Migration, recessions and social protection in the EU

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Abstract

We want to determine what are the main push and pull factors of migration in Europe. To do so, a gravity model is estimated on a new dataset of bilateral migration flows between 28 member countries of the European Union (EU) over the period 1980-2015. We also look at migration factors in a sub-sample of countries which are members of the Euro area (EA). We pay special attention to the response of migration to domestic and foreign macroeconomic conditions, in particular during periods of recession, and to the role of unemployment and social benefits. Our main results are as follows: i) migration flows react to wage and unemployment differentials between destination and origin countries in the EU but not to wage differentials in the EA; ii) intra-EU and intra-EA mobility increased during the Great Financial Crisis, the Euro Crisis, and recessions in the origin country; iii) furthermore, unemployment benefits have a positive effect on migration within the EU whereas social benefits act as a deterrent to potential emigrants in the EA; iv) however, national disparities in social benefits do not play a role in the direction of migration flows within the EU but they do in the EA.

Keywords: migration; labour mobility; European monetary union; optimum currency areas

JEL Classification: F22, F66, F45

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1 Introduction

The free movement of workers is a fundamental right of citizens of the European Union (EU). Despite this freedom, geographical mobility in Europe has always been low and lower than in the United States (Heinz and Ward-Warmedinger, 2006). It has increased recently though. According to the European Commission (2013), the number of EU citizens residing in another EU country increased from 1.6% in 2004 to 2.8% by the end of 2012.

The extent of migration flows, and in particular labour mobility, is an important issue for EU countries which are members of the Euro Area (EA). Indeed, the length and severity of the recent EA crisis point to a lack of macroeconomic adjustment mechanisms at the country-level (Gibson et al., 2014). In theory, one lesson of the literature on optimal currency areas (OCA) is that labour mobility across countries can act as an adjustment mechanism to asymmetric shocks in a currency union (Mundell, 1961; Kenen, 1969). It can help prevent the persistence of national unemployment as long as unemployed people move from a depressed country to a booming or less depressed one.

At the time of signature of the Maastricht Treaty, which deals with the creation of the European Monetary Union (EMU), empirical studies were carried out in order to check whether the European countries could form an OCA from the point of view of labour mobility. Results were not encouraging: in contrast to the experience of the United States, labour mobility was not expected to be a meaningful adjustment mechanism in the coming EMU (Blanchard and Katz, 1992; De Grauwe and Vanhaverbeke, 1993; Eichengreen, 1993; Decressin and Fatás, 1995).

Recent studies have been less pessimistic than those early studies, because the role of mobility in Europe has increased over time (Dao et al., 2014; Beyer and Smets, 2015). In Beine et al. (2013), the Schengen agreement and EMU increase labour mobility whereas in European Commission (2015), EMU is not significant. In addition, Barslund and Busse (2014) find that the recent recession has not induced previously immobile workers to become more mobile. Intra-EU15 migration flows have remained low (around 0.1% of EU-15 population over the

period 2002 to 2012)[1] but flows between the EU-15 and the 10 new member countries from Central and Eastern Europe[2] have increased much.

The still rather low rate of intra-EU migration is puzzling though, because restrictions in the access to national labour markets have been lifted in most countries and measures have been taken in order to ensure the portability of social benefits across the EU. Costs of moving away from the home country are probably rather high (Fertig and Schmidt, 2002). Barriers to mobility could still be linguistic and cultural differences, restrictions in the access to regulated professions (public sector), exceptions in the mutual recognition of diplomas and professional qualifications for certain professions (for example, in the healthcare sector) or inefficiencies in housing markets (high transaction costs of buying or selling a house). In public opinion surveys, family and friendly ties, language, housing conditions and health care facilities are the most cited impediments to mobility (Gill et al., 2013).

In this paper, we are interested in several questions concerning the determinants of migration flows within the EU, and in particular, the EA. We want to investigate whether labour mobility can be helpful as an adjustment mechanism to shocks.[3] Do migration flows respond to national disparities in wages and unemployment rates? Has the removal of restrictions on the access to national labour markets led to an increase in intra-European mobility? Do potential migrants decide to migrate during recessions? Have the Great Recession (2008-2009) and the sovereign debt Euro Area crisis (2010-2012) increased the incentives to migrate? Do unemployment insurance and social benefits act as a financial support for migration or a disincentive?

To adress these questions, we build a new dataset of bilateral migration flows between all EU countries over the period 1980-2015. We use a gravity model to determine push and pull factors that explain migration within Europe. The novelty of our approach is to study

[1] EU-15 is composed of "old" member states: Austria, Belgium, Danemark, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom.

[2] These countries are: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, Slovakia

[3] We focus on the causes of labour mobility, and not on the effects.

bilateral migration flows within the EU and within the EA. In the literature, migration flows in the EU includes flows with the rest of the world (non-EU countries) because they are based on an indirect measure of mobility, namely the crude rate of migration (European Commission, 2011; Jauer et al., 2014)[4]. There are some studies that use a direct measure of mobility based on bilateral flows, but panel data includes non-European countries and not all EU countries (Beine et al., 2013; European Commission, 2015).

The rest of the paper is organized as follows: we make a literature review (Section 2); we then explain our approach (Section 3) and the empirical analysis (Section 4) before concluding (Section 5).

2 Literature review

Migration in Europe is a topic that has been increasingly researched in recent years.[5] Yet, the improvement in data availability has only been very recent. One needs to rely on findings from international migration studies in order to catch on the main determinants of migration (Chiswick and Miller, 2015).

Relative wage and unemployment between home (origin) and foreign (destination) countries are among the main incentives for workers to migrate in search of better earning opportunities (Pissarides and McMaster, 1990; Eichengreen, 1993; Gabriel et al., 1993; European Commission, 2011). In some studies, wage is proxied by GDP per capita (Belot and Ederveen, 2012; Giulietti et al., 2013; Jauer et al., 2014; European Commission, 2015). In this respect, for intra-EU-15 migration, flows are directed from poor to rich countries (European Commission, 2015), but at a regional level, relative GDP per capita is not a statistically significant determinant (Jauer et al., 2014). With regard to unemployment differentials, there has been evidence of a significant impact on migration flows (Pissarides and McMaster, 1990; Adserà and Pytliková, 2015). But in some studies, there is weak evidence of a relationship

[4]The crude rate of migration is the difference between the change in population and the natural change in population.

[5]For an extensive overview, see Zaiceva and Zimmermann (2008) and de la Rica et al. (2015).

between unemployment and migration in the case of the United States (Gallin, 2004; Avalos, 2010) and EU-15 after 2008 (European Commission, 2015) or the effect is very weak in the case of regions in the Euro area (Jauer et al., 2014).

Some studies point out distance, language and cultural barriers as important determinants of migration (Mayda, 2010; Grogger and Hanson, 2011; Adserà and Pytliková, 2015). In Europe, language and cultural differences are seen as the most problematic barriers to geographical mobility (Hassler et al., 2005; Zaiceva and Zimmermann, 2008). European Commission (2015) finds that language and distance are significant determinants in intra-EU15 migration. In the same vein, Belot and Ederveen (2012) find that cultural barriers do a much better job in explaining the pattern of migration flows between developed countries than traditional economic variables such as income and unemployment differentials.

Some studies investigate the role of housing in migration decisions (Gros, 1996; Saks, 2008; Avalos, 2010; Zabel, 2012; Greenaway-McGrevy and Hood, 2016). The question of housing in migration is twofold. First, because housing amounts to a large share of the household budget, house prices have an important effect on the relative value of wages across geographic areas. As a result, migrants are attracted by areas characterized by low housing prices (Avalos, 2010). Second, the most important pecuniary (and perhaps also psychological) cost of moving for most people is that it involves a change of housing. To explain the low scale of migration in Europe, Gros (1996) shows that homeowners are less mobile than others. He argues that in countries where housing market is not flexible, this factor might be decisive. Similarly, Eichengreen (2014) explains that the weak housing market may be a possible culprit of the feeble response of migration in Europe during the great recession since homeowners may be unable to sell their houses whose value is less than its mortgage in depressed markets. He adds that the fathers of the theory of optimum currency areas (OCA) did not anticipate the collapse of housing prices in the crisis economies when they trumpeted the advantages of labour mobility. However, it is difficult to take into account housing in explaining bilateral migration in the EU due to a lack of data on housing.

Another economic determinant is social security. Migrants could be attracted by countries with generous social security systems (a phenomenon that is usually referred to as the "welfare magnet effect") or inversely, they could be reluctant to move due to their social benefits that they can not relocate in the destination country (Borjas, 999a; Avalos, 2010; Belot and Ederveen, 2012). In the EU, difficulties in transferring social security rights across countries reduce incentives to migrate (d'Addio and Cavalleri, 2015). As regards the influence of unemployment benefits (UB), it is not clear-cut. They can reduce incentives to move, especially for those who have a great attachment to their location (Hassler et al., 2005). But, in the presence of mobility and search costs, they can facilitate migration because they relax liquidity constraints (Tatsiramos, 2009). In addition, countries with more generous UB are likely to attract more risk averse individuals (Heitmueller, 2005). In contrast, Giulietti et al. (2013) find that intra-EU immigration does not respond to UB (they thus reject the welfare magnet effect for 19 EU[6] countries over the period 1993-2008).

3 Gravity model

3.1 Theoretical framework: random utility maximization model

The use of gravity models in the literature on determinants of migration has been growing extensively in recent years with the improvements in the quantity and quality of available data on bilateral migration (Mayda, 2010; European Commission, 2015). An interesting feature of a gravity model of migration is its theoretical micro-foundation. Indeed, it is generally represented by a random utility maximization (RUM) model (Beine et al., 2013; Adserà and Pytliková, 2015; Beine and Parsons, 2015).

RUM models are discrete choice models which are derived under an assumption of utility-maximizing behaviour by the decision-maker. Thus, the migrant is supposed to be a decision-maker that maximizes her utility by facing a migration choice among alternatives. This

[6] Among these countries, there are two non-EU countries.

approach has been successfully applied to analyze the role of migration determinants such as wage differentials, unemployment differentials, language proximity and social networks (Pedersen et al., 2008; Beine et al., 2011; Grogger and Hanson, 2011; Adserà and Pytliková, 2015). For our theoretical framework, we adapt the RUM model derived by Beine and Parsons (2015). The novelty of our approach is the introduction of unemployment benefits in the model.

Agents are supposed to be homogeneous. At each period of time, a representative agent chooses to locate in a country where her utility is the highest among all available destinations including the home country.

An individual's utility is log-linear in income and depends upon the characteristics of her country of residence as well as any migration costs. The utility of an individual born in country i and staying in country i at time t is given by

$$U_{ii,t} = ln(w_{i,t}e_{i,t}) + ln(UB_{i,t}(1 - e_{i,t})) + A_{i,t} + \varepsilon_{i,t} \tag{1}$$

where $w_{i,t}$ refers to the instantaneous wage in country i at time t , $e_{i,t}$ refers to the probability of finding a job, $UB_{i,t}$ denotes unemployment benefits, $A_{i,t}$ denotes the country characteristics as amenities, and $\varepsilon_{i,t}$ represents factors that influence the utility but are not observed. $\varepsilon_{i,t}$ is an independent and identically distributed (i.i.d.) extreme-value distributed random term. The utility related to migration from country i to country j at time t is given by

$$U_{ij,t} = ln(w_{j,t}e_{j,t}) + A_{j,t} - C_{ij,t} + \varepsilon_{j,t} \tag{2}$$

where $C_{ij,t}$ represents factors that contribute to migration costs (for example, distance and linguistic proximity). We suppose that a migrant from a country i can not perceive instantaneously unemployment benefits in country j.

The probability of an individual from country i to choose a country j among K possible destinations is

$$Pr(j,t/i,t) = Pr\left[U_{ij,t} = max_k U_{ik,t}\right]$$

When the random term follows an i.i.d. extreme value distribution, we can apply the results in McFadden (1984) to write as Beine and Parsons (2015) the probability that an agent born in country i will move to country j

$$Pr\left[U_{ij,t} = max_k U_{ik,t}\right] = \frac{N_{ij,t}}{N_{i,t}} = \frac{exp\left[ln(w_{j,t}e_{j,t}) + A_{j,t} - C_{ij,t}\right]}{\sum_k exp\left[ln(w_{k,t}e_{k,t}) + ln(UB_{k,t}(1-e_{k,t})) + A_{k,t} - C_{ik,t}\right]}$$

where $N_{i,t}$ is the size of the native population in country i at time t and $N_{ij,t}$ is the number of natives choosing the optimal destination j.

Therefore, the bilateral migration rate between i and j can be written as

$$\frac{N_{ij,t}}{N_{ii,t}} = \frac{exp\left[ln(w_{j,t}e_{j,t}) + A_{j,t} - C_{ij,t}\right]}{exp\left[ln(w_{i,t}e_{i,t}) + ln(UB_{i,t}(1-e_{i,t})) + A_{i,t}\right]} \tag{3}$$

were $N_{ii,t}$ is the number of individuals who decide to stay in their own country.

By taking the log of bilateral migration rate we obtain the following equation

$$ln\left(\frac{N_{ij,t}}{N_{ii,t}}\right) = ln\frac{w_{j,t}}{w_{i,t}} + ln\frac{e_{j,t}}{e_{i,t}} - lnUB_{i,t} - ln(1-e_{i,t}) + A_{j,t} - A_{i,t} - C_{ij,t} \tag{4}$$

Thus, through Equation (4) we identify the main determinants of bilateral migration: respectively, relative wage, relative employment rate, the origin country unemployment benefits, the origin country unemployment rate, the amenities of both countries, and migration costs.

3.2 Econometric model

On the basis of Equation (4), we derive the following econometric model:

$$\begin{aligned} ln(m_{ij,t}) =& \alpha_1 + \alpha_2 ln\frac{w_{j,t}}{w_{i,t}} + \alpha_3 ln\frac{ur_{j,t}}{ur_{i,t}} + \alpha_4 lnUB_{i,t} \\ &+ \alpha_6 lnMig\_stock_{ij,t} + \alpha_7 ln\frac{pop_{j,t}}{pop_{i,t}} \\ &+ \alpha_8 lnd_{ij} + \alpha_9 l_{ij} + \alpha_{10} b_{ij} + \alpha_{11} p_{ij} \\ &+ \alpha_{12} recession_{i,t-1} + \alpha_{13} recession_{j,t-1} + \alpha_{14} crisis_{t-1} \\ &+ \alpha_{15} Free + \alpha_{16} Euro\_area + \alpha_{17} Schengen \\ &+ \nu_i + \nu_{j,t} + \eta_t + \varepsilon_{ij,t} \end{aligned} \tag{5}$$

All numerical variables are expressed in logarithms in order to facilitate the interpretation of estimated coefficients as elasticities. The dependent variable $m_{ij,t}$, is the emigration rate of country i which is computed by dividing the migrant flows from i to j with the total population of country i. In fact, $N_{ii,t}$ is proxied by total population, since we are not able to get the population of stayers. We proxy employment prospects by the ratio of destination country j unemployment rate over the origin country unemployment rate (see the role of relative unemployment in the literature review in the previous section).

To control for the effect of the network of migrants on migration flows, we introduce in the specification the stock of migrants from country i to country j ($Mig\_stock_{ij,t}$). It is supposed that a migrant should be more attracted to a country where an extensive network of migrants from her country exists. This factor contributes positively to the incentive to move by lowering direct and psychological migration costs. The positive effect of the network of migrants (or diasporas) on migration flows has been shown in various studies of international migration (Beine et al., 2011; Adserà and Pytliková, 2015; Beine and Parsons, 2015; European Commission, 2015).

Other explanatory variables include standard gravity controls as relative population size

($\frac{pop_{j,t}}{pop_{i,t}}$), distance between origin country capital and destination country capital (d_{ij}), common language (l_{ij}) and common border (b_{ij}), historical variable as common past (p_{ij}), variables to control for depression periods ($recession_{i,t-1}$, $recession_{j,t-1}$, $crisis_{t-1}$) and variables to control for migration policies and European integration ($Free$, $Euro\_area$, $Schengen$).[7]

The intuition related to the relative population size lies in the foundation of gravity. Larger countries might attract smaller countries. We compute this ratio by dividing the average population of destination country j with the average population of the origin country i. Variables for controlling depression periods are lagged one period assuming that migrants react with a lag to new information about the economic situation (or there are delays between decision and action).

The influence of third countries in determining migration flows between two particular countries should not be ignored. Some unobserved opportunities and barriers to migrate may exert influence upon migration from country i to country j. These factors are named multilateral resistance in the literature. Disregarding multilateral resistance could induce a bias in the results (Anderson, 2011; Bertoli and Fernandez-Huertas Moraga, 2013; Ortega and Peri, 2013; Ramos, 2016; Beine and Parsons, 2015; Beine et al., 2016). Therefore, we include in our specification destination-time dummies to control for multilateral resistance ($\nu_{j,t}$). Time dummies (η_t) control for global trends and cycles. We also include for each specification origin country dummies (ν_i).

For robustness checks, we replace unemployment benefits by social protection in the origin country. In addition, we run a specification in which we replace relative wage by relative social protection to test a "welfare magnet effect".[8]

[7] We give more details on these variables in the next section.

[8] As long as these two ratios are strongly correlated, their introduction in the same specification would cause a strong collinearity that could bias results.

4 Empirical analysis

4.1 Data

We construct a new dataset of bilateral migration flows between EU countries. We have collected data on stocks of foreign population by citizenship from various sources: OECD International Migration Database, Eurostat, United Nations Global Migration Database, Holland et al. (2011), Adserà and Pytliková (2015) and national sources[9]. For inflows, we have used additional national sources[10]. Our panel data covers 28 EU origin countries with 27 EU destination countries[11] over the period 1980-2015. In comparison to existing studies (European Commission, 2011, 2015; Giulietti et al., 2013; Chojnicki et al., 2016), our dataset is original, because our measure of intra-EU mobility relies on bilateral flows between all EU countries over a large period of time. We examine only intra-EU mobility and not migration flows with the rest of the world (non-EU countries).

Macroeconomic data such as wage and unemployment rate are taken from AMECO database of the European Commission. Wage refers to real compensation per employee of the total economy. Data on social protection are taken from Eurostat database. Unemployment benefits are unemployment expenditures per unemployed in purchasing power standard (PPS). We use two measures of social protection: social protection benefits (PPS) per inhabitant ("social1") and total general government social protection expenditure as a percentage of GDP ("social2").

We use CEPII gravity database to get distance data and the common language variable (Mayer and Zignago, 2011). Some additional dummy variables have been built by ourselves.

- The "common border" variable controls for geographic proximity and is equal to one if

[9]Denmark (StatBank Denmark), Finland (Tilastokeskus, Statistics Finland), France (INSEE), Sweden (Statistics Sweden) and United Kingdom (ONS). We acknowledge the help of Réseau Quetelet for French data and cite the source accordingly: "Recensement de la population 2006-2013 : tableaux détaillés, INSEE [producteur], ADISP-CMH [diffuseur]".

[10]Directorate-General Statistics and Economic Information of Belgium.

[11]EU27: All EU28 except Malta. We delete one country to avoid redundancy problem and we choose Malta because of the lack of data.

both origin and destination countries share a common border, zero otherwise.

- The "common past" variable takes the value of one if both countries used to be the same country (e.g. the Czech Republic and Slovakia).
- The "recession" dummy variable is equal to one if GDP growth is negative and zero otherwise.
- The "crisis" dummy variable represents the financial and euro crisis period. It is equal to one over the period 2008-2012 and zero otherwise.
- Given that each EU member state has its own restrictions on the access to national labour markets, we try to capture a potential effect of the removal of restrictions with our dummy "Free access to labour market". We attribute one to this variable if a destination country has lifted restrictions for an origin country and zero otherwise.
- "Euro area" is equal to one if both origin and destination countries belong to the Euro area, and zero otherwise. This dummy is constructed by taking into account the date of accession of each country.
- Similarly, the "Schengen" dummy variable is equal to one if both countries belong to the area and zero otherwise.

Table 1 shows summary statistics of all numerical variables.

4.2 Estimation results

We use ordinary least squares (OLS) estimator with fixed effects. Results are presented on two samples: the full sample of EU countries (28 EU origin countries with 27 EU destination countries) over 1980-2015 and a sub-sample of 19 EA countries (19 EA origin countries with 18 EA destination countries) over the 1999-2015 period.

Table 2 shows the results of estimating Equation (5) with the full sample of EU countries. Relative wage and unemployment coefficients have the expected sign and are statistically

significant. An increase by 10% in relative wage between destination country and origin country will lead to an increase by about 4.5 percent in the migration rates between two EU countries. Inversely, if the unemployment rate of the destination country increases by 10% relative to the origin country, the migration flows to this country is estimated to decrease by about 1%. In comparison, European Commission (2015) found that relative unemployment has not been a significant determinant in intra-EU15 after 2008.

Traditional control variables that are network, relative population size and distance have a significant effect on bilateral migration with the expected sign. But, in contrast to the literature (Adserà and Pytliková 2015; Belot and Ederveen 2012; Hassler et al. 2005; Zaiceva and Zimmermann 2008), common language does not have a significant effect on intra-EU mobility.

In term of adjustment mechanism to shocks, bilateral migration reacts strongly to a recession or a crisis. It increases during a recession in the origin country (about 0.1%), and during the financial and euro crisis (1.5%), while it decreases much if the destination country is in a recession (up to 4%).

With regard to institutional features of the EU, the removal of restrictions on the access to national labour markets has no significant effect. It may be not as surprising as it looks because the dates at which these restrictions have been lifted vary from one country to another (various years between 2006 and 2015)[12]and restrictions for Romanian citizens and Bulgarian have remained in some destination countries until the end of 2013.[13]More surprisingly, there is a strong negative effect of Schengen membership on bilateral migration. Similarly, EA membership has a negative effect.

Table 3 adds variables related to social protection in the origin country or in relative terms (difference between social benefits in the destination country and social benefits in the origin country). Unemployment benefits (UB) in the origin country has a positive effect

[12]For Croatian citizens, restrictions in some member states will be lifted in July 2018.

[13]It is worth noting that restrictions in Spain for Romanian citizens had been lifted in January 2009 but re-instated in July 2011.

on migration. This result supports the idea that insurance benefits help relax liquidity constraints and face migration and search costs as emphasized by Tatsiramos (2009). We do not find evidence of a "welfare magnet effect" in intra-EU migration.

Table 4 displays the results for migration between EA19 countries. In contrast to intra-EU migration, intra-EA migration does not respond to wage differentials nor to recession in destination country. Yet, it reacts to unemployment differentials, crisis and recession in origin country in a similar way. From this point of view, labour mobility can be an adjustment mechanism to shocks in EMU.

Another difference with intra-EU migration lies in the effect of social protection on intra-EA migration. Unemployment benefits do not play a positive role in the decision to move, and social benefits play a negative role. In addition, the welfare magnet effect seems to exist in the EA (for the variable "social1"): If the social benefits per inhabitant of the destination country increases by 10% relative to the origin country, migration flows to the destination country is estimated to increase by about 5%.

5 Conclusion

We wanted to investigate the determinants of migration flows between countries of the European Union (EU) and between countries of the Euro Area (EA). In particular, we were interested in studying some factors such as national disparities in labour markets, macroeconomic conditions and social protection. Moreover, we aimed at checking whether the Euro area could be closer to an optimum currency area from the point of view of the role of labour mobility as an adjustment mechanism to asymmetric shocks.

To address these issues, we built a new dataset with bilateral data on migration flows between all EU countries over the period 1980-2015. The novelty of our approach is to look at intra-EU mobility only and to compare the determinants of migration within the EU and within the EA. We do not consider migration flows between some EU countries and non-EU

countries as it is done in some other studies (e.g. Beine et al., 2013; European Commission, 2011, 2015).

Our main findings are the following ones:

- Bilateral migration is lower between two countries which are member of the EA than between two countries of which at least one is not a member of the EA. This suggests that the share of a common currency, which lowers transaction costs, is not a main determinant in the decision to migrate.

- Migration increased during the Great Financial Crisis and the EA Crisis.

- Migration flows in the EA react to relative unemployment and recession in origin country, but not to relative wage and recession in the destination country. Labour mobility plays a role as an adjustment mechanism to shocks but is not sufficient to reduce labour market disparities across countries.

- The removal of restrictions on the access to national labour markets does not have an effect on migration flows. In a similar way, a pair of countries that belong to the Schengen record lower migrations flows than others.

- Unemployment benefits can be helpful for potential migrants in the EU but not in the EA. In comparison, Tatsiramos (2009) had found a positive effect of UB for migration in some countries (Denmark, France, and to a lesser extent Spain) whereas Giulietti et al. (2013)had not found any effect of UB for migration in 19 European countries.

- There is no evidence of a "welfare magnet effect" in the EU but in the EA. Note that Belot and Ederveen (2012) had concluded that this effect was not found among developed countries.

In further research work, we intend to check whether some other aspects of European integration (free movements of goods, services and capital) and of migration costs (housing) may influence the mobility of people.

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Tables

Table 1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Inflows	1952.68	9423.44	0	271443	14577
Foreign population	18534.79	65063.81	0	1151395	13410
Average real wage (1,000 EUR)	27.44	14.01	2.25	60.99	21708
Unemployment rate	8.71	4.28	0	27.5	21735
Distance between capitals (km)	1387.62	740.42	59.62	3766.31	26244
Unemployment benefits per unemployed (PPS)	9392.34	8539.87	215.7	40027.78	13716
Social protection benefits per inhabitant (PPS)	5220.54	2795.31	656.79	14783.22	13716
Social protection (percent. of GDP)	16.15	4.24	7.3	27.4	14715

Table 2: Migration in the EU

	(1)	(2)	(3)	(4)	(5)
Relative wage	0.343**	0.323**	0.287**	0.336**	0.451***
	(0.134)	(0.133)	(0.134)	(0.136)	(0.130)
Relative unemployment	-0.140***	-0.138***	-0.112***	-0.106***	-0.108***
	(0.032)	(0.033)	(0.033)	(0.034)	(0.035)
Network	0.742***	0.744***	0.745***	0.746***	0.751***
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
Relative population size	1.803***	1.850***	1.873***	1.777***	2.166***
	(0.320)	(0.327)	(0.325)	(0.319)	(0.322)
Distance	-0.179***	-0.161***	-0.160***	-0.161***	-0.150***
	(0.036)	(0.041)	(0.041)	(0.041)	(0.041)
Common language	-0.193*	-0.180	-0.181	-0.176	-0.164
	(0.116)	(0.112)	(0.112)	(0.113)	(0.108)
Common border		-0.014	-0.014	-0.015	-0.004
		(0.077)	(0.077)	(0.077)	(0.076)
Common past		0.119	0.120	0.120	0.127
		(0.094)	(0.094)	(0.092)	(0.091)
Free access to labour market		-0.070	-0.067	-0.041	0.005
		(0.049)	(0.049)	(0.048)	(0.050)
Destination country recession			-3.500***	-3.397***	-4.325***
			(0.650)	(0.641)	(0.645)
Origin country recession			0.101***	0.100***	0.099***
			(0.022)	(0.022)	(0.021)
Financial and Euro crisis			1.275***	1.327***	1.472***
			(0.143)	(0.146)	(0.142)
Euro area				-0.123***	
				(0.042)	
Schengen					-0.264***
					(0.041)
Observations	10531	10524	10524	10524	10524
R^2	0.931	0.931	0.931	0.932	0.932

Standard errors in parentheses

Note: OLS estimator with origin country dummies, destination-time dummies and time dummies.

28 EU origin countries with 27 EU destinations countries. Sample period: 1980-2015.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Migration in the EU and social protection

	(1)	(2)	(3)	(4)	(5)
Relative wage	0.445***	0.515***	0.283**		
	(0.143)	(0.172)	(0.125)		
Relative unemployment	-0.186***	-0.133***	-0.122***	-0.135***	-0.144***
	(0.043)	(0.039)	(0.044)	(0.039)	(0.043)
Network	0.769***	0.770***	0.772***	0.770***	0.771***
	(0.018)	(0.018)	(0.017)	(0.018)	(0.017)
Relative population size	1.786***	1.734***	2.098***	1.526***	1.714***
	(0.331)	(0.337)	(0.312)	(0.353)	(0.295)
Distance	-0.109***	-0.110***	-0.121***	-0.114***	-0.124***
	(0.038)	(0.038)	(0.037)	(0.039)	(0.037)
Common language	-0.123	-0.124	-0.143	-0.116	-0.154
	(0.099)	(0.099)	(0.099)	(0.100)	(0.100)
Common border	0.004	0.001	0.002	-0.007	0.012
	(0.066)	(0.066)	(0.066)	(0.067)	(0.066)
Common past	0.092	0.092	0.091	0.096	0.088
	(0.083)	(0.083)	(0.085)	(0.085)	(0.084)
Free access to labour market	-0.019	-0.024	-0.059	-0.035	-0.076
	(0.049)	(0.050)	(0.049)	(0.050)	(0.048)
Destination country recession	-3.639***	-3.542***	-4.302***	-3.124***	-3.545***
	(0.670)	(0.682)	(0.627)	(0.705)	(0.591)
Origin country recession	0.078***	0.087***	0.081***	0.102***	0.094***
	(0.023)	(0.023)	(0.022)	(0.023)	(0.023)
Financial and Euro crisis	4.055***	3.793***	1.169***	3.638***	4.071***
	(0.714)	(0.767)	(0.163)	(0.764)	(0.681)
Euro area	-0.075*	-0.072	-0.058	-0.056	-0.051
	(0.045)	(0.045)	(0.043)	(0.045)	(0.043)
Schengen	-0.231***	-0.222***	-0.248***	-0.223***	-0.238***
	(0.045)	(0.045)	(0.042)	(0.045)	(0.043)
Origin country UB	0.089**				
	(0.036)				
Origin country social1		0.250*			
		(0.151)			
Origin country social2			0.157		
			(0.122)		
Relative social protection1				0.041	
				(0.121)	
Relative social protection2					-0.111
					(0.125)
Observations	8638	8638	9192	8417	9087
R^2	0.937	0.937	0.937	0.937	0.937

Standard errors in parentheses

Note: OLS estimator with origin country dummies, destination-time dummies and time dummies.

28 EU origin countries with 27 EU destinations countries. Sample period: 1980-2015.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Migration in the EA and social protection

	(1)	(2)	(3)	(4)	(5)
Relative wage	0.248	-0.397	0.201		
	(0.196)	(0.243)	(0.185)		
Relative unemployment	-0.113**	-0.164***	-0.158***	-0.121**	-0.182***
	(0.051)	(0.044)	(0.054)	(0.047)	(0.054)
Network	0.732***	0.731***	0.732***	0.737***	0.729***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Relative population size	0.616	0.903**	0.699*	1.022**	0.557
	(0.410)	(0.420)	(0.404)	(0.427)	(0.389)
Distance	-0.180***	-0.182***	-0.182***	-0.174***	-0.183***
	(0.048)	(0.049)	(0.048)	(0.049)	(0.048)
Common language	0.124	0.122	0.128	0.134*	0.121
	(0.079)	(0.080)	(0.079)	(0.079)	(0.079)
Common border	-0.012	-0.014	-0.020	-0.018	-0.015
	(0.069)	(0.069)	(0.068)	(0.069)	(0.069)
Common past	-0.116	-0.118	-0.111	-0.116	-0.105
	(0.111)	(0.111)	(0.111)	(0.112)	(0.112)
Free access to labour market	-0.106	-0.085	-0.116*	-0.080	-0.125**
	(0.067)	(0.067)	(0.067)	(0.066)	(0.062)
Destination country recession	0.213	0.331	0.334	1.029	0.085
	(0.633)	(0.632)	(0.622)	(0.657)	(0.563)
Origin country recession	0.068**	0.064**	0.074**	0.073**	0.079***
	(0.029)	(0.028)	(0.029)	(0.029)	(0.028)
Financial and Euro crisis	0.370***	0.688***	0.365***	0.416***	0.336***
	(0.127)	(0.151)	(0.120)	(0.130)	(0.117)
Origin country UB	0.022				
	(0.049)				
Origin country social1		-0.748***			
		(0.204)			
Origin country social2			-0.232		
			(0.169)		
Relative social protection1				0.499***	
				(0.153)	
Relative social protection2					0.260
					(0.167)
Observations	3459	3459	3532	3394	3518
R^2	0.959	0.959	0.959	0.959	0.959

Standard errors in parentheses

Note: OLS estimator with origin country dummies, destination-time dummies and time dummies.

19 EA origin countries with 18 EA destinations countries. Sample period: 1999-2015.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$