

**Simon Gelashvili**

E.mail.simon.gelashvili@tsu.ge

Doctor of Economic Sciences, Professor

Ivane Javakhishvili Tbilisi State University

Tbilisi, Georgia

**ORCID ID:** 0009-0004-8574-9383

## MODERN STATISTICAL TRENDS OF EMPLOYMENT AND OUTPUT OF PRODUCTS IN THE REGIONS OF GEORGIA

**Abstract:** The presented work concerns a very relevant topic - the quantitative research of employment and output of products in the administrative regions of Georgia. What is the employment situation according to the administrative regions of the country is of great economic and social importance. The purpose of the research is to identify and evaluate statistical trends in employment and output of products. The analysis period covers the years 2010-2022. Accordingly, on the basis of official statistical data, appropriate indicators are calculated, their changes are determined and their mutual comparison is given.

In the research process, methods of statistical science are used, such as: data grouping, relative, average and variation indicators, presentation, etc.

As a result of the conducted analysis, it was determined that the obtained indicators are heterogeneous according to various signs - according to regions, according to time, volume of employment level, volume of released products and labor productivity. According to the mentioned indicators, very different trends were revealed.

To determine the degree of economic inequality of regions, it is of great importance to study their economic activity, to identify and evaluate appropriate trends. Such an analysis, first of all, allows to determine different types of disproportion, which is a good basis for developing and implementing regional economic and social policies. The level of economic development of the country's administrative regions can be assessed by various quantitative and qualitative criteria. In this case, the following quantitative criteria will be considered: the level of employment, the volume of output of product and the level of labor productivity.

Analyzing the data of the official statistics, it is clear that Adjara and Imereti take the leading position after Tbilisi in terms of the number of employees, where the number of employees increased in 2010-2022. In these regions, the population is relatively larger, which, of course, is proportionally reflected in the level of employment. In the analysis period, the average annual number of employees in all administrative regions of Georgia is characterized by a clearly expressed rapid growth trend: the number of employees increased 2 times and more in Mtskheta-Mtianeti (2.7times), Guria - 2.5 times and Adjara - 2.4 times. Racha-Lechkhumi and Kvemo Svaneti regions showed relatively lower growth rate.

One of the main characteristics of the region's economic activity is the volume of output of the product per employee on average, which measures the level of labor productivity. We have calculated the mentioned indicator according to all administrative regions of Georgia, on the basis of which it is possible to statistically assess the level of labor productivity in the regions according to each year of the analysis period and also to reveal a 12-year trend. In 2010, the highest level of labor productivity was in Kvemo Kartli, Mtskheta-Mtianeti and St. in Tbilisi, and the lowest in Racha-Lechkhumi and Kvemo Svaneti, as well as in Kakheti. The positioning of these regions according to the mentioned indicator was the same in 2022.

An important statistical characteristic is the positioning of regions according to the share of output

of product. In 2022, the city is in the leading position with this indicator. Tbilisi, which is not surprising, because the largest part of the enterprises of the real sector of the economy is located here. The next position is held by Adjara, which moved from the 4th position in 2010 to the second and Kvemo Kartli. Racha-Lechkhumi and Kvemo Svaneti and Guria are in the last positions with the smallest share. These 2 regions were in the same positions in 2010.

As a result of the comparative analysis of the indicators of the employment level and the volume of output and the evaluation of the range of variation, a disproportion of different degrees between individual regions was revealed, which has a certain impact on economic growth and the level of socio-economic inequality.

**Keywords:** Administrative region, Statistical analysis, Output of products, Number of employees, Range of variation.

**JEL classification:** R11, C19, C49.

სიმონ გელაშვილი

E.mail.simon.gelashvili@tsu.ge

ეკონომიკურ მეცნიერებათა დოქტორი, პროფესორი

პროფესორი ივ. ჯავახიშვილის სახ.

თბილისის სახელმწიფო უნივერსიტეტი

თბილისი, საქართველო

ORCID ID: 0009-0004-8574-9383

## საქართველოს რეგიონებში დასაქმებისა და პროდუქციის გამოშვების თანამედროვე სტატისტიკური ტენდენციები

**აბსტრაქტი:** წარმოდგენილი ნაშრომი შეეხება მეტად აქტუალურ თემას - საქართველოს ადმინისტრაციულ რეგიონებში დასაქმებისა და პროდუქციის გამოშვების რაოდენობრივ კვლევას. დიდი ეკონომიკური და სოციალური მნიშვნელობა აქვს იმას, თუ როგორია დასაქმების მდგომარეობა ქვეყნის ადმინისტრაციული რეგიონების მიხედვით. კვლევის მიზანია დასაქმებისა და პროდუქციის გამოშვების სტატისტიკური ტენდენციების გამოვლენა და შეფასება. საანალიზო პერიოდი მოიცავს 2010-2022 წლებს. შესაბამისად, ოფიციალური სტატისტიკური მონაცემების საფუძველზე გაანგარიშებულია სათანადო მაჩვენებლები SPSS-ის გამოყენებით, განსაზღვრულია მათი ცვლილებები და მოცემულია მათი ურთიერთშედარება.

კვლევის პროცესში გამოყენებულია სტატისტიკური მეცნიერების ისეთი მეთოდები, როგორიცაა: მონაცემთა დაჯგუფების, შეფარდებითი, საშუალო, ვარიაციისა და კორელაციის მაჩვენებლები, პრეზენტირება და სხვ.

ჩატარებული ანალიზის შედეგად დადგინდა, რომ მიღებული მაჩვენებლები არაერთგვაროვანია სხვადასხვა ნიშნის მიხედვით - რეგიონების, დროის, დასაქმების დონის, გამოშვებული პროდუქციის მოცულობისა და შრომის მწარმოებლურობის დონის მიხედვით. აღნიშნული მაჩვენებლების საფუძველზე გამოვლინდა ძლიერ განსხვავებული ტენდენციები.

რეგიონების ეკონომიკური უთანაბრობის ხარისხის დასადგენად დიდი მნიშვნელობა აქვს მათი ეკონომიკური აქტიურობის შესწავლას, სათანადო ტენდენციების გამოვლენას და შეფასებას. ასეთი ანალიზი, უპირველეს ყოვლისა, საშუალებას იძლევა დადგინდეს სხვადასხვა სახის დისპროპორცია, რაც კარგი საფუძველია რეგიონული ეკონომიკური და სოციალური პოლიტიკის შესამუშავებლად და განსახორციელებლად. ქვეყნის ადმინისტრაციული რეგიონების ეკონომიკური განვითარების დონე შეიძლება შეფასდეს სხვადასხვა რაოდენობრივი და ხარისხობრივი კრიტერიუმით. ამ შემთხვევაში განხილული იქნება შემდეგი რაოდენობრივი კრიტერიუმები: დასაქმების დონე,

გამოშვებული პროდუქციის მოცულობა და შრომის მწარმოებლურობის დონე.

ოფიციალური სტატისტიკის მონაცემთა ანალიზით ირკვევა, რომ დასაქმებულთა რაოდენობის მაჩვენებლით, თბილისის შემდეგ, წამყვან პოზიციებს იკავებს აჭარის ა. რ. და იმერეთი, სადაც 2010-2022 წლებში იზრდებოდა დასაქმებულთა რაოდენობა. ამ რეგიონებში ასევე შედარებით უფრო დიდია მოსახლეობის რიცხოვნობაც, რაც, რა თქმა უნდა, პროპორციულად აისახება დასაქმების დონეშიც. საანალიზო პერიოდში საქართველოს ყველა ადმინისტრაციულ რეგიონში დასაქმებულთა საშუალოწლიურ რაოდენობას ნათლად გამოხატული სწრაფი ზრდის ტენდენცია ახასიათებს: დასაქმებულთა რიცხვი 2-ჯერ და მეტად გაიზარდა მცხეთა-მთიანეთში (2.7-ჯერ), გურიაში - 2.5-ჯერ და აჭარაში - 2.4-ჯერ. შედარებით ნაკლები ზრდის ტემპი აჩვენებს რაჭა-ლეჩხუმისა და ქვემო სვანეთის რეგიონებმა.

რეგიონის ეკონომიკური აქტიურობის ერთ-ერთი მთავარი მახასიათებელია პროდუქციის გამოშვების მოცულობა საშუალოდ ერთ დასაქმებულზე, რის საშუალებითაც იზომება შრომის მწარმოებლურობის დონე. ჩვენ გავიანგარიშეთ აღნიშნული მაჩვენებელი საქართველოს ყველა ადმინისტრაციული რეგიონის მიხედვით, რის საფუძველზეც შესაძლებელია რეგიონებში შრომის მწარმოებლურობის დონის სტატისტიკური შეფასება საანალიზო პერიოდის ყოველი წლის მიხედვით და ასევე, 12-წლიანი ტენდენციის გამოვლენაც. 2010 წელს შრომის მწარმოებლურობის ყველაზე მაღალი დონე იყო ქვემო ქართლში, მცხეთა-მთიანეთსა და ქ. თბილისში, ხოლო ყველაზე დაბალი კი - რაჭა-ლეჩხუმსა და ქვემო სვანეთში, ასევე კახეთში. ამ რეგიონების პოზიციონირება აღნიშნული მაჩვენებლის მიხედვით იგივე იყო 2022 წელსაც.

მნიშვნელოვანი სტატისტიკური მახასიათებელია რეგიონების პოზიციონირება პროდუქციის გამოშვების წილის მიხედვით. 2022 წელს ამ მაჩვენებლით მოწინავე პოზიციაზეა ქ. თბილისი, რაც არ არის გასაკვირი, რადგან აქ მდებარეობს ეკონომიკის რეალური სექტორის საწარმოთა უდიდესი ნაწილი. შემდეგი პოზიცია უკავია აჭარის ა. რ.-ს, რომელიც 2010 წლის მე-4 პოზიციიდან გადავიდა მეორეზე და ქვემო ქართლს. ყველაზე მცირე წილით ბოლო პოზიციებზე არიან რაჭა-ლეჩხუმი და ქვემო სვანეთი, ასევე გურია. ამავე პოზიციებზე იყო ეს 2 რეგიონი 2010 წელსაც.

დასაქმების დონისა და გამოშვებული პროდუქციის მოცულობის მაჩვენებელთა შედარებითი ანალიზისა და ვარიაციის დიაპაზონის შეფასების შედეგად გამოვლინდა სხვადასხვა ხარისხის დისპროპორცია ცალკეულ რეგიონებს შორის, რაც გარკვეულ გავლენას ახდენს ეკონომიკურ ზრდაზე და სოციალურ-ეკონომიკური უთანაბრობის დონეზე.

*საკვანძო სიტყვები:* ადმინისტრაციული რეგიონი, სტატისტიკური ანალიზი, პროდუქციის გამოშვება, დასაქმებულთა რაოდენობა, ვარიაციის დიაპაზონი.

*JEL კლასიფიკაცია:* R11, C19, C49.

### **Introduction and review of literature**

For any country and, of course, for Georgia as well, it is of great importance to study the economic activity of the regions and reveal appropriate trends and quantitative analysis. Such an analysis, first of all, allows for determining the degree of economic inequality of the regions and various types of disproportion, which is a good basis for the development and implementation of regional economic and social policies.

In fact, in the 2 years after the spread of the COVID-19 pandemic, in Georgia, as well as in many countries of the world, the values of the economic parameters of the country's development have changed significantly, the social background of the population has worsened, human relations have been noticeably transformed both in the family and at work, the scale of employment has changed, its parameters, etc., [Gelashvili, etc., 2022].

The number of employees in Georgia from 2010 to the COVID-19 pandemic, until 2020, was characterized by a progressive trend, and the average annual growth rate in 2010-2019 was 107%, however, in 2020, compared to the previous year, the number of employees decreased by 7%, which is a negative effect of the pandemic. It is the result of influence. To prevent the uncontrolled spread of the coronavirus, the restrictions imposed by the government, the strict regulations related to it, and several lockdowns, have led to the limitation and in many cases the suspension of the activities of some companies. Of course, all of the above has led to a decrease in the number of employees. The COVID-19 pandemic has spread to a greater or lesser extent in virtually all countries, and it has had a significant and unforeseen negative impact on all spheres of public life, especially the economy and people's social existence. This impact is multifaceted and requires complex quantitative and qualitative research (Gelashvili, 2020). But it should be noted here that in the 2 years of the pandemic (2020-2021), compared to the previous year, 2019, the average monthly salary of hired workers in the administrative regions of the country did not decrease, and on the contrary, it even increased, which is confirmed by official statistical data.

The issues of economic activity of the administrative regions of Georgia are still little studied, however, there are some official statistical data (see [www.geostat.ge/ge/regionebi](http://www.geostat.ge/ge/regionebi)), which require complex and not fragmentary analysis. Therefore, the topic of our work is very relevant, especially for the development and implementation of economic and social development policies in individual regions.

By comparing the absolute, relative, and average indicators, the regions with high and low indicators of products output, employment, and wages were identified. This makes it possible to determine the uneven economic activity of the administrative regions of Georgia, which is not only an economic but also a consequent social challenge.

### **Methodology**

Quantitative research methods are used in the process of developing the topic, especially - statistical, first of all, a typological structural and analytical grouping of data, which is presented in the form of tables and diagrams. In the process of statistical data analysis, relative and average indicators, as well as coefficients of variation and correlation, are calculated with SPSS and evaluated. As a result of the use

of the mentioned methods, it became possible to analyze the economic activity of the regions, identify specific trends and form adequate conclusions.

**Title of the first paragraph** (if applicable)

The level of economic development of the country's administrative regions can be assessed by various quantitative and qualitative criteria. In this case, the following quantitative criteria will be considered: the volume of released products, the level of employment, and the amount of the average monthly salary of hired employees. However, the impact of the average monthly salary of employees is indirect. But its approximate quantitative assessment is still possible with various statistical methods. One of the good tools for this is correlation analysis [Gelashvili & Okruashvili, 2020: ].

For the statistical analysis of the volume of product release by region and to reveal the appropriate quantitative trends, we present the following table:

**Table 1.** The outputting of products by regions, million GEL

	2010	2012	2014	2015	2018	2019	2020	2021	2022
Georgia, whole	13,304	23,096	26,069	29,994	41,649	47,495	46,227	57,614	69,277
Tbilisi	8,692	15,644	16,845	19,649	26,747	29,769	28,465	34,882	43,990
Adjara	714.6	1,541	2,043	2,426	3,533	4,426	3,828	5,258	5,877
Guria	88.7	110.3	167.6	219.6	326.1	388.7	405.0	508.6	515.0
Imereti	762.0	1,185	1,347	1,498	2,554	2,702	2,772	4,230	4,882
Kakheti	226.3	389.1	717.1	637.2	972.4	1,270	1,206	1,494	1,503
Mtskheta-Mtianeti	203.2	371.3	539.3	592.2	798.7	1,034	1,225	1,525	1,934
Racha-Lechkumi and Kvemo Svaneti	27.1	30.5	28.0	42.8	75.5	90.9	98.4	100.3	97.0
Samegrelo-Zemo Svaneti	580.5	766.0	1,106	1,292	1,578	2,080	2,273	2,301	2,225
Samtskhe-Javakheti	192.4	333.1	446.2	485.1	795.4	998.3	867.9	1,073	912.0
Kvemo Kartli	1,425	2,019	2,082	2,326	3,219	3,638	3,885	4,738	5,583
Shida Kartli	333.3	661.9	686.3	772.1	945.3	1,008	1,150	1,387	1,643

**Source:** The table was compiled by the author, according to the official data of the National Statistics Office of Georgia.



As can be seen from Table 1, in the entire analysis period, both in the country and in its regions, the volume of production in absolute values is characterized by a clearly expressed increasing trend. But this progressive trend both in Georgia and in some of its regions (Adjara, Tbilisi, Samtskhe-Javakheti) was slightly broken only in 2020, which was caused by the Covid-19 pandemic. In 2021-2022, the trend of growth continued in all regions, and this indicator significantly exceeded the value of 2019. It increased especially in Imereti (by 56.6%), and compared to 2010 - 4 times; Also, a significant increase was observed in Mtskheta-Mtianeti and Shida Kartli, respectively, 47.5 and 37.6 percent.

One of the important characteristics of the level of economic development of the region is their positioning according to the share of output. We present the results of our calculation in the following table:

**Table 2.** Share of administrative regions according to products output, percentage

	2010	2012	2014	2015	2017	2018	2019	2020	2021	2022
Georgia, whole	100	100	100	100	100	100	100	100	100	100
Tbilisi	65,3	67,7	64,6	65,5	63,9	64,2	62,7	61,6	60,6	63,5
Adjara	5,4	6,7	7,8	8,1	8,3	8,5	9,3	8,3	9,1	8,5
Guria	0,7	0,5	0,6	0,7	0,9	0,8	0,8	0,9	0,9	0,7
Imereti	5,7	5,1	5,2	5,0	5,9	6,1	5,7	6,0	7,3	7,0
Kakheti	1,7	1,7	2,8	2,1	2,4	2,3	2,7	2,6	2,6	2,2
Mtskheta-Mtianeti	1,5	1,6	2,1	2,0	2,0	1,9	2,2	2,7	2,7	2,8
Racha-Lechkumiand Kvemo Svaneti	0,2	0,1	0,1	0,1	0,2	0,2	0,2	0,2	0,2	0,1
Samegrelo-Zemo Svaneti	4,4	3,3	4,2	4,3	4,5	3,8	4,4	4,9	4,0	3,2
Samtskhe-Javakheti	1,5	1,4	1,7	1,6	1,9	1,9	2,1	1,9	1,9	1,3
Kvemo Kartli	7,1	8,7	8,0	7,8	7,7	7,7	7,7	8,4	8,2	8,1
Shida Kartli	2,6	2,9	2,6	2,6	2,2	2,3	2,1	2,5	2,4	2,4

**Source:** The figures in the table are calculated by the author.

Table 2 allows us to analyze the share of individual administrative regions in the volume of products released by the country as a whole. Of course, it is appropriate to determine the long-term trend of 2010-2022. With this indicator calculated according to the year 2022, Tbilisi (63.5%), which is not surprising,

because the largest part of enterprises of the real sector of the economy is concentrated here. It should be noted that in the 12 years, this indicator decreased slightly - by 1.8 percentage points (in 2010, it was 65.3%). The next position is held by Adjara (8.5%), which moved from the 4th position to the second in 2010 and its share increased from 5.4 to 8.5%, i.e. significantly increased). Kvemo Kartli is in the third position (8.1%) and compared to 2010 it has increased by 1 percentage point. Racha-Lechkhumi and Kvemo Svaneti (0.1%) and Guria (0.7%) are in the last positions with the smallest share. These two regions were in the same positions in 2010, and in the long-term dynamics, their shares are almost unchanged.

What is the employment situation according to the administrative regions of the country is of great economic and social importance. From the data analysis of official statistics, it is clear that in terms of the number of employees, after Tbilisi, the leading positions are held by Adjara and Imereti, where the absolute number of employees has an increasing trend in 2010-2022. One of the main factors of this is that these regions also have a relatively large population and the level of education, which, of course, is proportionally reflected in the level of employment. However, even 1000 years ago, apart from Tbilisi, there were the biggest centers of education in some regions of Georgia, namely: Gelati and Ikalto Academies (Gelaschwili, 2013).

**Table 3.** Share of administrative regions according to products output, percentage

	2010	2012	2014	2015	2018	2019	2020	2021	2022
Georgia, whole	397,8	534,4	592,2	626,7	734,2	756,9	703,9	756,9	708,3
Tbilisi	236,8	335,4	372,0	395,7	459,5	463,9	443,3	463,9	460,0
Adjara	31,9	44,7	54,7	57,6	70,3	74,8	68,1	74,8	62,3
Guria	3,9	4,7	5,0	5,7	8,6	9,7	8,1	9,7	6,8
Imereti	35,5	43,8	46,9	46,9	52,9	58,0	53,0	58,0	49,4
Kakheti	14,7	16,2	18,4	19,4	23,9	24,6	20,7	24,6	20,5
Mtskheta-Mtianeti									11,6
	4,6	6,7	7,5	8,3	11,5	12,3	10,8	12,3	
Racha-Lechkhumi and Kvemo Svaneti	1,9	2,1	1,8	2,5	2,4	2,6	2,1	2,6	1,8
Samegrelo-Zemo Svaneti	19,9	23,7	26,7	27,3	30,0	31,9	27,0	31,9	25,3
Samtskhe-javakheti	7,4	8,7	7,9	8,6	12,5	14,0	11,5	14,0	10,3
Kvemo Kartli	28,4	33,5	34,9	36,6	42,0	43,8	39,3	43,8	41,9
Shida Kartli	11,7	13,8	15,3	16,8	19,4	20,0	18,9	20,0	16,9

**Source:** The table was compiled by the author, according to the official data of the National Statistics Office of Georgia.

The data in Table 3 above clearly show that during the analysis period, i.e. 2010-2022, the average annual number of employees in all administrative regions of Georgia is characterized by a clearly expressed rapid growth trend. In the mentioned period, the number of employed people increased by 2 times and more in Mtskheta-Mtianeti (by 267.4%), in Guria - by 248.7%, and in Adjara - by 234.5%. The regions of Samegrelo-Zemo Svaneti and Imereti showed a relatively lower growth rate (160.3 and

163.4 percent, respectively). The only region with fewer employees in 2022 than in 2010 is Racha-Lechkhumi and Kvemo Svaneti.

One of the main characteristics of the economic activity of the region is the volume of output per employee on average. Otherwise, this relative indicator is called the level of labor productivity. We calculated the mentioned indicator according to all administrative regions of Georgia and the results are presented in Table 4:

**Table 4.** Share of administrative regions according to products output, percentage

	2010	2012	2014	2015	2018	2019	2020	2021	2022
Georgia, whole	33,4	43,2	44,0	47,9	56,7	62,7	65,7	76,1	97,7
Tbilisi	36,7	46,6	45,3	50,0	58,2	64,1	64,2	75,2	95,6
Adjara	22,4	34,5	37,3	42,1	50,3	59,1	56,2	70,3	94,3
Guria	22,7	23,5	33,5	38,5	37,9	40,1	50,0	52,4	75,7
Imereti	21,5	27,1	28,7	32,0	48,3	46,6	52,3	72,9	98,8
Kakheti	15,4	24,0	39,0	32,8	40,7	51,6	58,3	60,7	73,3
Mtskheta-Mtianeti	44,2	55,4	72,0	71,3	69,5	84,1	113,4	124,0	166,7
Racha-Lechkhumi and Kvemo Svaneti	14,3	14,5	15,6	17,1	31,5	35,0	46,9	38,6	53,9
Samegrelo-Zemo Svaneti	29,2	32,3	41,4	47,3	52,6	65,2	84,2	72,1	87,9
Samtskhe-Javakheti	26,0	38,3	48,5	56,4	63,6	71,3	75,5	76,6	88,5
Kvemo Kartli	50,2	60,3	59,7	63,6	76,6	83,1	98,9	108,2	133,2
Shida Kartli	28,5	48,0	44,9	46,0	48,7	50,4	60,8	69,4	97,2

**Source:** The figures in the table are calculated by the author.

Based on the data in Table 4, it is possible to make a statistical assessment of the level of labor productivity in the regions according to each year of the analysis period, as well as to reveal a 12-year trend. In 2010, the highest level of labor productivity was in Kvemo Kartli, Mtskheta-Mtianeti, and St. in Tbilisi, and the lowest in Racha-Lechkhumi and Kvemo Svaneti, as well as in Kakheti. The positioning of the regions according to this indicator was different in 2022 when Mtskheta-Mtianeti and Kvemo Kartli were the highest. However, just like in 2010, these two regions occupied leading positions. In 2022, the lowest level of labor productivity was recorded in Racha-Lechkhumi and Kvemo Svaneti, as well as in Guria. It should be noted that the Mtskheta-Mtianeti region with the highest level of labor productivity is 3.1 times higher than the region with the lowest level - Racha-Lechkhumi and Kvemo Svaneti.



Of course, it is interesting not only the level of labor productivity by region during the entire analysis period but also its growth rates. As the calculations showed, in 2022, compared to 2010, labor productivity increased the most in Kakheti - almost 4 times, or by 394.2%, Imereti - 3.4 times (339.1%), and Adjara - 3.1 times (313.8%). In the same period, the lowest growth rate of labor productivity was recorded in Tbilisi (204.9%), Kvemo Kartli (215.5%), and Guria (230.8%). It should be noted here that the level of labor productivity in all administrative regions of Georgia for the analysis period has a clearly expressed growth trend, which indicates the effectiveness of the work performed by the employed population living in them.

In order to compare the growth rates of employment and production in the regions, as well as to determine the density of the connection between them, we calculated the relevant indicators and they are presented in the following table. 2010 is taken as the base year.

**Table 5.** Annual growth rates of products output and employment by region (2010=100%)

	2015		2019		2021		2022	
	Products Output	Employment	Products Output	Employment	Products Output	Employment	Products Output	Employment
Georgia, whole	225,5	157,5	357,0	190,3	433,1	187,1	520,7	178,1
Tbilisi	226,1	167,1	342,5	195,9	401,3	194,5	506,1	194,3
Adjara	339,5	180,6	619,4	234,5	735,8	228,8	822,4	195,3
Guria	247,6	146,2	438,2	248,7	573,4	223,1	580,6	174,4
Imereti	196,6	132,1	354,6	163,4	555,1	164,5	640,7	139,2
Kakheti	281,6	132,0	561,2	167,3	660,2	150,3	664,2	139,5
Mtskheta-Mtianeti	291,4	180,4	508,9	267,4	750,5	267,4	951,8	252,2
Racha-Lechkhumi and Kvemo Svaneti	157,9	131,6	335,4	136,8	370,1	127,8	357,9	94,7
Samegrelo-Zemo Svaneti	222,6	137,2	358,3	160,3	396,4	142,7	383,3	127,1
Samtskhe-Javakheti	252,1	116,2	518,9	189,2	557,7	175,7	474,0	139,2
Kvemo Kartli	163,2	128,9	255,3	154,2	332,5	157,0	391,8	147,5
Shida Kartli	231,7	143,6	302,4	170,9	416,1	168,4	493,0	144,4

**Source:** The figures in the table are calculated by the author.

From the analysis of the growth rates of production, it is clear that in 2022, compared to 2010, both in Georgia as a whole and in all its administrative regions, sufficiently high growth was observed. Adjara, Mtskheta-Mtianeti, Kakheti, and Imereti have higher indicators than the overall growth rate of the country. Mtskheta-Mtianeti and Adjara are in the first and second positions (respectively, 9.5 times and 8.2 times).

A relatively low growth rate of production was observed in the following three regions: Racha-Lechkhumi and Kvemo Svaneti (3.6 times), Samegrelo-Zemo Svaneti (3.8 times), and Kvemo Kartli (3.9 times).

As for the growth rates calculated according to employment, it is worth noting that compared to the output of products, we got significantly lower rates. For the years 2010-2022, the average growth rate calculated by all regions was 158.9%, while the similar rate of production According to the release, was 569.6%. Therefore, this indicates that the volume of production has grown 3.6 times faster than the number of employees. According to this indicator, we can also confirm a significant increase in labor

productivity. The increase in the number of employees is directly related to demographic factors, first of all, to indicators of natural and migration processes (1, 2020).

In the process of research, we calculated the area of fluctuation of the indicators of the average annual number of employees, the volume of production, and the level of labor productivity according to the administrative regions of Georgia, that is, the range of variation for the entire analysis period. According to the obtained results, it was determined that in 2022, compared to 2010, the range of variation according to the number of employees increased slightly. On the other hand, the range of variation calculated according to the volume of output increased significantly, and a large range was also found in the indicators of the level of labor productivity. Therefore, it is possible to conclude that the degree of inequality in the economic development of the administrative regions of Georgia has not decreased and, on the contrary, has increased. The economic inequality of the regions is the result of many factors. These factors are: the volume of production, the amount of direct foreign investments, the number of active enterprises, the number of employed and able-bodied people, the existing infrastructure (Magradze, 2019). Economic inequality greatly affects on the standard of living of the population and increases poverty rates (Gelaschwili & Vogt, 2015/16). Taking into account the current situation, it is necessary to conduct differentiated economic and social policies according to regions.

### Conclusions

According to our research, employment statistics vary widely over time, regions, volume of output, employment, and other characteristics.

In 2010-2022, the number of employees increased by 7% annually on average, however, in 2020, their number decreased by 7% compared to the previous year, which was caused by the Covid-19 pandemic.

More than half of the total volume of products released in the administrative regions of Georgia comes from Tbilisi, the next positions are held by Adjara and Kvemo Kartli. It should be noted that more products are produced in Tbilisi than in the other 10 regions combined.

In the analysis period, the average annual number of employees in all administrative regions of

Georgia is characterized by a clearly expressed growth trend. Especially rapid growth was observed in Mtskheta-Mtianeti and Adjara.

In 2022, the highest level of labor productivity was in Mtskheta-Mtianeti and Kvemo Kartli regions, while the lowest level was recorded in Racha-Lechkhumi and Kvemo Svaneti.

During the analysis period, both in Georgia as a whole and in all its administrative regions, a high growth rate of production was observed. The rate of growth calculated by employment also increased, however, the volume of output grew 3.6 times faster than the number of employees.

As a result of the research, it was revealed that the degree of inequality in the economic development of the administrative regions of Georgia is still high. To reduce it, it is necessary to implement a differentiated economic policy.

### References

1. Demographic mood of Georgian student youth (2020). Monograph, Collective of Authors. Tbilisi, TSU, ISBN 978-9941-13-937.
2. Gelashvili S. (2020). On the formation of a system of coronastatistics indicators. Journal. "Globalization and Business", # 10, Tbilisi, pp. 63-69.
3. Gelashvili, S., Okruashvili, M. (2022). Gender inequality in wages and its impact on the economy of Georgia. "Economy and Business" magazine, Volume XIV, No. 4, pp. 86-100.
4. Gelashvili, S., Abesadze, N., Mindorashvili, M. (2022). Modern trends in employment in the industry. Batumi Shota Rustaveli State University International Scientific Conference "Global Challenges of Economy and Business and Sustainable Development". Batumi.

5. Magradze, P. (2019). Economic Inequality of Regions of Georgia. In: Theory and Practice of Statistics in Georgia. Scientific Publication. Publishing House „UNIVERSAL”, Tbilisi, pp. 170-182.
6. Simon Gelaschwili, Matthias Theodor Vogt (2015/16). Aspects of Armut in Modern Georgia. GÖRLITZ-ZGORZELEC JG. XIX, BEITRAG 1.
7. Simon Gelaschwili (2013). Die Akademien von Gelati und Ikalto – die ältesten Bildungs- und Wissenschaftszentren der Welt. In: Wege und Irrwege durch die Unis. Markus Porsche-Ludwig, Jürgen Bellers. Münster.
8. Regional statistics. <https://www.geostat.ge/ka/modules/categories/93/regionuli-statistika>
9. Release of products according to regions and municipalities.  
<https://www.geostat.ge/ka/modules/categories/93/regionuli-statistika>
10. Indicators of the labor force by region.  
<https://www.geostat.ge/ka/modules/categories/37/dasakmeba-khelfasebi>