

Economics

Commensurate Development of Georgia and Other Countries Using Assessment Indicators

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(Presented by Academy Member Vladimer Papava)

The paper focuses on the issue of commensurate economic development of Georgia and other countries. Attention is drawn to the fact that the existence of incommensurate economic development between the capital city and the regions in a country tends to significantly aggravate the socio-economic background. This comes, on the one hand, from the depopulation of less developed regions, and, on the other, from the resulting relatively developed but resource-stretched capital city, with its excessively concentrated population. The aim of this paper is to analyze the meaning of commensurate economic development for individual countries, and to look for ways to minimize the existing imbalance in the focus countries, for which theoretical materials on the issue are used, as well as statistical data supported by the author's own assessment indicators. The evaluation method of commensurate development of the country's economy is a novelty in the field of economic science, which enables to compare the economic development levels of any territorial units in the country or to make use of their combination. © 2024 Bull. Georg. Natl. Acad. Sci.

commensurate economic development, deviation coefficients

Commensurate development is one of the main challenges facing countries in the modern period. The existence of a significant imbalance between the development levels of the capital city and that of the regions can put the socio-economic development potential of any country under a shadow, and, indeed, the majority of countries today are characterized by such an imbalance.

Regions are prone to depopulation and marginalization [1:415, 2:1], which are caused by the mentioned imbalance. It is impossible to identify one main factor that drives depopulation, making it difficult to implement the necessary policies to deal

with the issue, although there are different sets of factors which lead to the fact, including a combination of political, socio-economic, institutional and socio-cultural environmental factors [3:24]. Among the economic factors, the volume of investments in the regions, access to capital, proper infrastructure, undevelopment of industry (or its absence), lack of drinking water, and unemployment, which all potentially lead to poverty and migration, are noteworthy. Social factors such as low incomes and high prices in the regions, as well as the scarcity of attractive places for young people to pass the time – can be highlighted here.

Institutional factors refer to the characteristics and elements that determine the functioning of institutions and shape public or organizational behavior, while political factors refer to the set of measures taken by the government that serve to promote or prevent certain processes [4].

In a country where the levels of development of the capital city and the regions are sharply incommensurate, the level of internal migration is high, which means that the majority of the population is concentrated in the capital city, and the number of jobs is not enough to satisfy the accumulated population, leading to unemployment. At the same time, economic activity in the depopulated regions is rarely observed, which ultimately results in a decline in the country's economy. Also of note is the fact that an unjustifiably high level of urbanization naturally leads to air pollution, traffic jams, a higher crime rate, rocketing real estate prices and the desertification of territories. As such, it is the agenda of developing countries to minimize the mentioned imbalance.

The assessment of a country's competitiveness is a rather long, complex, yet critically important process. It is necessary to evaluate the country not in one specific direction, but during the evaluation to consider the diversity of aspects surrounding the mentioned issue, a multifaceted mix of economic and statistical indicators. Due to the multitude of economic factors involved in assessing the competitiveness of a country, it is important to use indicators that fully assess the real economic situation of each country.

For a more complete economic analysis of the commensurate development of the country, using the gross domestic product and the population size calculated from indicators of the territorial perspective, we created indicators of assessment for the commensurate development of a country's economy. Through these indicators, it will be possible to compare the level of economic development of different territorial units of the country, namely:

Make a comparison between the level of economic development of a country's capital city and regions with the average economic development of the country as a whole;

Make a comparison between the level of economic development of the capital city of the country and the economic development of said country's regions.

For a complete economic assessment of the commensurate economic development of a country, we worked out the deviation coefficients of the commensurate economic development (K_{R1} , K_{R2} , K_{C1} , K_{C2}), whose general designation is (K_{xn}).

The coefficient of regional deviation from the country's commensurate economic development (K_{R1}) compares the levels of economic development of the regions of the country and the average economic development of the country as a whole, calculated as follows:

$$K_{R1} = \frac{RGDP/RN - GDP/N}{GDP/N} = \frac{RGDP/RN}{GDP/N} - 1, \quad (1)$$

where GDP is gross domestic product, RGDP – regional gross domestic product, CGDP – gross domestic product of the capital, and N – number of population.

The coefficient of regional deviation from the commensurate economic development of the capital city (K_{R2}) shows the deviation of the indicator of the level of economic development of the regions of the country from the level of economic development of the capital city. It is calculated as follows:

$$K_{R2} = \frac{RGDP/RN - CGDP/CN}{CGDP/CN} = \frac{RGDP/RN}{CGDP/CN} - 1. \quad (2)$$

The coefficient of deviation of the capital from the average economic development of the country (K_{C1}) shows how much the level of economic development of the capital lags behind or exceeds the average level of economic development of the country as a whole:

$$K_{C1} = \frac{CGDP/CN - GDP/N}{GDP/N} = \frac{CGDP/CN}{GDP/N} - 1. \quad (3)$$

The coefficient of deviation of the capital city from the proportionate economic development of the regions (K_{C2}) represents the deviation of the indicator of the level of economic development of the capital city from the level of economic development of the regions:

$$K_{C2} = \frac{CGDP/CN - RGDP/RN}{RGDP/RN} = \frac{CGDP/CN}{RGDP/RN} - 1 \quad (4)$$

Along with the formulation for calculating the coefficients of deviation of proportionate economic development, to arrange these coefficients on a numerical axis, and to determine the status of balanced economic development, we worked out three ranges, which are the solutions of the following quadratic functions, respectively:

$$K^2 < 0.25, 2) \begin{cases} K^2 > 0.25 \\ K^2 > 1 \end{cases}, 3) K^2 > 1.$$

The solutions are represented by graphs as areas plotted on a numerical axis (see Fig. 1-Fig. 3).

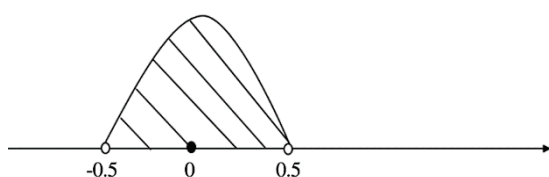


Fig. 1. The solution of function 1.

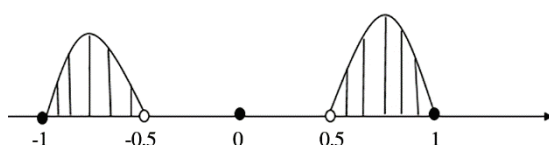


Fig. 2. The solution of function 2.

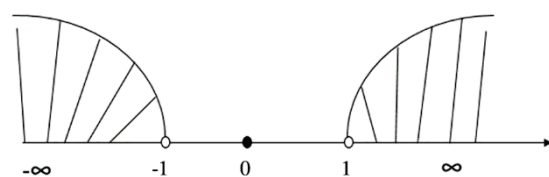


Fig. 3. The solution of function 3.

The range of Level I is $-0.5 < K_{xn} < 0.5$. If the coefficient K_{xn} , rounded to units, is placed in this range, then K_{xn} is in the range of commensurate economic development (Fig. 1). The mentioned range should ideally be narrower, yet the high

imbalance in the rate of economic development of the countries studied does not allow us to do so.

The range of Level II is $0.5 < K_{xn} \leq 1$ and $-1 \leq K_{xn} < -0.5$. If the coefficient K_{xn} , in the case of rounding to units, is placed in $-1; -0.5$ in the $U(0.5; 1)$ range, then it is in the range of incommensurate economic development (Fig. 2).

The range of Level III is $K_{xn} < -1$ and $K_{xn} > 1$. When the K_{xn} coefficient, if rounded to units, falls within the range of $(-\infty; -1) \cup (1; +\infty)$, then it is placed in the range of significantly incommensurate economic development (Fig. 3).

It is noteworthy that in the case of commensurate economic development of a country, each coefficient should tend toward zero. In addition, the area of commensurate economic development is determined by the range in which the coefficient with the highest deviation is included.

We evaluated the proportionate development of the country's economy using the example of 44 countries on the continents of Europe, Asia, North America, South America, Australia and Oceania, for which we used our own economic indicators. Calculations were made on the basis of available statistical bases, after specifying which, the results can be partially changed [5-9].

The result of the mentioned research is presented in Fig. 4, which shows the deviation of zero between each coefficient, indicating the commensurate economic development of the countries in the last decade.

In Fig. 4, we can see that in rounding the deviation coefficients of the proportional economic development of the given countries to units:

- The K_{R1} coefficient is in the Level I range for all countries except Azerbaijan and Moldova, which means that, in these countries, the economic development of the regions follows the development of the capital cities commensurately, while the K_{R1} of Azerbaijan and Moldova fell into the Level II range, and the uneven economic development of their regions was thus revealed.

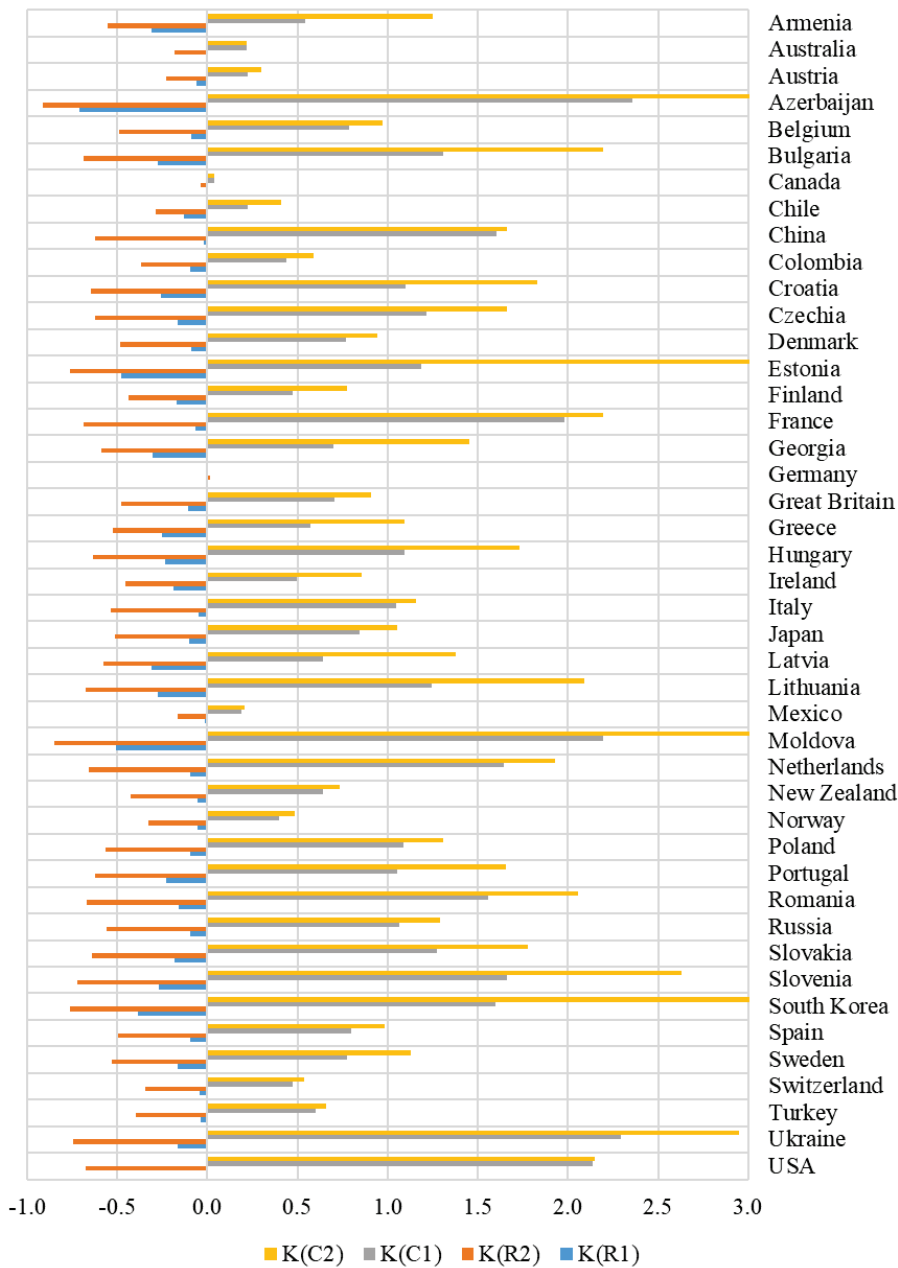


Fig. 4. Values of coefficients (K_{R1}, K_{R2}, K_{C1}, K_{C2}).

- The K_{R2} coefficient fell within the range of Level I in the case of the following countries: Australia, Austria, New Zealand, Belgium, Germany, Denmark, Great Britain, Spain, Turkey, Ireland, Canada, Colombia, Mexico, Norway, Finland, Switzerland and Chile, which means that, for these countries, the economic development of the regions commensurately follows the economic development of the capital city.
- The K_{C1} coefficient fell within the range of Level I in the case of the following countries: Australia, Austria, Germany, Ireland, Canada, Colombia, Mexico, Norway, Finland, Switzerland and Chile, which means that, in these countries, the average economic development of the capital city and the country as a whole follow each other commensurately. The Level II range includes K_{C1} in the following countries:

New Zealand, Belgium, Bulgaria, Denmark, Great Britain, Spain, Estonia, Turkey, Japan, Italy, Latvia, Lithuania, Poland, Portugal, Russia, Greece, Georgia, Slovakia, Armenia, Hungary, Sweden, Czechia and Croatia, which means that the economy of the capital cities of these countries is, on average, developing more than the countries themselves. The K_{C1s} of the remaining countries fell into the Level III range, which means that the economic imbalance of these countries between the average economic development of the country as a whole and the economic development of the capital city is significantly higher, i.e., the capital is developing significantly more than the average economic situation of the country itself. These countries are: Azerbaijan, USA, Moldova, the Netherlands, Romania, South Korea, France, Slovenia, Ukraine and China.

- The K_{C2} coefficient fell within the range of Level I for the following countries: Australia, Austria, Germany, Canada, Mexico, Norway, and Chile, whose average economic development of capital cities and the country itself follow each other commensurately. In the following countries, K_{C2} were included in the range of the second level of balanced economic development, i.e., the range of uneven economic development: New Zealand, Belgium, Denmark, Great Britain, Spain, Turkey, Japan, Ireland, Italy, Colombia, Latvia, Poland, Russia, Greece, Georgia, Armenia, Finland, Sweden and Switzerland. K_{C2} – in the range of Level III, where the economic development of the capital city is significantly ahead of the economic development of the regions, was found in the case of the following countries: Azerbaijan, the USA, Bulgaria, Estonia, Lithuania, Moldova, the Netherlands, Portugal, Romania, South Korea, France, Slovakia, Slovenia, Ukraine, Hungary, Czechia, China and Croatia.

We can conclude that Australia, Austria, Germany, Canada, Mexico, Norway and Chile are

countries with a commensurate economic development status, as all four of our calculated coefficients for these countries placed in the range $-0.5; 0.5$. The mentioned coefficients, rounded to units, are equal to zero, so, the imbalance of economic development is less than 50%. In the range of $-1; -0.5$ U $0.5; 1$ were New Zealand, Belgium, Denmark, Great Britain, Spain, Turkey, Japan, Ireland, Italy, Colombia, Latvia, Poland, Russia, Greece, Georgia, Armenia, Finland, Sweden and Switzerland, for which the commensurate economic development coefficients rounded to the nearest unit are equal to one in the module, so, the imbalance of economic development ranges from 50% to 100%. In the $(-\infty; -1) \cup (1; +\infty)$ range, which characterizes significantly incommensurate economic development, were Azerbaijan, the USA, Bulgaria, Estonia, Lithuania, Moldova, the Netherlands, Portugal, Romania, South Korea, France, Slovakia, Slovenia, Ukraine, Hungary, Czechia, China and Croatia. The coefficients of economic commensurability of these countries, rounded to the nearest unit, exceed one in the module; that is, there is an imbalance of economic development of more than 100%.

Based on the results of our analysis of the balanced economic development of 44 countries of the world, it is clear that there is no regularity that distinguishes the balanced development of any one country from another. Among these countries, there are both developed and developing states, although the results inform us that incommensurate development between the regions and the capital city is typical in both cases.

One of the most important findings of our research was that, among the countries with commensurate economic development, two with exceptionally commensurate economic development, Germany and Canada, were identified, for which the value of all four coefficients of commensurate economic development is almost equal to zero. This means that there is almost no imbalance between the economic development of the region and that of the capital city, and that their

economic development is equal to each other, that is, it is commensurate. By rounding the coefficients of commensurate economic development to hundredths, we get $K_{R1}=0.00$, $K_{R2}=0.01$, $K_{C1}=0.01$, $K_{C2}=0.01$ for Germany, and for Canada: $K_{R1}=0.00$, $K_{R2}=0.04$, $K_{C1}=0.04$, $K_{C2}=0.04$. We can see that Germany is ahead of Canada in terms of the level of economic development and has no analogues in the world. As such, it is an ideal country for our research, and represents a world standard of commensurate economic development. The formulas we have developed confirm the ideal result that the research sought to reveal: Germany is the most consistent as a benchmark country, and it clearly has such approaches to economic development that lead it to commensurate economic development.

Our coefficients of commensurate economic development are a measure of commensurate economic development within the country, and our ranges of proportional economic development determine the status of commensurate economic development of the country. This knowledge will motivate economists in both developed and

developing countries to create mechanisms for each coefficient adjusted to their own country, which will bring these coefficients closer to zero and raise the level of the country's commensurate economic development. For this, we deem it necessary to study the German methods and approaches in more depth, by doing so, eventually leading countries to a situation whereby a person can achieve economic success without leaving their own region. Moreover, they will have enough time and means to create economic power in their own region, and to participate in the development of that region in various ways. This, in turn, will increase the involvement of the regions in the overall development of the country and will see the beginning of accelerated and higher development of the national economy. In parallel, and as a result, many of the present issues will be resolved, among them depopulation, the unjustifiably high level of urbanization, air pollution, desertification of territories, traffic jams in central cities, the crime rate will be reduced, and real estate prices in different territorial units will balance out and equalize.

*ეკონომიკა***საქართველოსა და სხვა ქვეყნების თანაზომიერი განვითარება შეფასების ინდიკატორების გამოყენებით****გ. ელიზბარაშვილი**

ივანე ჯავახიშვილის სახ. თბილისის სახელმწიფო უნივერსიტეტი, ეკონომიკისა და ბიზნესის ფაკულტეტი, თბილისი, საქართველო

(წარმოდგენილია აკადემიის წევრის ვ. პაპავას მიერ)

ნაშრომი ეხება საქართველოსა და სხვა ქვეყნებში არსებულ პრობლემებს თანაზომიერი ეკონომიკური განვითარების კუთხით. ყურადღება გამახვილებულია მასზე, რომ ამა თუ იმ ქვეყანაში დედაქალაქისა და რეგიონის განვითარების დონებს შორის დისბალანსის არსებობა ამავე ქვეყნის სოციალურ-ეკონომიკურ ფონს მნიშვნელოვნად ამძიმებს. ეს, ერთი მხრივ, გამოწვეულია ნაკლებად განვითარებული რეგიონების დეპოპულაციით, ხოლო, მეორე მხრივ, შედარებით განვითარებული, თუმცა შეზღუდული რესურსების მქონე დედაქალაქში კონცენტრირებული მოსახლეობის სიჭარბით. ნაშრომის მიზანია ცალკეული ქვეყნისთვის თანაზომიერი ეკონომიკური განვითარების მნიშვნელობის გაანალიზება და აღნიშნული კუთხით ქვეყნებში არსებული დისბალანსის მინიმუმამდე დაყვანის გზების ძიება, რისთვისაც გამოყენებულია როგორც აღნიშნული საკითხის ირგვლივ არსებული თეორიული პუბლიკაციები, აგრეთვე სტატისტიკური მონაცემები, რომლებსაც ამყარებს ავტორის მიერ შემუშავებული ქვეყნის ეკონომიკის თანაზომიერი განვითარების შეფასების ინდიკატორები. ქვეყნის ეკონომიკის თანაზომიერი განვითარების შეფასების მეთოდიკა წარმოადგენს სიახლეს ეკონომიკური მეცნიერების დარგში, რომლის საშუალებითაც შესაძლებელი გახდება ქვეყანაში არსებული ნებისმიერი ტერიტორიული ერთეულის ან მათი ერთობლიობის ეკონომიკური განვითარების დონეების ერთმანეთთან შედარება.

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