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On the potential interaction between labour market institutions and immigration policies

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Abstract

In this paper we study the effect of labour market institutions as employment protection legislation, coverage of unemployment benefits, union power and minimum wages on aggregate migration flows for a sample of European countries during the period 1990-2005. We also analyse the interaction of such institutions with migration policies using a standard gravity model for panel data. We find that employment protection and minimum wages have positive effects on migration flows, and that this effect is stronger when migration policy is less tight, while we find less relevant effects for coverage of unemployment benefits and union power. We show that labour market institutions and migration policies have an important degree of complementary and/or substitutability that should be taken into consideration when designing policy interventions. Finally, we find that labour market institutions and migration policies have a different effect on flows depending on the country of origin of migrants and their skills. We discuss our findings in relation to the European Neighbourhood Policy.

Keywords

Migration flows, labour market institutions, migration policies, gravity model

JEL Classification

J61, H53, F22, E25

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1. INTRODUCTION

Do labour market institutions influence mobility decisions of migrants? Is there any interaction between such institutions and migration policies set by governments? Is there any differential effect of these policies on migrants from different countries of origin and with different skills? In this paper we try to answer the above questions by focusing on the relation between migration policies, labour institutions and bilateral migration flows.

Our interpretation hypothesis is that migration decisions of individuals are also driven, among other factors, by some knowledge of the characteristics of the labour market and consequently by the interaction of such characteristics (labour institutions in particular) with migration policies of destination countries. Moreover, the evidence that immigrants come in waves and tend to cluster in areas and occupations in which most of workers are from the same country (or even the same region) suggests that information on destination countries' characteristics is quite important in shaping migration decisions.[1] Hence, we identify possible theoretical mechanisms that could drive the mobility choices of migrants and analyse different aspects of labour institutions to disentangle their relative effect and potential interactions on immigration flows. We test our theoretical predictions by evaluating the quantitative effect of employment protection legislation, coverage of union bargaining agreements, the generosity of unemployment benefits and the presence of the minimum wage on bilateral migration flows in a set of European countries during the period 1990-2005.

In imperfect labour markets, labour institutions may have a relevant role in terms of increasing efficiency and accomplish some redistributive goals (see Boeri and van Ours, 2008). Migration flows also have an effect on efficiency and redistribution (see Borjas, 2003). Based on this predictions, in this paper, we try to understand if such institutions have a role in shaping the patterns of migration flows. As long as firing restrictions, unemployment benefits, minimum wages and unions do have an effect on labour markets both in terms on quantities (employment/unemployment) and prices (wages), then they will have an effect on decision of migrants, as these institutions are going to change the relative benefits and costs of migrations. Moreover, they could interact with migration policies. In fact, influencing the size and the composition of migration flows, migration policies will have a direct effect in the labour market in terms of prices and quantities.

[1] See Patel and Vella (2012) for empirical evidence for the US. See also Pedersen et al (2008) and Beine et al (2011) for analyses of network effects and migrations.

The paper is related to different strands of literature. Firstly, it is related to the literature on migration flows and immigration policies.[2] Mayda (2010) studies the determinants of bilateral immigration flows focusing on supply and demand factors: in particular, she investigates the effect of economic, geographic, cultural and demographic factors using data on immigrant inflows for 14 OECD countries by country of origin between 1980 and 1995. She explicitly stresses the role of immigration policies as demand factor in shaping migration flows. The paper by Ortega and Peri (2012) extends the framework in Mayda (2010) by explicitly using an empirical model of utility-maximising migration choices allowing for unobserved individual heterogeneity between migrants and non-migrants. They focus in particular on the elasticity of flows with respect to income in destination country and on the tightness and timing of migration policies. However, neither paper analyses the role of labour market institutions on bilateral migration flows.

Our paper is also associated to the literature on the so called welfare migration hypothesis (see Giulietti and Wahba (2012) for a review and Boeri et al (2002) for a comprehensive picture of the issue). De Giorgi and Pellizzari (2009) study how the generosity of welfare, proxied by the net replacement rate of benefits over wages, affects the location decisions of migrants in 15 EU countries. Using unemployment benefits as a proxy for welfare generosity, Giulietti et al (2011) explicitly study the correlation between immigration inflows and unemployment benefit spending as a fraction of the gross domestic product for a sample of European countries. They also separate flows from EU and non-EU origins to take into account possible different eligibility criteria and different restrictions to labour mobility of these two groups of workers.[3] Finally, two very recent papers by D'Amuri and Peri (2011) and Sà (2011) analyse the relation between labour market institutions and immigration. The former analyses how immigration affects the specialization pattern of employment and jobs in countries with different degrees of flexibility in hiring and firing regulations. The latter studies the differential impact of EPL on natives and immigrants, and finds that stricter EPL is found to reduce employment and reduce hiring and firing rates for natives. By contrast, stricter EPL has a much smaller effect on immigrants. Finally, Angrist and Kugler (2003) consider the employment effect of immigration focusing in particular on institutional characteristics. In fact, one aim of labour institutions is that of protecting native workers against competition from immigrants, but they show that although such institutions reduce job loss in the short run they can have perverse effects on native employment in the long run.

[2] Many papers look at the determinants of migration decisions in one single country without focusing on variation in migration policies. See, among others, Clark et al. (2007) for the US and Hatton (2005) for the UK.
[3] Giulietti (2012) provides evidence that the minimum wage influences the location choices of low-skilled immigrants in the US.

Finally, our paper is related to the vast literature on labour market institutions and their interaction.[4] In fact, the study of the effect of labour market institutions on labour market outcomes as unemployment, worker turnover and wages is now well established. The theme is central both in the academic literature (see, among others, Boeri (2011), Blanchard and Wolfers (2000) and Bertola and Rogerson (1997)) and in the policy agenda (see OECD (1994, 1999)).[5] Using cross country data, Layard and Nickell (1999), and Belot and van Ours (2004) provide abundant evidence on the interaction of labour institutions and their effect of labour market outcomes, but neither of them analyses the effect of such interactions on immigration flows.

We contribute to the literature in two main directions. First, we provide a cross country analysis of the effects of labour market institutions on bilateral migration flows. In particular, we focus on the joint effect of employment protection legislation, union coverage, minimum wage and unemployment benefits and emphasize the interaction of such institutions with migration policies. Second we consider the effect of institutions on flows distinguishing by country of origin: this allows us to shed some light on the importance of the European Neighborhood Policy (ENP) and to discuss the effect of labour immigrations depending on the origin of immigrants and their skills.[6] Moreover, our empirical approach is based on a gravity model that takes into account the panel dimension of the data and allows us to overcome some econometric problems present in the previous literature.

We use data on bilateral migration flows for a set of 9 EU countries during the period 1990-2005 originally used by Ortega and Peri (2012) and derived from EU labour force data. As expected, we find that stricter migration policies have a negative effect on migration flows while GDP per capita of destination countries has a large and statistically significant positive effect on migration flows. Instead, we do not find a statistically significant effect for GDP in origin countries. We also find that employment protection and minimum wages have a positive effect on migration flows while higher union power (proxied by coverage of bargaining agreements) and coverage of unemployment benefits have positive but less relevant effects on flows. Moreover, we find that the positive effect of labour institutions on migration flows is higher in countries in which tightness of migration policies is lower. Finally, we find some interesting differences when we split the sample according to the country of origin of migrants: the positive effect of GDP of destination on flows

[4] While surveying the relevant literature in this field is outside the scope of this paper, we refer to Boeri and van Ours (2008) for an exhaustive discussion and further references.

[5] What is more, in recent years, a growing literature has focused on the effect of such institutions on economic performance and the formation of patterns of comparative advantage (see Saint Paul (2002), Bassanini et al (2009) and Conti and Sulis (2010)).

[6] The ENP is a bilateral policy agreement between the EU and 16 countries from Easter Europe and North Africa, with the objective to create a zone of stability, security, political association, deeper economic integration, increased mobility and more people-to-people contacts. The set of countries in the ENP is composed by Morocco, Algeria, Tunisia, Libya, Egypt, Jordan, Lebanon, Syria, Israel, Palestinian Authority, Moldova, Ukraine, Belarus, Georgia, Armenia, Azerbaijan. In our analysis we distinguish between the first five countries in this list (North Africa) and the rest.

is much stronger for EU immigrants, while the negative effect of GDP of origin country is stronger for countries in the ENP group. We also find that migration policies have a statistically significant effect on flows only through EPL for EU and ENP migrants. In particular, if we decompose ENP immigrants from North African countries and the rest (East European and Middle East countries), we note a strong negative effect of GDP of origin for the former group, while we obtain a no significant result for North African countries.

The rest of the paper is organized as follows. In section 2 we discuss the possible theoretical mechanism at work and identify the channels through which each institution can affect migration flows. In section 3 we present the data and discuss the methodology, while section 4 is dedicated to the presentation of results and robustness checks. Finally, we conclude in section 5.

2. THEORETICAL CONSIDERATIONS

In this section, we discuss the effects of labour market institutions and immigration policies on employment, wages and migration flows. The treatment heavily draws on Boeri and van Ours (2008); thus following their contribution, we separately discuss the expected effect of each institution in the labour market, then we provide some theoretical intuitions to understand the possible interaction between such institutions and between labour institutions and immigration policy. It is important to stress from the onset that in what follows we do not provide a comprehensive specification of a theoretical model of optimal migration decisions, but simply a series of insights and considerations used to interpret results obtained in the empirical application.

We begin our analysis by considering the effect of employment protection legislation (EPL henceforth). EPL comprises a set of interventions defined to regulate hiring and firing of workers. The main effect of EPL is that of increasing the costs of adjustment of the workforce when there are shocks in the labour market. By introducing costs in forms of taxes and transfers to be paid to workers in case of firing. EPL could have the effect of reducing employment as firms will decide the choose a stable employment path with resulting negative effects on profits. Such losses are due to the emergence of a wedge between wages and productivity (see Boeri and van Ours, 2008). In general, the main effect of EPL will be on flows. On the one hand, EPL will reduce firing as it imposes additional costs on firms; on the other hand, it will also reduce hiring as the expected costs of firing a worker when a negative shock occurs will be higher. As long as both hiring and firing are influenced by EPL, the effect on employment and unemployment will be ambiguous.

As long as EPL acts on the labour supply, there will be a wedge between the reservation wages of workers and labour supply, hence firms will pay workers less than the cost of labour. Based on the above considerations, migrants can have different preferences towards more or less regulated labour markets: higher EPL generates longer job durations but also lower probability of getting a job in case of job loss. Hence there is no clear prediction on the effect of EPL on migration flows.[7]

While EPL mostly influences quantities, other labour institutions influence prices. In fact, minimum wages, unemployment benefits and trade unions directly generate a direct wedge between the reservation wage of workers and their marginal productivity. The second labour market institutions we focus on is the coverage of unemployment benefits (UBs henceforth). The main scope of such institution is to protect individuals against labour market risk and it is often used as a measure of the generosity of the welfare state (see Layard, Nickell and Jackman (1991)).[8] Contrary to EPL, which is explicitly designed to protect employment, UBs sustain income when a worker doesn't have a job. Unemployment benefits have direct effects on reservation wages (by increasing the outside option of workers in bargaining), hence workers will command higher wages and consequently employment will be lower. Moreover, UBs make workers more choosy and reduce their search intensity, resulting in an increase in the average duration of unemployment spells. As long as unemployment benefits are conditional on active job search, they will induce more participation in the labour market. Moreover, higher benefits will increase taxation, which is needed to finance them. Finally, a positive effect of UBs is that of fostering human capital and increasing the quality of matches, with positive effects on growth (Boeri and van Ours (2008) discuss,).

To sum up, there will be both positive and negative effects of UBs. On the one hand, migrants will expect higher wages and good income support in case of job loss; on the other hand, they may expect higher average duration of unemployment and higher taxes. Moreover, when analyzing the likely effects of benefits coverage on immigration flows it is important to take into account both eligibility for benefits (based on employment history) and entitlement (relative to the duration of unemployment). In fact, usually transfers are proportional to the last earned wage. The standard prediction, although weakly confirmed in the data, is that higher welfare will induce higher migration flows.

[7] In following sections, we will discuss in detail as EPL is expected to interact with other labour market institutions and migration policies.

[8] There are other measures of the generosity of the welfare system, as for example the replacement rate (the ratio that describes the monthly retirement benefit divided by the monthly labour earnings in the year prior to retirement), which is a measure of the generosity of the retirement system and describes the level of retirements referring to wages. Another measure is the duration of benefits for unemployed people. This measure can have different consequences in relation to other instruments give to unemployed people.

The national minimum wage (MW) is the third labour market institution we discuss (see Dolado et al (1996) for the effects of the minimum wage in different EU countries). The minimum wage mostly affects the bottom part of the wage distribution, while the employment effects of the minimum wage strongly differ according to the theoretical framework used for the analysis. While the competitive model predicts that higher minimum wage will have a negative effect on employment, the monopsony model predicts possible positive employment effects. In fact, in the latter case, there is a non-monotonic relationship between the minimum wage and employment: for sufficiently low levels of the minimum wage, an increase in the minimum wage is accompanied by an increase in employment, while above some threshold the traditional negative relationship holds (see Boeri and van Ours, 2008). In fact, in a market characterised by matching frictions, a higher minimum wage will increase the search effort of unemployed, and thus increases participation. On the other hand, there will be a negative labour demand effect, as the rents obtained by firms upon filling a vacancy will be lower. Still, the pool of unemployed will be higher and the higher will be the probability of filling the vacancy. As long as the second effects dominates, employment will be higher, even if more competition for jobs reduces the individual probability of finding a job.

Moreover, ad Boeri and van Ours (2008) discuss, in countries in which the informal sector is very important and in which there is a dual labour market, minimum wages may not have negative effects on employment. In fact, if there is high mobility across sectors, and the minimum wage is not binding in the informal sector, the MW will shift jobs from the formal to the informal sector, increasing the difference between formal and informal wages. This adjustment mechanism prevents employment losses.[9]

Based on the considerations above it is most likely that the minimum wage will have a positive effect on migration flows, as it will increase both wages (especially in the bottom part of the distribution) and possibly employment. Finally it could also have important spillover effects in the informal sector.

The last labour institution we discuss is related to the role of trade unions. As a measure of union power we use the coverage of union bargaining agreements, that is more appropriate than union

[9] Note also that a few studies surprisingly found an increase in wages also in the informal sector after a minimum wage hike. The interpretation is that fair remuneration considerations are relevant, it is possible that changes in the minimum wage in the formal (and covered) sector lead to corresponding increases in the average wage of the informal sector (Boeri and van Ours, 2008).

density (see Booth (1995) for an exhaustive analysis of union behavior).[10] The first order prediction of models of union behavior is that the stronger the bargaining power of unions, the higher the wedge imposed by unions over the reservation wage and the lower the resulting employment level. Moreover, the effect of unions will be higher the lower the elasticity of labour demand. As this elasticity is increasing with the degree of competition in product markets, stronger competition in product markets reduces the wedge between labour supply and demand introduced by labour market institutions. In order to better understand the effect of unions in labour markets, two important points have to be made. First, when there is efficient contracting we do not necessarily observe lower employment. Second, not only membership affects the objectives of unions, but also the wage platforms of unions affect membership (Boeri and van Ours, 2008). This is because, unlike minimum wages, unions act over the entire wage distribution, interfering with the way in which markets reward differences in productivity across workers. As long as unions tend to pursue egalitarian wage policies, they reduce wage differentials by education and skill level. This explains why unions are generally not very successful in recruiting highly skilled workers.

Again, the effect of union power on migration flows is ambiguous, on the one hand unions increase wages (particularly in some sectors), with possible negative employment effects. On the other hand, migrants can be attracted by higher wages. Moreover, unions could have a negative effect on migration flows of more skilled individuals in particular.

Migration policies have the immediate effect of reducing labour supply, shifting the supply curve to the left. As long as migrants have lower reservation wages, this implies that the new equilibrium will have higher wages and lower employment, exactly as the effect of institutions that act on prices (see Boeri and van Ours (2008)). Hence migration policy interacts with minimum wages, unions and unemployment benefits. Moreover, migration decisions depend on the relative skill level of the workforce in origin and destination countries. As long as migration policies are redistributive policies, influencing wage inequality, they protect less skilled native workers from competition of migrants. Moreover, as Angrist and Kugler (2003) show, institutions as EPL reduce job loss in the short run, thus interacting with migration policies.

As Boeri and van Ours (2008) suggest, EPL and UBs transfer resources from employers to employees, while minimum wages and unions reduce the total surplus and redistribute it to

[10] Note we don't focus on the problems related to the centralization and coordination of wage bargaining, basically assuming they are strictly related to union power, as we don't discuss the effect of unions on this substitutability of capital and labour.

workers. On the other hand, labour institutions also remedy labour market imperfections as monoposonistic power of firms. Migration policy do have a similar effect, because insulate native workers from competition of foreign workers, thus shifting labour supply and influencing equilibrium employment and wages. Thus it is fundamental to jointly study such policies.

3. DATA AND METHODOLOGY

3.1. Data and descriptive evidence

We use an unbalanced panel dataset on bilateral migration flows between 225 origin countries all over the world and 9 European destination countries originally available for the period 1946 to 2008. We restrict our analysis to the period 1990-2005 as data on migration policies before 1990 are not available, and the quality of data after 2005 is not reliable and it is available for a very small set of countries. Tables 1 and 2 provide the list of 9 European countries used in the analysis and detailed information on available data and descriptive statistics on bilateral migration flows, migration policies and labour institutions. Data on bilateral migration flows come from Ortega and Peri (2012) and are originally derived from the European Labour Force Survey database.[11] As Tables 1 and 2 show, available data for Austria and Finland comprise very few observations, data for France are from 1998 onwards, while Italy has available data up to 2000. On the other hand, a complete set of data on migration policies from the Fondazione Rodolfo De Benedetti (FRdB) is available for the period 1990-2005. Data on labour market institutions are available from different sources for a much larger time period.

The index for strictness of migration policy varies between 0 and 6 and it is obtained as a weighted sum of indexes that describe different aspects of the strictness of migration policies in the EU. [12] We refer to Figure 2 for more details about the trend, while we refer to Tables 1 and 2 and other sections for more details about the distribution of the migration index.

Figures 1 and 2 report time series for immigration flows and immigration policies by country of destination. We observe that the trend of immigration differs across countries: with the relevant exception of Spain, and at a less extent the UK, most countries experience an overall stability in the migration flows. Countries as Italy and the Netherlands show a large drop in the migration flows in the mid and end of the nineties respectively. Data reported in Figure 2 on the dynamics of immigration policies shows that most countries have a stable path with no particular trend but

[11] Ortega and Peri (2012) provide other data on migration flows based on other sources. In particular, they refer to Mayda (2010), International Migration Database (2007), and United Nations (2008). The definition of immigrant is consistent across all databases as they all use as primary sources the original data released by the statistical offices of each receiving country.

[12] It's an overall summary indicator for each country, averaging the values of the six sub-indexes (admission requirements; length of first stay; residence requirements; years to residence; administration involved; existence of a quota system).

possibly two exceptions: the strong reduction in the index for Italy at the end of the nineties (probably the effect of the Balkan wars), and an increasing trend for the UK. Finally note that if we jointly consider Figures 1 and 2, for example, we can note that the increase in flows in Spain it is partially related to a reduction of policies strictness in previous years, while it's exactly the opposite for the Netherlands. We have a similar result for Italy, where variations in the strictness of migration policies influence migration flows.

As previously mentioned, labour market data comes from different sources. The first source of data is the "Fondazione Rodolfo De Benedetti" that provides information about labour market institutions (see Aleksynska and Schindler (2011)). The data is obtained thanks to collaboration with the IMF, and it is available for the period 1980-2005, for 91 countries and includes data on minimum wages, coverage of unemployment benefits and employment protection legislation. We have integrated these data for EPL with information from the OECD (see more below). The latter database provides several variables and indexes of employment protection legislation over the period 1985 – 2009 for 40 countries.

We use four different variables for labour market institutions. The first one is Employment Protection Legislation (EPL) and it is derived from the OECD. The EPL index measures how relevant are hiring and firing along different dimensions. We use two different versions of the OECD index, the former is an overall index of EPL while the second is a weighted average of employment protection that takes into account differences between permanent, temporary contracts and collective dismissals (EPL_2). We use three other variables for labour market institutions. The first is a measure of unemployment benefits coverage, that is the percentage of unemployed workers covered by unemployment benefits and it is derived from the FRdB. Data for unions and the presence of the minimum wage are from Visser (2011). The former is the share of workers covered by collective bargaining agreements over total employment, while the second is a dummy for the minimum wage, and zero otherwise.

The third main source of data we use is from CEPII that makes available a "square" gravity dataset for all world pairs of countries, for the period 1948 to 2006. The main variables relating to trade costs come from the CEPII distance datasets are: GDPs and populations, bilateral weighted distance, common (official) language, previous colonial relationships post 1945 and common border.

We merge these different sources of data and obtain a complete database for the period 1990 – 2005 counting 9 destination countries and 225 countries of origin for 12339 observations. The

dataset has information on migration flows, migration policies, employment protection legislation, unemployment benefits, minimum wages, unions, GDP per capita and variables used in the gravity equation.

3.2. Methodology

We estimate the potential relation between migration policies, labour market institutions and bilateral migration flows using a gravity model (see Anderson and van Wincoop, 2003). Our baseline specification is:

$$\begin{aligned}\ln flows_{d,o,t} &= \alpha + \beta \ln gdp_{d,t-1} + \gamma \ln gdp_{o,t-1} + \delta ov\_index_{d,t} + labmktinst_{d,t} + \\ &+ year\_dummies + destination\_dummies + origin\_dummies + \\ &+ language + colony + contiguity + \varepsilon_{d,o,t}\end{aligned} \quad [1]$$

where d denotes destination country, o is the origin country and t denotes time. The variables gdp denote GDP per capita and are expressed in logs, lagged 1 year; we use 4 different labour market institutions, as described in previous section; ov_index is the migration policy index. Language, colony and contiguity are dummy variables equal to 1 if the condition is met and zero otherwise (see subsection above). The dependent variable is the natural logarithm of bilateral migration flows, where we imputed 1 when zero flows were available. All specifications control for destination and origin country dummies and time specific effects.

We use fixed effects panel data estimators with standard errors clustered at the pair (destination and origin) country level to take into account heteroskedasticity and allow for correlation over time of country pair observations. We also performed our estimations using a random effect estimator. However, the Hausman test comparing results from random and fixed effects estimators confirms that the fixed effect estimator is more efficient and gives consistent estimates for the effects of interest. In fact, unobserved country specific effects could result in biased estimates for our variables of interest, hence the fixed effect estimator accounts for such unobserved specific effects which are time-invariant. We also include year effects, to control for common time shocks. As we will explain in detail below, our model specifications allow for interaction terms between labour market institutions and migration policies.

One possible important objection to our econometric specification is the possibility of endogeneity, and more precisely of reverse causality, for migration policies and bilateral migration flows. The issue is discussed in detail by Mayda (2010) and the treatment below follows her intuition. In fact, the more tight is the migration policy, the lower are migration flows, but the high value of the index could depend on previous year migration flows. To control for this problem, we relate current migration flows to lagged values of GDP of origin and destination countries. We don't use lagged values for migration policies index because it is plausible to assume that migration policies are predetermined, and so current migration flows can only influence future migration policies. Current flows can't influence current migration policies because adjustment in migration policies requires a time lag to be completed. In other words, current flows can't determine current policies, that depend on previous years migration flows, while current flows depend only on current migration policies and not on previous years policies.

According to the theoretical intuitions discussed above, we expect to find different effects for pull and push factors, as positive and negative attractors of migration flows. We expect to find a positive and significant role for GDP per capita of destination country, and a negative one for GDP of origin. On the other hand, we expect a negative coefficient for distance as it is more difficult to acquire information from countries that are far away. We include also common language, contiguity and colonial links. We expect positive effects for common language and previous colonial relations if people prefer to migrate to countries with common characteristics, institutions and stronger political ties between the two countries. About contiguity we can expect negative effects if people want to discover new areas and opportunities and prefer to migrate quite far from their origin home.

4. RESULTS

4.1. Results

In Table 3 we start by looking at basic results of our empirical specification. Our dependent variable is the natural logarithm of migration flows, while on the RHS we include a set of controls for traditional gravity models (distance, common language, colonial origin and contiguity) and our main variables of interest, namely (lagged) GDP per capita of destination and origin countries, labour market institutions and migration policies. All regressions include destination and origin country fixed effects and time dummies. Standard errors are clustered at the country pair level.

In column 1, we start with a benchmark specification of equation (1), in which we control for basic variables mentioned above.[13] Our results indicate that the GDP per capita of the destination country positively affects migration flows: the estimated elasticity is equal to 1.7 indicating that 1% increase in GDP per capita at destination is associated to a 1.7% increase in migration flows.[14] As the theory predicts, the GDP per capita of the country of origin has a negative effect on migration flows, although in our case the effect is not statistically significant. Finally, note that coefficients for income per capita are quite stable across different specifications.

In column 2 of Table 3, following Mayda (2010) and Ortega and Peri (2012), we include among our regressors a measure of strictness of migration policy. Unsurprisingly, the coefficient is negative indicating that countries that have more tight migration policies experience a reduction in migration flows. The magnitude of the effect is substantial, an increase by 1 unit in the migration index reduces flows by about 84%. To give an idea of the size of this effect, we should take into account that the standard deviation of the index is equal to about 0.52, and the difference between the 75^{th} and 25^{th} percentile of the index distribution is equal to 0.44.

In column 3 we temporarily drop the index for strictness of migration polices and we include variables for labour market institutions. Interestingly, such variables have a positive and statistically significant effect on migration flows. Results indicate that one unit increase in the EPL index raises flows by about 28%, a positive (but smaller) effect is obtained for changes in union power (proxied by coverage of union bargaining agreements over employment) and extension of unemployment benefits, while we do not find any significant effect of the presence of a minimum wage.

In column 4 we reintroduce the index for the strictness of migration policy in the analysis. Interestingly, we observe some important changes with respect to results obtained in columns 2 and 3. First of all, we observe a persistent and negative effect of stricter migration policies on flows, now the estimated effect of an increase in one unit of the index is equal to about 91% decrease in terms of flows of migrants. The coefficient on EPL increases to from 0.278 to 0.395 and it is statistically significant, indicating there is a negative correlation between EPL and the migration index, this suggests that countries with more rigid labour markets tend to adopt less stringent migration policies. While we will return on these possible interaction in the rest of the

[13] Time invariant coefficients are dropped as we are using a fixed effects estimator. As mentioned in previous section, we also run our regression using a random effect estimator that allows us to identify the effect of such variables and results are basically unchanged. We find that migration flows are strongly negatively related to distance and to contiguity, while they are positively correlated to previous colonial relationship and common language.

[14] Existing works confirm the robustness of gravity specification, as well as the role of GDP for destination countries. In particular, Mayda (2010) and Ortega and Peri (2012) obtain similar results. So, generally speaking, our results are in line with existing works.

paper, there are some other results in column 4 that need to be discussed. First, note that after controlling for migration policies, the presence of the minimum wage has a positive effect on migration flows, while greater availability of unemployment benefits turns out to be not significant in explaining flows.

Finally, in column 5 we run the same regression as in the previous column but just changing the index of EPL. In this case, we use an index that is constructed as a weighted average for different types of contracts, and that should take into account the increasing weight of temporary contracts in some countries, hence the ranking of countries derived using this index can differ from the previous one[15]. The reduced number of observations is related to the fact that the index if available from 1998 onwards. Interestingly, we observe that coverage of unemployment benefits has a larger effect on migration flows, as predicted by the welfare magnet hypothesis (see De Giorgi and Pellizzari, 2009 and Giulietti et al, 2011) and contrary to what we found in the previous columns. Moreover, EPL confirms its role of a pull factor, with a coefficient that is almost doubled. On the other hand, the strictness of migration policy has a much less severe effect on flows, indicating that there is an important degree of interaction between labour market institutions and between the latter institutions and immigration policies.

In order to better explore the interaction between labour market institutions, in Table 4 we conduct a sensitivity analysis dropping such variables one at the time. For ease of comparison, in column 1 we report the same results we reported in column 4 of Table 3. First note that the effect of migration policies is constantly negative and significant, with an effect on migration flows between -0.82 and -0.97. In column 2 we drop the indicator for EPL, we observe a small increase in the effect of union coverage and in the minimum wage, that suggests that EPL and those two variables are positively correlated. Note also that the effect on the coefficient of unemployment benefits coverage, although not significant, becomes positive, suggesting that there is some degree of substitutability between EPL and UBs. In fact, it is not very surprising that when dropping UBs in column 3, the coefficient on EPL goes back to its previous level. Notice also that the effects of union coverage and minimum wage are smaller than before, indicating again some possible interaction between labour market institutions. Finally, in columns 4 and 5 we drop the minimum wage and union coverage respectively, and we don't observe any particular effect, but possibly a slight increase in the effect of EPL on migration flows.

Previous results confirmed that there are possible interactions between labour institutions and migration policies, however, our econometric specification didn't take such interaction explicitly

[15] As Dolado et al. (2012) show, when EPL is very strict, firms tend to use more temporary contracts.

into account. In Table 5 we report regressions in which we interact migration policies with labour institutions, and analyse such effects one at the time. In column 1 we start by interacting migration policy with an indicator of EPL. Now, the coefficient on EPL measures the effect of firing restrictions on migration flows when the index of migration policies is set at zero, and thus it is not particularly interesting for the purposes of our paper (similarly the effect of migration policies turns positive and significant when EPL is zero). On the other hand, the estimated interaction term is negative and statistically significant. This suggests that the effect of EPL could reverse its sign for very high values of the migration index: our estimates imply that the effect of EPL on flows turns negative when the migration index is at 3.64, that corresponds the 99th percentile of the index distribution. For lower values of the migration index, the effect of EPL remains positive. However, it is interesting to compare the effect of EPL at various percentiles of the distribution. For instance, the effect of a reduction on EPL (say of one standard deviation), is quite different in a country at the 75th percentile of the distribution of the migration index (equal to 3.00) and a country at the 25th percentile (with an index equal to 2.36). In fact, such reduction decreases migration flows by about 23% in the country with less strict migration policies compared to a reduction of 14% in the country with more strict migration policies.

In column 2 we analyse the effect of interacting migration policies with coverage of unemployment benefits but we don't find any significant effect, but the negative effect of migration polices when there is no coverage of unemployment benefits. In the remaining columns, we interact migration policies with the presence of a minimum wage and the indicator of union power. While the interaction term for union power is not statistically significant, again we find a negative effect for the interaction term between minimum wage and migration policy. This suggests that the positive effect of the presence of the minimum wage can be partially balanced by an increase in the degree of migration regulation.

4.2. Discussion and interpretation

In this subsection, we provide a more exhaustive interpretation of the results discussed above. While it is important to stress that our aim here is not that of providing a fully specified model of migration decisions, we believe that the correlations proposed in the paper can help to give a better understanding of the patterns of migration flows. In particular, as stressed in the previous

part of the paper, our interpretation hypothesis is that migration decisions of individuals are also driven by some knowledge of the characteristics of the labour market and by the interaction of such characteristics (labour institutions in particular) with migration policies. Moreover, the evidence that immigrants come in waves and tend to cluster in areas and occupations in which most of workers are from the same country (or even the same region), suggests that information on destination countries' characteristics is key to understand migration decisions.[16]

In our results, we have seen that EPL interacts with UBs, this is not big surprise as both institutions are thought to protect workers against labour market risk: while the former protects workers from demand shocks and possible firings, the latter has the objective of protecting workers after separation. Hence both institutions will have important effects on flows in the labour market that are perceived by both native and immigrant workers. Consider for example the case of a potential immigrant that has to decide to move to a country with very high EPL and lower coverage of unemployment benefits or to a country with low EPL and extended coverage of unemployment benefits. The choice will depend on the probability that the immigrant will assign to find a job in the country of destination. If unemployment is the most likely outcome, the immigrant will prefer high benefits and lower EPL (thus higher turnover), and viceversa in case of high possibilities of finding a job. However, as our analysis showed, although countries will offer different combinations of EPL and UBs, the stronger positive effect of EPL suggests that migrants prefer higher employment protection than higher unemployment benefits.

On the other hand, EPL interacts with unions. In fact, as long as unions affect wages, they reduce wage dispersion and decrease downward wage adjustment, generating persistent differentials across sectors of the economy. This will result in adjustment only via employment, thus generating high turnover. On the other hand, if firing restrictions are very strict, the only adjustment mechanism would be through wages, thus excluding the role of unions. In other words, EPL and unions are complementary institutions: if EPL is high, this will give more power to unions, this will be reflected in higher bargaining power, higher wages, but lower employment. Thus EPL influences employment through the effect on unions (see Boeri and van Ours, 2008).

We also showed that minimum wages do attract immigrants. On the one hand, they directly interact with EPL, as both institutions are thought as ways of protecting workers at the bottom end of the wage distribution. Thus we expect some partial substitutability between the two. Minimum wages interact with UBs as both are going to influence the size of the market inducing higher participation of workers (via higher job search) and influencing the bottom part of the wage distribution. Finally MWs are supposed to interact with unions, as in some countries unions are

[16] As in other parts of the paper, most of the theoretical insights we discuss here are put forth by Boeri and van Ours (2008).

directly involved in setting the minimum wage. We can have, in fact, several forms of minimum wage. A national level MW, defined by the government, perhaps after consultations with trade unions and employers' associations; a national MW coming from the bargaining agreements and extended to all workers and an industry-level MW defined by industrial bargaining and extended to all workers in that industry.

Finally, immigration policies interact with all institutions as they have direct effect on labour supply. As Angrist and Kugler (1993) discuss, labour market institutions as EPL that should protect workers against competition from immigrants, turn out to be counter-productive when long run adjustment will be complete. In fact, immigration has a general negative effect on native employment, that is stronger in less flexible markets. This way, labour institutions can play a protective role for natives, but they could aggravate the negative impact of immigration on equilibrium native employment.

4.3. The role of European Neighborhood Policy (ENP)

The ENP is a bilateral policy agreement between the EU and 16 countries from East Europe, Middle East and North Africa, with the objective to create a zone of stability, security, political association, deeper economic integration, increased mobility and more people-to-people contacts.[17] We expect that migrants from these ENP countries are influenced by migration policies as well as by labour market institutions in a different way than other migrants. We also expect differences between different set of countries within the ENP agreement. On the one hand, North African migrants can have easier access to European markets given previous relationships (colonial, for example) that these countries had with destination countries. Migrants from North Africa may prefer to move to destinations where they can find same or similar language, traditions and practices. On the other hand East European and Middle East countries are relatively more similar in terms of production structure and other structural characteristics. Moreover, we expect some differences in terms of skills of migrants from the two groups.

In Table 6, we try to shed some light on the above issues by estimating previous gravity equations on different set of countries. In column (1), we run our regressions using data for migrants from EU countries (considering EU 27). We use the same specification as in column (1) of Table 5, where we include the standard set of regressors and we interact migration policies with an

[17] North Africa includes Morocco, Algeria, Tunisia, Libya, Egypt. The rest inlcludes both countries from the Middle East as Jordan, Lebanon, Syria, Israel, Palestinian Authority, and from the East Europe as Moldova, Ukraine, Belarus, Georgia, Armenia, Azerbaijan.

indicator of EPL.[18] Again, the estimated interaction coefficient is negative and statistically significant. The effect of EPL could reverse its sign for high values of the migration index. However, the effect of migration policies turns out to be statistically not significant when it is not interacted with EPL. In other words, at least for the set of migrants from the EU, migration policies do not have an independent effect. In regressions not reported we also experimented some specifications without using the interaction term. Results indicate that stricter migration policies have stronger negative effects for migrants from the EU countries, while the effect is reduced for non EU origin countries. On the other hand, the baseline effect of EPL is overall constant across different specifications. Interestingly, the effect of GDP per capita in destination countries is much higher in column (1) than in column (2), suggesting that the potential attractiveness of GDP is relatively more important for workers with quite similar characteristics as those that belong to the EU area. The estimated elasticity is equal to 2.4 against 1.1. Again, previous results confirm that migration policies and labour institutions (EPL in this particular case) have an important degree of interaction.

In columns (3) and (4) we replicate the exercise dividing the sample in two groups of origin countries: the set of 16 European Neighborhood Policy countries and the rest. Note first that the effect of GDP per capita of destination country in column (3) is (quite surprisingly) strongly reduced with respect to results obtained in columns (1) and (2), with a coefficient equal to 0.77. On the other hand, the backwardness of origin country returns a negative coefficient and it is statistically significant (-0.77), suggesting that within the group of ENP countries, differences in income per capita in origin countries are quite important in explaining migration decisions. Again in column (3), migration policies do not have an independent effect on migration flows. Not surprisingly, results in column (4) for the rest of the countries outside the ENP group confirm previous findings.

Above results indicate that the effect of labour market institutions and migration policies differs depending on the set of countries of origin we are considering. However, even among migrants from ENP countries, there could be sizeable differences due to different skill contents of migrants from the two areas. In fact, using data from Ortega and Peri (2012), we see that about 33% of migrants from the East of Europe and Middle East are skilled ones, while this percentage drops to 23% for migrants from North Africa. To test this conjecture, we run separate regressions for immigrants from different areas among those from ENP countries. Results are reported in Table 7. It is important to remind from the onset that these regressions are based on a very small number of observations, at least when compared to our previous results. In the first two columns we run separate regressions in which we use our baseline specification but the interaction term between

[18] We also run the same regressions for other labour market institutions. Results are available upon request from the authors.

migration policies and EPL. Note that the attractive potential of GDP of the destination country is much stronger for immigrants from the East with a coefficient equal to 1.16 against 0.9 for immigrants from the North of Africa. What is more the negative effect of GDP of origin countries is statistically negative and significant only for the former group of immigrants, suggesting that migrants from East decide to migrate when their chances in origin countries are very low, while this is not true for migrants from North Africa.

Regressions reported in columns (1) and (2) of the Table also suggest important differences between the two groups of immigrants concerning the effect of migration policies and labour institutions. In fact, the negative effect of migration policies on flows is much stronger for migrants from the East, while it is statistically significant but reduced in size for migrants from the North of Africa. Similarly, the potentially attractive role of employment protection is higher for the former group of migrants, with a coefficient equal to 0.73 against 0.45.

Finally, in columns (3) and (4), we run separate regressions for the two set of countries including the interaction term between EPL and migration policies. Results turn out to be quite interesting and somewhat puzzling. On the one hand, the GDP of destination countries completely loses significance in explaining migration flows for both set of countries, while GDP of origin matters only for East migrants. Finally note that for both sets of countries, migration policies influence migration flows when interacted with EPL.

5. CONCLUSIONS

In this paper we analyse the relation between the strictness of migration policies, the pervasiveness of labour institutions and bilateral migration flows. In particular, we identify possible theoretical mechanisms that could drive the mobility choices of migrants and analyse different aspects of labour institutions trying to disentangle their relative effect and their potential interactions on immigration flows. We also shed some light on the role of the effectiveness of the European Neighborhood Policy in attracting different types of immigrants depending on their skills and country of origin.

In particular we test our theoretical predictions by evaluating the quantitative effect of employment protection legislation, coverage of union bargaining agreements, the generosity of unemployment benefits and the presence of the minimum wage on bilateral migration flows in a set of European countries during the period 1990-2005. We find that employment protection and minimum wages have a positive effect on migration flows while higher union power (proxied by coverage of bargaining agreements) and coverage of unemployment benefits have less relevant

effects on flows. We also find that the effect of labour institutions is higher in countries in which tightness of migration policies is lower. Finally, the negative effect of migration policies on flows is much stronger for migrants from the East of Europe and the Middle East, while it is statistically significant but reduced in size for migrants from the North of Africa. Similarly, the potentially attractive role of employment protection is higher for the former group of migrants.

While we do not provide fully specified model of migration decisions, we believe that the correlations proposed in the paper can help to give a better understanding of the patterns of migration flows. In particular, our interpretation hypothesis is that migration decisions of individuals are also driven by some knowledge of the characteristics of the labour market and by the interaction of such characteristics (labour institutions in particular) with migration policies. Moreover, the evidence that immigrants come in waves and tend to cluster in areas and occupations in which most of workers are from the same country (or even the same region), suggests that information on destination countries' characteristics is key to understand migration decisions.

Our paper has important policy implications and leaves new avenues open for further research. The first implication, already stressed in the literature, and confirmed by our analysis, is that labour market institutions show an important degree of complementarity/substitutability among them. The second important policy implication is that labour market institutions interact with migration policies. Finally, the last policy implication is that ENP has important effects on the type of flows of immigrants from different countries, and countries should coordinate their migration policies and design them in order to attract more skilled migrants. The latter point constitutes the first avenue for future research, while the second is to investigate the role played by product market regulation and by the shadow economy for immigration flows.

REFERENCES

Aleksynska M Schindler M (2011) Labour Market Regulation in Low-, Middle- and High-Income Countries: A New Panel Database, *IMF working paper 11/154*

Anderson JE van Wincoop E (2003) Gravity with gravitas: a solution to the border puzzle, *American Economic Review 93:170–192*

Angrist JD Kugler M (2003) Protective or counter-productive? Labour market institutions and the effect of immigration on EU natives, *The Economic Journal 113:F302–F331*

Bassanini A Nunziata L Venn D (2009) Job protection legislation and productivity growth in OECD countries, *Economic Policy 24:349-402*

Beine M Docquier F Ozden C (2011) Dissecting Network Externalities in International Migration, *Discussion Papers 2011-22 (IRES - Institute de Recherches Economiques et Sociales)*

Belot M van Ours J (2004) Does the Recent Success of Some OECD Countries in Lowering their Unemployment Rates Lie in the Clever Design of their Labour Market Reform? *Oxford Economic Papers 56: 621-642*

Bertola G Rogerson R (1997) Institutions and labour reallocation, *European Economic Review 41:1147–71*

Blanchard O Wolfers J (2000) The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence, *Economic Journal 110:C1-33*

Boeri T (2011) *Institutional Reforms and dualism in European Labour Markets*, The Handbook of Labour Economics, Elsevier, edition 1, volume 4, number 5, June

Boeri T Hanson GH McCormick B (2002) *Immigration Policy and the Welfare System*, Oxford University Press

Boeri T van Ours J (2008) *The economics of imperfect labor markets*, Princeton University Press Princeton and Oxford, NJ and UK

Booth A (1996) *The Economics of Trade Unions*, Cambridge University Press

Borjas G (2003) The labor demand curve is downward sloping: reexamining the impact of immigration on the labor market, *The Quarterly Journal of Economics 118:1335-1374*

Clark X Hatton TJ Williamson JG (2007) Explaining US immigration, 1971–1998, *Review of Economics and Statistics 89:359–373*

Conti M Sulis G (2010) Human Capital, Employment Protection and Growth in Europe, *Working Paper CRENoS 2010-28*

D'Amuri F Peri G (2011) Immigration, jobs and employment protection: evidence from Europe, *NBER Working Paper 17139*

De Giorgi G Pellizzari M (2009) Welfare immigration in Europe, *Labour Economics 16:353–363*

Dolado JF Kramarz S Machin A Manning D Margolis C Teuling (1996) The economic impact of minimum wages in Europe, *Economic Policy 23:317–72*

Dolado J Ortigueira S Stucchi R (2012) Does dual employment protection affect TFP? Evidence from Spanish manufacturing firms, *CEPR Discussion Papers 8763*

Giulietti C Wahba J (2012) Welfare Migration, *IZA DP No. 6450*

Giulietti C Guzi M Kahanec M Zimmermann KF (2011) Unemployment Benefits and Immigration: Evidence from the EU, *IZA DP No. 6075*

Giulietti C (2010) Is the Minimum Wage a Pull Factor for Immigrants?, *IZA DP No. 5410*

Hatton TJ (2005) Explaining trends in UK immigration, *Journal of Population Economics 18:719–740*

Layard R Nickell S Jackman R (1991) *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press number 9780198284345, February

Mayda AM (2010) International migration: a panel data analysis of the determinants of bilateral flows, *Journal of Population Economics 23: 1249–1274*

Layard R Nickell S (1999) *Labor market institutions and economic performance*, in Ashenfelter O Card D (eds.) Handbook of Labor Economics, volume 3 chapter 46 pages 3029-3084 Elsevier

OECD (1994) The OECD Jobs Study, *OECD: Paris*

OECD (1999) Employment Outlook, *OECD: Paris*

Ortega F Peri G (2012) The Role of Income and Immigration Policies in Attracting International Migrants, *IZA DP No.* 6655

Patel K Vella F (2012) Immigrant Networks and their Implications for Occupational Choice and Wages, *Review of Economics and Statistics*, forthcoming

Pedersen PJ Pytlikova M Smith N (2008) Selection and Network Effects–Migration Flows into OECD Countries 1990-2000, *European Economic Review 52, 1160–1186*

Sà F (2011) Does employment protection help immigrants? Evidence from European labor markets, *Labour Economics 18:624–642*

Saint-Paul G (2002) Employment protection, international specialization, and innovation, *European Economic Review, 46:375-395*

Visser J (2011) *The ICTWSS Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts*, Version 3.0, Institute for Labour Studies, University of Amsterdam

TABLES AND FIGURES

Table 1. Descriptive statistics, main variables

Country	Variable	Obs	Mean	Std. Dev.	Min	Max
AUT	(ln) Migration Flows	96	7.89	0.84	5.98	9.62
	(ln) GDP per capita	1047	7.66	1.59	4.25	10.81
	EPL	1140	2.20	0.05	1.93	2.21
	Unempl. benefits	1140	91.96	1.18	89.00	94.00
	Minimum wage	1140	0	0	0	0
	Unions coverage	1140	98.20	0.29	98.00	99.00
	Migration Policies	1140	2.58	0.04	2.57	2.79
DEU	(ln) Migration Flows	2412	6.70	2.19	0.69	12.61
	(ln) GDP per capita	2672	7.57	1.58	4.14	11.29
	EPL	2950	2.60	0.45	2.09	3.21
	Unempl. benefits	2950	49.90	5.59	38.00	57.00
	Minimum wage	2950	0	0	0	0
	Unions coverage	2950	68.71	2.80	63.50	72.00
	Migration Policies	2950	2.75	0.17	2.36	2.86
DNK	(ln) Migration Flows	2147	4.24	1.88	0.69	9.69
	(ln) GDP per capita	2299	7.51	1.63	4.14	11.29
	EPL	2461	1.78	0.42	1.50	2.40
	Unempl. benefits	2461	84.44	0.93	83.00	86.00
	Minimum wage	2461	0	0	0	0
	Unions coverage	2461	83.62	0.49	83	84
	Migration Policies	2461	2.93	0.18	2.64	3.21
ESP	(ln) Migration Flows	1841	4.45	2.59	0.69	11.45
	(ln) GDP per capita	2431	7.58	1.59	4.14	11.29
	EPL	2609	3.19	0.37	2.93	3.82
	Unempl. benefits	2609	48.77	9.33	36	67
	Minimum wage	2609	1	0	1	1
	Unions coverage	2609	83.82	3.35	82.20	92.00
	Migration Policies	2609	3.34	0.26	2.93	3.68
FIN	(ln) Migration Flows	89	2.84	1.72	0.69	8.69
	(ln) GDP per capita	2557	7.54	1.59	4.14	11.29
	EPL	2781	2.10	0.08	2.02	2.33
	Unempl. benefits	2781	62.04	9.68	43.00	74.00
	Minimum wage	2781	0	0	0	0
	Unions coverage	2781	86.82	5.77	81	98
	Migration Policies	2781	2.38	0.19	2	2.79

Note: Country-year observation covering 9 countries, over the period 1990-2005. Mean and standard deviations are weighted. Migration flows and GDP per capita are in natural logarithm. EPL is an index, as Migration policies. Minimum wage is a dummy variable equal to 1 if minimum wage is present. Unempl. Benefits and Unions coverage are in percentage.

Table 2. Descriptive statistics, main variables

Country	Variable	Obs	Mean	Std. Dev.	Min	Max
FRA	(ln) Migration Flows	1516	3.75	2.55	0.69	10.26
	(ln) GDP per capita	2430	7.65	1.58	4.44	11.21
	EPL	2647	3.01	0.03	2.98	3.05
	Unempl. benefits	2647	72.69	8.54	58.00	84.00
	Minimum wage	2647	1	0	1	1
	Unions coverage	2647	91.55	0.83	90	92
	Migration Policies	2647	1.47	0.16	1.21	1.71
GBR	(ln) Migration Flows	1274	5.73	1.65	1.79	9.77
	(ln) GDP per capita	1654	7.96	1.60	4.52	11.29
	EPL	1759	0.65	0.06	0.60	0.75
	Unempl. benefits	1649	46.68	18.62	15.00	69.00
	Minimum wage	1759	0.61	0.49	0	1
	Unions coverage	1759	39.42	7.12	34.70	54.00
	Migration Policies	1759	2.61	0.28	2.07	2.91
ITA	(ln) Migration Flows	1117	5.08	2.31	0.69	10.38
	(ln) GDP per capita	2791	7.57	1.56	4.14	11.29
	EPL	3058	2.85	0.73	1.82	3.57
	Unempl. benefits	2485	43.00	24.09	5	93
	Minimum wage	3058	0	0	0	0
	Unions coverage	3058	81.12	1.11	80	83
	Migration Policies	3058	2.91	0.28	2.36	3.14
NLD	(ln) Migration Flows	1276	4.87	2.13	0.69	9.46
	(ln) GDP per capita	2791	7.62	1.59	4.14	11.29
	EPL	3194	2.46	0.30	2.12	2.73
	Unempl. benefits	3194	68.56	8.14	49	81
	Minimum wage	3194	1	0	1	1
	Unions coverage	3194	82.78	1.64	82	87
	Migration Policies	3194	2.85	0.18	2.50	3

Note: Country-year observation covering 9 countries, over the period 1990-2005. Mean and standard deviations are weighted. Migration flows and GDP per capita are in natural logarithm. EPL is an index, as Migration policies. Minimum wage is a dummy variable equal to 1 if minimum wage is present. Unempl. Benefits and Unions coverage are in percentage.

Table 3. Determinants of bilateral migration flows: migration policies and labour market institutions. Baseline specification.

VARIABLES	(1)	(2)	(3)	(4)	(5)
GDP_d	1.716***	2.059***	1.496***	1.617***	3.708***
	(0.152)	(0.158)	(0.157)	(0.153)	(0.331)
GDP_o	-0.0541	-0.0549	-0.0667	-0.0647	-0.0388
	(0.0746)	(0.0690)	(0.0733)	(0.0682)	(0.0640)
Unions coverage			0.0224***	0.0149***	0.0181***
			(0.00291)	(0.00269)	(0.00276)
Minimum Wage			-0.0886	0.215***	0.172**
			(0.0852)	(0.0751)	(0.0774)
Unempl. benefits			0.00272***	-0.000589	0.0106***
			(0.000782)	(0.000893)	(0.00130)
EPL			0.278***	0.395***	
			(0.0393)	(0.0422)	
Migration Policies		-0.836***		-0.910***	-0.512***
		(0.0916)		(0.0896)	(0.0513)
EPL2					0.698***
					(0.120)
Constant	-17.53***	-20.03***	-17.07***	-15.90***	-47.32***
	(2.144)	(2.102)	(2.324)	(2.111)	(4.200)
Observations	12,339	12,339	12,263	12,263	7,603
R-squared	0.157	0.197	0.183	0.222	0.283
Number of MRT	1,269	1,269	1,269	1,269	1,222

Dependent variable is natural logarithm of migration flows. All specifications are panel data estimations with fixed effects. All regression include year and country effects. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered by country pairs, are presented under each estimated coefficient. GDP is lagged by one year, per-capita and in natural logarithm. Number of MRT describes the number of destination-origin countries pairs.

Table 4. Determinant of bilateral migration flows: migration policies and labour market institution. Sensitivity tests.

VARIABLES	(1)	(2)	(3)	(4)	(5)
GDP_d	1.617***	1.802***	1.590***	1.741***	1.611***
	(0.153)	(0.164)	(0.143)	(0.151)	(0.153)
GDP_o	-0.0647	-0.0571	-0.0658	-0.0662	-0.0628
	(0.0682)	(0.0688)	(0.0681)	(0.0682)	(0.0682)
Unions coverage	0.0149***	0.0208***	0.0151***	0.0143***	
	(0.00269)	(0.00271)	(0.00275)	(0.00273)	
Minimum Wage	0.215***	0.292***	0.201**		0.180**
	(0.0751)	(0.0757)	(0.0786)		(0.0759)
Unempl. benefits	-0.000589	0.00143		-0.000474	-0.00138
	(0.000893)	(0.000911)		(0.000890)	(0.000930)
EPL	0.395***		0.389***	0.412***	0.463***
	(0.0422)		(0.0424)	(0.0422)	(0.0427)
Migration Policies	-0.910***	-0.823***	-0.902***	-0.860***	-0.974***
	(0.0896)	(0.0895)	(0.0849)	(0.0914)	(0.0913)
Constant	-15.90***	-18.50***	-15.94***	-17.60***	-14.60***
	(2.111)	(2.259)	(1.976)	(2.091)	(2.076)
Observations	12,263	12,263	12,339	12,263	12,263
R-squared	0.222	0.210	0.223	0.221	0.217
Number of MRT	1,269	1,269	1,269	1,269	1,269

Dependent variable is natural logarithm of migration flows. All specifications are panel data estimations with fixed effects. All regression include year and country effects. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered by country pairs, are presented under each estimated coefficient. GDP is lagged by one year, per-capita and in natural logarithm. Number of MRT describes the number of destination-origin countries pairs.

Table 5. Determinant of bilateral migration flows: migration policies and labour market institutions. Interaction specification.

VARIABLES	(1)	(2)	(3)	(4)	(5)
GDP_d	1.363***	1.979***	1.845***	1.957***	4.092***
	(0.133)	(0.161)	(0.151)	(0.165)	(0.329)
GDP_o	-0.0684	-0.0535	-0.0475	-0.0592	-0.0356
	(0.0670)	(0.0692)	(0.0681)	(0.0687)	(0.0673)
EPL	1.905***				
	(0.198)				
Migration Policies	0.372**	-0.912***	-0.571***	-0.338	0.164
	(0.180)	(0.149)	(0.0708)	(0.348)	(0.270)
EPL*Mig.Policies	-0.546***				
	(0.0686)				
Unempl. benefits		-0.00360			
		(0.00470)			
Un.Cov*Mig.Pol		0.00180			
		(0.00168)			
Minimum wage			2.250***		
			(0.294)		
Min.Wage*Mig.Pol			-0.747***		
			(0.112)		
Unions Coverage				0.0362***	
				(0.0110)	
Un.benefits*Mig.Pol				-0.00564	
				(0.00395)	
EPL2					1.978***
					(0.289)
EPL2*Mig.Pol					-0.245**
					(0.0959)
Constant	-15.25***	-18.97***	-18.08***	-21.60***	-53.42***
	(1.895)	(2.200)	(2.040)	(2.116)	(4.134)
Observations	12,339	12,263	12,339	12,339	7,603
R-squared	0.231	0.196	0.209	0.208	0.264
Number of MRT	1,269	1,269	1,269	1,269	1,222

Dependent variable is natural logarithm of migration flows. All specifications are panel data estimations with fixed effects. All regression include year and country effects. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered by country pairs, are presented under each estimated coefficient. GDP is lagged by one year, per-capita and in natural logarithm. Number of MRT describes the number of destination-origin countries pairs.

Table 6: Determinant of bilateral migration flows: groups of origin countries

VARIABLES	EU	NON EU	ENP	NON ENP
GDP_d	2.418***	1.064***	0.778*	1.438***
	(0.283)	(0.148)	(0.405)	(0.140)
GDP_o	0.333	-0.106	-0.775***	0.0339
	(0.245)	(0.0714)	(0.218)	(0.0652)
EPL1	1.453***	2.030***	2.265***	1.889***
	(0.498)	(0.213)	(0.520)	(0.211)
Mig. Policies	-0.181	0.540***	0.0965	0.422**
	(0.470)	(0.189)	(0.437)	(0.195)
epl1_ov	-0.375**	-0.594***	-0.648***	-0.540***
	(0.170)	(0.0740)	(0.182)	(0.0735)
Constant	-31.21***	-11.63***	1.385	-17.43***
	(5.536)	(2.026)	(4.965)	(2.017)
Observations	2,298	10,041	1,295	11,044
R-squared	0.382	0.199	0.351	0.225
Number of MRT	205	1,064	121	1,148

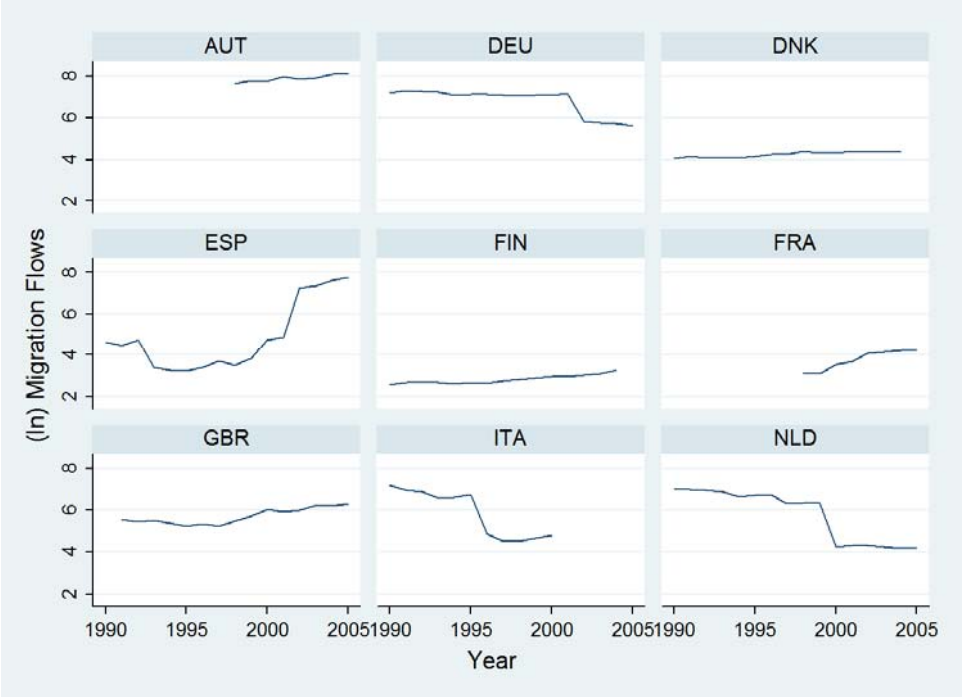
Dependent variable is natural logarithm of migration flows. All specifications are panel data estimations with fixed effects. All regression include year and country effects. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered by country pairs, are presented under each estimated coefficient. GDP is lagged by one year, per-capita and in natural logarithm. Number of MRT describes the number of destination-origin countries pairs.

Table 7. Determinant of bilateral migration flows: groups of ENP countries

Dependent variable is natural logarithm of migration flows. All specifications are panel data estimations with fixed effects. All regression include year and country effects. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Standard errors, clustered by country pairs, are presented under each estimated coefficient. GDP is lagged by one year, per-capita and in natural logarithm. Number of MRT describes the number of destination-origin countries pairs.

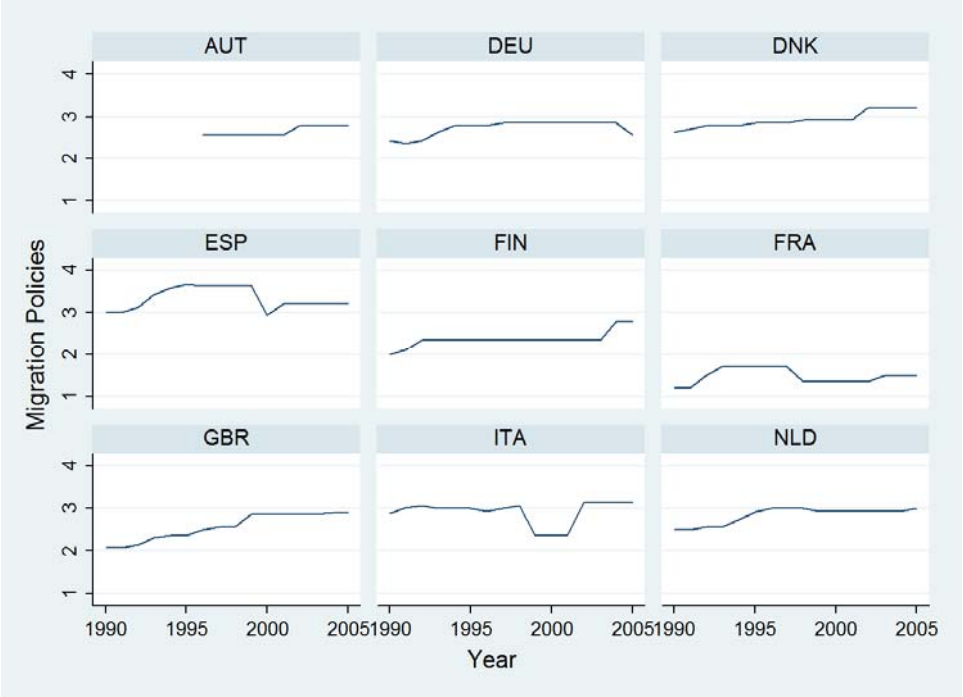
VARIABLES	EAST	NORTH AFRICA	EAST	NORTH AFRICA
GDP_d	1.166*	0.900*	0.588	0.580
	(0.589)	(0.457)	(0.616)	(0.429)
GDP_o	-0.995***	-0.168	-1.072***	-0.141
	(0.286)	(0.250)	(0.278)	(0.238)
EPL	0.738***	0.455***	3.190***	1.877***
	(0.218)	(0.147)	(0.894)	(0.562)
Migration Policies	-1.729***	-0.968***	0.428	0.327
	(0.436)	(0.259)	(0.669)	(0.548)
EPL*Mig.Pol			-0.916***	-0.551**
			(0.299)	(0.209)
Constant	0.0412	-3.230	2.491	-2.601
	(7.165)	(5.860)	(7.638)	(5.737)
Observations	800	495	800	495
R-squared	0.407	0.243	0.429	0.268
Number of MRT	81	40	81	40

Figure 1. Total immigrations flows by destination country



Note: Migration flows over the period 1990 – 2005 by destination country.

Figure 2. Migration policies index: path by destination country



Note: Migration policies index over the period 1995 – 2005 by destination country