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Zagreb International Review of Economics & Business, Vol. 23, No. 2, pp. 129-140, 2020

ISSN 1331-5609; UDC: 33+65
DOI: 10.2478/zireb-2020-0017

New EU member states' emigration: Projections for future and lessons for the new EU candidates

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Abstract: *Unlike the old member states that compensate the negative net birth rate with immigration, the new EU member states face both migrational and natural demographic decline. In the last decade, poor level of economic development as well as the accession to the EU encouraged net emigration from the new member states. Panel data for the 12 new member states for the 2007 - 2016 period were used to determine how the length of membership and GDP per capita trailing behind the EU average affect the proportion of the net emigration. It has been shown that on average a country has to reach at least 85 percent of the average EU GDP p.c. (measured in PPS) to prevent emigration, but this level increases with each year of membership by 1.37 percentage points.*

Keywords: emigration; depopulation; economic development; new EU member states; old EU member states

JEL Classification: O15, P23

Introduction

Most of the new EU member states are facing demographic catastrophe as compared to the old member states (EU15), which in general have a total population increase. Having aging population and birth rates below death rates as a trend across the entire EU, the new member states additionally experience strong emigration tendencies, while the old ones mostly have a positive migration balance.

Table 1 shows population trends in EU countries in the 2003-2016 period and GDP per capita. Slovenia, Slovakia, the Czech Republic and Malta had an increase in popu-

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lation, while the other 9 new member states had a decrease. Meanwhile, only economically weaker old member states (GDP p.c. index below 100, which is the EU average) had a population decline, like Portugal and Greece. Spain and Italy were below the EU average, but had an increase in population, which is owed to the fact that these countries represent the "doors for immigration", especially since the Arab Spring. All the other countries show important relation: negative population balance (italic) is related to the below average GDP per capita, while positive population balance (bold) is related to the above average GDP per capita. The exceptions are marked in grey.

Each exception has its different reason for it. For example the case of Czechia can be explained by its geographic position that allows the local population to work in the neighbouring countries (Germany, primarily). It is interesting that these findings are very similar to Kaczmarczyk & Okólski (2005) which shows that most of the "exception" countries have rather weak tendency to migrate.

Table 1: EU countries' population in 2003 and 2016, and GDP p.c. PPS index

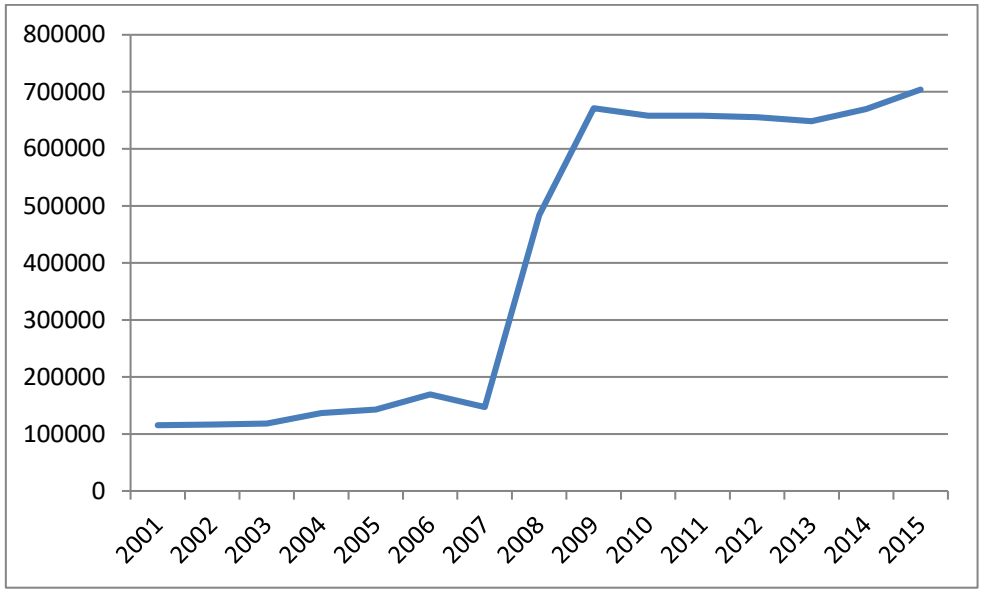
Country\Year	Population in 2003	Population in 2016	Population change	GDP p.c. PPS index in 2016 (EU average = 100)
Belgium	10355844	11311117	**9%**	**117**
Bulgaria	7805506	7153784	*-8%*	*49*
Czechia	10192649	10553843	4%	88
Denmark	5383507	5707251	**6%**	**125**
Germany	81368051	82175684	**1%**	**123**
Estonia	1375190	1315944	*-4%*	*74*
Ireland	3964191	4724720	**19%**	**183**
Greece	10915770	10783748	-1%	66
Spain	41827838	46440099	11%	92
France	61864088	66759950	**8%**	**104**
Croatia	4305384	4190669	*-3%*	*60*
Italy	57130506	60665551	6%	96
Cyprus	713720	848319	19%	82
Latvia	2299390	1968957	*-14%*	*65*
Lithuania	3431497	2888558	*-16%*	*75*
Luxembourg	448300	576249	**29%**	**259**
Hungary	10142362	9830485	*-3%*	*68*
Malta	397296	434403	9%	95
Netherlands	16192572	16979120	**5%**	**129**
Austria	8100273	8690076	**7%**	**127**
Poland	38218531	37967209	*-1%*	*69*
Portugal	10444592	10341330	*-1%*	*77*
Romania	21627509	19760314	*-9%*	*59*
Slovenia	1995033	2064188	3%	84
Slovakia	5374873	5426252	1%	77
Finland	5206295	5487308	**5%**	**109**
Sweden	8940788	9851017	**10%**	**124**
United Kingdom	59501394	65382556	**10%**	**108**

Source: Own calculations based on Eurostat data.

These findings suggest a correlation between the economic performance and the population balance, which could in turn help predict future tendencies. However, the exceptions indicate there are other factors too. Furthermore, population balance should be broken into a natural and migrational segment.

Figure 1 shows total emigration from the new EU member states. The figure undoubtedly indicates that the accession to the EU represents a significant emigration factor for the new member states.

Figure 1: Total new EU member states emigration (2001-2015)



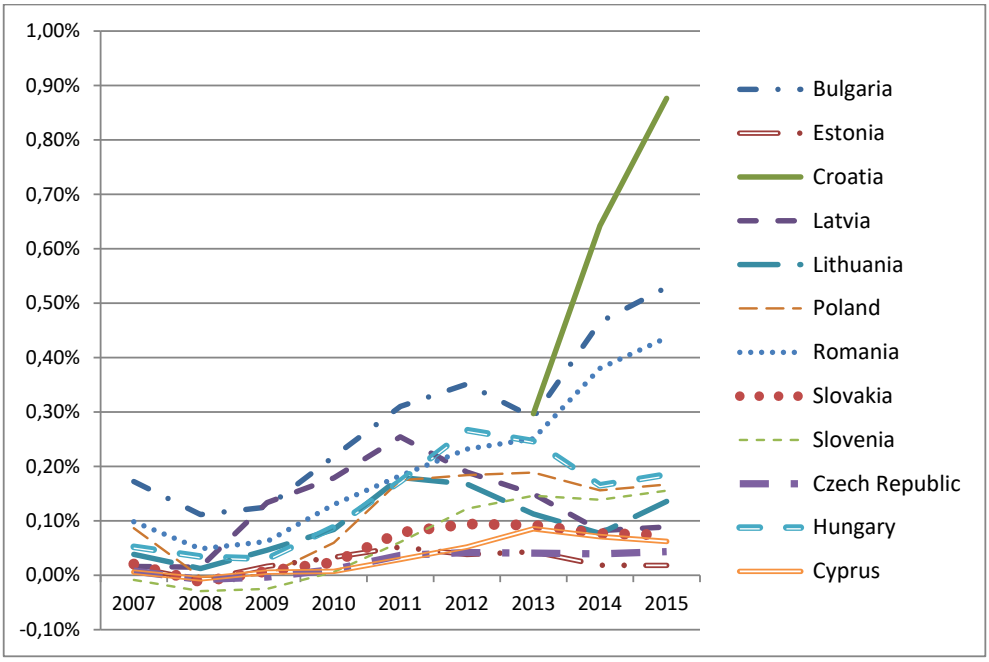
Source: Eurostat

The total new member states pre-accession emigration balance was stable around 118,000, but after the accession started it went up to 137,000, 143,000 and 169,000 in 2004, 2005 and 2006, respectively. The emigration explosion happened in 2008 during the crisis and remained high after the crisis wave had diminished. It suggests that the crisis was merely a trigger, and when the wave started, many others, disappointed with the perspective in their homelands, decided to leave.

Figure 2 portrays the share of emigration from the new member states (by states) in total population of the selected old member states with the most intense immigration (UK, Ireland, France, Germany, Austria and Sweden). The figure shows that the Great Recession had caused intense migration that later calmed down along with the crisis wave. However, there are exceptions. For example, Croatia's long lasting crisis and the late accession to the EU caused the share of emigrants in the overall popula-

tion of the selected countries to boom to almost 0.85 percent of the overall population in 2015. Following this alarming data, the authors will put additional focus on the Croatian case in this paper.

Figure 2: Share of emigrants from the new member states in the overall population of selected EU states for the 2007 – 2015 period



Source: Own analysis based on data of the national bureaus of statistics in the UK, Ireland, France, Germany, Austria and Sweden.

Sharing the same pan-Europe fertility trend, the new EU member states will likely cause a sharp decline in the working-age population, which will undoubtedly limit their economic growth in the future. Given the net migration trend, these countries will fail to generate sufficient human capital to maintain (and increase) the level of their economic activity. In 2010, Macura (2010) offered a 40-year projection for the working-age population in European countries. The projections were based on the assumptions of gradual recovery of fertility rate and zero migration. Under these rather optimistic assumptions, Macura showed that most of the SEE countries would see 30-40 percent of its workforce diminish in the given 40-year period. Given the latest net migration figures, we conclude that the countries in question will experience not only demographic but also economic collapse.

Following the assumption that the majority of emigration happens for economic reasons, the aim of this paper is to simulate, based on the econometric model, the lev-

el of economic development (measured by GDP p.c.) of the new member states that would stop further migration. The intention of the authors is to draw the attention of the scientific community as well as of policy makers to this far-reaching and detrimental phenomenon. As Clemens (2011, p. 83) points out, migration economics has focused mainly on how the movement of people affects the economies that receive the migrants, yet the effect of emigration went relatively neglected. The implications of the paper are especially important for the accession countries from the Western Balkans whose GDP p.c. levels lag considerably behind the new EU member states that struggle with migration.

Given the aforementioned, Section 2 analyses the literature to determine factors crucial for emigration in the similar studies. The authors find that majority of studies point to the economic reasons behind emigration. In Section 3, econometric model based on a panel data was made. The authors performed the simulation based on the emigration data for the 12 new EU member states (all except Malta) from 2007 to 2016. Section 4 provides the results of the simulation as well as their interpretation in the light of expected emigration movements. Section 5 gives general conclusions, discusses obvious shortcomings of the analysis and sets ground for future research.

Literature Overview

Traditionally, it is believed that migration is influenced by differences in opportunities (i.e. income, employment, quality of life). This is logical but rather limited view on migration. Evidence indicates that migration does not occur exclusively from the poorest towards the wealthiest countries. Moreover, the volume of migration increases with the development of the country. Castles et al. (2013, p. 25) explain this phenomenon with improved access to information and education, better social capital and financial resources that impact people's aspirations and capabilities to migrate. Generally, the theoretical approach to migration as well as empirical studies evolved along with general socio-economic context in the past century.

The earliest work of Ravenstein (1885) and Hicks (1932) analyse migration as a process whose causes are predominantly economic (i.e. maximizing the utility of individuals subject to budget constraint). Previous models set ground for neoclassical migration theory that sees migration as a function of geographical differences between supply and demand for labour, thus optimizing the allocation of the production factors (Rostow, 1960; Harris & Todaro, 1970; Todaro, 1980; Williamson, 1988; Borjas, 1989). The neoclassical models are criticized to see migration as a decision of the perfectly rational individuals based on the rational cost-benefit analyses.

As a modification of the neoclassical approach to migration, Sjaastad (1962) introduced human capital model for migration treating migration as an investment decision. According to this model, migration occurs when expected present value

of migration returns exceeds costs of migration, including psychological costs (e.g. separation from friends and family). The model also introduces variables influencing the decision based on personal characteristics (age, gender, education, etc.). Stark & Bloom (1985) argue that migration behaviour of individuals can be expected to differ in accordance with their perceived relative deprivation and their skill levels.

Mincer (1978) added a new perspective to migration arguing that it is more a family rather than individual decision and that migration occurs only when expected returns of a family member internalise expected losses of other family members. This theory became more influential with the rise of female workforce, indicating that migration decision depends on partner's migration decision and thus explains rising marital instability. Contrary to that, alternative assumption that led to a different class of migration models (see Stark, 1991) is that families show risk-sharing behaviour which means that they use their ability to diversify resources (i.e. labour) in order to minimise the risk to family income (e.g. one member of the family working abroad). Further expanding of the model included consideration of social and informational networks, as well as social capital, suggesting that after initial migrants face the highest costs, migration can gradually become a self-perpetuating process (Massey, 1990; Boyd, 1989).

A useful perspective of labour migration integrating all previous models can be given in the so-called "push and pull" framework. Lee (1966) saw migration decision as a result of "plus" and "minus" factors divided into three areas: origin and destination, obstacles to migration and personal factors. Based on previous theoretical framework, various "push-pull" models arose (Dorigo & Tobler, 1983; Portes & Böröcz,1989). According to these models, a number of demographic, political and economic factors influence population to be "pushed" out of their countries (e.g. population increase, lack of working opportunities, political repression, etc.), while other factors "pull" them toward new destinations (e.g. unsatisfied demand for labour, political freedoms, etc.). The "push-pull" models are criticized to be purely descriptive and arbitrary (Castles et al., 2013), unable to take into account relative importance of different factors, as well as unable to explain simultaneous migratory movements in and out of a country, high level migration in the case of low fertility rate countries, etc.

Empirical studies provide evidence supporting previous models in different ways. Haug (2008) demonstrates the strong relation between social capital at the place of destination and decision to migrate (or return to the place of residence) based on data for Bulgarian and Italian migrants in Germany. Jennisen (2002) confirms the impact of GDP p.c. and unemployment on a country's net international migration based on the 1960-1998 period data in Western Europe. Gallardo-Sejas et al. (2006) demonstrate that the most important explanatory factors for international immigration in 13 European destination countries are population and distance factors, macroeconomic conditions, cultural proximity, and the existence of narrow trade relationships. Mayda

(2005) confirms that immigration in 14 OECD countries was predominantly driven by the difference in salary levels. Cultural, population and distance factors have their expected impact on the size of migration in accordance with the theoretical models.

Sandu & De Jong (1996) explored the migration intentions of Romanians during the 1990s and demonstrated that labour market demand in foreign countries, as well as democratic values strongly influenced decision to migrate. On a district level, migration also depends on the local political profile. The similar results were obtained in the case of less developed countries such as Albania (Mançellari et al., 1996). Other studies (Boncea, 2009) indicate that among higher educated groups (such as physicians) a decision to migrate is primarily influenced by the difference in salary in Romania and other countries. Other determinants with significant importance are career opportunities and availability of facilities. Political stability and personal factors are of lesser importance.

Kaczmarczyk & Okólski (2005) argue that CEE represents a separate migration entity sharing common characteristics regarding migration factors. As authors show, the CEE countries are characterized by relatively very high overall mobility, but there are also countries with moderate (Estonia and Latvia) or even very weak migration intensity (the Czech Republic and Hungary). With respect to (long-term) migration balance with the West, probably in only one country (the Czech Republic) it is significantly positive, whereas in two or three other (Hungary, the Slovak Republic and maybe Lithuania) its value seems negligible. The rest of CEE has a considerable negative balance. Favell (2008) argues that the East - West Europe migration story is also one of high-skilled migration. The author reveals the strong impact of human and social capital on migration towards Western Europe in the post-enlargement period. However, there are also findings that show that immigration did not lower the unemployment. Contrary, it increased the welfare state expenses (Fenwick, 2019).

Data and Methodology

Based on the introductory analysis in this paper, and the similar surveys analysed above, after careful observation of a number of variables for emigration, overall economy performance and the presence in the EU were chosen. The following model was created:

$$NEM = \beta_0 + \beta_1 GY + \beta_2 IND + \beta_3 EUY \ , \tag{1}$$

where NEM stands for net emigration in population ratio, from the new member states to the other EU states, GY is its annual percentage change, IND is the index of GDP per capita in PPS where 100 is the EU average, and EUY is the number of years of a country in the EU.

The regressor, NEM, is a normalized net annual emigration variable (net emigration is shown as an index to the total population, which is denoted as 100), since it is completely different if e.g. Croatia, having around 4.2 mill inhabitants, and Poland, having 38 mill inhabitants, lose the same number of people. The data are collected from the national bureaus of statistics in Germany, Austria, Sweden, Ireland, France and the United Kingdom, which are the main destinations for the new member states' emigrants.

EUY regressor measures the time from the country's accession to the EU. In the introductory analysis, it was shown that the length of stay was related to the emigration tendencies. It could be explained as follows: it takes time for the emigrants to see how the things are over the fence, and after a while, when they prepare and introduce themselves to the new culture, they take the plunge and set off. Encouraged by the other emigrants, those less eager to leave decide to leave afterwards, since they already have a welcoming community in the recipient country.

Performance of the entire economy is measured by GDP per capita measured in purchasing power standard by Eurostat. Two variables are based on this value: IND, which is an index of the mentioned data, where the EU average is set to 100, thus adjusting the absolute average, which floats, to a fixed reference value. The other variable, GY, shows the rate of change of GDP per capita (PPS). While the former shows how far from the average the country currently is, the latter shows dynamics. The reason for introduction of both variables is that sometimes people, although their economy is still weak (shown by IND), have a boost of optimism seeing good progress (shown by GY). The estimate of the model will show if some of these variables are obsolete. Since variables IND and GY are deducted from the same data set, there is a significant multicollinearity present. Hence it is very probable that one of these variables would be omitted from the model.

The dataset encompasses all new member states except Malta, which is an outlier due to the size and the economic activity, which leaves 12 cross-section categories. The data are observed in the 2007 – 2016 period (10 years). The panel data were used to estimate the model. The panel has 120 pieces of data, fully balanced. The model (1) will be estimated and possibly adjusted and restructured.

Findings

An econometric estimate of the model (1) based on the previously introduced panel data was conducted. In this estimate, it was shown that GY was to be omitted from the model. An improved model (2) was estimated:

$$NEM = \beta_0 + \beta_1 IND + \beta_2 EUY \tag{2}$$

and its results are as follows:

$$NEM = \underset{(0.000)}{0.5723} - \underset{(0.000)}{0.0067IND} + \underset{(0.031)}{0.0092EUY} \quad . \tag{3}$$

The model has shown that each additional year in the EU on average leads to the increase in the net emigration of the new member state to the old member states by 0.0092 percentage points, while the rise in GDP per capita in PPS index (EU average = 100) by 1 point on average decreases net emigration in population ratio by 0.0067 percentage points. There is also a systemic tendency for the new member states to leave their countries for Western Europe and it accounts on average for almost 0.6 percentage points of the net emigration in population ratio.

The explanation for it could be found in a thorough analysis of the factors that affect this constant to be that high; the most probable, which is to be a part of further analysis of this far-reaching and detrimental phenomenon, is the difference between the development of the society in the new and the old member states. The measure for that could be the Worldwide Governance Index (WGI, published by the World Bank) and the Economic Freedom Index (EFI, published by The Heritage Foundation).

The estimated model was used to predict the emigrational tendencies in Croatia. If Croatia is to stop the emigration wave, then NEM should be equal to 0:

$$0 = 0.5723 - 0.0067IND + 0.0092EUY \tag{4a}$$

$$0.0067IND = 0.5723 + 0.0092EUY | \div 0.0067 \tag{4b}$$

$$IND = 85.42 + 1.37EUY \quad . \tag{4}$$

The result shows that the country requires the GDP p.c. (PPS) index to be at least 85.42 (where 100 is the EU average) to stop emigration, but this value increases with each year of the membership by 1.37. This factor might be called the "integration factor" of the EU, showing that population, as the time goes by, will face the increasing mobility which is crucial for the solution of the euro-sclerosis problem. Specifically, Croatia would require an IND = 85.42 + 1.37×7 = 96.4 percent of GDP p.c. of the EU average (PPS) in 2018 to stop emigration, while in 2019 it would grow up to 97.77 percent. It is expected it would grow even beyond the EU average, until it approaches the average of the rich destination countries, like Germany, Austria and Ireland. Then it expected it would slow down and the linearity would disappear.

Conclusion

A majority of the new member states in the European Union have shown the increase in the emigration since their accession. Some countries, like the Czech Republic, Slovakia and Slovenia, have stopped these tendencies even though they have experienced substantial increase in the net emigration during the Great Recession. As this emigration is extremely far-reaching, due to inadequate birth rate in the observed countries, they slowly, but certainly, go towards the collapse of the public health and pension system, which is mostly based on a solidarity principle in the entire post-transitional block. Similarly, in the longer run, the inability of these countries to generate sufficient human capital to maintain economic growth will lead to economic collapse.

In order to predict and help preventing the undesired effects, this paper first analysed the literature to determine factors crucial for the emigration in the similar studies. Afterwards, a panel data econometric analysis was made, based on the emigration data for the 12 new EU member states (all except Malta) from 2007 to 2016. It was determined that having at least 85 percent of GDP per capita of the EU average, measured in PPS, was required to prevent the emigration, but this level increases by 1.37 percentage points for each year of membership.

These findings suggest that the demographic decline in Western Europe is patched up by "demographic cannibalism" from Eastern Europe, thus aggravating their situation even further. The reach of the emigration in the new member states is largely explained by this model, showing why it is so intense in the poorest countries, like Croatia, Romania and Bulgaria, and giving the forecast for the future, which is, given the current level of economic development, extremely detrimental for those countries which are far from the non-emigration level of development.

This model has taken into account only the net-immigration old EU member states, excluding the net emigration countries like Italy and Spain, but which welcomed many Romanians. To get a wider picture, and not only the EU inter-migration, a broader set of countries, including the overseas countries too, should be taken into account. Furthermore, an immigration policy as well as the quality of institutions and the level of economic freedom should be included, since Spain, which has net emigration, has buffed these tendencies with the non-EU immigration welcoming policies, while Hungary does just the opposite and has almost no immigration from non-EU countries.

However, the conclusion that the GDP p.c. level explains most of the migration flow from the new EU member states has its limitations. Namely, a part of the brain drain from these countries is caused by inability of young people to find attractive jobs after finishing their education[1].

The implications of this paper are especially important for the accession countries from the Western Balkans whose GDP p.c. levels lag considerably behind the new EU member states that struggle with emigration. In the absence of some compre-

hensive proactive reaction on the policy level of these countries and/or limitation of labour movements in Western Europe, until certain level of economic development is achieved (85 percent of the EU average GDP p.c.), the accession of these countries to the EU threatens do devastate them both demographically and economically.

NOTES

[1] This refers to the fields like medicine, molecular biology and the like.

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