FACTORS OF EMIGRATION: ANALYSIS OF COUNTRIES FROM THE EUROPEAN UNION

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Abstract: The past decade was a period that was characterized by massive migration flows in European Union countries, a situation like none other before. Different migration flows contributed to inflow of working force from conflict areas of the Middle East, countries from the Western Balkans, and also migration within the European Union. While immigration is dominant, emigration also has large impact in the migration flow in the EU. The purpose of this paper is to determine the main factors that contribute to emigration in the 28 EU countries. The panel regression model with random effects is used where seven factors were examined in order to determine their influence on the emigration. Macroeconomic determinants include GDP per capita and unemployment rate, demographic factors include total population, young male population and young female population and other factors include level of corruption and enrollment in tertiary education. Analysis includes 28 EU countries, while the analyzed period is 1999-2017 (19 periods), and the total number is 560 observations. The results confirm that emigration is driven by unemployment rate, total population, young male and young female population. When the unemployment rate increases, the emigration also increases, which is logical. If the national labor market cannot provide vacancies for the increasing supply of work force, the next option would be emigration in another country due to eligible working positions. Population, as demographic factor, also influences emigration. The bigger the population, the larger emigration is expected. Also, young female and male population have statistically significant effect on the emigration, yet the direction of the relationship is different. Increase in young male population can contribute to increase in emigration. On the other side, increase in young female population reduces the number of emigrants. From the results it would seem that demographic factors dominate over macroeconomic and other factors. Policy makers in the countries with accentuated emigration component should be concerned that young male population is leaving, and this labor force is or soon will become deficitary. Also, unemployment is another issue that should be addressed. National governments should create policies that contribute to increased economic growth that produces vacancies. Otherwise, the high unemployment rate would soon drain the country out of its working source. Other factors such as level of corruption, GDP per capita and enrollment in tertiary education seem not to have statistically significant impact on emigration in the countries of the European Union.

Keywords: Emigration, panel regression model, European Union, unemployment

1. INTRODUCTION

Migration has always been part of human civilization. From political, economic, to personal reasons, humans tend to leave the home country in search for a better life. And today, more than ever, migration movements have intensify so nations are constantly changing regarding their population size and structure. These processes are especially prominent in the EU countries.

Figure 1. Number of emigrants in the EU countries (2013-2017)
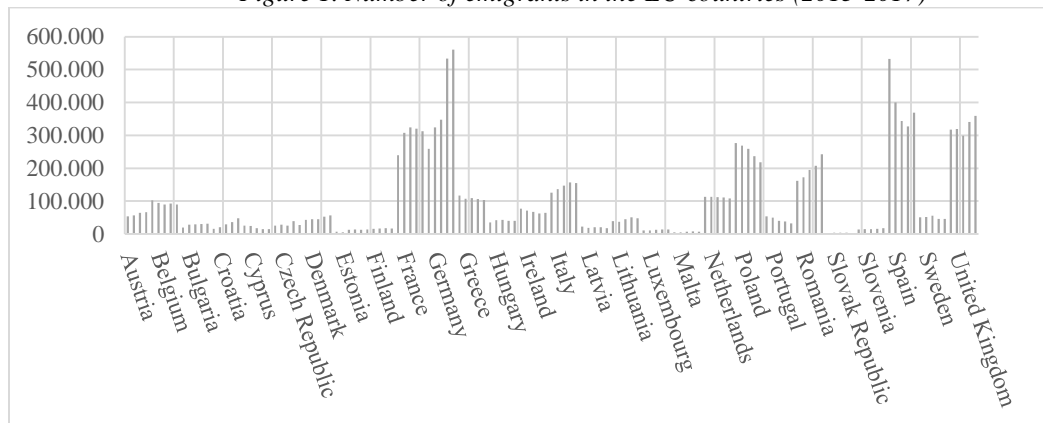
Figure 1 represents the 28 EU countries and their number of emigrants in the past five years. The emigration component is present in every country with different intensity. Countries like Germany, France, Spain and United Kingdom have very high number of emigrants (from 300.000 to more than 500.000 emigrants per year). Poland, Romania, Italy, Greece and Netherlands also have significant number of emigrants, nearly 100.000 emigrants on annual base. Remaining countries have lower number of emigrants, less than 100.000 emigrants per year. Emigration is important because it changes one country's population in its size and structure. Emigration also changes the natality and mortality (Risteski and Trpkova-Nestorovska, 2014). If the lost population is not substituted with immigration or increased birth rate, the consequences from reduced population due to emigration are vast and have impact on the economy, society and further development,

Traditionally, main reasons for emigration were primarily economic, when people left their country in search for financial stability and improved standard of living. Today, economic determinants still have significant effect on emigration, and yet other factors like corruption, political instability and cultural determinants contribute to the intensive processes of emigration. Figure 2 represents the data for emigration and GPD per capita for 2017 for 28 countries from the EU. Most of the countries with high emigration rate come from countries with lower GDP per capita. Cyprus, Lithuania and Malta have the highest emigration rate, but also other countries with lower emigration rate such as Romania, Croatia, Estonia, Greece, Latvia, Slovenia and Spain. It is interesting to mention that Luxembourg has the highest emigration rate and highest GDP per capita from all of the countries included in this group. The position of the countries in this chart can be explained if another dimension is taken into account – time. The presented data are only for 2017, while the emigration process lasts for decades before, so the momentary position may defer from the previous dynamics of the series.

Figure 2. Emigration and GDP per capita in 2017
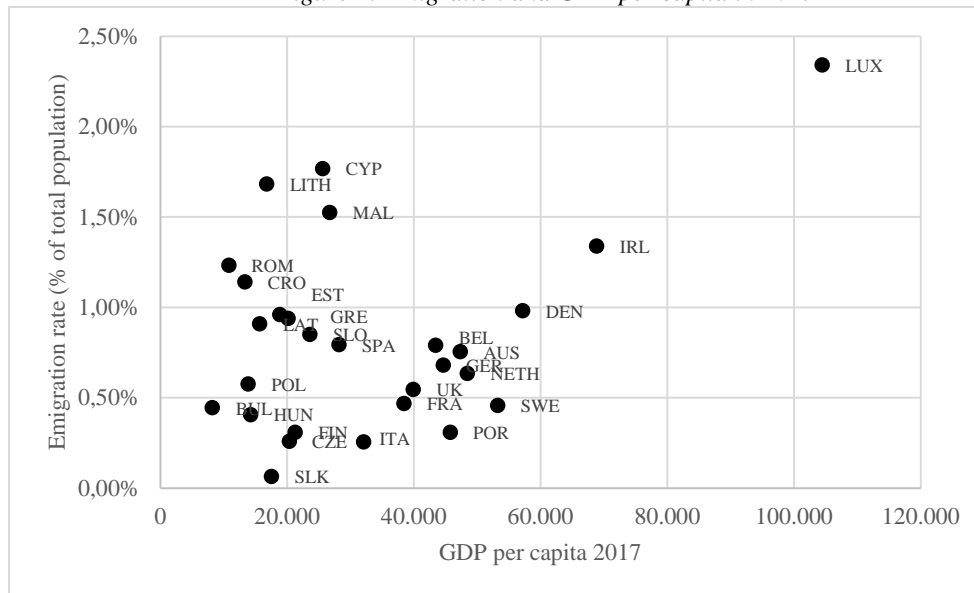
2. LITERATURE REVIEW

Migration movements are part of many research and analysis for different countries and countries groups from all around the world. Different methods apply in order to estimate the causes and effects of these movements. Draženović et al. (2018) are analyzing emigration in Croatia and new EU member states using the gravity model of migration. Their conclusion is that economic factors such as GDP and labor market, noneconomic factors as capturing the EU accession and corruption in the economy and demographic characteristics are important determinants of the emigration.

A research from Sprenger (2013) explores the determinants of the international migration between 21 developed countries which are member of the EU and the OECD. The paper examines the impact of traditional economic variables, geographical, demographic factor and cultural differences on the mobility patterns. Economic factors are significant for migration flows, as is also culture and related languages or knowledge of language of the country of destination. Presence of networks of migrants, physical distance and free movement of workers have positive effects on migration.

Forte and Portes (2017) examine the determinants of the long-term international migration to the United Kingdom where the most important factors are GDP per capita, unemployment rate (as macroeconomic variables) and existence of "free movement" rights for European Economic Area (EEA) nationals (as law and policy variables). Significant drivers of migration flows are UK DOP growth and GDP at origin and also there is very large impact from free movement within EEA. They expect Brexit and the end of free movement to result with decrease in immigration from EEA countries.

Research from Mayda (2007) uses panel data analysis to investigate the determinants of international bilateral migration flows. Pull factors such as increase in the mean income in the destination country increases the emigration rates. Push factors like declining levels of GDP per worker in the origin country prove to be insignificant. Push factors suggest that migration quotas are more binding than pull effects do, so the possible explanation for the asymmetry between push and pull factors are destination countries' migration policies.

Zoubanov (2004) explores determinants of net migration rate in thirteen EU countries during 1984-1999 using panel structure of the dataset. The impact of per capita income in receiving country, lagged net migration rate and stock of foreign population are described as significant determinants. Contrary to the theoretical model the importance of employment rate was not supported by the date.

Extensive research with 77.658 observations was provided by Kim and Cohen (2010) where determinants of international migration inflows were quantified for 17 Western countries and outflow from 13 of these countries between 1950 and 2007 using panel data analysis. Most influential variables on inflows were demographic (population of origin and destination and infant mortality rate of origin and destination) and geographic (distance between capitals and land area of the destination. Social and historic factors did not provide influence with such intensity. Determinants of the outflows were population of origin and destination, infant mortality rates of destination and distance between capitals. Young age structure in destination was associated with lower inflows, while young age structure in the origin was associated with higher inflows. Urbanization both in destination in origin has positive effected on migration. Another determinants included being landlocked, having common border, having the same language, sharing a minority language and colonial links.

3. RESEARCH METHODOLOGY

This analysis requires panel regression model, since data are constructed of both time series and cross-sectional elements. Panel data includes information about both space and time. Panel regression model can be described in the following equation:

$$y_{it} = \alpha + \beta x_{it} + u_{it}$$

where y_{it} is the dependent variable, α is the intercept term, β is a $k \times 1$ vector of parameters to be estimated on the explanatory variables, and x_{it} is a $1 \times k$ vector of observations on the explanatory variables, $t = 1, ...,; i = 1, ..., N^2$ (Brooks, 2014). Before the model was estimated, panel unit roots tests for nonstationarity were performed. Also, Hausman test was performed in order to differentiate between fixed effects or random effects model. Definitions of null and alternative hypothesis are: H_0: The appropriate model is random effects. There is no correlation between the error term and the independent variables in the panel data model ($Cov(u_{it}, x_{it}) = 0$) and H_1: The appropriate model is fixed effects. The correlation between the error term and the independent variables in the panel data model is statistically significant ($Cov(u_{it}, x_{it}) \neq 0$), (Sheytanova, 2015).

4. DATA, ANALYSIS AND EMPIRICAL RESULTS

In order to analyze the main determinants of the emigration, total of 28 countries form the EU were included in the data sample for period 1999 to 2017. With 28 countries and 19 period total number is 560 observations included in the analysis. Included countries are: Austria, Belgium, Bulgaria, Croatia, Cyrus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden and United Kingdom.

In the literature there are different push factors (factors that make people leave their country) and push factors (factor that make people immigrate the destination country). Vansak et al (2015) divide the push factors in two groups, economic (poverty/low wages, high taxes, high unemployment, overpopulation) and non-economic (discrimination, poor health care, war or oppression, corruption, crime, compulsory military service, natural disaster, famine). On the other side, the pull factors are also divided in the same groups, economic (demand for labor, high wages, generous welfare benefits, good healthcare and education systems, strong economic growth, technology, low cost of living) and non-economic (family and friends/networks, rights and freedoms, property rights, law and order and amenities. Variables used in the analysis come from the group of push factors. Those are following: CORR (Corruption perception index), GDPpc (GDP per capita in current US dollars), logPOP (logarithmic transformation

of number of citizens), TER (school enrollment in the tertiary education in percentage), UNEMP (unemployment rate in percentage), YOUNGf (Population ages 20-34, female, as percentage of female population), YOUNGm (Population ages 20-34, male, as percentage of male population) and logEMI (logarithmic transformation of number of emigrants). Data sources used for this analysis are: Eurostat Database, World Economic Outlook Database April 2019, and Corruption Perceptions Index 2018.

Table 1. Panel unit root tests (probabilities are presented in the table)

| Variable | LEVEL | | | | FIRST DIFFERENCE | | | |
| | Method* | Method** | | | Method* | Method** | | |
	Levin, Lin&Chu	Im, Pesaran and Shin W-stat	ADF Fisher χ^2	PP Fisher χ^2	Levin, Lin&Chu	Im, Pesaran and Shin W-stat	ADF Fisher χ^2	PP Fisher χ^2
CORR	0.0022	0.1640	0.0817	0.5280	0.0000	0.0000	0.0000	0.0000
GDPpc	0.0000	0.7343	0.9880	0.9998	0.0000	0.0000	0.0000	0.0000
logPOP	0.2403	1.0000	0.6287	0.9973	0.0000	0.0000	0.0000	0.0000
TER	0.0001	0.3100	0.0764	0.0000	0.9995	0.0002	0.0002	0.0000
UNEMP	0.0021	0.0008	0.0005	0.5065	0.0000	0.0000	0.0000	0.0000
YOUNGf	0.0000	0.0000	0.0000	0.0000	0.0055	0.8426	0.6453	0.3347
YOUNGm	0.0000	0.0000	0.0000	0.0000	0.0006	0.4333	0.0704	0.0000
logEMI	0.0193	0.8935	0.6908	0.9891	0.0000	0.0000	0.0000	0.0000

* Null: Unit root (assumes common unit root process); ** Null: Unit root (assumes individual unit root process).

Analysis begins with panel unit root tests where stationarity of the data is being tested. Unit root tests in panel series are very similar to the tests used in one equation estimation (Brooks, 2014). Despite the similarities, in panel series several specially designed tests are used for this purpose. As presented in Table 1, variables CORR, GDPpc, logPOP, TER, UNEMP and logEMI are stationary in their first differences. Variables YOUNGf and YOUNGm are level stationary.

After considering the unit root test results panel regression model is estimated with the following specification:

$$\text{d}(\log EMI_{it}) = -0,0399 + 0.0002 d(CORR_{it}) + 0.0000 d(GDPpc_{it}) + 2.4916 d(\log POP_{it})$$
$$(0.0027^*) \quad\quad (0.8996) \quad\quad\quad (0.9505) \quad\quad\quad\quad (0.0004^*)$$
$$+0.0001 d(TER_{it}) + 0.0094 d(UNEMP_{it}) - 0.0218(YOUNGf_{it}) + 0.0226(YOUNGm_{it}) + u_{it}$$
$$(0.9030) \quad\quad (0.0024^*) \quad\quad\quad\quad (0.0027^*) \quad\quad\quad\quad (0.0003^*)$$

where $t = 19$ periods and $i = 28$ countries. *P*-values for estimated coefficients are in brackets. Significant coefficients are marked with *. In order to determine whether random or fixed effects model is more appropriate, the Hausman test was used. The results of the test showed χ^2 statistics=7.7461 with p −value=0.3555, meaning the null hypothesis is accepted, stating that random effects model is more appropriate.

Results from the regression confirm that population, unemployment rate, young male and young female population have statistically significant effect on emigration. Population has positive impact on the emigration, meaning the greater the population, greater the number of emigrants, which is quite logical. Similar results can be found in Kim and Cohen (2010). Draženović et al. (2018) state that the positive coefficient associated with the relative difference between population of destination and origin country suggests that countries with bigger populations have more intensive migration flows.

Unemployment also increases migration. The positive and the statistically significant sign of the estimated coefficient means that as the unemployment rate increases in the country of origin, the emigration from that same country also marks increase. This is understandable since the deficit of working positions for different type of qualifications forces the active working force to search for open job positions outside the country. Also, many countries from the Western Europe offer more attractive salaries and working conditions which makes the decision for emigrations easier. Other research confirms this finding: an increase in employment opportunities in origin country by 1% will decrease emigration flows by 5% (Draženović et al. (2018)).

Young population is another factor that influences the emigration. Male and female population were analyzed separately, and they provided different, yet statistically significant results. In truth, when data analyzed in detail, they reveal that in the past years the young population (both male and female) is decreasing (with exception to countries such as Denmark and Netherlands), while the emigration is constantly increasing. This supports the theory of demographic ageing of the EU countries, where young population is decreasing due to emigration and reduced

natality. Factors like corruption, GDP per capita and enrollment in tertiary education are not supported as significant by the analyzed data.

5. CONCLUSION

Migration flows are changing population structures on all continents. Despite the fact that migration processes have always been part of human history, today, with the help of modern technology and fast exchange of information, the intensity of migration is higher than ever before. As process that has effect both on country of origin and country of destination, the economic, social and cultural effects are imminent. For some countries migration is good, especially if provides with the educated labor force that is deficitary in the destination countries. Incoming labor force also means increase in young population, number of marriages and natality rate. On the other side, for some countries of origin, emigration means loss of skilled and educated labor, loss of young population, decrease in natality rate and acceleration of the process of demographic ageing. Since the implications of the emigration are severe for countries of origin, governments and policymakers must take into account the determinants of these processes. It would be difficult to set effective policy without first understanding both the push and pull factors. For example, if the goal is to reduce the number of migrants entering a country in cases when network effects are most relevant, then policy should be changed to be less centered on family preferences. Conversely, if income differentials are driving flows, perhaps migrants could be more heavily taxed (via entry or visa fees) to reduce flows (Simpson, 2017).

This paper analyzes the economic and non-economic determinants of emigration in the 28 countries from the European Union. Main determinants identified for all countries as a group are: population, unemployment rate, young male and young female population. Normally, countries with larger population have more emigrants that countries with smaller population. Unemployment rate influences the emigration in a very logical and expected rate. As the unemployment rate increases, the emigration also increase. Both of these factors are part of the previously identified group of economic push factors. Another important determinant is the young male and female population. As this population cohort decreases in European countries, the immigration increases. It is clear that it is the young active population from 20 to 34 years that leaves the native countries and emigrates in the more perspective countries of destination. According to these results, governments should work on increasing the employment by higher economic growth and development, providing perspective carrier and stable income, and also providing other opportunities attractive for young population, as affordable housing, solid health care, quality day care for young children and good education programs and facilities. Also, stable government, political and economic security, clean environment, fight against corruption can also provide in keeping the young population from emigration, especially from countries that are in the late stage of demographic transition where the population is ageing and young and qualified working force is the only hope for future economic, social and cultural development.

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