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Key Challenges of Emigration from Central and Eastern European Economies: Empirical Evidence

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Abstract

The research conducted within this paper has the major objective to identify and analyze the determinants of labor emigration and to highlight some of the most important challenges of emigration in seven Central and Eastern European countries, during 2000-2014. Our empirical research is based on developing several double-log macroeconometric models that combine cross-section and time series in a panel structure, by using a complex set of indicators specific for the emigration process, as well as for the economic activity, labor market and education. The models are processed based on random and fixed effects, using OLS and GLS methods, respectively the Maximum Likelihood Estimator. Moreover, we used dynamic and distributed lags models in order to better capture the emigration shaping factors for considered Central and Eastern European economies. The results show that high unemployment reduces the emigrant stock, mainly due to the loss of associated income and the reduction of the migrants' capacity to move and establish into another country. At the same time, we identified a positive selection of emigrants at destination according to their educational level, while an increase in education in the source country downsizes the stock of emigrants mainly due to an improvement of local employment perspectives. Also, our findings show positive short term effects of labor emigration on sending country, by upgrading the living standards and wage levels for those remaining, reflected by an increase in productivity and GDP per capita. Still, in the long run, the loss of a significant part of the labor force, especially highly skilled labor, has major negative economic consequences.

Keywords: Emigration, Central and Eastern European Economies

1. Introduction

International migration represents an extremely important process having significant positive effects on both migrant sending and receiving countries, thus being largely debated in literature.

The process of European integration generated various changes in the structure, origin and destination of the migrant flows, while the anxiety towards emigrants from Central and Eastern Europe highlighted the importance of a gradual migration approach, focused on those issues that don't reveal controversies. Labor mobility in Europe faced a series of challenges during the past few years and in 2014 the migration flows registered a shift in trend, most migrants from Eastern

Europe choosing Germany as main destination country compared to Italy and Spain that are still facing tough economic conditions (OECD, 2014).

International migration flows increased in 2013 by 1.1% compared to 2012, with significant increases in the number of migrants to Germany (more than 400000 immigrants according to the OECD data), most of these being from Central and Eastern Europe. Among the main migrant destination countries we also find Italy and Spain, still with a significant decrease compared to previous years, now being only the seventh or eighth position among the largest immigration countries in OECD.

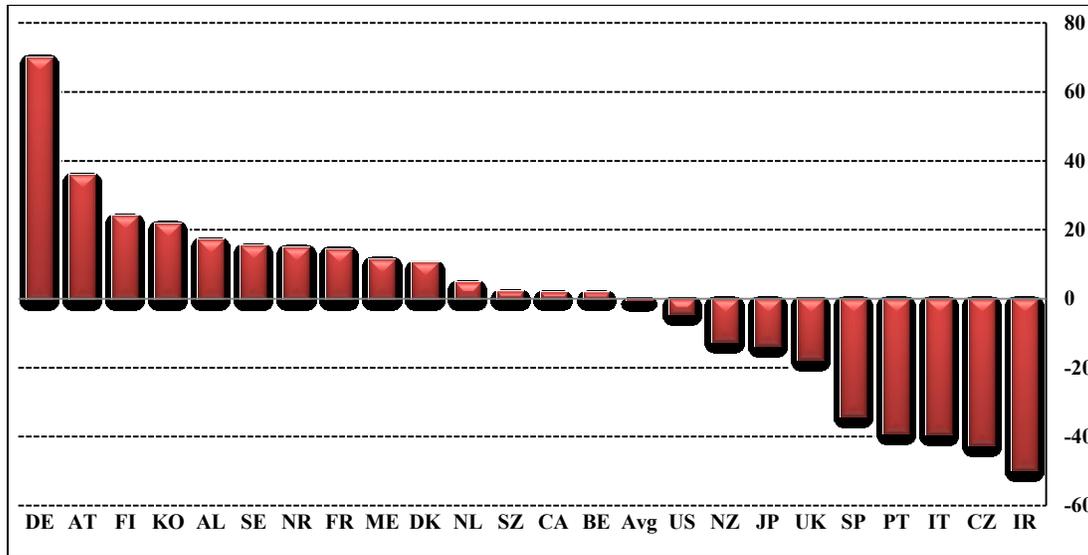


Figure 1: Change in permanent flows between 2007-2011 average and 2012

Source: OECD, International Migration Outlook (2014)

International migration data show that these flows have slightly increased compared to previous years, especially after 2009 when the economic and financial crisis induced a significant reduction in the number of migrants at a global level, yet migration flows are still below the 2007 level of 4.5 million.

In this context, labor mobility in Europe has significant economic consequences, facing at the same time important challenges concerning the main shaping factors and drivers of emigration from a country to another, this being the major objective of our study.

2. Literature review

In the economic literature, international migration flows are mainly addressed in terms of response to different economic incentives, with emphasis, primarily, on the economic determinants of these flows and, secondly, on the non-economic variables such as geographical, cultural and demographic trends modelers of migration between countries. Numerous studies have pointed out that labor migration is the result derived from inequality and/or wage differentials between sending and receiving countries of migrants, gap generated by socio-economic levels (Goss and Lindquist, 1995).

Fundamental analytical framework of migration decision is found in the neoclassical model of Sjaastad (1962) and Harris and Todaro (1969). They consider migration as an investment in human capital and show that migration flows respond largely to wage differentials between countries as well as to regional disparities in socio-economic development. Consequently, income levels, unemployment rates, living standards, public goods and transfers are among the main determinants of international migration. The Roy effect (1951), described by Borjas (1987) suggests that inequality influences the decision to migrate, causing skilled workers to move from high inequality countries of origin to host countries characterized by a lower level of inequality. Migration decision is also affected by risks and costs of moving, which not only include financial items (e.g. transportation costs), but also psychological issues arising from separation from family and friends.

Reference to labor migration, the economic theory shows at least three mechanisms for balancing the regional labor markets, namely (Marston, 1985): (i) the migration response to wage and employment differences between countries, (ii) reaction of regional employment rates to wage levels, and (iii) the response of wages to excessive labor demand and supply. In this sense, migration is often considered as the main mechanism responsive to regional disparities in unemployment, as essential determinant of labor migration. Regarding the role of unemployment in increasing migration propensity, Pissarides and Wadsworth (1989) have pointed out that unemployment generates potential effects on labor mobility on three levels. First, the employment status of a worker influences the mobility - the unemployed workers are more prone to migration than those employed, this was due to lower cost of travel for the unemployed compared with employed workers (mainly from a psychological perspective). Second, regional differences in unemployment encourage mobility, respectively the probability that a given worker to migrate is higher if they live in regions with increased unemployment, compared to that when they live in regions with low unemployment. The unemployment rate may increase propensity towards migration, because the persons employed are at risk of becoming unemployed, and for those without a job the perspectives of re-employment are low. Thus, this effect operates through probability of finding a job (Tervo, 2000, p. 345). Third, the probability of migrating is lower when recording a very high unemployment because jobs have significant value for those who hold, while new jobs are missing. Therefore reducing the likelihood of finding a job or obtaining lower expected earnings in the potential destination countries (regions), individuals face a high uncertainty and low rates of income from migration. Therefore, during periods of economic downturn, migration flows are significantly reduced (Tervo, 2000). High unemployment may induce a low mobility, mainly because migrants that don't have a job depend to a greater degree of local social networks compared to native workers. Under these conditions, migrants depend on internal social transfers to remain engaged in society and to reintegrate into the labor market, these issues representing low incentives for mobility.

The dimension, prevailing characteristics and the way in which international migration contributes to socio-economic development are essential in analyzing and assessing its impact on migrant sending and receiving countries (Stark and Fan, 2011). The distributional migration effects are significant, one of the major repercussions of migration being represented by changes in the size and structure of the labor force for sending and receiving economies (especially concerning skills and competencies of the labor force) (Kahanec and Zimmermann, 2008, p. 2). For the migrant sending country, the emigration of a certain part of its total population generates through remittances a significant change in consumption and investment, as well as the labor market behavior of household members, besides changing the size and structure of the labor force

(educations, skills), with potential positive effects on economic growth and poverty reduction. Stark (2003) highlights positive emigration effects of highly skilled workers, due to additional investment in human capital performed by the remaining workers in the origin country, all these generating a net welfare gain. According to Stark's (2003) arguments, an open economy towards emigration provides more job opportunities to workers, compared to a closed economy. Several authors (Clemens, 2011; de Haas, 2010; Taylor *et al.*, 1996; Davies and Wooton, 1992) pointed out that, overall, emigration has positive effects on non-migrant individuals, generating an increase in overall economic welfare and reducing the income inequalities in migrant sending countries.

The conditions framing that the emigration of highly skilled workers would lead to a reduction, at equilibrium, of the stock of skilled workers for sending countries are not precisely determined by the literature. Mountford (1997) mentioned that when emigration towards countries with higher wages is possible, the expected value of human capital increases for all potential migrants, even if the process involves uncertainty or high costs. Thus, due to the fact that not all of those encouraged to invest in education in order to improve their level of skills will migrate, the existence of this particular option can increase the human capital stock in migrant source countries.

Migration is often associated with brain drain from the origin country when international migrants are selected according to the human capital characteristics, this having similar effects with the loss of capital through emigration, reducing productivity and wages for those remaining in the migrant sending country. Recent studies have showed that, within the perspective of a developing migrant sending country, the high skilled emigration could reduce other workers' productivity, this particular effect diminishing the overall welfare gains registered through emigration (Clemens, 2011, p. 89). The extremely broad economic literature on high skilled labor emigration and its impact on source countries through the brain drain – brain gain process (Bhagwati and Hamada, 1974; Stark, 2003; Schiff, 2005; Docquier *et al.*, 2011) mainly highlight the negative effects of this process. Schiff (2005, p. 4) concludes that the emigration of highly skilled workers has a significant negative impact on the stock of human capital and sending countries' economies, through reducing the level of income and slowing down the economic growth, as well as the attractiveness degree of foreign direct investment. Fan and Yakita (2011) have analyzed the effects induced by an increase in wages for highly skilled workers on the education and emigration decisions adopted individuals in the source economy, respectively on labor market equilibrium. The obtained results point out the fact that a wage increase performed by the host country encourages the emigration of skilled workers in the source economy, having major (negative) implications on economic growth of developing migrant sending economies (brain drain). At the same time Docquier and Rapoport (2011), Beine *et al.* (2011), Docquier *et al.* (2011) highlight important positive effects of high skilled labor emigration, through human capital accumulation and economic growth. Thus, the negative impact of brain drain can be transformed into a positive one, like brain gain through various incentives to invest in education and training.

3. Methodology and data

Labor emigration from Central and Eastern EU Member States towards the South-West Europe was emphasized after the two enlargements (2004 and 2007), free movement of persons, respectively of workers, being one of the four freedoms granted by the European Union through its essential treaties.

In order to identify the determinants and shaping factors (*push factors*) of labor emigration from the New Member States of the European Union within the EU we developed and tested specific models, using panel data during 2000-2014 for a group of seven countries: Poland, Czech Republic, Hungary, Slovak Republic and Lithuania (Members States of the European Union since 2004) and Romania and Bulgaria (from 2007). The main reasons for choosing the seven specific emigration countries from Central and Eastern Europe consist of significant evolutions of the process during the last decade, studies such as the one performed by Brucker *et al.* (2009) pointing out that by the end of 2007, the data on international migration captured from the host countries statistics reveal a stock of 3.8 million emigrants from the New Member States of the European Union that live in EU-15. Thus, our econometric models are based on panel data, which combine cross-sections with time-series, based on a set of specific indicators. The emigration data are taken from the set of indicators developed by Brucker *et al.* (2009), while for the other indicators regarding the economic activity and the labor market we used data series from Eurostat and the World Bank.

The general model is developed as a multiple regression model, respectively a *double-log* regression model. At the same time, we used a *dynamic model* based on time lags of the dependent variable and a *distributed lags model* with lags of explanatory variables, focusing on *random effects* within the panel. We performed a specific set of tests in order to verify the statistical significance of the coefficients and to validate the hypotheses of the model, thus: the hypothesis of no serial correlation of the residuals was performed through the *Wooldridge – Lagrangian Multiplier* test; the homoscedasticity hypothesis was validated through *Breusch-Pagan Lagrangian Multiplier* test for random effects models; the assumption of no multicollinearity was tested with the help of the explanatory variables *correlation matrix* and by performing the auxiliary regressions, while the validation of individual and jointly influence of exogenous variables on the dependent variable was accomplished through *Wald, Fisher* and *t-statistic* tests. The model and associated data were processed with the Stata 12 econometric package, using panel data for the seven emigration countries during 2000-2014.

In processing the models we used the logarithm of the dependent variable specific to the emigration process. Independent variables used are grouped according to the conceptual and operational model, as follows:

- (i) specific macroeconomic indicators (economic growth, macroeconomic stability): GDP per capita (U.S. \$), inflation: inflation measured by the GDP deflator (annual% change).
- (ii) indicators of education - educational level: persons with upper secondary or tertiary education as a share of total population / labor force, the ratio of female to male enrollment in tertiary education, the tertiary education enrollment rate.
- (iii) demographic indicators (social, health, quality of life): population density, life expectancy at birth, infant mortality rate.
- (iv) labor market indicators: unemployment rate - total, primary, secondary and tertiary.
- (v) indicators on wages (earnings / revenues): monthly minimum wage, wage inequality (Gini Coefficient).

These variables capture the specific elements of economic activity, employment and education levels of the population, with demographic issues. Databases used to collect time series variables associated with each of the countries in the panel are World Bank Database, Eurostat Statistics

Database, International Labor Organization, UNECE (United Nations Economic Commission for Europe) Division Statistical Database, UNU WIDER World Income Inequality Database (United Nations University, World Institute for Development Economics Research).

Testing the variables was conducted before using them in the models developed, in particular to ensure the accuracy of models, requiring only the use of time-varying characteristics of each unit in the panel, respectively the random effects (RE) models. Emphasis was placed on the analysis of standard deviation within panel units, mainly because the coefficients of variables with low standard deviation may not be properly estimated by the OLS method.

4. Results and discussions

The multiple regression models developed in order to analyze the shaping factors of the emigration process from migrant sending countries comprised in the panel was processed and analyzed from different perspectives, using different combinations of explanatory variables and follow the research of Son and Noja (2012).

The first model estimates that a 1% increase in the unemployment rate reduces by 0.565% the stock of emigrants, this being associated with a deepening trend in the labor market pressures. However, the results support the hypothesis that job loss involves loss of associated income and implicitly, reducing the capacity and financial resources necessary for traveling and settling in another country through emigration. Still, especially for people with low incomes, increase in the monthly minimum wage can provide resources to this process and, therefore, increasing the stock of emigrants (with about 2.061%).

Table 1: Shaping factors of labor emigration in Central and Eastern Europe – detailed results of double-log regression models, random effects (RE), GLS method (dependent variable: log stock of emigrants)

	<i>Model 1</i>			<i>Model 2</i>			<i>Model 3</i>		
	<i>b/se</i>	<i>p</i>	<i>t</i>	<i>b/se</i>	<i>p</i>	<i>t</i>	<i>b/se</i>	<i>p</i>	<i>t</i>
Log Inflation Rate	0.171* (0.07)	0.011	2.531	0.091 (0.08)	0.261	1.123	0.151* (0.07)	0.025	2.244
Log Unemployment Rate	-0.565*** (0.15)	0.000	-3.882	-0.439* (0.18)	0.013	-2.487	-0.492*** (0.14)	0.000	-3.492
Log GDP per capita	-0.446 (0.26)	0.092	-1.687	0.844*** (0.18)	0.000	4.663			
Log Population Density	0.749* (0.36)	0.040	2.056	1.834*** (0.39)	0.000	4.755	1.042** (0.32)	0.001	3.205
Log Life Expectancy	29.386*** (5.94)	0.000	4.950	14.774* (6.62)	0.026	2.231	24.865*** (5.37)	0.000	4.629
Log Mortality Rate	2.768*** (0.32)	0.000	8.650	1.575*** (0.30)	0.000	5.184	2.594*** (0.31)	0.000	8.445
Log Gini Inequality	0.166*** (0.02)	0.000	9.126	0.219*** (0.02)	0.000	11.330	0.180*** (0.02)	0.000	11.038
Log Minimum Wage	2.061*** (0.35)	0.000	5.878				1.570*** (0.20)	0.000	7.921
Constant	- 133.772*** (24.09)	0.000	-5.554	-76.371*** (27.04)	0.005	-2.824	-117.391*** (22.35)	0.000	-5.253
R-squared		0.9896			0.9549			0.9832	
Wald		416.740			253.380			402.620	
N observations		74.000			74.000			74.000	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: standard errors are presented in brackets; models are estimated with random effects for each country and include time dummy variables

Source: own process of panel data with Stata 12 econometric package

In this perspective, due to the relatively small level of the GDP per capita, its increase would lead to higher emigration stocks (model 2, by 0.844%). Therefore, the salary can be more decisive in the emigration decision. The functional perspective on international labor migration focuses on microeconomic processes, especially on the decisional behavior of individuals, which, in their desire to improve the living standard, react to perceived and real inequalities in the distribution of economic opportunities by emigration to a different country.

The migration process, permanent or temporary, on a long-term, under the econometric modeling aspect requires the use of *dynamic models* or *distributive lags models*. As such, the dynamic analysis of migration determinants allows the study of the changing socio-economic process without diminishing the importance of social and economic factors influence the stock of emigrants at a time.

Dynamic models developed are analyzed in terms of random effects, the results showing the dynamics of the migration process and the importance of migrant networks in modeling (in the increasing way) these flows, given that migrants tend to reduce or eliminate some of the risks and barriers specific to this process (linguistic, administrative) in networks developed at destination. In the models, in addition to the endogenous variable lag, we used as explanatory variables also indicators of economic activity, demographic and labor market, aiming to capture in a more comprehensive manner modelers factors of migration process. Robustness and accuracy of the five models estimated parameters is achieved by the use of logarithms process for both the endogenous variable and for the explanatory one - the final form is the double-logarithmic specific dynamic models. Table 2 reports the results of *dynamic models* processed based on emigrant stock as dependent variable and its second order lag as the main explanatory variable, using the estimator GLS (Generalised Least Squares) specific to random effects models.

Table 2: Detailed results of double-log dynamic models, random effects (RE), GLS method (dependent variable: log stock of emigrants)

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
	<i>b/se</i>	<i>b/se</i>	<i>b/se</i>	<i>b/se</i>	<i>b/se</i>
Two Lags Log Emigrants	0.889*** (0.05)	1.008*** (0.03)	0.951*** (0.03)	0.918*** (0.07)	0.948*** (0.04)
Log Inflation Rate	0.025 (0.02)	0.021 (0.03)			
Log Unemployment Rate	-0.224** (0.07)	-0.037 (0.07)	-0.207*** (0.06)		
Log GDP per capita	0.009 (0.12)	0.079 (0.12)		-0.045 (0.06)	
Log Population Density	0.671*** (0.15)		0.562*** (0.13)		
Log Life Expectancy	0.526 (3.02)				
Log Mortality Rate	0.391* (0.20)				
Log Gini Inequality	0.596* (0.30)	-0.058 (0.30)	0.288 (0.27)		
Log Education	2.788*** (0.64)	1.406* (0.62)	2.096*** (0.51)		
Log Tertiary educ ratio	1.255*** (0.31)	0.427 (0.25)	1.264*** (0.30)		
Log Minimum Wage	-0.439* (0.21)	-0.434** (0.14)	-0.660*** (0.12)		-0.142* (0.07)
Constant	-22.079 (13.30)	-6.194* (2.43)	- 14.061*** (2.91)	1.696*** (0.49)	1.650*** (0.40)
R-squared	0.987	0.980	0.984	0.973	0.976
N observations	61.000	61.000	63.000	63.000	63.000

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: standard errors are presented in brackets; models are estimated with random effects for each country and include time dummy variables

Source: own process of panel data with Stata 12 econometric package

From the results of processing models based on random effects we notice that their dynamics become more pronounced as the gap in time increases for the endogenous variable, while having them a major importance. The lag variable coefficients (Y_{t-2}) have values very close to 1 and are highly statistically significant at the level of 0.1%. The models are meeting the stability requirement, although for Model 2, the data series for dependent variable tend to superior dynamics, with the estimated coefficient, for the variable with 2 time lags is not falling into the interval $[0, 1]$, but the difference is minor. Also, specify the model in terms of explanatory variables used is correct, the change in the stock of emigrants is explained in a proportion of about 98% by the variation of considered exogenous variables.

Unlike previous models, this second set of models processes two time lags of the endogenous variable, increasing the confidence level of other explanatory variables, most of which are statistically significant at the level of 0.1%. Thus, the coefficients estimated with random effects validate the results obtained in previous models of multiple regression, unemployment, education levels, wages and demographic indicators having a significant influence on the emigration process. Employment loss and the loss of associated income induce the decrease of emigrants, mainly due to the lack of financial capacity for moving and settling into another country. The slight increases in the monthly minimum wage induces also the reduction of emigration - with a very low level in the countries of origin of the panel, compared to other EU countries. Improving education in the country of origin, or increase the number of people with tertiary education, especially for women, has a major impact on shaping migrant flows. High unemployment levels are mainly registered among persons with primary and secondary education, thus an improvement in the educational level of the labor force and its harmonization between men and women leads to increased employment opportunities and higher wages, being able to reduce the stock of emigrants for the considered panel countries. The positive selection of migrants at destination according to their educational level is emphasized in previous models. Thus, an increase of 1% in the number of people with secondary or tertiary education induces increased to 2.788% of the stock of migrants in the countries of origin of the panel. The improved by 1% ratio of men and women in employment in tertiary education induced the increased migration by 1.255%. Meanwhile, demographic indicators influence the stock of immigrants, who are in turn shaped by international migration terms (an increase of 1% of the population density determines the stock of emigrants increased by about 0.671%).

Table 3: Detailed results of double-log distributed lags models, random effects (RE), GLS method (dependent variable: log stock of emigrants)

	Model 1			Model 2			Model 3		
	b/se	p	t	b/se	p	t	b/se	p	t
Lag Log Inflation	0.181*** (0.05)	0.001	3.357	0.129* (0.06)	0.032	2.140	0.212*** (0.05)	0.000	4.178
Lag Log GDP per capita	-0.399 (0.23)	0.081	-1.743	-0.375 (0.41)	0.360	-0.915	-0.676** (0.23)	0.003	-2.933
Lag Log Minimum Wage							1.641*** (0.32)	0.000	-5.205
Log Unemployment Rate	-0.713*** (0.15)	0.000	-4.914	- (0.16)	0.000	-4.742	-0.879*** (0.13)	0.000	-6.531
Log Population Density	0.840* (0.38)	0.025	2.239	0.984* (0.41)	0.016	2.414	0.908** (0.32)	0.000	2.866
Log Life Expectancy	37.319*** (5.54)	0.000	6.736	38.291*** (5.71)	0.000	6.702	36.965*** (5.00)	0.004	7.395
Log Mortality Rate	2.647*** (0.32)	0.000	8.193	2.703*** (0.31)	0.000	8.820	2.927*** (0.31)	0.000	9.393
Log Inequality	4.659*** (0.48)	0.000	9.786	4.667*** (0.46)	0.000	10.137	4.373*** (0.45)	0.000	9.688
Log Education	0.479 (1.36)	0.725	0.352	1.093 (1.34)	0.413	0.819	1.990 (1.29)	0.000	1.539
Log Tertiary educ ratio	2.627*** (0.66)	0.000	4.002	2.728*** (0.63)	0.000	4.356	2.588*** (0.59)	0.124	4.368
Log Minimum Wage	1.438*** (0.37)	0.000	3.923	1.519*** (0.37)	0.000	4.097			
Log Inflation Rate				0.122* (0.06)	0.034	2.114			
Log GDP per capita				-0.164 (0.44)	0.707	-0.376			
Constant	- 190.711*** (23.13)	0.000	-8.246	-198.024*** (23.58)	0.000	-8.399	-193.524*** (21.27)	0.000	-9.098
R-squared		0.9853			0.9549			0.9832	
Wald		640.610			253.380			402.620	
N observations		67.000			74.000			74.000	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: standard errors are presented in brackets; models are estimated with random effects for each country and include time dummy variables

Source: own process of panel data with Stata 12 econometric package

Identifying, analyzing and modeling the determinants of labor migration is a complex process that takes into account both current influence and the impact of previous values generated by the key determinants of emigration. In this regard, in order to complete the analysis undertaken, we developed a set of models based on *distributed lags* of the explanatory variables (estimation results are comprised by Table 3).

Considering inflation in the cost of migration, we could observe that an increase in its rate induces an increase in the cost of migration for the next period, within the general increase in prices. At the same time, the increasing GDP per capita affects emigration not only in the current

period, but also in the immediate aftermath and the current growth in wages improves the financial capacity to migrate to another country in the next period. Therefore, in the three models developed we used the first order lag of inflation, GDP per capita and monthly minimum salary.

The importance of the three double-log distributed lags models with exogenous variables is reflected by the high level of statistical significance of the estimated coefficients with random effects. According to the RE models results, most of the estimated coefficients by the method of least squares (GLS) are statistically significant at the level of 0.1%. These models are correctly specified, the issues highlighted by validating specific assumptions (absence of multicollinearity and no serial correlation / first order autocorrelation) and the high value of the coefficient of determination, about 98% of the variation in the stock of migrants can be explained by the variation of exogenous variables considered and, implicitly, their lags.

Our results support the hypothesis that losing a job implies the loss of associated income and reduces the capacity and financial resources necessary for traveling and settling into another country through emigration. At the same time, the unemployed face a higher uncertainty with respect to their re-employment perspectives, being more dependent on internal social security systems. Still, especially for employed people with low incomes, an increase in the monthly minimum wage can provide resources for this process and, therefore, increase the stock of immigrants. In this perspective, due to the relatively low level of GDP per capita for the seven considered countries, its increase could lead to higher emigration stocks. Therefore, salaries and wages are a decisive factor in the emigration decision.

5. Concluding remarks

Our econometric modeling perspective uses dynamic and distributive lags models for the analysis of the migration process. The results obtained after processing these models both in terms of random and fixed effects highlight the importance of migrant networks in shaping these flows, given that migrants tend to reduce or eliminate some of the risks and barriers associated with this process (linguistic, administrative) in networks developed at destination. Thus, the estimated coefficients reveal that *unemployment, education levels, wages and demographic indicators* have a significant influence on the emigration process. Losing a job and the associated income induces the decrease of emigrants stock, mainly due to a lack of financial capacity for moving and settling into another country. The slight increases in the monthly minimum wage induces also the reduction of emigration - with a very low level in the countries of origin of the panel, compared to other EU countries. Improving education in the country of origin, or increase the number of people with tertiary education, especially for women, has a major impact on shaping migrant flows. High unemployment levels are mainly registered among persons with primary and secondary education, thus an improvement in the educational level of the labor force and its harmonization between men and women leads to increased employment opportunities and higher wages, being able to reduce the stock of emigrants for the considered panel countries. The positive selection of migrants at destination according to their educational level is also emphasized by the results.

By analyzing the results we could observe that in the case of the sending countries considered within the panel we find several foundations of the *neoclassical perspective on international migration*. This theory analyses wage differentials and employment conditions between countries, as well as the costs associated with international labor migration, by approaching migration within the perspective of an individual income maximizing decision. Thus, migrants

are searching for a country that will maximize their welfare (Borjas, 1989), but this searching process is limited by the financial resources of individuals and by the immigration and emigration policies and regulations defined by host and origin countries. At the same time, the neoclassical approach of international migration highlights the fact that sending and destination countries have a major impact on the number of immigrants, as well as on the structure of associated flows, through specific policies and various changes in the economic activity.

The results reveal that income, wage differentials, working conditions and the real or perceived inequalities represent the main determinants of labor emigration for the considered panel countries, the emigration flows being largely shaped compared to associated costs. Nevertheless, losing the job and assimilated wage, reflected by an increase in the unemployment rate, a generalized increase in prices, reflected by an increase in the inflation rate, as well as the deterioration of the gender pay gap, living conditions and population health, implies the reduction of migrant's capacity to move and live in another country, thus significantly reducing emigration flows from the sending countries analyzed within the panel towards the main destination countries in the European Union. At the same time, the results highlight the main aspects of the *macroeconomic neoclassical theory*, pointing out that labor markets represent the most important mechanism through which international labor flows are induced. Also, the selection process described by Borjas (1989) is revealed by the results obtained after we introduced a new variable within the model represented by the upper-secondary or tertiary educational level of migrants. The results show that there is a positive selection of migrants, respectively an increase in highly skilled emigration flows, along with a significant reduction of this type of flows as the level of education increases for the entire population of sending countries. This is mainly due to an improvement in employment opportunities within these sending countries by taking into account the fact that the unemployment rate is extremely high for the population with primary and lower-secondary education.

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