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## DETERMINANTS OF INTERNATIONAL MIGRATION FOR GROWTH FROM EUROPE 2020 PERSPECTIVE

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### Abstract

Migration has been studied intensively from the perspective of the types of factors that trigger people to emigrate or to return to their countries. Taking into account the most popular migration theories, various determinants that influence people to migrate are analysed, using panel data regression model for 24 EU countries, for a 5-year time span, from 2008 to 2012. The analysis is conducted in the context of the Europe 2020 strategy. The results show significant influences on migration from risks of exclusion, whether social or economic, with young people not in education, employment or training and people at risk of poverty or social exclusion tending to migrate. These findings confirm the neo-classical theory of migration of low skilled workers.

**Keywords:** Migration, growth, NEET, Panel Data, Pooled Regression

**JEL Classification:** C23, F22, O15

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### Introduction

Migration has been studied intensively from the perspective of the types of factors that trigger people to emigrate or to return to their countries. It is obvious that literature regarding migration domain is generous, with different theories that explain the migration determinants, using different approaches to various issues regarding migration. The most acknowledged theories refers to: the neoclassical theories of migration that emphasizes the role of this process on labour market based on the economical determinants (Lewis, 1954) (Todaro, 1976) and the new economics of labour migration (NELM) developed during the 80s shows that the income maximization is influenced also by the skills of the migrants and that „older workers are less mobile than young workers” (Stark & Bloom, 1985). Other theories that explain migration and its determinants by introducing the idea of status and prestige that is offered through the experience of migration, and is also encouraged by the country’s legislation, related to the emigrant’s social network or cultural factors (Piore, 1979).

Thus, classical factors of international migration are related to economic and social determinants. Belot & Ederveen (2011) used the OECD data based on Continuous Reporting System on Migration (SOPEMI) for a data panel of 22 OECD countries from 1990 to 2003. Their study focused on six categories of variables referring to population size of the country, cultural aspects, and migration policies, demographic and economic issues. The results showed that the cultural barriers play an important role in the determinants of migrations, since for the culturally distinct countries the migration flows remain low. Also, for the EU-15 countries the culture is not as important, only religion and language distance remain significant, but they confirmed the neoclassical theory of international migration regarding the benefits-cost, as unemployment had a negative significant effect on emigration (Belot & Ederveen, 2011).

Another trigger for people to emigrate is the low income obtained in their origin country, so most individuals will choose countries that offer a sizeable amount of money to satisfy their need. A wide range of aspects that motivate people to emigrate can be mentioned, most of which are related to the basic needs, never the less the aspect of prestige cannot be excluded (Goschin & Roman, 2012).

The work-related migrants usually do not have a high social status in the host country, as they may have entered the respective country illegally or with a temporary work contract. Consequently, they usually have lower working conditions than the nationals of the host countries even though they may have better skills that facilitate the employment in their home countries. The work-related migrants are generally employed in sectors such as construction, hotels or restaurants, health care and usually their workplace does not require a high level of education (I.L.O., 2010).

An analysis conducted on a large number of developing countries for a time span of 28 years, from 1975 until 2002, showed that remittances function as substitute for financial limitations; moreover, the allocation of capital is improved by remittances, which thus promote economic growth in case the financial needs of the population are not fulfilled by the financial sector (Ruiz-Arranz & Giuliano (2005).

By applying panel data regression for 14 OCDE countries in the period 1980-1995, based on data from various sources (Global Development Network Growth Database from World Bank with regard to data on macroeconomic variables and International Migration Statistics for immigration data), Mayda (2009) revealed that international migration has positive correlation with per worker GDP levels for the origin countries. The results of the same study showed that immigrants become an important source of revenue growth, since any person who migrate into a country contribute to the growth of GDP.

Over the nexus between migration and development of a country it has been shown that there is a strong correlation regarding all 28 European Countries.

Migration also includes the acquisition of education, mainly because this service is the most accessed by migrants. In UK besides health and housing services, most of the debates regarding migration have been focused on education (Rolfe et. al., 2013). Actually mobility of students goes together with migration and it is most likely that the young and skilled persons would choose the permanent migration (Roman & Suciu, 2007).

Studying the impact on migration intentions of inequality and education in EU10 after the enlargement, Zimmermann & Zaiceva (2008) found that education level of the migrant can influence the decision of migrate. The analysis employed a Logit model and showed that the higher the education, the higher the probability to emigrate. They put the result in the context of self-selection, as for the persons with higher skills have a reduced cost of

migration compared with low-skilled migrants. Moreover, when comparing with the post-enlargement countries EU 15, they observed that the probability to emigrate maintains as the years of schooling increases (Zimmermann & Zaiceva, 2008). In 2013 UK has registered nearly one in two migrants that have attained tertiary education (Rienzo, 2014). Son (et. al., 2012) showed that the stock of emigrant stock increase by 1% if the education level is upper secondary or tertiary, and that unemployment reduces the stock of emigrants, and if the wages increase, then the emigrants stock increases as well. They included unemployment rate, wages and population density in addition to education, to observe whether educational background have any implication in emigration process, in order to analyse the determinants of labour emigration for the New Member States added to EU-15. (Son&Noja, 2012).

Regarding the education level of the European migrants in EU the higher level of education attainment correspond with the population flows within EU, as higher level an education can bring also a high level of income, so people the more educated they are, the more likely they are to migrate. Migrants from France, the Netherlands, and Hungary have higher educational levels compared to South East European countries. Romania differentiates from the countries from former USSR and South East Europe with high educated emigrants in the destination countries (Hagen-Zanker & Himmestine, 2012). Also the study pointed out that education is very important in terms of migration influencing the skills of migrants, which are important because these skills will determine the future of economic growth.

More recently, some studies showed that a factor that level of social protection expenditures of a country can influence migration. One may consider that the generosity of social policies of a country acts as a emigration magnet for some categories of people to emigrate. Nevertheless, social expenditures in European Union countries do not play the role of insurance against poverty, as an increase in social insurance determine a decrease of emigration (Hagen-Zanker & Himmestine, 2012) (Prada & Roman, 2014).

From the perspective of sending countries migration is consequence of a wide range of reasons including economical such as unemployment, negative perception of the economic growth or poverty (Frédéric, 2013).

Based on the presented literature, the focus of the analysis is on the identification of variables that influence migration from the perspective of social and economic factors, according to the most popular migration theories. Moreover, the analysis is placed in the context of Europe 2020 strategy, which aims towards achieving smart, sustainable and inclusive economy, taking into account the social and economic dimensions. Of great interest was considered to analyse the influence of the variable regarding young people not involved in any form of education, neither working (NEET), which has been developed in recent years in Europe.

### **Data and method**

Given that migration has been placed significantly both under the social and economic perspectives, a series of variables which influence people to migrate were included in the analysis, as highlighted in above-mentioned migration theories, while also taking into account the policy framework set for the current analysis, that of the Europe 2020 strategy, with its headline indicators for smart and inclusive growth used to monitor the above-mentioned strategy. Thus, the analysis includes the variables presented in table 1, with crude net migration as the dependent variable of the panel data regression model.

**Table no. 1: Description of variables taken into account in analysis, from Eurostat database**

Variable	Abbreviation	Short description
<b>Crude migration net</b>	Mig_rate	Net migration expressed per 1000 inhabitants. Net migration is calculated as the difference between immigrants and emigrants. Emigrants are the persons who leave their native country with the intention to settle in other country. Immigrants represent the persons that are settled in a country to which they are not native.
<b>NEET (not in employment, education or training)</b>	NEET	Percentage of people aged 18-35 not employed, nor involved in any form of education or training
<b>Wages</b>	Wage	"the total remuneration, in cash or in kind, payable to all persons counted on the payroll (including homeworkers), in return for work done during the accounting period" (Eurostat definition); it includes wages and salaries, it does not include social contributions.
<b>Social Contributions</b>	Soc_contrib	Employers' social contributions and other labour costs paid by employer
<b>Gross Domestic Product (GDP) per inhabitant</b>	GDP/C	GDP per inhabitant computed as Euro per inhabitant
<b>Gross domestic expenditure on research and development</b>	R&D_exp	Percentage of GDP represented by research and development expenditure
<b>Tertiary education 30-34 years</b>	Tert_edu	Percentage of people from age group 30-34 with finalized tertiary studies – ISCED levels 5 and higher
<b>Employment rate</b>	Emp_rate	Percentage of employed people from age group 20-64 out of the total population aged 20 to 64
<b>People at risk of poverty or social exclusion</b>	Pov_risk	Percentage of population at risk of poverty or social exclusion of total population

Since migration may represent both opportunity and challenge, the analysis includes variables that may be viewed as measures for opportunities or for challenges. In terms of smart growth, from the perspective of opportunities, variables regarding employment (employment rate), GDP per inhabitant, as this is a robust indicator of economic development of a country, as well as research and development are taken into account. Education is approached both as opportunity, taking into account tertiary education attainment, and as challenge, taking into account not the Europe 2020 headline indicator for early leavers, but the variable related to young people neither in education, employment and training. This recently developed indicator has been considered quite important in

recent studies developed for defining European policy approaches (Eurofound, 2012), which argue that this indicator is a "measure of disengagement from the labour market and perhaps from society in general". While NEET refers to youth, as there is no commonly agreed definition in terms of lower and upper age limit, the focus here is on the age group up to 35 years, as this is the upper age limit mentioned by the Council of Europe. In terms of inclusive growth, variables related to social aspects such as wages, social contributions and people at risk of poverty or social exclusion were included.

Given the availability and reliability of data that are of interest for the current research, the analysis is conducted on 24 European Union countries: Austria, Cyprus Czech Republic, Denmark, Estonia, Finland, France, Germany (until 1990 former territory of the FRG), Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom. The time frame selected for analysis includes 5-year time span, from 2008 until 2012. The source of data for the indicators taken into account is from Eurostat database.

The analysis was conducted using fixed effects regression model for panel data. The regression model is different in the case of panel data than in the case of OLS regression because panel data regression model provides information of both dimensions: over time and over individual cases, which in this case are countries.

The general model of panel data can be described as:

$$y_{it} = \alpha_i + \sum_{k=1}^K x_{ikt} \cdot \beta_{ikt} + e_{it} \quad (1)$$

Where:  $i = 1, \dots, N$ , with  $N$  being the number of cross-sectional dimension (or individuals);  
 $t = 1, \dots, T$ , with  $T$  being the number of time dimension (or period).

The fixed effects model, also known as the within estimator, has the assumption that the error term is correlated with the constant or individual specific term  $\alpha$ , because the model can exclude or omit the time-invariant variables (as gender, religion etc.) from the model (Greene, 2002). The model employed in the analysis is the fixed effects model for panel data set due to fact that this analysis does not include time invariant variables. Also, the effects of these variables are included by the within estimator in case of fixed effects estimation model (Greene, 2002).

### Results and discussions

Migration was studied by using various analyses, which include also panel data regression models, most of them highlighting the macroeconomic determinants and push or pull factors of migration.

Using Stata 12.0, the crude rate migration was modelled as a function of NEET 18 – 35 years, wages, social contributions as percent of GDP, the logarithm of Gross Domestic Product per inhabitant, employment rate, tertiary education for age group 30-34 years, research and development expenditure as percent of GDP and risk of poverty or social exclusion among people of 15 – 64 years, in order to analyse the influences between these variables.

**Table no. 2: Correlation coefficients**

	Mig_rate	NEET	Soc_contribution	wage	GDP/C	Emp_rate	Tert_edu	R&D_exp	Pov_risk
Mig_rate	1	-0.51	0.07	0.07	0.10	0.29	0.20	0.14	-0.57
NEET	-0.51	1	-0.04	-0.09	-0.10	-0.79	-0.37	-0.55	0.66
Soc_contribution	0.07	-0.04	1	0.70	0.68	0.099	-0.05	0.001	-0.04
Wage	0.07	-0.09	0.70	1	0.95	0.14	-0.079	-0.02	-0.03
GDP/C	0.10	-0.10	0.68	0.95	1	0.16	-0.08	-0.01	-0.07
Emp_rate	0.29	-0.79	0.099	0.14	0.16	1	0.39	0.65	-0.60
Tert_edu	0.20	-0.37	-0.05	-0.079	-0.08	0.399	1	0.32	-0.24
R&D_exp	0.14	-0.55	0.001	-0.02	-0.01	0.65	0.32	1	-0.54
Pov_risk	-0.57	0.66	-0.04	-0.03	-0.07	-0.60	-0.24	-0.54	1

After modelling the data, the results of the panel data regression model were analysed. Given that the regression model for panel data implies the use of the same method as in the case of simple linear regression, when validating the hypotheses of OLS method, the coefficients of the fixed effects regression model were estimated, as shown in the Table 2.

**Table no. 3: Results of panel regression**

Dependent variable <i>Crude rate migration</i>		
	Fixed effects	p-value
NEET 18 – 35 years	-1.70509***	0.000
D1. Social contributions	2.308756	0.602
D1. Wages	-1.41151	0.505
D1. GDP per capita	17.43189*	0.065
Employment rate	-0.27876*	0.091
Tertiary education 30-34 years	0.043793	0.475
Research and development	-7.78336***	0.000
Risk of poverty 15 – 64 years	-0.35867***	0.005
Intercept	61.81052***	0.000
R within	0.7273	
R between	0.0321	
R overall	0.4536	
F test	21.34 ***	0.000
Rho	0.56934053	
Observations	96	

Note: (\*\*\*) are significant at 1%, (\*\*) are significant at 5%, (\*) are significant at 10%

The results of the regression model for panel data are significant at 1% level of confidence. Also, R is estimated for three levels of variation: overall variation (which shows the variation over both dimensions); between variation (which shows the variation over individuals); within variation (which shows the variation over time). One may observe that R overall is 0.45 which shows that there are many other factors that influence the emigrants number.

The first differential was introduced for social contribution expenditures, wages and GDP because after applying the Wooldrige test of serial correlation (Drukker, 2003), the result indicate that is the alternative hypothesis of the existence of serial correlation is admitted

( $F=15,251$  with  $p\text{-value} = 0.007$ ). The results show that the crude rate migration is not influenced by the first difference of social contributions and wages, but there is a positive influence of GDP per capita over crude rate migration. This can be explained by the lagged effects of the economic growth that are felt by the population. Gross Domestic Product, as an indicator of economic development, it has a directly proportional influence on emigrants.

The results of the fixed effects model with regard to the influence of GDP on migration are in line with the findings of Belot and Ederveen (2011), who argue that in case the country has a high economic development, people prefer to remain in their countries rather than emigrate, moreover, the respective country attracts immigrants.

People in poverty or with risk of social exclusion tend to migrate in more developed countries in hope of gaining better income and for personal achievement (Goschin & Roman, 2012). Crude rate migration is indirectly proportional for the variables NEET 18-35 years and employment rate.

When establishing indicators and initiating an analysis of migration and research and development from the point of view of factors influencing them, the research and development are considered expenditure, instead of investments. In the medium and long run, research and development become investments that produce long-term benefits in terms of population migration based on the level of qualification in relation to supply and demand on the labour market. As labour market requirements are highly influenced by the learning outcomes that were acquired through the skills/qualification, these expenditures in research and development become investments that lead to the formation of assets.

The model confirms the neoclassical theory regarding migration. It should also be noted that the model can be improved by adding other variables that explain more the variation of migration rates and a larger time span.

### **Conclusions**

Taking into account the most popular migration theories and in the framework of the Europe 2020 strategy, various determinants that influence people to migrate were analysed. The results from the panel data regression model show that migration is influenced more by risks of exclusion, whether social or economic. Thus, young people not in education, employment or training and people at risk of poverty or social exclusion tend to migrate, these findings confirm the neo-classical theory of migration of low skilled workers.

Moreover, Gross Domestic Product, as an indicator of economic development, has an indirectly proportional influence on emigrants. This can be explained by the fact that if the country has a high economic development, people would rather remain in their countries than emigrate.

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