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Regional disparities in two Central and Eastern European countries: Slovakia and Romania

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Abstract
Starting from the recent literature on Okun's Law in emerging countries at regional level, this paper aims to identify the major factors explaining why the unemployment-output relation is significant only in some regions. To this end, the paper will focus on Slovakia and Romania, to be more precise on economical, demographical variables at regional level. Variables like unemployment, population dynamics or the evolution of human capital will be analyzed in each region of the above mentioned countries.

Keywords: Regional disparities, emerging countries, Central and Eastern European Countries (CEEC)

1. Introduction

The 1990's brought a massive turn in Central and Eastern European Countries (CEEC). Politically, these changes marked the end of almost half a century of Cold War. Economically, CEEC entered a new era characterized by progressive monetary and financial liberalization, free markets, free prices and free trade. Many countries found themselves trapped in the tumult of increasing external competition, particularly since their industrial systems were characterized by obsolete techniques, over designed production plants and low labor productivity. Consequently, many such large loss-generating public plants were closed, causing massive unemployment by the mid-90s.[1] These high unemployment levels draw the attention of policymakers.

Furthermore, after the burst of the crisis, when the unemployment level started to increase rapidly and the GDP growth stagnated, academia turned its attention to the relation between unemployment and output growth, the rule of thumb also known in economics literature as Okun's Law. In his seminal paper of 1962, A. Okun stated that a 3 percent increase in output will reduce the unemployment by 1 percent (on US data). Moreover, he mentions that the 3 to 1 proportion holds up for both the growth-rate version and for the gaps version. Arthur Okun, besides being an

[1] For example, unemployment in Slovakia in 1995 was 12.8%, while in Romania 9.18%

economist, also devoted his work to explaining the macroeconomics concept to policy makers, thus being also a policy advisor. Thus, from a Keynesian standpoint, demand-side macroeconomic policies that increase output can be a powerful tool in reducing unemployment. Thus, over the last two decades, an increasing strand of literature focused on exploring the robustness of Okun's Law.[2]

The rest of the paper can be summarize as follows: section 2 presents a short literature review on Okun's Law, but also the results of two papers that analyze Slovakia and Romania. Section 3 presents the regional characteristics in Slovakia and Romania and section 4 concludes.

2.Literature review

A more recent strand of literature focuses on the pertinence of Okun's Law at a sub-country, regional level.[3] Among the first studies, Freeman (2000) emphasizes differences between Okun's coefficient for pooled data (-2.25) compared to US regions (between -3.57 and -1.84). Even more important disparities are outlined by Adanu (2005) for Canadian regions. On the one hand, in some regions the Okun coefficient is not significant. On the other hand, the magnitude of significant Okun coefficients is much lower, ranging between -2.14 and -0.93 if we consider for example the Hodrick-Prescott (HP) filter.

In addition to US and Canada, much of the regional analysis of Okun's Law focused so far on European Countries. Early studies by Kangasharju & Pehkonen (2001) outline both significance and magnitude differences in the Okun coefficient for the Finnish regions (see also Kangasharju, Tavera & Nijkamp, 2012). Two other studies focus on Greek regions. Apergis & Rezitis (2003) find little differences between Greek regions, except for two regions for which the estimated coefficients are quite large in absolute value (around -3). On the contrary, Christopoulos (2004) finds that not only the size of the Okun coefficient is weaker, ranging between -1.70 and -0.32, but that Okun's Law is valid (at the 5% level) in only 5 out of the 13 Greek regions. In their analysis on Spanish regions, Villaverde & Maza (2007, 2009) emphasize results in favor of a robust Okun Law in most regions (between 11 and 15 out of 17 regions), of relatively low (absolute value) magnitude (between -1.55 and -0.32 for the regions, and equal to -0.96 for Spain). Finally, comparable results are illustrated by Binet & Facchini (2013) for France: Okun's Law is significant in only 14 out of 22 regions, and ranges between -1.81 and -0.91.

Regarding the countries of interest in this paper, namely Slovakia and Romania we come across a paper analyzing the Okun Law in Slovakia and Czech Republic (Durech et. al. 2014). The main results of the study can be summarize as follows: first, they produce evidence on the presence of a negative relation between output and unemployment in the two emerging countries considered. Second, they highlight important regional disparities in both the Czech Republic and Slovakia, when it comes to the significance of the Okun's Law. Third, they provide an extensive analysis regarding potential drivers of such regional heterogeneities. In particular, they find that cyclical unemployment significantly responds to changes in output gap in Czech and Slovak regions with relatively high output, high domestic and foreign investment, high R&D, and a developed network

[2] In particular, the current Great Recession revived even more the question of the pertinence of Okun's Law (for such recent discussions, see, for example, Daly & Hobijn (2010), Owyang & Sekhposyan (2012), or Ball, Leigh & Loungani (2013).

[3] To some extent, cross-country OECD or E(M)U studies can be also seen as regional, provided countries are considered as regions of the OECD or E(M)U area.

of highways. On the contrary, regions with high and persistent long-term unemployment or high population cannot benefit of positive output gaps to reduce unemployment. Fourth, they look for subsequent discrepancies across Czech and Slovak regions by focusing exclusively on regions in which Okun's Law is at work. Regarding Slovakia, the authors find that the regions where Okun's Law is not significant are associated with high unemployment, as well as high long-term unemployment. Average unemployment for Banska Bystrica, Kosice, and Presov equals 19.2%, compared to 8.83% in Bratislava, Zilina, and Trnava, while for long-term unemployment the numbers are 11.2% and 3.52%, respectively.

Another recent study, Minea et al. (2015) concerning the other country of interest for this paper, respectively Romania, over the period 1995-2011 shows the following results. First, if in all Romanian regions the results are consistent with Okun's law (the Okun coefficient is always negative), there are important regional heterogeneities, concerning the significance of the Okun coefficient. Following the analysis of the robustness of this result through the use of several econometric methods, Okun's law is found to be non-significant in two regions, Bucharest-Ilfov and West. Secondly, among the regions where it is significant, the amplitude of the Okun coefficient varies greatly from one region to another. For example, in the main estimate (using HP Filter), the coefficients varies (in absolute terms) between 1.70 (South-East) and 2.75 (South-Muntenia), but can be well above the estimated value by Okun 3, in absolute value) for other specifications. Finally, the regions in which the Okun coefficient is non-significant are distinguished by the highest average economic growth rates during the period and by favorable demographic conditions. However, since Okun's law is significant in the regions most affected by unemployment, public authorities will be able to rely on demand-side policies to reduce it.

In this paper we take stocks of this latter strand of literature and explore the regional characteristics of Slovakia and Romania.

3. Regional characteristics in Slovakia and Romania

3.1. Short presentation of Slovakia

Slovakia, officially the Slovak Republic, is a landlocked country in Central Europe. It is bordered by the Czech Republic and Austria to the west, Poland to the north, Ukraine to the east and Hungary to the south. Slovakia's territory spans about 49,000 square kilometers and is mostly mountainous. The population is over 5 million and comprises mostly ethnic Slovaks. The capital and largest city is Bratislava. The official language is Slovak.

Historically, the Czech Republic and Slovakia were part of the former Czechoslovakia for the period 1918-1992, during which they shared common traditions, culture, history, etc., in addition to a common government and policy mix. Nowadays, there is a strong tradition for the elected prime minister of a country to make the first official foreign visit to the other one. Also, the two countries often neglect their common border when it comes to important development projects (i.e. highways), and students from one country can study in the other one in their own language (the two languages are fairly close).

Slovakia is a parliamentary democratic republic with a multi-party system. The last parliamentary elections were held on 5 March 2016 and two rounds of presidential elections took place on 15 and 29 March 2014.

Slovakia has been a member of European Union since 2004. Slovakia has been an active participant in US- and NATO-led military actions. There is a joint Czech-Slovak peacekeeping force in Kosovo.

Slovakia is a member of the United Nations and participates in its specialized agencies. It is a member of the Organization for Security and Cooperation in Europe (OSCE), the World Trade Organization (WTO), and the OECD. It also is part of the Visegrad Four (Slovakia, Hungary, the Czech Republic, and Poland), a forum for discussing areas of common concern.

As for administrative division, Slovakia is subdivided into 8 krajov, each of which is named after its principal city. Regions have enjoyed a certain degree of autonomy since 2002. Their self-governing bodies are referred to as Self-governing (or autonomous) Regions or Upper-Tier Territorial.

In terms of economics and unemployment rate, the western regions are richer than eastern regions. Bratislava is the third richest region of the European Union by GDP (PPP) per capita (after Hamburg and Luxembourg City), GDP at purchasing power parity is about three times higher than in other Slovak regions.

The Slovak economy is a developed, high-income economy, with the GDP per capita equaling 76% of the average of the European Union in 2014. The country used to be dubbed the "Tatra Tiger" before the recent global economic crisis. Slovakia successfully transformed from a centrally planned economy to a market-driven economy. Major privatisations are nearly complete, the banking sector is almost completely in private hands, and foreign investment has risen.

Before the financial crisis of 2007–08, Slovakia had experienced high and sustained economic growth. In 2007, 2008 and 2010 (with GDP growth of 10.5%, 6% and 4% retrospectively), Slovakia was the fastest growing economy in the European Union. In 2011 and 2012, Slovakia was the 2nd fastest growing Eurozone member after Estonia. In 2012, more than 75% of Slovak exports went to, and more than 50% of Slovak imports came from, other European Union member states.

In March 2008, the Ministry of Finance announced that Slovakia's economy is developed enough to stop being an aid receiver from the World Bank. Slovakia became an aid provider at the end of 2008.

3.2. Short presentation of Romania

România is a sovereign state located in Southeastern Europe. It borders the Black Sea, Bulgaria, Ukraine, Hungary, Serbia, and Moldova. It has an area of 238,391 square kilometers and a temperate-continental climate. With over 19 million inhabitants, the country is the seventh-most-populous member state of the European Union. Its capital and largest city, Bucharest, is the sixth-largest city in the EU, with 1,883,425 inhabitants as of 2011.

As for administrative division, Romania is subdivided into 8 development regions, known as NUTS 2 on Eurostat.

In the context of the end of the Cold War, the events of December 1989 marked a sharp change in the political regime in Romania and with it major economic and institutional changes. The country has embarked on an inherent transition period, which was expected to eventually lead to monetary, financial and trade liberalization and the generalization of the market economy. However, this process of transition has been associated with significant imbalances in the early years. Indeed, confronted with the reality of external competition, many Romanian public companies, oversized in capital and with low labor productivity, have sharply decreased their

activity, or even closed. In this context, the first decade of transition was characterized by a steady increase in the unemployment rate, from full double-digit pre-1990 employment in the late 1990s (about 11.5% in 1999).

Romania has been a member of NATO since 2004, and part of the European Union since 2007. A strong majority of the population identify themselves as Eastern Orthodox Christians and are native speakers of Romanian, a Romance language. The cultural history of Romania is often referred to when dealing with influential artists, musicians, inventors and sportspeople. For similar reasons, Romania has been the subject of notable tourist attractions.

During the 2000s, Romania enjoyed one of the highest economic growth rates in Europe and has been referred at times as "the Tiger of Eastern Europe". This has been accompanied by a significant improvement in living standards as the country successfully reduced internal poverty and established a functional democratic state. However, Romania's development suffered a major setback during the late-2000s recession leading to a large gross domestic product contraction and budget deficit in 2009. This led to Romania borrowing from the International Monetary Fund. The worsening economic conditions led to unrest and triggered a political crisis in 2012.

Romania still faces problems related to infrastructure, medical services, education, and corruption. Near the end of 2013, The Economist reported Romania again enjoying 'booming' economic growth at 4.1% that year, with wages rising fast and a lower unemployment than in Britain. Economic growth accelerated in the midst of government liberalisations in opening up new sectors to competition and investment—most notably, energy and telecoms.

3.3. Regional characteristics

The data used in this section were gathered from Eurostat database, http://ec.europa.eu/eurostat/data/database, over the period 1999 – 2015. We used NUTS 2 regions, The Classification of Territorial Units for Statistics used by the European Union. The Romanian NUTS 2 regions are: North-West, Center, North-East, South East, South – Muntenia, **Bucharest – Ilfov**, South-West Oltenia, **West**, while the Slovak NUTS 2 regions are: Bratislava Region, Western Slovakia (Nitra Region, Trnava Region and Trenčín Region), Central Slovakia (Žilina Region and **Banská Bystrica Region**), Eastern Slovakia (**Košice Region** and **Prešov Region**).

For a better understanding of our data we present below charts of the average of indicators values over the periods the data were available.

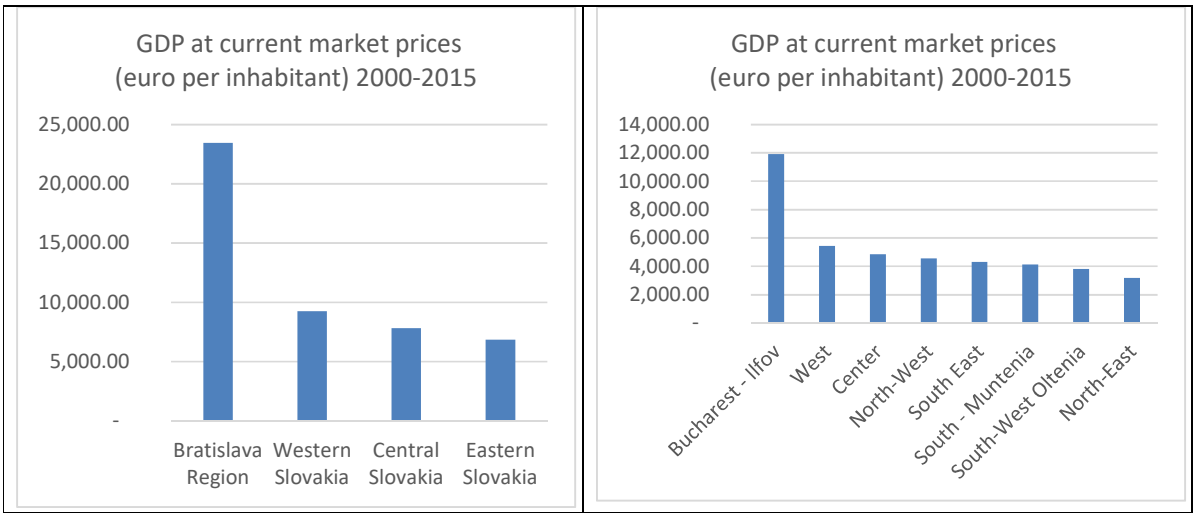
GDP and unemployment

We start our analysis with the two indicators that are used in the above mentioned studies that analyze the existence of Okun's Law in Slovakia and Romania.

In term of GDP (figure 1.) it can easily be observed that for Slovakia the richest regions are Bratislava Region and Western Slovakia Region, while for Romania Bucharest – Ilfov Region and West Region.

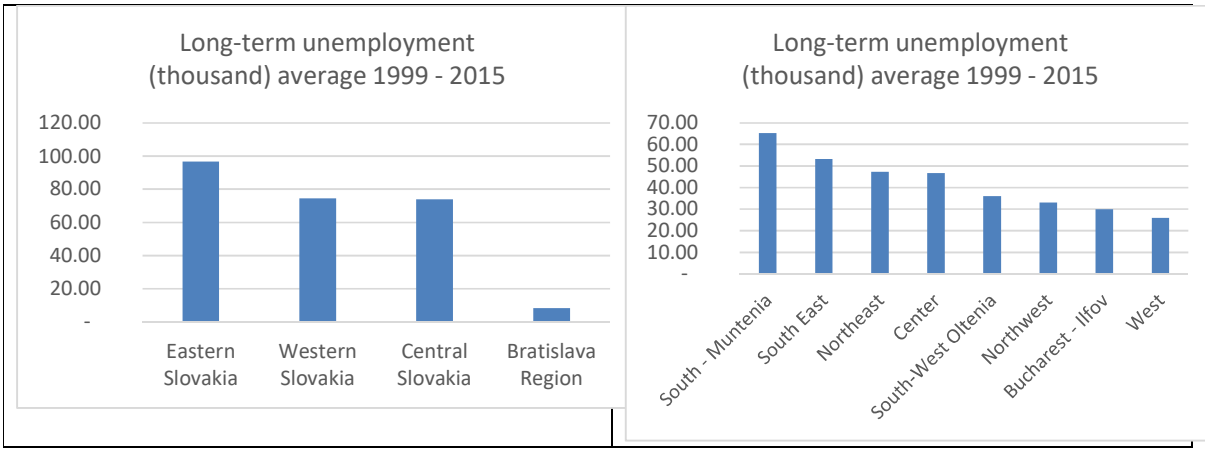
If we turn our attention to the long therm unemployment (figure 2.), we can observe that in Slovakia the Eastern Slovakia Region is facing a problem with this indicator over our studied period towards the other 3 slovak region. In Romania, long term unemployment reaches important values in South-Muntenia Region.

Figure 1. GDP at current market prices in Slovakia (a) and Romania (b)



Source: authors calculation based on data retrieved from Eurostat database

Figure 2. Long term unemployment in Slovakia (a) and Romania (b)

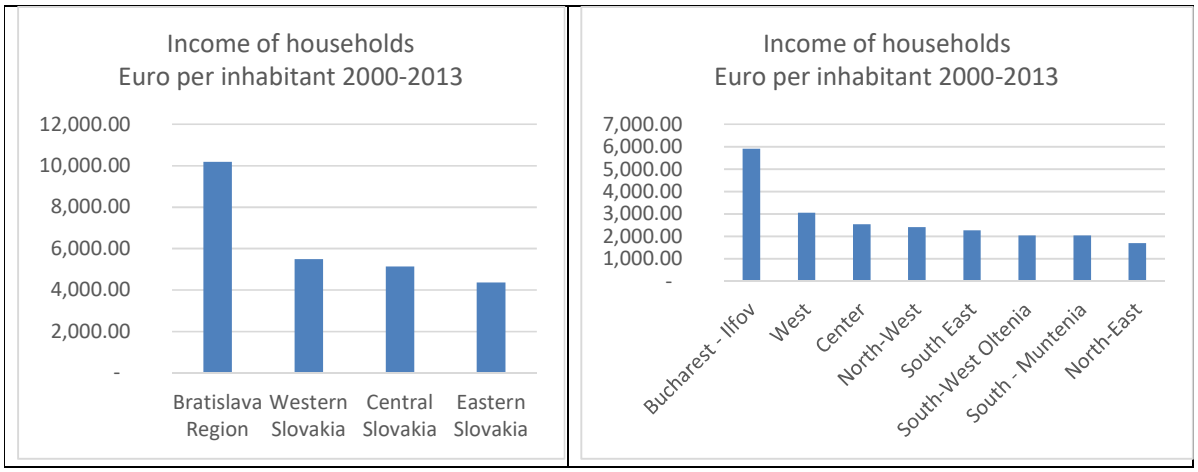


Source: authors calculation based on data retrieved from Eurostat database

Income characteristics

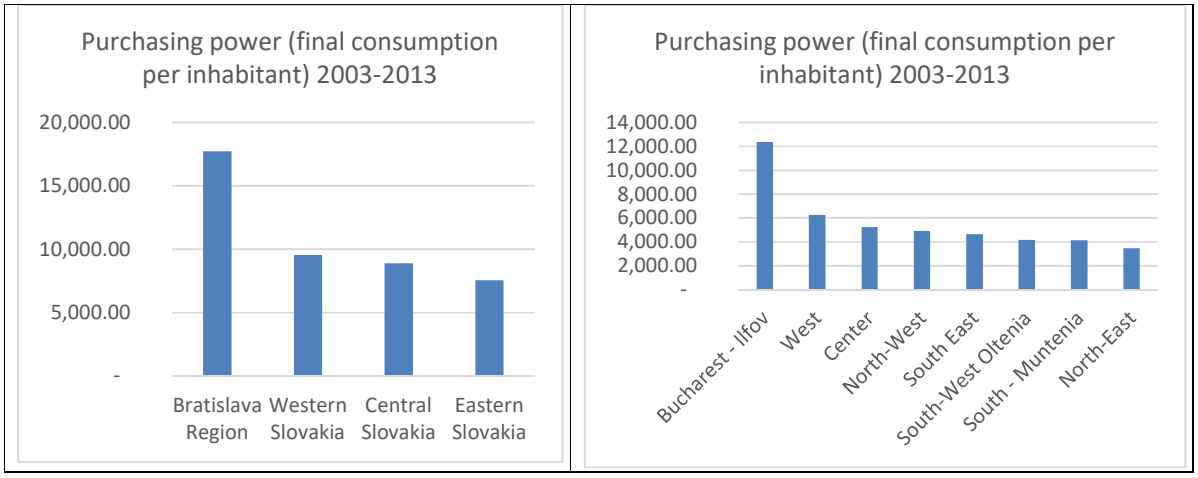
Looking to investigate the regions in terms of income we observe that in Slovakia the regions with the highest level of households income and purchasing power are Bratislava Region and Western Slovakia Region, while the lowest level oh income and purchasing power is found to be in Eastern Slovakia. For Romania the regions where the household have the highest income and purchasing power are Bucharest-Ilfov Region and West Region contrary to North-East Region where the lowest level of the two indicators is registered.

Figure 3. Income of households in Slovakia (a) and Romania (b)



Source: authors calculation based on data retrieved from Eurostat database

Figure 4. Purchasing power standard based on final consumption per inhabitant in Slovakia (a) and Romania (b)



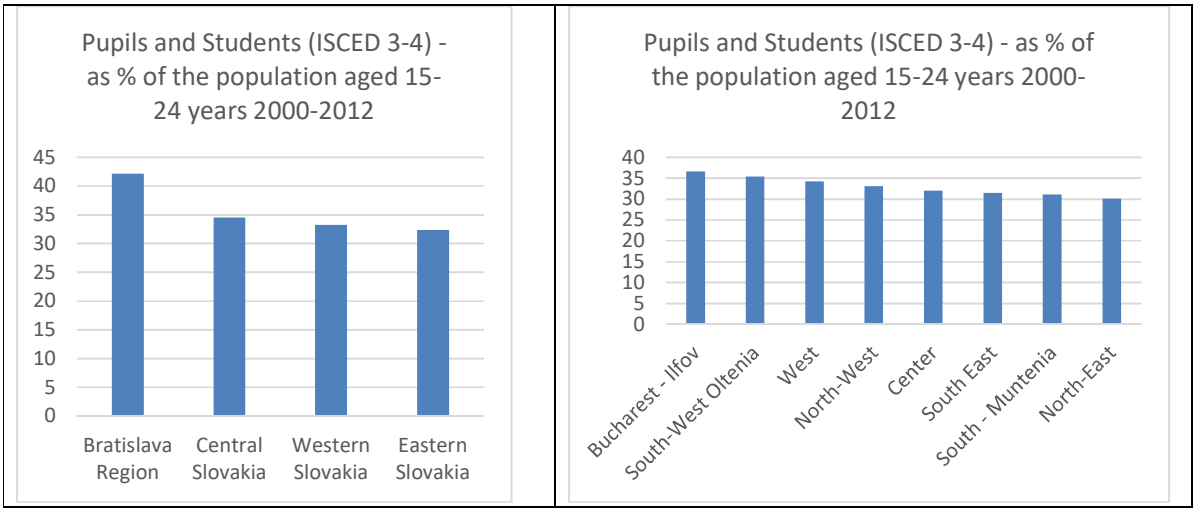
Source: authors calculation based on data retrieved from Eurostat database

Education characteristics

In terms of education it can be observed in Figure 5. a) and b) that for both countries the majority of population follows upper secondary, post-secondary and/or non-tertiary education in all regions, with the highest levels recorded in regions formed around the country capital city, Bratislava and Bucharest.

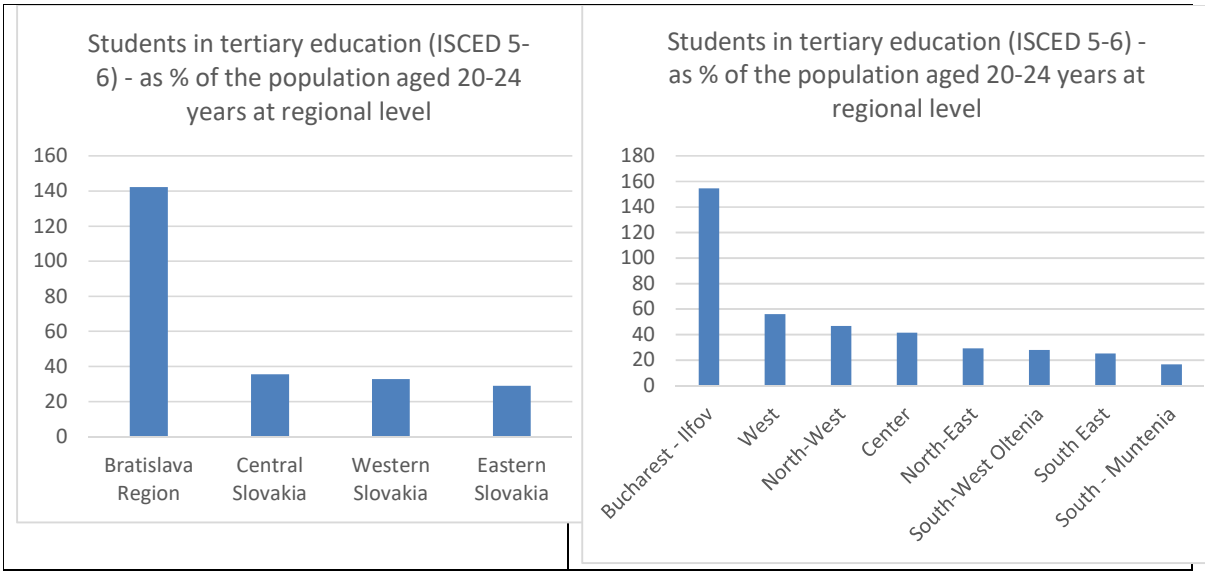
When it comes to tertiary education, the statistics reveal large differences. If in Bratislava Region we reveal an average of 142% following an university, in Eastern Slovakia Region only 29% of people between 20-24 years follow university studies. For Romania the statistics are similar, from 155% in Buharest-Ilfov to 17% in South-Muntenia.

Figure 5. Pupils and Students in upper secondary and post-secondary non-tertiary education (ISCED 3-4) - as % of the population aged 15-24 years at regional level in Slovakia (a) and Romania (b)



Source: authors calculation based on data retrieved from Eurostat database

Figure 6. Students in tertiary education (ISCED 5-6) - as % of the population aged 20-24 years at regional level in Slovakia (a) and Romania (b)



Source: authors calculation based on data retrieved from Eurostat database

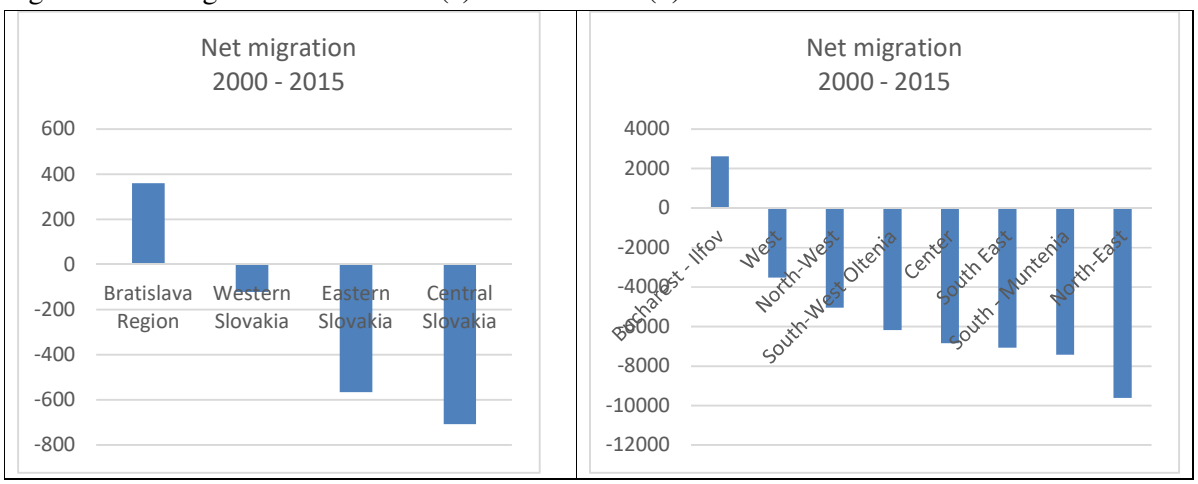
Demografic characteristics

In terms of demografic characteristic both countries reveal similar results. To be more precise, in the most developed regions, namely Bratislava Region and Bucharest-Ilfov Region over the period 2000-2015 the net migration is positive, while the rest of the regions have a negative migration. For exemple, in Romania the highest level of population leaving the region is found to be in the North-East Region, region that is also characterised by the lowest level of household income and purchasing power.

Regarding fertility rates, the results are similar again, the region considered most developed and with a higher level of educated, skilled population present a low fertility contrary to regions with a lower level of education.

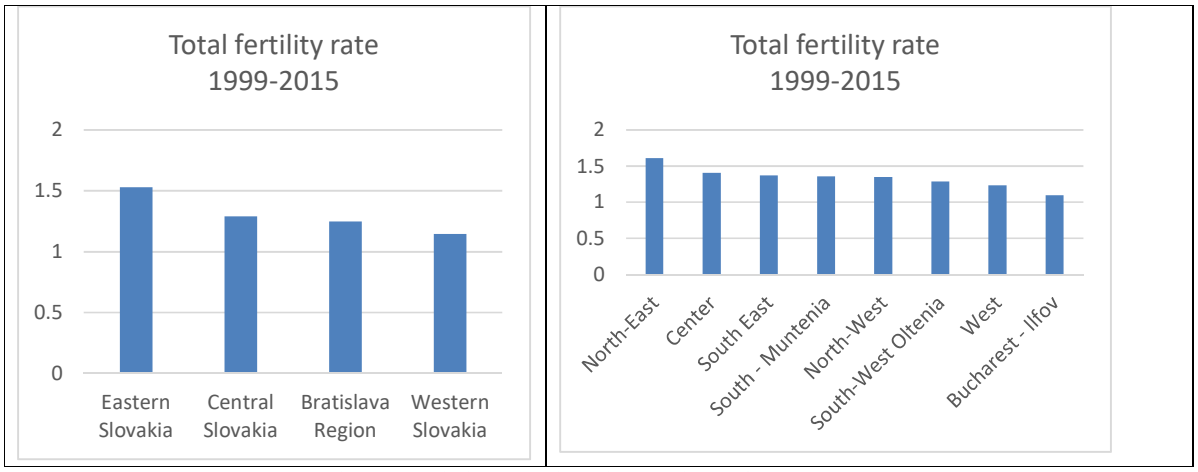
The lowest percentage of people at risk of poverty or social exclusion are found in Bratislava Region and Bucharest-Ilfov region, while the highest level in Eastern Slovakia Region and North-East Region.

Figure 7. Net migration in Slovakia (a) and Romania (b)



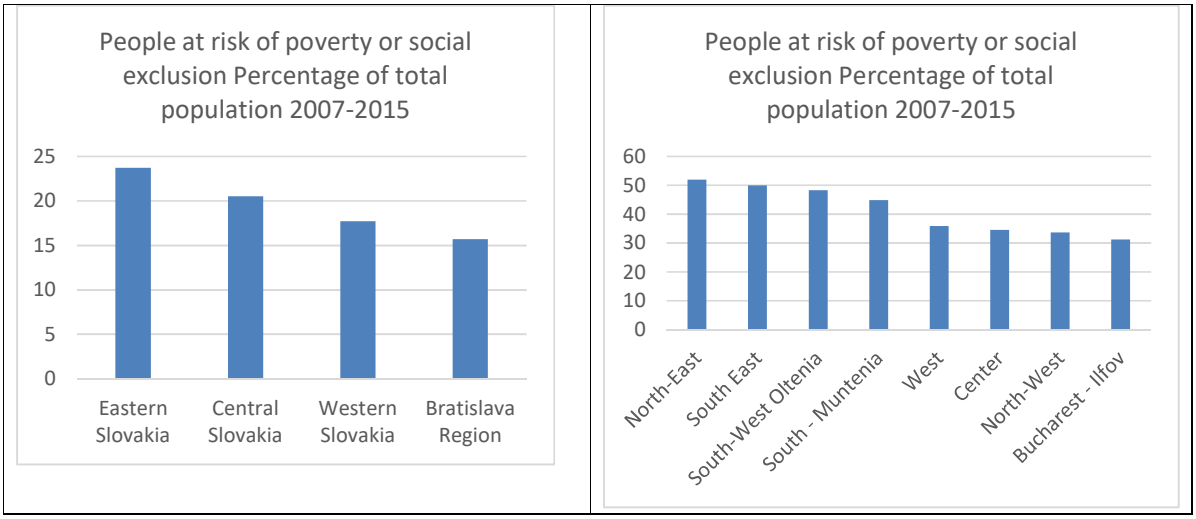
Source: authors calculation based on data retrieved from Eurostat database

Figure 8. Total fertility rate in Slovakia (a) and Romania (b)



Source: authors calculation based on data retrieved from Eurostat database

Figure 9. People at risk of poverty or social exclusion percentage of total population in Slovakia (a) and Romania (b)

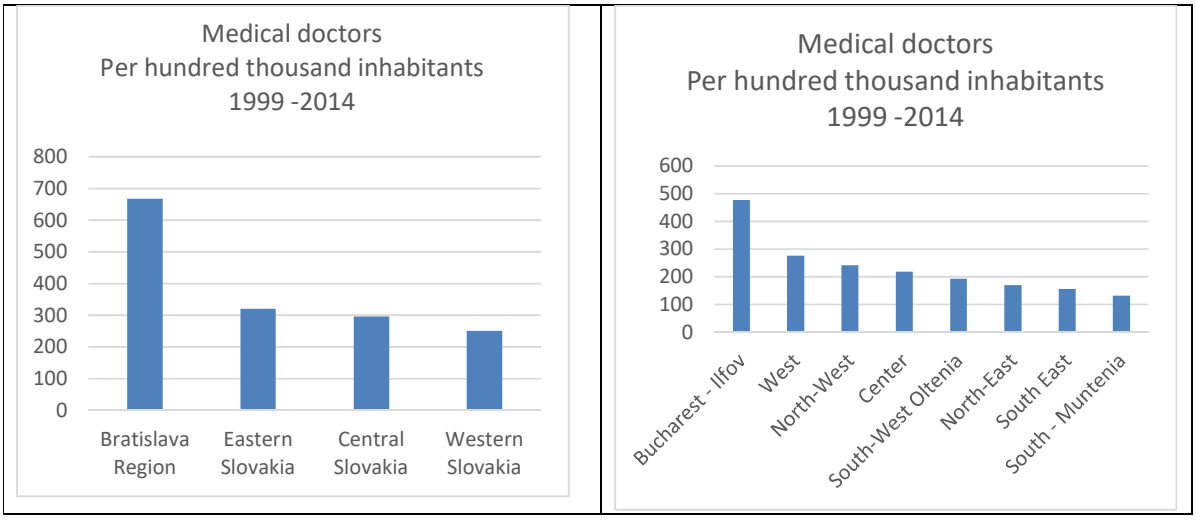


Source: authors calculation based on data retrieved from Eurostat database

Health characteristics

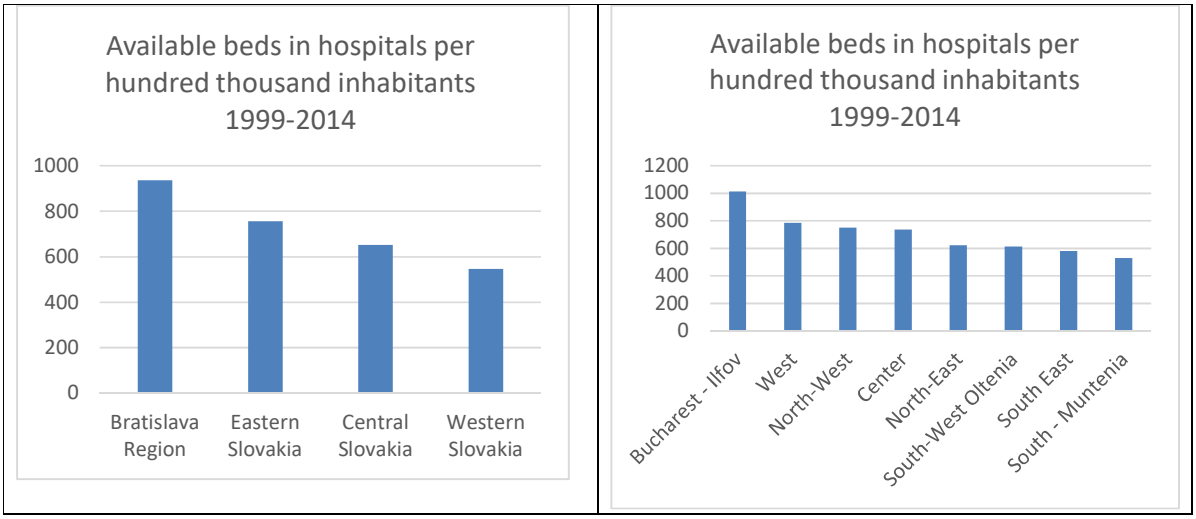
In terms of health characteristics both countries reveal similar results. To be more precise, in the most developed regions, namely Bratislava Region and Bucharest-Ilfov Region the number of medical doctors it is almost double than in the the rest of each country regions. The hospital concentration follows the statistics for medical doctors, but not with so much differences.

Figure 10. Medical doctors per hundred thousand inhabitants in Slovakia (a) and Romania (b)



Source: authors calculation based on data retrieved from Eurostat database

Figure 11. Available beds in hospitals per hundred thousand inhabitants in Slovakia (a) and Romania (b)



Source: authors calculation based on data retrieved from Eurostat database

4. Conclusion

After analyzing the regional characteristics in Slovakia, the Okun's Law appears not to be statistically significant in the Slovak regions in which average and long-term unemployment are high and GDP level calculated as euro per inhabitant is relatively low. These results are to be related to the deindustrialization process that followed the end of the Cold War, generating high and persistent unemployment due to obsolete skills. Furthermore, these findings raise serious regional development concerns, as regions with high unemployment may be caught in an underemployment trap, in addition to the underdevelopment trap due to the presence of relatively lower economic growth rates over the period. In addition, the region where the Okun coefficient is not significant, namely Eastern Slovakia Region is characterized by the lowest level of households income, purchasing power, young population aged 20-24 attending an university, the highest level of people at poverty risk or social exclusion. Moreover the highest level of fertility rate is explained by the lowest tertiary education level.

Turning our attention to Romania, after analyzing the regional characteristics we observed that the regions were Okun's Law is not statistically significant are the two most developed ones in terms of GDP level calculated as euro per inhabitant, namely Bucharest – Ilfov and West. Looking at the long term unemployment the above two mentioned problem do not manifest a problem over the analyzed period. In addition, these region are also characterized by the highest level of households income, purchasing power, young population aged 20-24 attending an university, the lowest migration and lowest level of people at poverty risk or social exclusion. Moreover the lowest level of fertility rate is explained by the highest level of people that attend an university.

As a general conclusion, several economic policy recommendations can be formulated. Firstly, it is essential for the public authorities to take account of regional specificities in the composition of their policies on growth and employment. On the one hand, in regions where the income-unemployment link is insignificant, public authorities can not make use of demand policies

to reduce unemployment. These regions need measures aimed at making the regional labor market more flexible, such as better matching the unemployed to job offers or encouraging population movements, may prove to be more effective. On the other hand, in regions were Okun's Law is significant, the government can reduce unemployment through macroeconomic policies of Keynesian inspiration aiming to increase the GDP growth rates of these region, for example, through more investments in these region (internal or foreign), investments in transportation (highways)

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