

## ***MIGRATION AND SOCIAL PROTECTION EXPENDITURES: EMPIRICAL EVIDENCE FROM THE EU COUNTRIES\****

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### **Abstract**

*The paper analyse the nexus between migration and social protection expenditures in European Union using panel data models for 26 EU countries. The results reject the existence of “welfare migration” in Europe: the countries that attract more migrants are the countries with lower levels of shares of expenditures with social protection in GDP. There are other factors responsible for explaining migration movements within the European Union and understanding these determinants is crucial for shaping migration policies but also social policies at national and European level.*

**Keywords:** migration, social protection, social policy, European Union, panel data models

**JEL Classification:** C23, H55, F22

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## **1. Introduction**

Migration is a phenomenon that always has been along the human race, people were looking for better places to live considering weather conditions, food supply and all other variables that are maintaining life and are leading to improved living standards. Nowadays, these variables are a little bit different as concept but are having the same purpose, mainly because towards to human development and industrial revolution the reasons of migration have evolved. There are many studies regarding what makes people migrate.

Most individuals choose to emigrate when their income declines, to this reason there are other motivations that can be added related more to the sociological aspects that trigger the people to emigrate as: food, health care, shelter, and social needs. All of these aspects are sustained by the most important aspect: having a job that provide satisfactory amount of money (Goschin and Roman, 2012). A high unemployment rate in a country leads to emigration, the reason is that people tend to migrate to countries that can provide jobs. Heid and Larch (2012) showed that immigration has an influence on unemployment by analysing a panel data set of 24 OECD over the period of countries immigration has a significant negative effect on unemployment rate. Sociologically, unemployment and low-paid jobs are not defined by individual actions, they are placed on account of the social policy systems (Grammatikopoulos et al. 2011). Unemployment is a social problem because it has negative effects on society and it reflects, also, on economy; therefore to minimize its effects an important influence is provided by the political decisions through social welfare system.

The social welfare system of a state has two important impacts on community welfare: prevents poverty, through the expenditures on social protection, and shapes the social structure. Eurostat define social protection as the coverage of precisely defined risks and needs associated with: sickness/healthcare and invalidism; disability; old age; parental responsibilities; the loss of a spouse or parent; unemployment; housing; social exclusion.

The social protection in EU states differs from country to country. In France the social system is a mixed system with insurance funds and strong state intervention, and relies both on wage related contributions and general taxation (Fagnani, 2006). According tot the European Union's Mutual Information System on Social Protection (abbreviated MISSOC) the same mixed system exists in Germany, Sweden and Italy. Also, as reported by a study made by European Commission in 2009 the analysis of the impact of social transfers on relative poverty risks (based on EUSILC 2007) reveals that social transfers reduce the poverty risk by 36% on average in the EU-27. The poverty-reducing effects of social transfers other than pensions are stronger in Hungary, the Nordic countries, the Netherlands,

Austria, France and the Czech Republic, where poverty drops by 50% or more thanks to public support (reaching the peak of more than 60% for Sweden). The weakest effects (drops by 19% or less) are reported for Bulgaria, Greece, Spain, Italy and Romania.

The study also revealed some country examples to show the impact of social policies as for Denmark, Sweden or France. For instance, in Denmark and Sweden, the social protection system is mature and historic time series show that levels of social spending have increased every time unemployment rose and decreased substantially afterwards; France shows an example of a country where despite the interdependence between the economic cycle and expenditure levels, social protection expenditure has been increasing. Social protection expenditure has shown an upwards trend driven by health and old age expenditures, while other types of expenditures have been more responsive to economic downturns than upturns (European Commission, 2009).

The welfare migration gained much public attention in the recent context of lifting the labour restrictions in the UK for Bulgarians and Romanians starting 1st of January 2014. The UK media expressed a fear over an influx of migrants from Romania and Bulgaria, which lead the British PM David Cameron to announce some measures that will make UK „less attractive for those who want to come and live off the state.” (Nielsen, 2014). Therefore, European migrants to the UK have to wait three months to claim benefits from January 2014.

In this paper we explore the relationship between social protection expenditures and their influence on migration rate, as we consider that countries with developed social welfare system are a trigger for attracting migration.

## **2. Literature review on migration related to social protection**

Migration literature is generous in approaches and theories explaining migration. The neoclassical theory highlights the role of economic determinants of migration. The new economics of labour migration (NELM) developed during the 80s (Stark & Bloom, 1985) allows for integrating factors other than individual income maximization as influencing migration decision-making. Other theories introduce the role of legislative factors, of factors related to the emigrant’s social network or of cultural factors.

More recently, the level of social protection was considered as an influential determinant of migration. The welfare magnet hypothesis was first coined in a seminar paper by Borjas (1987). This hypothesis refers to how welfare generosity acts as a pull factor for migration and how it influences the skill composition of immigrants. More specifically, it states that immigrants prefer to locate in countries with generous welfare provisions to insure themselves against labor market risks.

Migration affects social policies in developing countries, Pillinger (2008) showed that the implications of migration for the welfare systems of developing countries has been neglected. It has also shown that social welfare systems not only have to adapt to international migration in countries of origin, transit and destination, but also that migration policy frameworks can obstruct important connections between migrants and their homelands and the development of social welfare systems.

Usually migrant workers don't have a high social or legal status in the host country, because they may have entered the country illegal or with a temporary work contract. As a result, they always are facing conditions much inferior than the nationals the host countries though they may have better terms of employment and access to social security than in their home countries. The migrant workers are in general employed into sectors as: construction, manufacturing, hotels and restaurants, health care, education, domestic work and agriculture in the host countries, where working conditions can cause for the low skilled workers situations as being victims of abuse and exploitation (ILO, 2010).

The access of migrants to social security and social protection is problematic in high-income countries, as many of them have restricted access to social benefits partly or discourage immigration. France, the Netherlands, Spain and Sweden, have included migration in their international co-operation strategies aiming at promoting temporary and circular migration, with the idea of providing flexible labour that adjusts to industrialised economies' needs, but also of maximising the contribution of migrants to the development of the community of origin (Gagnon and Khoudour-Castéras, 2011).

In a recent paper, Giulietti et al (2011) study the impact of unemployment benefits on immigration. A sample of 19 European countries observed over the period 1993-2008 is used to test the hypothesis that unemployment benefit spending is correlated with immigration flows from EU and non-EU origins. They conclude that the "welfare migration debate is misguided and not based on empirical evidence."

While most of studies observe the linkages between migration and economic or noneconomic factors, it is important to study the impact of migration on social policies and social protection systems, as the literature in the area of migration related to social protection is rather limited. The factors that generate migration became so multiple and diversified that it is increasingly harder to explain migration by reporting to one of the specific theories already mentioned. Therefore, we consider that studies referring to specific factors or categories of factors explaining migration are more adequate to the current socio-economic context.

### 3. Data and method

Panel data are datasets offering double benefits, where the behaviour of the cross-sectional series is observed over time. In study of migration Jennissen (2003) used a panel data for Western European countries over a period from 1960 to 1998 to estimate the influence of economic determinants on net international migration, and found that GDP per capita has a positive effect and unemployment a negative effect on international migration. Also, the same study was made across the UE countries before and after 2004 enlargement, by comparing the UE 10 with UE 15. The authors used as regressors: GDP per capita and unemployment rate but also they have added Gini index and years of schooling, the results showing that the higher GDP per capita, the less are willing the individuals to emigrate (Zimmermann and Zaiceva, 2008).

We applied a multiple regression model for panel data, using as dependent variable the crude migration rate. We employ four independent variables for capturing some of the most relevant economic determinants of international migration, including our interest variable that describes the level of social protection. Therefore, the level of economic development acts as a migration pull factor and we employ in this sense the **GDP per capita**. The indicator is calculated as the ratio of *GDP* to the average population of a specific year.

The population structure could influence the migration in Europe, since younger populations are more prone to migrate and the demographic aging is a phenomenon already spread in developed European countries. We used **Old dependency ratio** that represents the ratio between the total number of elderly persons of an age when they are generally economically inactive (aged 65 and over) and the number of persons of working age (from 15 to 64). The indicator is important since the largest part of the expenditure on benefits goes to areas that are either not particularly affected by the economic situation such are age benefits or health benefits.

The labour market situation is captured by the **unemployment rate**, which is a crucial economic indicator in this aspect: a high unemployment rate shows a loss for the income of individuals, being therefore a strong individual motive for migration. Since the purpose of the paper is not to distinguish and to analyse in detail migration' determinants, we do not consider the specific unemployment rates by age, gender or unemployment duration. The total unemployment rate was applied in the econometric model.

The national level of social protection, the interest variable in our model, was employed by considering the expenditures on social protection as a percent of GDP. According to Eurostat definition, the indicator contains: social benefits, which consist of transfers, in cash or in kind, to households and individuals to relieve them of the burden of a defined set of

risks or needs; administration costs, which represent the costs charged to the scheme for its management and administration; other expenditure, which consists of miscellaneous expenditure by social protection schemes (payment of property income and other). It is calculated in current prices. The EU countries exhibit significant differences in the level of expenditure on social protection. In 2009, Denmark (33.4 %), France (33.1 %), and Sweden (32.1 %) spent the largest proportion of their GDP, following a well established trend. By contrast, Latvia (16.9 %) and Romania (17.1 %) were the countries with the lowest ratios.

The dependent variable *crude rate of net migration* is defined by Eurostat as the ratio of net migration plus adjustment during the year to the average population in that year, expressed per 1000 inhabitants. According to the Eurostat methodology, the net migration plus adjustment is the difference between the total change and the natural change of the population. We must take into consideration the fact that the statistics on 'net migration plus statistical adjustment' could be affected by all the statistical inaccuracies in the two components of this equation, especially population change. From one country to another 'net migration plus statistical adjustment' may cover, besides the difference between inward and outward migration, other changes observed in the population figures between 1 January in two consecutive years which cannot be attributed to births, deaths, immigration and emigration. A negative crude rate of net migration shows that there are more emigrants than immigrants into the analysed country.

The data source for all of the above mentioned variables is Eurostat database, which provide several important and practical advantages: the data are comparable both in time and between countries, using the same methodological definitions. As consequence, we gathered data for 26 out of the 28 EU countries, for an 11 years period between 2000 and 2010. The countries missing from our sample are Bulgaria and Croatia, due to the lack of data regarding the interest variable. The balanced sample consists in 286 observations.

As we mentioned before panel data involves two dimensions: cross-sectional and time series, so a regression model for panel data is different from an OLS regression because it provides information of both dimensions, namely, over individuals and over time.

There are many types of panel data models as pooled regression, fixed effects, random effects (Wooldridge, 2010). The most commonly analysed are pooled models, fixed and random effects models. The pooled regression model is also called population average model, this time of model doesn't take into account the annual fluctuation of the dependent variable. The other two models observe the time component from the perspective of the differences that may appear into a data set formed by different studies (example: surveys applied on different groups).

The general model of panel pooled data can be described as:

$$y_{it} = \beta_0 + \sum_k \beta_k X_{kit} + \varepsilon_{it} \quad (1)$$

Where:

- $i = 1 \dots N$ ,  $N$  is the number of cross-sectional dimension (or individuals);  $N=26$ ;
- $t = 1 \dots T$ ,  $T$  is the number of time dimension (or period);  $T=11$ .
- $K$  is the number of the regressors;
- $y_{it}$  is the endogenous variable for country  $i$  in year  $t$ ;
- $X_{kit}$  is the exogenous variable  $k$  for country  $i$  in year  $t$ ;
- $\beta_0$  is the common constant for all countries;
- $\varepsilon_{it}$  is an independently and identically distributed error term, with zero mean and constant variance.

In a pooled regression model, the countries share the same intercept. For better capturing the individual country specific, fixed effect model and random effects model are developed.

The fixed effect model is described in equation 2:

$$y_{it} = \beta_{0i} + \sum_k \beta_k X_{kit} + \varepsilon_{it} \quad (2)$$

where  $\beta_{0i}$  represents the individual time-invariant effect for country  $i$ .

The random effects model is described in equation 3:

$$y_{it} = \beta_0 + \sum_k \beta_k X_{kit} + u_{it} \quad (3)$$

Error term  $u_{it}$  has two components:  $\varepsilon_{it}$ , which is the usual error term and  $\alpha_i$ , which represents the the random heterogeneity specific to the  $i$ th observation and is constant through time.

$$u_{it} = \varepsilon_{it} + \alpha_i \quad (4)$$

In equation 4,  $\alpha_i$  is the extent to which the intercept of the  $i$ th cross-sectional unit differs from the original intercept.

An important assumption underlying the random effects model is that the error term  $\alpha_i$  is not correlated with any of the explanatory variables.

To choose between these models there are several tests to apply and the literature in this domain is developing.

For our analysis we used pooled model and random effects model because we considered that the data set is formed from miscellaneous groups of countries.

We tested between them with the Breusch and Pagan Lagrangian Multiplier test for random effects, where the null hypothesis in the LM test is that variances across entities are zero.

#### 4. Results

A first preview of the analysed data we obtained by descriptive statistics. Below in **Table 1**, we show the results of the descriptive statistics for each variable separately. We used the following abbreviations for the individual or panel identifier which in our case is being the Country and called it as *id*, for the time variable named it *t*, the other variables can be easily deducted from their name. For all variables there are three types of variation described in the panel data model *overall variation* this type of variation shows the variation over both individuals and time, *between variation* which shows the variation over individuals, namely the *id*, and *within variation* which shows the variation over time (abbreviated as *t*).

The descriptive statistics for panel data follows the same pattern as the estimation of R- Squared: overall, between and within variations.

**Table 1. Descriptive Statistics**

<i>Variable</i>		<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
<i>Crude migration rate</i>	<b>Overall</b>	<b>3,079</b>	<b>5,361</b>	<b>-25,2</b>	<b>21,3</b>
	<b>Between</b>		<b>4,085</b>	<b>-4,972</b>	<b>12,872</b>
	<b>Within</b>		<b>3,554</b>	<b>-19,6843</b>	<b>13,252</b>
<i>Unemployment rate total</i>	Overall	8,067	3,783	1,9	20,1
	Between		3,074	3,872	15,509
	Within		2,278	0,485	16,231
<i>Expenditures on social protection</i>	Overall	22,849	5,762	11,274	33,771
	Between		5,577	13,997	31,311
	Within		1,786	17,027	32,822
<i>GDP per capita (Log)</i>	Overall	4,228	0,324	3,255	4,892
	Between		0,316	3,556	4,805
	Within		0,093	3,927	4,504
<i>Old dependency ratio</i>	Overall	22,765	3,447	15,8	31,4
	Between		3,376	16,327	29,145
	Within		0,937	18,883	26,383

*Source: own computation based on EUROSTAT data.*

It is expected that the standard deviation will be smaller for the variation over time than the variation between individuals, mainly because the countries doesn't have a homogenous



economy; this fact is more obvious for the variable GDP per capita, countries having different development levels. Expenditures on social protection also provide a small within variation and a relatively large between variations. Also, the same distinct difference it can be observed for Old dependency ratio variable, this could be due to social policies of the countries, some countries pay the pension incomes through the wage taxes and other countries have already implemented the private pension system. Regarding the other variables we can observe there is a small difference between the Within variation and Between variation, maybe because there some similarities between most countries.

The both models described in Table 2 confirm that there is a significant relationship between migration and social protection expenditures, which is also expressed in the figure from the Annex.

The results from the pooled regression model show that 33,94% of the variation of migration (represented by crude migration rate) explains the variation of the variables included in models. In the case of random effects model, R Squared results are given for all three types of variation, it can be observed that the correlation is strong and the variables are significantly correlated mostly for the variation between, which means that there is an influence on migration of the independent variables over individuals.

**Table 2. The results of the econometric models**

<i>Crude migration rate</i>	Pooled regression	Random effects regression
<i>Unemployment rate total</i>	-0,148*	-0,233**
<i>Old dependency ratio</i>	-0,328	-0,081
<i>Expenditures on social protection</i>	-0,424***	-0,437***
<i>GDP per capita (Log)</i>	12,81**	7,822**
Constant	-34,352***	-16,255 ***
N	286	286
R-Squared	0,3394	-
F-test	33,09***	-
R-Square within	-	0,1284
R-Square between	-	0,3999
R-Square overall	-	0,2774
Rho	-	0,3994
Wald chi2-test	-	58,23***

\*/\*\*/\*\* indicate significance at the 10/5/1% level.

Source: Authors' calculation.

Rho is known as the fraction of total variance due to error term,  $\varepsilon_i$ , that varies over time and individuals (Baum, 2006), so 60,06% is being explained by the error term and the other 39,94% by the constant term  $\alpha_i$ .

The test of choosing between random effects model and the OLS model was Breusch and Pagan Lagrangian Multiplier test for random effects, with the null hypothesis of the Lagrangian Multiplier test as having the variances across entities zero, so the random effect model is the most suitable to choose. The decisions of the test is made by comparing the probability associated to the test with  $\alpha=0.05$ . From the results of the Breusch and Pagan LM test, whereas the probability associated with the test is under  $\alpha=0.05$ , we can conclude that the best model to choose is the random effect model.

The model of panel data with random effects can be described by a linear equation as following:

$$\text{Crude rate migration}_{it} = \beta_{it} - 0.233 \text{Unempl}_{it} - 0.081 * \text{OldAgeDep}_{it} + 7.822 * \text{GDP} - 0.437 * \text{Expenditures on social protection}_{it} + \varepsilon_{it} \quad (5)$$

The model confirms the significant relationship between migration and social protection expenditures. The most important result is that in the case of European countries the level of social protection expenditures is negatively affecting the migration rate. At the same time the coefficient value is similar in the two models and statistically significant with a probability of 99%. The welfare hypothesis according to which the countries with generous social protection systems attract a larger number of migrants is not confirmed and social protection is not a pull factor in the case of the EU Member states. As expected, the countries with higher shares GDP have a higher influx of migrants.

At the same time, one should have in mind the weaknesses of the methodological definition of crude migration rate. It is important to emphasize the permanent character of international migration, as it is captured by the Eurostat definition of the dependent variable in the model. In Europe, most of the post enlargement migration is temporary or circular, but these are not expressed by national statistical indicators for many cases and therefore are difficult to be measured, especially for the countries with large number of emigrants.

This result is in line with other findings referring to European countries. For instance Hagen-Zanker et al., (2009), find that an increase in social insurance coverage is connected to a decrease in migration.

The most important factor in the model is GDP/inhabitant, which directly influences migration. Countries with a higher economic development attract larger number of migrants;

in this respect the model confirm the results existing in the literature and promote the strong role of the economic pull factors.

As expected the unemployment rate negatively influenced migration confirming the neoliberal theory of migration. Unemployment is a statistically significant push factor, though its influence is much lower compared to GDP.

The dependency ratio has no significant impact on migration. In random effect model, the coefficient is negative though close to zero implying a negative relationship between migration rate and old age dependency ratio.

Our result rejects the existence of “welfare tourism” in Europe: the countries that attract more migrants are the countries with lower levels of shares of expenditures with social protection in GDP. There are many other factors responsible for explaining migration movements within the EU and understanding these determinants is crucial for shaping migration policies but also social policies at national and European level.

## **5. Policy relevance and conclusions**

The connection between migration and social protection has multiple faces that emphasize also strong policy relevance. Both national and international institutions have developed regulation in order to ensure migration access to social protection.

At international level, The ILO adopted in June 2012 the Social Protection Floors Recommendation, according to which migrants and their families should have access to the basic social security guarantees in the State where they reside, as well as in their home country.

The access of migrants and their families to social protection is burdened in many cases by a lack of knowledge. Therefore, building knowledge on social security for migrant workers and protection gaps is important; In this respect the European Commission created a system that offers the opportunity to compare and analyse several social protection systems, The European Union's Mutual Information System on Social Protection (abbreviated MISSOC). MISSOC was established in 1990 and provides detailed, comparable and regularly updated information about national social protection systems in three languages English, French and German.

At the same time, it is important for policy makers to strengthen institutional capacities at national and regional level on strategies for extending social security to migrant workers and their families.

The paper emphasizes that social protection systems play a crucial role in economy, as it can be regarded as an insurance policy against poverty. The results show that there is a

negative significant influence of expenditures on social protection on migration and, based on the sample of European countries, the countries with higher shares of GDP allotted to social protection expenditures do not exhibit higher migration rates.

Beyond these conclusions, the impacts of social protection on migration flows are still poorly understood. With aggregate data, however, it is impossible to focus on those subgroups of the population (large families, single parents, women, etc.) who are more likely to consider the generosity of welfare an important element in their migration decisions. Therefore, further empirical research is needed on beneficiary characteristics, on migrants flows and socio-economic context.

## References

- Baum, C., (2001). Residual diagnostics for cross-section time series regression models. *The Stata Journal*, **1**, pp 101-104.
- Baum, C., (2006). Introduction to modern econometrics using STATA. *In: Texas*, Ed. Stata Press.
- Borjas, G. J., (1987). Self-Selection and the Earnings of Immigrants. *American Economic Review*, **77** (4), pp. 531-53.
- European Commission, The Social Protection Committee, September (2009). *Growth, jobs and social progress in the EU. A contribution to the evaluation of the social dimension of the Lisbon strategy*. pp 26.
- Fagnani, J., (2006). *International Encyclopedia of Social Policy*. Routledge, **3**, pp. 501-506.  
Available on:<http://hal.archives-ouvertes.fr/docs/00/10/17/03/PDF/encyclopedia.pdf>
- Gagnon, J., Khoudour-Castéras, D., (2011). *Tackling the Policy Challenges of Migration. Regulation, integration, development, Paris*, OECD Development Centre.
- Giulietti, C., Guzi, M. Kahanec, M., Zimmermann, K. F., (2011). *Unemployment benefits and immigration: Evidence from the EU*, Discussion Paper series, IZA, DP no 6075.
- Goschin, Z., Roman, M., (2012). Determinants of the remitting behaviour of Romanian emigrants in an economic crisis context. *Eastern Journal of European Studies*, **2** (3), pp. 87-103.
- Grammatikopoulos, C., Kotsoglou, K., Michalopoulos, C., (2011). Social integration, reversal policies of social exclusion. *Journal of Community Positive Practice I* / 2011.

- Hagen-Zanker, J. y C. L. Himmestline (2012). *How does access to social protection programmes affect the decision to migrate?*. Background note, Overseas Development Institute, Londres, ODI.
- Hagen-Zanker, J., Siegel, M., De Neubourg, C. (2009). Strings attached. The impediments to migration in Albania and Moldova. *Southeast European and Black Sea Studies* **9**(4), pp. 461–481.
- Heid, B., Larch, M., (2012). Migration, Trade and Unemployment. Economics: The Open-Access. *Open-Assessment E-Journal*, **6**.  
Available on: <http://dx.doi.org/10.5018/economics-ejournal.ja.2012-4>.
- International Labour Organization (ILO), (2010). *A rights-based approach*.  
Available on: [http://www.ilo.org/wcmsp5/groups/public/---ed\\_protect/---protrav/---migrant/documents/publication/wcms\\_208594.pdf](http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---migrant/documents/publication/wcms_208594.pdf)
- Jennissen, R.P.W., (2003). Economic Determinants of Net International Migration in Western Europe. *European Journal of Population*, **19**, pp. 171-198.
- Mayda, A.M., (2009). International Migration: A Panel Data Analysis of the Determinants of Bilateral Flows. *Journal of Population Economics*, **23** (4), pp: 1249-1274.
- Nielsen, N (2014). *UK vows to control immigration as Bulgaria, Romania curbs end* <http://euobserver.com/social/122617> (Accessed 30 September 2014)
- Pillinger, J., (2007). *The Migration-Social Policy Nexus: Current and Future Research*. United Nations Research Institute for Social Development. International Workshop 22–23, Stockholm, Sweden.
- Stark, O., & Bloom, D., (1985). The New Economics of Labour Migration. *American Economic Review*, **75**, pp. 173-178.
- Woolridge, J., (2002). *Econometric Analysis of Cross-Section and Panel Data*. MIT Press
- Zimmermann, K., Zaiceva, A., (2008). *Scale, Diversity, and Determinants of Labour Migration in Europe*. IZA Discussion Paper No. 3595.

**Annex 1. Crude rate of net migration and Expenditures on social protection across sample countries.**



Source: own computation based on EUROSTAT data.