced the notion that the welfare state may act as a magnet for immigration. In Borjas (1998), for example, he analyzes the location decision of foreign immigrants in the US and finds evidence consistent with such a causal relationship.[4]

A more fundamental question that remains unanswered is how migration policy is determined in the first place. Instead of considering migration as determined at the source, and workers entering the open doors to heaven (Borjas 1999), this approach emphasizes the receiving country's role in shaping migration. In reality, who is allowed into a country indeed depends on active immigration policy on part of the receiving countries. They more often than not enact quotas, point systems, and the like, in order to select those immigrants whom they deem most desirable. This view presupposes that the country under consideration is attractive for potential immigrants and focuses on the demand side.

Pursuing this line of argument, it is necessary to explain how immigration policies are determined. Normative economic analysis does not provide a satisfactory answer to this question as it is hard to escape the conclusion that

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[4] For a different view, see Levinde and Zimmermann (1999).

free migration is optimal, just as free trade. One is thus led to explicitly model the political process that gives rise to immigration policy. In previous work, Facchini and Willmann (2004) develop a model based on a "protection for sale" framework for polices towards factor inflows, immigration as well as foreign direct investment. Domestic factors are assumed to lobby the government for price or quantitative restrictions limiting the inflow of foreign factors into the country. The government accepts contribution from the lobbies, which specify monetary transfers as a function of the policy to be chosen. The policymaker then trades off national welfare against lobbying contributions in selecting the optimal policy towards FDI and immigration. Of particular importance in this context are complementarities and substitutabilities among factors. In particular, their study shows that if factors are close substitutes, then they lobby on behalf of each other. If they are complements, on the other hand, they lobby against protection for the other factor because a larger inflow increases their own productivity and hence their wage.

The explanation of migration policy that we propose here is similar in spirit. In the context of our framework of Section 2, suppose that (unskilled) immigrants and unskilled domestic workers are substitutes, whereas immigrants are complementary to the skilled domestic workforce. There are thus two domestic lobby groups that have a stake in the determination of migration policy: The domestic unskilled, who favor a restrictive immigration policy, and the domestic skilled who lobby in favor of higher immigration quotas. See Facchini and Willmann (2004) for evidence on this phenomenon.

The respective interests of the two groups are determined by their pay-offs in the lobbying game. That is, they consider their wage net of the contribution they offer to pay the government in order to obtain their preferred policy. The wage of the domestic unskilled worker is decreasing in immigration because immigrants constitute a substitute. The wage of the domestic skilled, on the other hand, increases in immigration as both factors are complementary. Both domestic interest groups try to convey their preferences to the government by offering contributions that depend on the immigration policy chosen. In particular, the contribution offered by the unskilled lobby is higher, the lower the number of immigrants allowed to enter the country. Conversely, the skilled interest group's contribution increases in the number of immigrants.

When deciding the optimal policy, the government considers the monetary offers, but also weighs aggregate welfare, as the latter plays an important role for its re-election. Consequently, the policymaker seeks to maximize a weighted sum of contributions and social welfare. As for contributions, it is not only the pure monetary payment that matters, but also the effectiveness of the particular lobby. Say the unskilled workers are well organized in a

powerful union. Then this fact increases the effect of the money they are prepared to pay.

The strategic interaction between the government and the lobbies has the structure of a menu auction. This implies that the solution to the lobbying game can be characterized as follows: The government must be maximizing its objective, namely the weighted sum of contributions and social welfare. In addition, the policy chosen must also maximize the joint surplus of each lobby together with the government.

The resulting equilibrium condition for the solution of the lobbying game takes the following form:
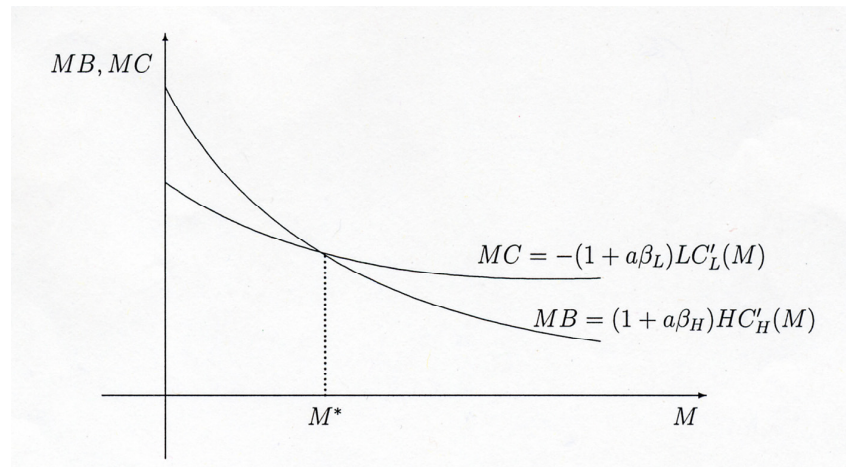
$$(1) \qquad (1 + a\beta_L)LW_L'(M) + (1 + a\beta_H)HW_H'(M) = 0$$

where a is the weight attached to contributions in the government's objective function, the β_i are the effectiveness parameter of each interest group, L and H are the numbers of unskilled and skilled workers respectively, and W_i is the per capita gross payoff of a member of group i. Equation 1 reveals that the government acts as if it were maximizing an implicit political support function, that accords the weights $1 + a\beta_L$ and $1 + a\beta_H$ to the unskilled and skilled lobbies respectively.

Most importantly, condition (1) implicitly determines the optimal migration policy $M*(a, \beta_L, \beta_H)$. It is instructive to point out what happens if the government is not receptive to lobbying, i.e. if $a = 0$. In this case, the socially optimal migration policy is chosen, which is characterized by $LC_L' = HC_H'$ L. In other words, immigration is desirable up to the point where the social cost of letting in an additional foreign worker (the LHS) equals his benefit to society (the RHS). Consider now the effect of an increase in β_L, i.e. an increase in the influence of the unskilled lobby. Totally differentiating condition (1) implies that $dM/d\beta_L < 0$.[5] In other words, as the unskilled lobby becomes more influential, it succeeds in tightening immigration policy.

As for the skilled lobby, $dM/d\beta_H > 0$, implying that if the skilled become more influential they will be able to obtain a larger inflow of unskilled immigrants. These effects can also be described in Figure 3, if one shifts the respective curve upwards as implied by an increase in the political influence of the corresponding lobby.

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[5] This holds as long as the influence of the two lobbies does not differ too much.

Figure 3

Lobbying for migration

Figure with vertical axis labeled MB, MC and horizontal axis labeled M. Two downward-sloping curves intersect at M^*:

$$MC = -(1 + a\beta_L)LC'_L(M)$$

$$MB = (1 + a\beta_H)HC'_H(M)$$

5 Empirical evidence

In this section, we provide a first pass empirical evaluation of the implications of our model, using a panel of 10 Western European countries over the period 1974–1992, following Razin, Sadka and Swagel (2002b). We extend their dataset to investigate the role of lobbying in shaping migration policy. Summary statistics and a description of the sample period used are reported in Table 1.

Data on the labor tax rate are taken from Mendoza, Razin and Tesar (1994), as extended by Milesi-Ferretti, Mendoza and Asea (1997) and Daveri and Tabellini (2000). To compute the average labor income tax rate, fiscal revenue statistics are used. As we can see from the third column, the sample is characterized by a substantial variance, with the UK being at the low end of the distribution, and the Netherlands at the high end. Figures on per capita GDP are obtained from the OECD analytical database, and are measured in 1990 dollars. Per capita transfers include both, social security and other transfers, such as unemployment and disability compensation, and are deflated using each country's CPI, and expressed in 1990 dollars. Data on income distribution are taken from the database of Deininger and Squire (1996), which reports income shares by quintiles. The first indicator is calculated as the share of income accruing to the richest quintile of the population compared to the total

income received by the three intermediate quintiles. The second indicator captures instead the share of income going to the poorest quintile of the population compared to the intermediate three. While there is some variance in these ratios across the countries of our sample, in all cases the bottom quintile of the distribution receives approximately 5 to 10 percent of income, the middle three quintiles receive 50 to 60 percent of income and the top quintile 35 to 40 percent.

The share of government jobs and the dependency ratio are obtained from the OECD analytical database. The latter is calculated as one minus the labor force as a share of the population. These two indicators vary substantially across the countries in the sample. Openness is measured as the sum of exports and imports over GDP, and the figures are also obtained from the OECD analytical database. The stock of immigrants as a share of the total population has been extracted from various issues of the OECD *Trends in International Migration*.[6] The variable intended to capture the lobbying activities is union density.[7] Data on union density has been obtained from Ebbinghaus and Visser (2000), and the measure we use is the share of union membership in the labor force excluding unemployment. Finally, figures for the capital labor ratio have been kindly supplied by Samuel Passoa.

Having described the dataset used in the analysis, we are now ready to investigate the role played by majority voting and lobbying in the determination of the welfare state and migration policy. As we have discussed in Section 4, migration and the extent of the welfare state are likely to be endogenous. Econometrically, we address this issue by simultaneously estimating a system of two equations, one characterizing the extent of the welfare state, the other the determinants of immigration. The results we obtain are reported in Table 2. In the first two columns the pervasiveness of the welfare state is measured by the average labor tax rate, while in columns 3 and 4 redistribution is measured by the average per capita benefit. In columns 1 and 3 we estimate a recursive system, i.e. we assume that migration policy is determined as the outcome of a lobbying game involving unions and capital owners, but is not influenced by the extent of fiscal redistribution. In columns 2 and 4 we report instead the three stages least squares estimates for the simultaneous equations system. In other words, we allow here for the welfare state to have an impact on the number of immigrants who enter the country.

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[6] For further details on the construction of this data, see Razin, Sadka and Swagel (2002b).

[7] Data on other lobby groups are not available at the present time.

Table 1

Summary statistics

Country	Years	Labor tax rate	GDP per capita	Trans per capita	Rich middle	Poor middle	Govt jobs share	Dep ratio	Open-ness	Mig pop	Union dens	K/L
Austria	1983–92	40.3	11819	3621	0.64	0.13	20.2	55.1	75.3	5.1	58.1	162329
Belgium	1974–91	44.4	11243	3878	0.63	0.14	18.9	59.2	126.2	8.9	76.1	170092
Germany	1974–92	39.8	12339	2646	0.73	0.11	15.0	53.8	53.1	7.2	40.4	154099
Denmark	1982–92	43.0	13174	4055	0.66	0.10	29.9	45.1	68.8	2.7	90.1	165665
Spain	1980–91	34.1	8140	1483	0.62	0.15	12.1	62.6	39.1	0.7	10.6	134810
Finland	1983–92	33.3	12659	4132	0.60	0.13	20.4	48.5	52.7	0.5	85.7	161506
France	1974–82,90	38.3	11498	4004	0.85	0.12	20.2	56.8	42.2	7.7	19.1	133068
UK	1984–92	25.9	12345	1730	0.76	0.16	20.5	50.6	51.6	3.1	46.1	115557
Italy	1983–91	40.3	11499	3327	0.72	0.15	16.9	59.9	38.6	1	62.7	180281
Netherlands	1974–92	49.7	11553	4028	0.66	0.15	13.8	61.3	101.7	3.7	35.6	171891
Sweden	1974–92	48	13060	5297	0.70	0.13	30.7	48.2	61.3	5.1	79.7	146386
Observations	145	145	145	145	145	145	145	145	145	145	145	145

Table 2

Panel system estimation with time and country fixed effects

Welfare State	Labor Tax		Benefits	
	1	2	3	4
Dependency ratio	−0.771	−1.00	1.597	1.365
	(0.246)	(0.235)	(1.163)	(1.154)
Gov't jobs/total employment	0.224	0.287	0.091	0.137
	(0.134)	(0.123)	(0.633)	(0.627)
Trade openness	0.061	0.068	−0.260	−0.246)
	(0.034)	(0.031)	(0.160)	(0.159)
Per capita GDP growth	−0.1339	−0.088	−0.415	−0.403
	(0.065)	(0.061)	(0.306)	(0.303)
Rich/middle income share	−0.044	−0.107	−1.349	−1.360
	(0.054)	(0.049)	(0.256)	(0.257)
Poor/middle income share	0.035	0.192	−5.104	−4.959
	(0.150)	(0.135)	(0.712)	(0.711)
Immigration/population	−1.592	−1.317	10.257	10.476
	(0.654)	(0.619)	(3.080)	(3.068)
Immigration				
Labor tax rate	−	0.256	−	−
		(0.087)		
Transfers	−	−	−	0.004
				(0.007)
Union density	−0.07	−0.1	−0.1	−0.1
	(0.01)	(0.02)	(0.0)	(0.0)
Capital labor ratio $\left(10^{-6}\right)$	0.266	0.256	0.284	0.264
	(0.0097)	(0.124)	(0.095)	(0.10)

Consider the specification reported in column 1. In the first equation, we have regressed the labor tax rate (in percent) on the dependency ratio, the share of government employment, trade openness (in percent of GDP), the growth rate of per capita GDP in percent per year, the income share of the top quintile over the intermediate quintiles, and on the income share of the bottom quintile over the intermediate quintiles as well as the share of immigrants in the population. In the second equation, the share of immigrants is related to the intensity of domestic unskilled lobbying activity, as measured by union density, and the extent of complementarities between domestic factor supplies and immigrants,

as proxied by the capital labor ratio.[8] In this and in all the other specifications reported in Table (2) we include also time and country fixed effects.

The results of the estimation highlight that the dependency ratio has a significantly negative effect. This supports our theory which predicts such a qualitative result on the grounds of welfare leakage. As for the share of government employment, its effect turns out to be positive and significant at the 10 percent level. There is thus no indication that public employees are pure dependents.[9] In fact, the driving force behind this positive effect will likely be budget necessities. With regards to trade openness, the effect is positive yet not significant. Nevertheless, one might conclude that the welfare state plays a role in buffering outside economic shocks. Per capita GDP growth is found to have a negative effect, whereas the inequality measures (rich/middle and poor/middle) are found to be insignificant. The share of immigrants is estimated to have a negative effect on the size of the welfare state, in line with the findings of Razin, Sadka and Swagel (2002b). This can be interpreted as further support for the notion of welfare leakage, only now for a different group of dependents.

Turning to the lower part of the table, the estimates for the migration equation strongly support the role of lobbying in shaping policy, as well as the importance of complementarities as proxied for by the capital labor ratio. Explicitly accounting for the simultaneity of immigration, column 2 also lends support to the idea, suggested among others by Borjas (1999), of the existence of welfare magnets for immigrants.

Alternatively, we measure the extent of the welfare state by using the average per capita social transfers. The results for these specifications are reported in columns 3 and 4. The share of dependents turns out now to be insignificant, and the same holds for the role of the state as an employer, trade openness and per capita GDP growth. In contrast to the results obtained for the tax rate, the coefficients on the two measures of income distribution appear to be significant. Whereas the coefficient on the poor/middle income share indicates that an increase in inequality leads to an increase in redistribution, the coefficient on the rich/medium variable appears at odds with the predictions of the theory. Furthermore, the stock of immigrant in the population appears to have a strong positive impact on the extent of redistribution, the opposite of what was found when the extent of the welfare state was measured by the average tax rate.

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[8]   We also conducted robustness checks by including the unemployment rate and the results were not substantially altered.

[9]   After all, the authors are mostly teaching at public universities.

Turning to the second half or the table, we again find strong support for our model. In both specifications the lobbying by unions has a significant and negative impact on the inflow of immigrants. In addition, complementarities play the predicted role. When the generosity of the welfare state is described by per capita transfers, the "welfare magnet" explanation appears to play a limited and statistically insignificant role.

6   Implications for EU enlargement

In May 2004, eight Central and Eastern European countries, together with Cyprus and Malta, joined the EU. In addition to the removal of residual trade barriers and the adherence to a common external tariff policy, membership in the Western European club will lead to the free movement of production factors between member countries, and – of particular relevance in our context – to the free mobility of labor. In view of the large existing differences in per capita income, substantial migratory pressure from residents of the new EU members who would like to move to old member countries seems likely.

For this reason, and to limit the potential disruptive effects of a large labor supply expansion in the destination countries, the implementation of the free factor mobility clause of the *acquis communautaire* can be delayed by each current member country for up to 7 years from the date of the enlargement. With the exception of the UK, which recently granted free access to immigrants from the new member countries,[10] all other current members appear likely to exhaust the full transition period.

The most recent estimates of the likely inflow of immigrants from the CEEC-10 countries (the recent entrants plus Bulgaria and Romania) which are based on static models put the figure for gross inflows at 340,000 immigrants per year, given the current income differentials, see Hille and Straubhaar (2001). Dynamic models, which instead allow for adjustments in the relevant fundamental variables, predict a long-run migration potential of 3.5 to 4.5 percent of the current EU-15 population, with an initial inflow of 300,000–450,000 immediately after the introduction of free labor movement.

Assessing the exact skill composition of these immigration inflows is no trivial task. Most studies of the effects of Eastern enlargement have argued that, on average, the representative immigrant from the CEEC-10 countries will be less

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[10] There are, however, restrictions on the welfare benefits that these immigrants can obtain. For more details see www.workpermit.com/news/2004_04_14/uk/workers_registration_scheme.htm. This can be interpreted as an attempt to gain a first mover advantage in securing the skill profiles in short supply in the UK. See for instance Blair's speech to the confederation of British Industry, reported in the April 27 issue of "The Guardian".

skilled than a worker in the Western European destination country (see OECD 2001, 89). According to the predictions of our model, we therefore expect that the likely effect of the free movement of labor is going to be an endogenous reduction in the size of the welfare state in the destination countries. This result should apply particularly to countries such as Germany and Austria which according to most studies are likely to receive a disproportionate share of the immigrants and are characterized by generous welfare systems.

7   Conclusion

In this paper we have analyzed the interaction between the welfare state and immigration policy. We have outlined how the leakage of the welfare benefits to dependents affects the level of redistribution chosen by the median voter. Realizing that the implicit "return" of the welfare system is reduced, she decides to limit the amount of social transfers, thus implying a negative relationship between the number of dependents and the size of the welfare state. The importance of this channel is emphasized by the recent demographic developments, common to all the countries in our sample. As we have illustrated, both the number of the elderly and the size of the foreign born population exhibit a markedly positive trend over the last few decades.

Focusing our attention on the determinants of immigration, we have presented a simple framework that allows us to explain immigration policy as the outcome of lobbying by domestic interest groups. As substitutes, the domestic unskilled workers lobby against the inflow of unskilled immigrants because the latter will depress their wage. At the same time, the skilled domestic workforce, constituting a complement to immigration, will pressure the policy maker to adopt a looser stand on immigration.

Using a panel of ten Western European countries we evaluate the arguments put forward with regards to welfare leakage and immigration policy. We estimate a system of two equations, one capturing the extent of the welfare state, and the other explaining immigration. Our results indicate that there is evidence for welfare leakage and for the role of lobbying in the determination of immigration policy. Using the labor tax rate as a measure of the extent of the welfare state, an increase by 10 percent in the share of dependents in the population goes hand in hand with a decrease in the labor tax rate between 7 and 10 percentage points. As for immigration policy, we find a consistently negative and precisely estimated relationship between union density and the number of the foreign born in the country. In our baseline specification, an 10 percentage point increase in union density leads to a 1 percentage point decrease in the share of immigrants in the population.

In the context of EU enlargement, the expected migration flows from new to old member countries will over time reduce the size of the welfare systems in Western Europe.

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