ASPECTS RELATED TO URBAN DEVELOPMENT OF GROWTH POLES IN THE CONTEXT OF COHESION POLICY AND EUROPE 2020 STRATEGY

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ABSTRACT

In the framework of Europe 2020 strategy for smart, sustainable and inclusive growth and of the urban dimension of the EU regional policies, taking into account recent literature on economic growth, we focus on analyzing the extent to which metropolitan regions (NUTS3 urban predominant regions), as growth poles, especially from Romania and from EU member states and regions with similar levels of development, contribute to economic growth, from the perspective of employment-related issues. The variables included refer to labor market indicators, in conjunction with demographic data, from Eurostat, providing a more comprehensive understanding of the contribution of growth poles to the overall development of country, in comparison with the capital region, the national average and EU27 average. The selection of growth poles from countries with similar levels of development as Romania is based on previous research results of cluster analysis for year 2010, conducted using headline indicators of Europe 2020 strategy and GDP per head, for country level, and cohesion policy indicators, for NUTS2 regional level, looking for possible overlaps of the country and regional clustering that include Romanian regions..

KEY WORDS

Metropolitan regions, growth poles, employment, Europe 2020, cohesion policy

INTRODUCTION

The urban dimension has been growing more and more visible in the European policies, which promote an integrated approach to growth, from economic perspective, with focus on smart growth, to environment protection, for sustainable growth, and with taking into account also the social aspects, towards inclusive growth, with integrated approach, so that urban areas may have significant performances, thus contributing also to reaching the targets set within the Europe 2020 strategy.

While interested in analyzing growth poles from countries with similar levels of development as Romania, we place our analysis in the context of European policies, more specifically taking into account Europe 2020 strategy and cohesion policies. We ground our interest also on one of the rationales for the existence of the regional development policies, regarding the need to counterbalance the influence of the capital city on the development of the other regions from the country (Parr, 2015), which from urban perspective implies the focus on cities other than the capital cities.

The European regional policy "targets all regions and cities in the European Union in order to support job creation, business competitiveness, economic growth, sustainable development, and improve citizens' quality of life." This investment policy aims to "reduce

the significant economic, social and territorial disparities that still exist between Europe's regions", promoting solidarity within the EU with countries and regions with lower levels of development. The cohesion policy has developed over time, growing in scope and objectives to the point of becoming all-encompassing, which in turn generated major drawbacks in measuring the policy impact (Iain Begg, 2010).

Europe 2020 strategy for smart, sustainable and inclusive growth represents an economic 10-year strategy, adopted in 2010, which takes into account the effects of the economic crisis in overcoming "the structural weaknesses in Europe's economy, improve its competitiveness and productivity and underpin a sustainable social market economy".

It seems that the critiques brought to the cohesion policy have been taken into consideration in shaping this strategy, as this strategy includes headline indicators set at European level in relation to employment, research and development, climate change and energy sustainability, education, poverty and social exclusion; these headline indicators have been assumed individually by European Member States, thus enabling monitoring of progress and evaluating achievement (with some limitations in measuring inclusive growth, generated by data availability for established indicators and by different methodologies in quantifying poverty and social exclusion in the Member States), and implicitly facilitating the evaluation of the possible success of joint European policy efforts towards common targets.

We need to provide a very brief overview of specific literature related to growth theories, including spatially-connected economic growth, and to growth poles, thus placing the analysis into a wider context, which we consider relevant for our analysis. (Table 1). Thus, as shown in table 1, while economic growth theories bring into discussion exogenous vs endogenous influences in generating economic growth, when adding a geographical dimension into the analysis, attention turns towards concepts such as growth poles, learning regions, competitive advantages, agglomeration economies. When analyzing the evolution of growth pole theories, looking for models for urban and regional development, the growth pole model and that of integrated development are identified in different combinations, the usage of these models in parallel, combined, under the influence of country specificities and level of development, of government strategic social-economic decisions and of international influences. (Christofakis and Papadaskalopoulos, 2011).

Table 1. Brief literature overview on economic growth

Economic growth		Spatially connected economic growth		Urban and regional development – growth related	
Theory – brief description	Source	Theory – brief description	Source	Theory – brief description	Source
Neoclassical theories - growth generated by labor and capital, and technological progress was considered exogenous factor, with	Sollow (1956)	cumulative causation theory - the initial conditions of a place may incrementally and self-sustainably determine economic growth, and	Myrdal (1957) apud Artelaris, Arvanitidis and Petrakos (2006)	Growth poles theories focus on the attractiveness of activities and concentration of economic growth in poles (polycentrism), which in turn propagates	Perroux (1955) and Boudeville (1968) apud Christofakis and Papadas-kalopoulos (2011)

Economic growth		Spatially connected economic growth		Urban and regional development – growth related	
investment rates emphasized as important in generating growth. - Exogenous generated growth		these may account for the differences in performance among various economies		development in the neighboring areas.	
Endogenous theories - knowledge represents a major endogenous factor to be considered as leading in self-supported growth; main determinants are considered to be human capital and innovation. - Endogenous generated growth	Romer (1986)	New Economic Geography theories - center-periphery models, focus on location of economic activities, specialization and agglomeration	Krugman (1991) apud Artelaris, Arvanitidis and Petrakos (2006)	Integrated spatial development models are grounded on the usage of endogenous potential of regions.	Coffey and Polese (1985) and Barquero (1991) and Garofolli (2002) apud Christofakis and Papadas-kalopoulos (2011)

(Source: Bere et al., 2014)

The Europe 2020 strategy relies on endogenous theories, and in order to conduct our analysis, we additionally chose to take into account a spatial dimension relying on new economic geography theories, thus focusing on growth poles.

Taking into account recent growth-related theories, and the previously mentioned policy framework, we focus our research on the extent to which growth poles (metropolitan regions-NUTS3 predominantly urban regions) contribute to economic growth, focusing especially on Romania and EU member states and regions (NUTS2) that have similar levels of development. Moreover, we are interested to analyze the development of the metro regions with similar levels of development as those from Romania from the perspective of employment-related issues, as employment rate is present both among the headline indicators of the Europe 2020 strategy and among the relevant indicators of the cohesion policy, as mentioned on Eurostat. Within the analysis, we shall also take into account demographic aspects, to ensure a better understanding of the contribution that metropolitan regions may bring to country development, compared to the capital, with the national average and the EU-27 average.

METHODOLOGY

We focused the analysis on descriptive statistics, as this article aims to provide a radiography of the growth poles, with focus especially on employment related issues. However, for a more comprehensive understanding of the contribution of growth poles to the overall development of country, demographic data have been analyzed in conjunction with the labor market indicators.

In the absence of generally accepted criteria for determining growth poles, taking into account the elements related to agglomeration from the new geography theories, e.g. number of population, that confirm the growth poles, the selection of growth poles was done taking into consideration the metro-regions defined by Eurostat as cities with more than 250.000 inhabitants. Of these, we took into account the fact that the capital cities were also included in the metro-regions, and could therefore assess the different levels of development of the various metro-regions, acting as growth poles, compared to the capital cities (where such growth poles exist outside the capital city). Similar analyses on growth poles were conducted within an ESPON-funded applied research project. We analyzed the metro regions from the countries within the same cluster as Romania.

We based our selection of metropolitan regions on previous research results, from an article presented at the international conference for applied statistics (2014), which focused on identifying regional disparities that existed in the EU in 2010, assessing the extent to which regional development of EU-27 member states measured through the cohesion policies indicators is similar to the development of EU-27 member states, as defined by the Europe 2020 strategy. The previous research reconfirmed that disparities both within countries and among the various EU countries.

Based on cluster analysis in which we identified the countries and regions with similar levels of development with Romania, we conducted the analysis on the metro regions (growth poles) from the cluster of countries that includes Romania. The cluster analysis, conducted for the year 2010, was based on headline indicators of Europe 2020 strategy and GDP per head, for country level, and on cohesion policy indicators, for NUTS2 regional level, using data from Eurostat, with looking for possible overlaps of the country and regional clustering. Choosing the year 2010 for analysis was based the fact that this was the year in which the Europe 2020 strategy was adopted and taking into account availability of most recent data cumulated for countries (Europe 2020 headline indicators) and NUTS2 regions (cohesion policy indicators) and metro regions (employment and demographic indicators). The analysis did not include Croatia, which was not EU member state for the year chosen for analysis.

In the case of country clustering for the EU 27 Member States, based on the number of 4 clusters, we conducted K-Means cluster analysis in order to identify the cluster membership of EU countries, based on Europe 2020 headline indicators and GDP per head. The clustering was performed similarly for regional level, using K means clustering to identify cluster membership of regions. As we used country as unit of analysis, we then identified country belonging of regions and identified the overlaps of countries and regions clusters, aware that a country may appear in more than one cluster, due to possible differences in development of regions within a specific country.

We overlapped the clusters of countries that include Romania from the two cluster analyses, in order to identify the countries from which to select the growth poles. As our interest is related to growth poles, outside the capital city, which to counterbalance the influence of the capital in the economy, we did not analyze the cluster which includes the capital city, but only the cluster that includes regions other than the capital region from Romania.

In order to assess the different levels of development among EU states, in our analysis took into consideration strategic and policy dimensions, more specifically the Europe 2020 strategy, which aims for achieving smart, sustainable and inclusive growth. The indicators included in the analysis are the Europe 2020 headline indicators provided by Eurostat, referring to employment, gross domestic expenditure on R&D, resource efficiency and use of renewable energy, education and social inclusion.
We included the indicator related to people at risk of poverty and social exclusion for the social indicators related to inclusive growth, as the Eurostat methodology shows that it includes the other three indicators available. Moreover, we included also a macroeconomic indicators, GDP per head, expressed in Euro, as additional indicator that shows the level of development.
The results of the clustering indicate the fact that there are disparities among regions in Romania, with the capital holding a higher level of development than the other regions. Such disparities are also visible in other countries, where the capital region is included in a different cluster than the rest of the regions of the respective country.

Table 2: Comparison of results of cluster analysis at country and region level for clusters that include regions outside the capital of Romania

CLUSTER	Country – group resulting from cluter analysis based on Europa 2020 key indicators	Regions – group reflected at country level resulting from cluster analysis based on indicators of cohesion policy
Cluster 4	Bulgaria, Estonia, Greece, Latvia, Lithuania, Malta, Poland, Portugal, Czech Republic, Romania, Slovakia and Hungary	Belgium, **Bulgaria, Estonia,** France, **Greece,** Italy, **Latvia, Lithuania, Malta, Poland, Portugal, Czech Republic, Romania, Slovakia,** Slovenia, Spain and **Ungaria**

In the composition of this cluster of regions there are all four countries of the cluster of countries resulting from the cluster analysis performed based on Europe 2020 indicators (Bulgaria, Estonia, Greece, Latvia, Lithuania, Malta, Poland, Portugal, Czech Republic, Romania, Slovakia and Hungary), confirming that these countries have similar levels of development even on a regional level, considering that most regions of these countries are included in this cluster. In this cluster there are also regions from Belgium, Spain, France, Italy and Slovenia.
The results of the clustering of regions show that there are also disparities among regions from a specific country, including Romania, with the social-economic development of the capital city exceeding the regional development of the country. Such disparities have been also visible in other countries, with the capital region included in a different cluster than other regions of the country. Such potential and the tendency of capital cities to mobilize more resources could explain their inclusion in a different cluster, with higher levels than the other regions of the country. These capitals are in a different cluster than the metro regions / growth poles from their respective country, reconfirming the rationale for the existence of regional development policies with urban dimension.

ANALYSIS AND DISCUSSIONS

As we are interested in analyzing how growth poles outside the capital develop, we shall focus our analysis on clusters 4 of countries. Given the partial overlap of the cluster of countries and regions resulting from cluster analysis that was performed for the

identification and selection of metropolitan areas NUTS3 EU countries with similar development levels as Romania, countries that are taken into consideration are those that appear on both clustering analyses: Bulgaria, Estonia, Greece, Latvia, Lithuania, Malta, Poland, Portugal, Czech Republic, Romania, Slovakia and Hungary. Based on this selection we identified 50 metro regions in the countries above, which also include 12 capitals of the respective countries.

For countries taken into consideration for analysis in cluster 4, after checking the regional ownership of the capitals, from those 12, 8 are in cluster 3: Bucharest (Bucharest-Ilfov) – Romania; Budapest (Region Kozep-Magyarorszag) – Hungary; Sofia (Yugozapaden region) – Bulgaria; Prague (Praha region) – Czech Republic; Warsaw (Mazowieckie region) – Poland; Bratislaval (region Bratislavsky kraj) – Slovakia; Lisbon (Lisboa region) – Portugal and Athens (Attiki) – Greece.

Since the analysis addresses cities, growth poles that can generate economic development outside the capital cities and the development of the capital is used for comparison along side the national average and the UE 27 average, we consider that partial presence of the capitals in this cluster does not affect the composition of the target group of metropolitan areas.

The level of economic development reflected in the GDP per capita figures reinforces the significant role that the capital of the country has on the national economy, which, in the case of Slovakia and Greece capitals, exceed the EU 27 average of this indicator (24,600 euros per capita). Relating to the percentage growth of GDP per capita in the capital compared to the national average, we can comparatively see the development level of the capitals.

The capital of Slovakia, Romania and Poland are placed in the upper quartile, with percentage growth level of the GDE per capita of over 200% compared to the national average, and the capital of Bulgaria in near proximity (202, 44%), thus highlighting the significant disparate level in the country's economic development, which poses the question of the importance that development of metropolitan areas outside the capital may have.

Table 3 Descriptive statistics on the percentage of growth in GDP per capita than the national average in metropolitan areas of the capitals of the EU countries with similar levels of development as Romania, year 2010 (2015)

Descriptive statistics	
Average	165,8%
Median	148,1%
Percentile 75	203,95
Percentile 25	138,08%
Percentile 90	223,88%
Percentila 10	130,32%

In the case of metropolitan areas that are not capitals, it can be observed that they behave differently, some having values over the national average of GDP per capita and other below those values. This draws the attention on the fact that some metropolitan areas can act as growth poles of national importance, generating economic growth outside the capital,

highlighted with values over the national average for the GDP per capita indicator which is taken into account in the present analysis.
Other metro regions, which are below the national average can in turn generate economic growth at a lower level in the region that to which they belong. This is the case of metropolitan areas outside the capital in Hungary, Lithuania, Slovakia and Greece, where the economy tends to be dominated by the capital, and also some form Poland and Romania, one from Bulgaria that have values below the national average.

Figure 1. GDP per capita in metropolitan areas in countries with similar levels of developments as Romania, 2010 (2015)

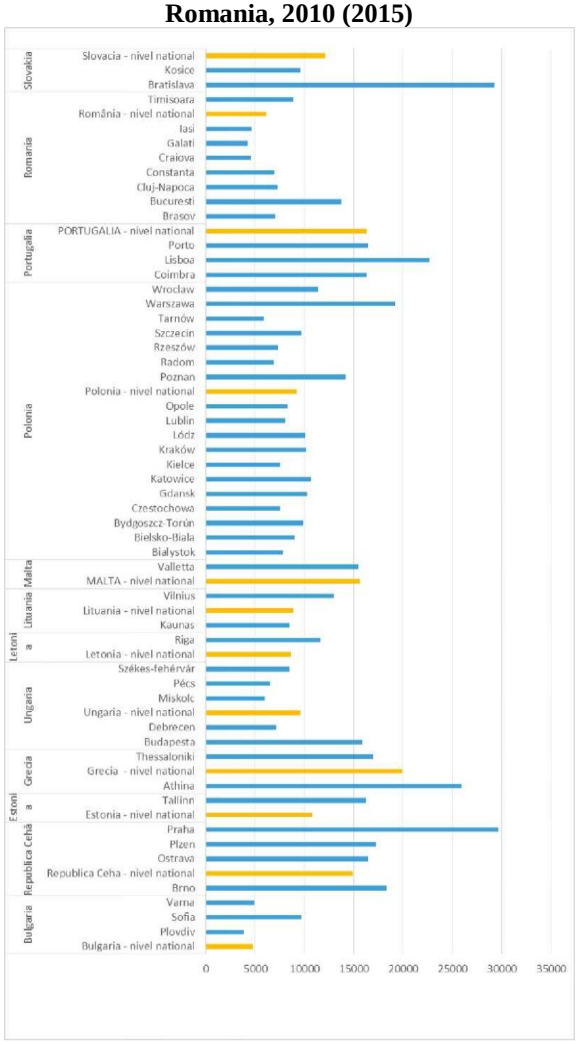
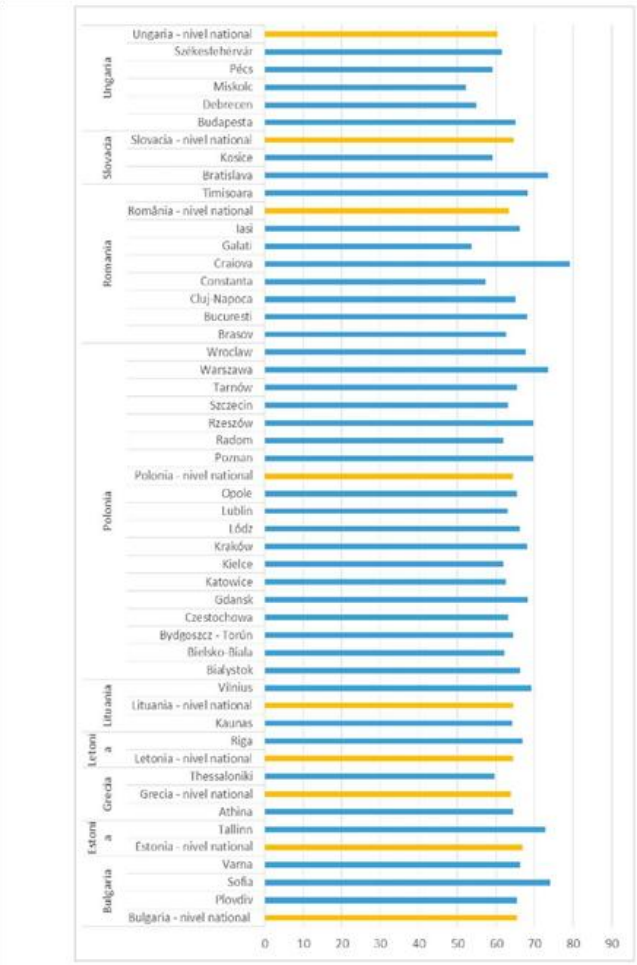


Figure 2. The employment rate in metropolitan areas in countries with similar levels of development as Romania, year 2010 (2015)



(Source: author calculations, Eurostat data)

The Pearson correlation between GDP per capita and employment rate ($r = 0.408$, $p = 0.005$), the natural change from 1000 inhabitants ($r = 0.472$, $p = 0.0005$), and population

density (r = 0.493, p = 0.0003) correlated positively to a significance level of 0.01. Also, with the exception of unemployment (r = 0.084, p = 0.581), there is a positive correlation with GDP per capita net migration (r = 0.304, p = 0.032).

Table 4. Descriptive statistics on GDP per capita and employment rates by age 20-64 years in the metropolitan areas of EU countries with similar levels of development as Romania, year 2010 (2015)

	PIB per capita	Employment rate
Mean	11111.466	65.53478
Standard Error	789.4512145	0.817426
Median	9724	65.5
Mode	#N/A	66.4
Standard Deviation	5582.263072	5.544055
Sample Variance	31161661.01	30.73654
Kurtosis	1.786971644	0.430343
Skewness	1.326893234	-0.11962
Range	25391.2	27
Minimum	3850	52.2
Maximum	29241.2	79.2

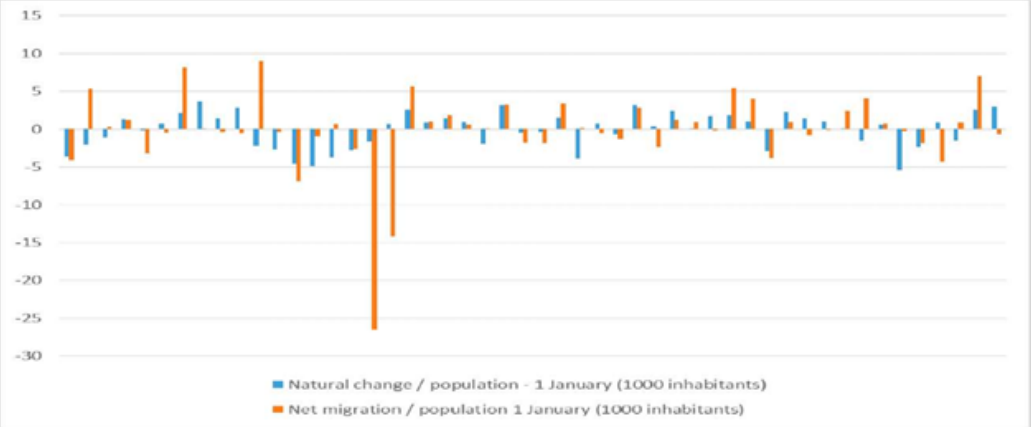
Also, for the employment rate of people with the age of 20-64 years, it can be seen that the capital assimilates more workforce than the other metropolitan areas of the country, going over the average level of the country, and in the case of Slovakia, the Czech Republic, Bulgaria, Poland, Estonia and Lithuania even the EU-27 average is exceeded (68,6%), along with some other metropolitan regions from the Czech Republic (2) and Poland (2), and also one from Romania. Note that in the absence of data on the employment rate in Malta and Portugal, they were excluded from the analysis on the employment rate.

In the case of Romania poles, we can see a different evolution in comparison with the other countries in terms of employment rate. Whereas in other European Union countries with similar levels of development with that of Romania, capital occupancy rate is above that of other growth poles in the country, in Romania the capital occupancy rate exceed the growth poles, one of which recorded a higher employment rate than the EU 27 average. Craiova stands out with an occupancy rate of the labor force higher than in other European capitals of countries with similar levels of development as Romania. Craiova is one of the cities with automotive production and has the capacity to employ labor in the production of automobiles, the economic specialization in this case contributes visibly to the development of the growth pole.

Demographic indicators can have a significant impact on the economic development of the country and the structure of the economically active population and this on employment. Figure 3 indicates that not all metropolitan areas considered in this analysis have the capacity to generate (natural growth) and attract population (net migration), to attract labor. It is possible that these issues be clarified in analyses conducted at a country level, taking into account specific contexts. For example, in the case of Hungary, net migration and demographic indicators on natural population change indicates that some metropolitan

areas where the population is declining, in the case of Hungary is decreasing in metropolitan areas outside the capital, which in turn has the net migration rate as positive value.

Figure 3. The rate of migration and natural population growth in the metropolitan areas of EU countries with similar levels of development as Romania in the year 2010 (2015)



(Source: Eurostat data)

The analysis indicated a positive correlation between net migration and economic active population (r=0.300, p=0.0429) and a stronger negative correlation between net migration and unemployment (r=0.54, p=0.000). Thus, we believe that the growth poles are able to attract labor and given the negative correlation between net migration and unemployment, we can conclude that net migration increases when growth poles have the ability to generate employment. If these trends are maintained over time, they may have positive effects on the regional market growth poles.

CONCLUSIONS

As the need to counter the effects of the economic crisis is still in demand, analyzing and adapting the Europe 2020 strategy becomes more and more important. Implementing the strategy in countries that have underdeveloped growth poles and further improving the strategy so that it can become a reliable measure for the economic crisis that started in 2008 is what can prevent a future crisis from affecting the EU in the years to come is highly recommended.

As shown, second-tier cities as growth poles can contribute to increase the GDP per capita at a national and regional level by increasing employment rates. Developing these growth poles will contribute to a better implementation of the Europe 2020 strategy, by developing a smarter, fast growing, intelligent, green economy that in turn will affect employment rates and contribute to social progress.

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