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MODERN STATE OF INNOVATIVE DEVELOPMENT OF GEORGIA: CHALLENGES AND PROSPECTS

George Abuselidze[1], Doctor of Economics/Professor; **Aleko Meladze**[2], PhD Student

[1, 2]Batumi Shota Rustaveli State University

Abstract. In order to ensure global competitiveness in modern conditions, the issue of the need for innovative development of the region's economy is widely recognized. In order to promote innovative activities in Georgia, several important steps have been taken from the legislative and institutional point of view. The level of innovative development of the economy is determined by globally recognized international data, for which the data of the "Global Innovation Index", its defining parameters and categories are analysed in the paper, and their dynamics are revealed. The effectiveness of the state innovation policy is demonstrated by the tendency of the financial and economic parameters of innovative development. The paper presents an analysis of gross domestic product and gross domestic product per capita as important indicators of innovative development, and it is determined that its structure is unfavourable, and growth rates are insufficient. Based on the study of the volume and structure of foreign direct investments, as the most important aspect promoting the innovativeness of the region, the degree of its impact on innovative development is determined.

Key words: innovative development, innovation policy, global innovation index, Georgia.

JEL code: O16, O30, O31, O32, O38

Introduction

The development of the region is determined by the qualitative changes of the economy and qualitative improvement, which is related to innovative activities. For the innovative development of the economy, it is necessary to quickly absorb scientific and technological progress and activate innovative processes, where knowledge is presented as an intellectual resource, which appears as the latest products, forms of production organization and modern means of business management.

The importance of innovations was indicated at the beginning of the twentieth century by the Austrian-American economist J. A. Schumpeter (2007), who considered the use of innovations as the basis of economic development and defined innovation as a source of higher profits at the micro level and the main means of obtaining economic effects at the macro level (Schumpeter, 2007).

Consequently, we must take into account both the advantages and disadvantages of these processes, as well as how they will change and affect the economic development in terms of both the innovation and creation of new opportunities. The European Union, the OECD, and the OSCE are a few of the international organizations that work in tandem with these procedures, as they do in the majority of industrialized nations like the US, Germany, Sweden, Spain, and others. These countries have started establishing the proper regulatory entities and establishing rules. Furthermore, the major emphasis is on the requirement for more financing for these fields of scientific study (Abuselidze & Mamaladze, 2021).

Georgia is not a country rich in significant natural resources, that's why the priority direction of economic development of the region is innovative development. Innovative development significantly affects the financial and economic parameters of the region, which in turn ensures the harmonization of social, political, cultural, religious and public relations of the region, which is the basis of sustainable economic development of the region. Care for promoting the formation of an innovative economy in Georgia began in the last years of the last century and is still in a fairly active phase, although observing the current situation reveals that the results are unsatisfactory.

The present scientific and technical advancement in the globe, as well as the emphasis on innovation by economic organizations, are directly tied to Georgia's competitiveness in economic domains, both in

[1] E-mail: george.abuselidze@bsu.edu.ge

local and international markets (Zoidze & Abuselidze, 2023). Based on this, it is relevant to research the problematic issues of the innovative development of the economy and reveal the financial and economic trends of the innovative development of the region. The purpose of the research is to reveal the financial and economic trends of the innovative development of the Georgia, to determine the main problems and to prepare relevant conclusions. The tasks set in accordance with the goal are: determining the level of innovative development of the Georgia using an internationally recognized method; consideration of gross domestic product as an economic parameter of innovative development; analysis of structure and dynamics of foreign direct investments.

Literature review

While working on the issue, the study of the problem was carried out using qualitative and quantitative research methods. The works of local and foreign scientists were studied within the qualitative research. The research was based on K. Freeman (1987), Lundvall (1992), Nelson (1993), Patel and Pavit (1994), Metcalfe (1995), Ivanova (2001), Golichenko (2006), Zverev (2009), Abuselidze and Mamuladze (2020) works, which are dedicated to the problems of the formation and development of the innovative economy, and will cover such key issues as: national innovative systems and their models, innovation stimulation mechanisms, innovation classification features, artificial intelligence, innovative economic management methods and regulatory mechanisms. Several Georgian scientists are actively working on the problems of innovative development, namely, Mekvabishvili (2016), Kokiauri (2017; 2020), Abesadze (2014; 2017), Abralava (2001; 2016), whose works have played an important role in the formation of the theoretical foundations of the research and in the formulation of relevant conclusions. Within the framework of quantitative research, we were mainly guided by statistical data, for the processing of which the methods of statistical analysis, correlation analysis and data comparison were used. In accordance with the purpose, the obtained data were processed and relevant conclusions were formed.

Research results and discussion

At the modern stage of public life, regional development is a necessary process for the balanced development of the country and its territories, which provides for the effective use of the financial, economic and social potential of the region in order to increase the well-being of society. It is important to highlight financial and economic aspects for regional development, because we believe that it is financial and economic development that ensures the harmonization of social, political, cultural and public relations of the region.

The innovative development of the region is significantly determined by the state innovation policy, which establishes the goals of the functioning of state and regional bodies in the field of innovative activity, the main directions of activity, management methods and regulatory tools (Abesadze, 2017). From the point of view of innovative development of the region, an important issue is the determination of the role of the state. The state should play the role of the main capitalizer of the creation of an innovative economy and promote the creation of a modern type of innovative-cognitive economy, which ensures integration into the global economic space (Mekvabishvili, 2016). The policy of state regulation of innovative processes should be focused on the commercialization of innovative projects, should deepen the connection of academic institutions with the private sector, should create a single chain between the state, private sector, academic institutions and society.

The innovative development of the region depends on various factors, which are grouped into organizational, social, economic and financial factors. Organizational factors refer to the consequences of

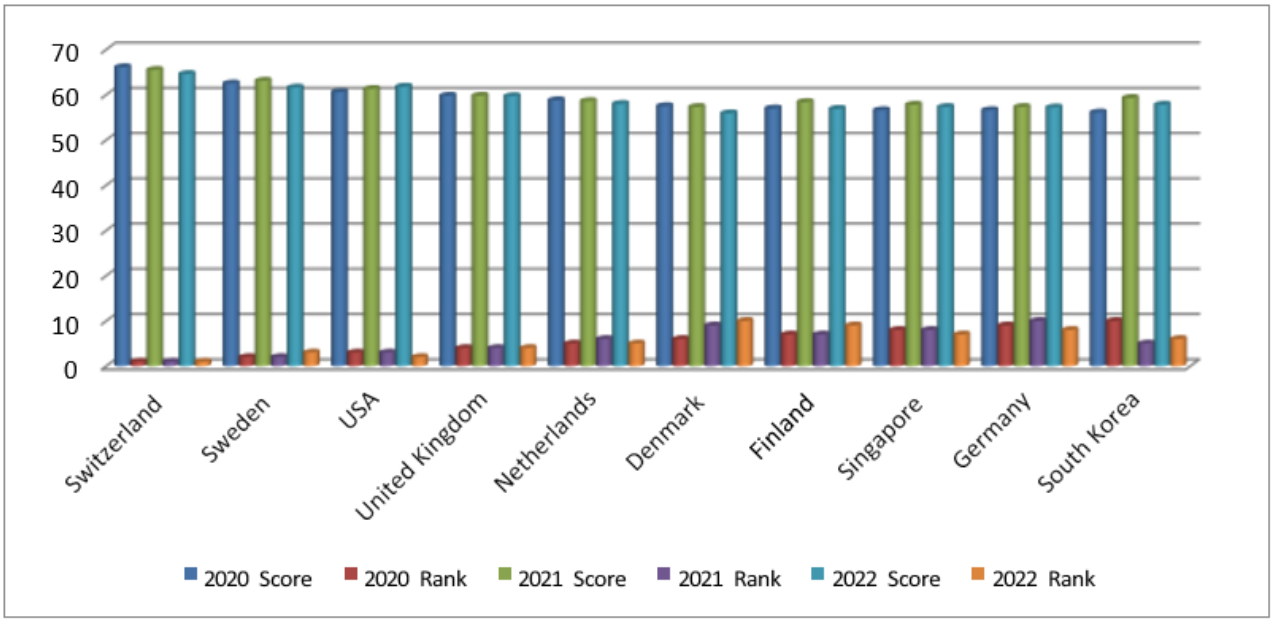
decisions made by state bodies on reorganization and institutional arrangements. Social factors include the standard of living in the region. Economic factors combine indicators of economic development and directions of the state's economic policy. Financial factors determine the rules of state financing of innovative processes, local and foreign investments, credit system, degree of influence of fiscal policy, issues of financial incentives and benefits.

Georgia is not a country with significant natural resources, therefore economic development should be based on the model of innovative development, towards which Georgia has been oriented since the first years of independence, when in 1994 the "Law of Georgia on Science, Technology and Their Development" was adopted. In the following periods, the following steps were taken in Georgia for the purpose of legislative and institutional promotion of the country's innovative development: in 2010, the "Shota Rustaveli National Science Foundation" was established; the innovative concept of Georgia was developed in 2012; in the same year, the Technology Transfer Center of Georgia (TTCG) was founded; in 2014, the Georgian Innovation and Technology Agency (GITA) was established; in 2014, the state program "Enterprise Georgia" was activated; in 2015, the Research and Innovation Council was established and the strategy of socio-economic development of Georgia - "Georgia 2020" was developed; in 2016, the "Law of Georgia on Innovations" was approved. Established and operating: science technology parks, industrial innovation laboratories, innovation laboratories and innovation centres.

The level of innovative development of the country on a global scale is determined by annual ratings published by international organizations. To determine the most innovative countries, the following international rankings are mainly used: Global Innovation Index - GII; Global Competitiveness Index - GCI; Knowledge economy index - KE; News Agency - Bloomberg; Organization for Economic Cooperation and Development - OECD; Standard and Poor's - S&P; Fitch; Moody's; Doing Business; Heritage Foundation etc.

When developing international ratings, different parameters and criteria are used, which is why the results may be slightly different from each other. Within the framework of the research, we will rely on the Global Innovation Index (GII) published by the World Intellectual Property Organization - WIPO, as we believe that its defining parameters are close to the nature of the constituent elements of the innovation system. Global Innovation Index (GII) studies are based on 80 parameters, which are grouped into 7 main categories, namely: 1. Institutions; 2. Human capital and research; 3. infrastructure; 4. Level of market development; 5. Level of business development; 6. Knowledge and technologies; 7. Creativity.

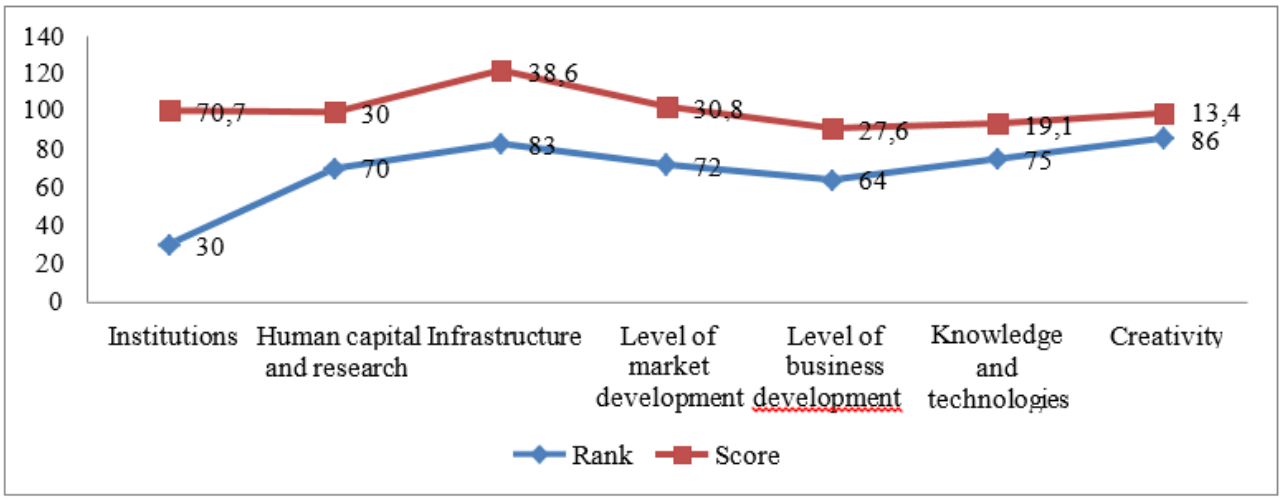
In order to create a general idea about the state of innovative development of countries on an international scale, Figure 1 is presented below, which shows the top ten ranking of innovative countries for the years 2020-2022.



Source: compiled by authors based on GII data

Fig. 1. **Global Innovation Index (GII), Top 10 Countries (2020-2022)**

According to GII's 2022 survey, Georgia ranks 74th with 27.9 points, ahead of neighbouring Armenia (80th) and Azerbaijan (93rd), but significantly behind the Baltic states, Russia, Ukraine and Turkey. Figure 2 shows the place of Georgia in the ranking according to each category defining the GII.



Source: compiled by authors based on GII data

Fig. 2. **Georgia's rank and assessment score, by categories, GII - 2022**

Figure 2 shows that among the categories determining the overall ranking, Georgia is the best, in the 30th place according to the "Institutes" category, which is determined by the political, regulatory and business environment. The categories of "infrastructure" and "creativity" are the most problematic for Georgia and occupy the 83rd and 86th places in the rating, respectively. Among the mentioned categories, "Institutes" were rated the most with 70.7 points, which led to its leading position in the ranking, while the lowest rating was in "Creativity" and "Knowledge and Technologies" categories, 13.4 and 19.1 points, respectively.

In order to evaluate the steps taken to form an innovative economy in Georgia and the results of the implemented innovation policy, it is important to use the data of the last years on the evaluation points of the defining categories of the global innovation index, which are given in Table 1.

Table 1

Global innovation index, ranking of Georgia - 2011-2022

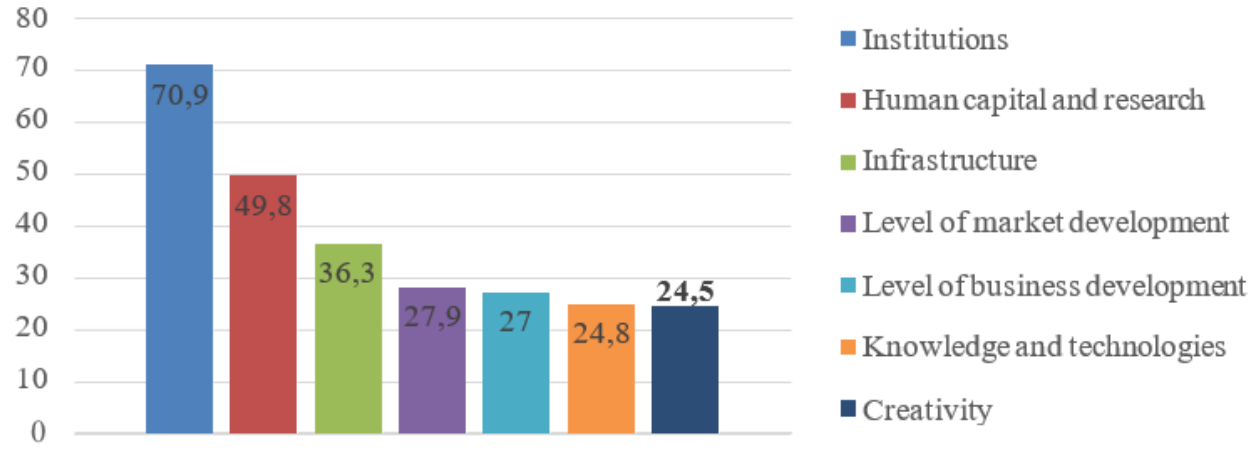
Year	Rank	Score	Institutions	Human capital and research	Infra-structure	Level of market develop-ment	Level of business develop-ment	Knowledge and technologies	Creativity
2022	74	27.91	70.7	30.0	38.6	30.8	27.6	19.1	13.4
2021	63	32.42	76.2	32.5	36.3	53.9	25.6	18.1	21.8
2020	63	31.78	75.1	31.6	37.4	51.8	23.5	19.0	20.3
2019	48	36.98	74.3	30.5	44.7	62.1	29.5	22.5	29.1
2018	59	35.05	71.7	30.0	42.5	52.2	25.7	24.5	26.8
2017	68	34.39	68.6	23.6	43.8	49.2	25.6	23.9	29.3
2016	64	33.86	69.2	23.2	41.7	44.3	26.5	26.8	26.6
2015	73	33.83	68.2	23.6	36.6	52.8	28.0	26.6	25.0
2014	74	34.53	69.7	23.5	33.3	55.2	23.9	30.0	25.9
2013	73	35.56	69.4	24.9	31.2	54.5	28.0	27.0	32.0
2012	71	34.30	65.2	29.6	29.4	50.3	34.0	29.5	24.2
2011	73	31.87	72.4	32.6	20.2	41.1	26.4	30.6	19.8

Source: compiled by authors based on GII data

Georgia took the best, 48th place in 2019, with 36.98 points, when it improved the result of the previous year by 11 positions, which was largely due to the positive situation in the "institutes" and partially "infrastructure" categories, which were evaluated with 74.3 and 44.7 points, respectively. The lowest, 74th place in the ranking is fixed in 2022, with 27.91 points. It was ranked 74th in 2014 as well, though with 34.53 points. In 2022, the weakest is the category of "creativity" (13.4 points), and the best is the category of "institutes" (70.7 points).

If we compare the results of the 2022 GII study with the initial results of the 2011 study, it is clear that the development trend is negative, because in 2011 Georgia was ranked 73rd, and in 2022 it is 74th. 2011 was evaluated for Georgia with 31.87 points, and 2022 - with 27.91 points. The highest score of Georgia was 36.98 points in 2019, and the lowest score was 27.91 points in 2022.

Figure 3 presents averages of GII survey results for 2011-2022 by category. The highest, 70.9 points is in the "Institutes" category, and the last one is "Creativity" - with 24.5 points.

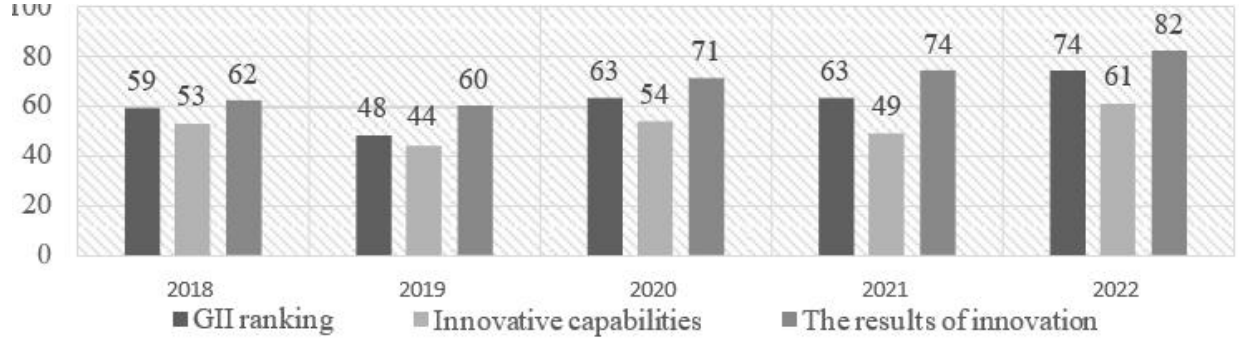


Source: compiled by authors based on GII data

Fig. 3. **GII survey averages for 2011-2022 by category**

In most categories, the 2022 assessment score does not exceed the initial assessment score obtained in the same category in 2011, which shows that the defining categories of the Global Innovation Index have not been characterized by a significant growth trend in the last 12 years.

The Global Innovation Index annually sets rankings based on overall innovation capabilities and innovation outcomes. The dynamics of the last 5 years are shown in Figure 4.



Source: compiled by authors based on GII data

Fig. 4. **Georgia's place in the ranking according to innovation capabilities and innovation results, dynamics for 2018-2022**

Figure 4 shows that over the last 5 years, Georgia's place in the ranking in terms of innovative capabilities is always better than the results of innovations, which indicates that the existing innovative capabilities are not effectively used to achieve the final results.

Thus, the analysis of GII data for the years 2011-2022 reveals that no positive trends can be observed in terms of innovative development in Georgia, if we do not include single categories and parameters, the improvement of which has a periodic character and can be considered insignificant, because they cannot have a significant impact on the innovative development of the country.

The level of innovative development of the country achieved as a result of the targeted state innovation policy and effective functioning of the innovation system, in addition to international ratings, is reflected on the financial and economic parameters of the country. We will separate the gross domestic product and investments from them.

Table 2 presents the absolute indicators of the gross domestic product of Georgia for the years 2010-2021, in base prices. In terms of GDP volume, the data of two large regions, Tbilisi and Adjara Autonomous Republic, are separated, and the trend of annual change is revealed.

Table 2

Gross domestic product at basic prices, million GEL, 2010-2021

Year	Georgia		Tbilisi		Adjara A/R	
	GDP	Annual growth, %	GDP	Annual growth, %	GDP	Annual growth, %
2010	19286.4	-	10326.5	-	1383.9	-
2011	22622.2	17.30%	12200.4	18.14%	1672.4	20.85%
2012	24251.6	7.20%	12820.5	5.08%	2147.3	28.40%
2013	25538.2	5.30%	13092.2	2.12%	2198.7	2.39%
2014	27661.3	8.31%	14157.8	8.14%	2282.5	3.81%
2015	30197.1	9.17%	15410.2	8.85%	2775.7	21.60%
2016	31555.8	4.50%	16585.9	7.63%	3000.4	8.10%
2017	35347.6	12.02%	18151.8	9.44%	3059.6	1.97%
2018	38778.5	9.71%	20063.7	10.53%	3491.5	14.11%
2019	43137.8	11.24%	22077.4	10.04%	4377.1	25.36%
2020	43136.6	-0.01%	21786.7	-0.01%	3832.4	-12.44%
2021	52412.4	21.50%	26288.7	20.66%	4857.5	26.75%

Source: compiled by the authors, based on the data of the National Statistical Service of Georgia

Analysing the data in Table 2, it is clear that in 2021, the GDP volume of Georgia increased by 171% compared to 2010, in Tbilisi - by 155%, and in the Autonomous Republic of Adjara, the increase amounted to 251%. In addition, the dynamics of GDP for the mentioned period is characterized by an increasing trend in almost every year, both for Georgia as a whole, as well as for Tbilisi and especially for the Adjara region. There is only one exception - 2020, when there is a downward trend in GDP, which can be explained by the negative impact of the COVID-19 pandemic on the economy. The average annual growth rate for the given period is 8.85% for Georgia as a whole, 8.38% for Tbilisi, and 11.74% for Adjara. If we take into account the GDP deflator, which is a measure of the price change of the final products created within the country over a certain period of time, then the growth rates mentioned above are insufficient.

As for the sectoral structure of GDP, more than 50% of GDP is created in 4-5 sectors of the economy, which indicates the low level of development of the country's economy. The leading industries are dominated by trade and real estate, the specific share of the product created by manufacturing industries is insufficient. Almost insignificant: values created as a result of scientific and technical activities in the field of education, which are directly related to the perspective of innovative development of the country's economy. Countries must have both high- and intermediate-level vocational credentials in order to attain increased production. One skill type is not more efficient than the other; both are required to increase production. A robust talent base may spur technical advancements or encourage the adoption of new technologies (Abuselidze & Beridze, 2019). While higher education can raise inventive ability, Krueger and Kumar (2004) discovered that investing in VET can improve a country's potential to adopt innovation.

The dynamics of data on GDP per capita in Georgia for the years 2010-2021 is presented in Table 3, both for Georgia as a whole, as well as for Tbilisi and Adjara regions.

Table 3

Gross domestic product per capita, in GEL, 2010-2021

Year	Georgia		Tbilisi		Adjara A/R	
	GDP per capita	growth, %	GDP per capita	growth, %	GDP per capita	growth, %
2010	5075.6	-	9387.7	-	4162.1	-
2011	5994.8	18.11%	11114.5	18.39%	5034.3	20.96%
2012	6485.9	8.19%	11749.0	5.70%	6469.7	28.51%
2013	6868.1	5.89%	11995.6	2.10%	6612.6	2.20%
2014	7442.0	8.36%	12856.7	7.18%	6850.2	3.59%
2015	8113.3	9.02%	13812.1	7.43%	8246.3	20.38%
2016	8463.2	4.31%	14651.8	6.08%	8819.5	6.95%
2017	9485.7	12.08%	15846.2	8.15%	8920.1	1.14%
2018	10397.5	9.61%	17315.7	9.27%	10082.3	13.03%
2019	11585.3	11.42%	18851.8	8.87%	12541.8	24.39%
2020	11605.5	0.17%	18388.5	-2.46%	10890.5	-13.16%
2021	14056.9	21.12%	21858.0	18.87%	12841.6	17.91%

Source: compiled by the authors, based on the data of the National Statistical Service of Georgia

The analysis of GDP per capita data shows that the Tbilisi region is on average 1.68 times higher than the average, while there is an almost absolute ratio between the Adjara region and Georgia. GDP per capita is growing almost every year, both as a whole and for the given regions. The only exception is the year 2020, when GDP per capita in the Adjara region decreased by 13.16%, in Tbilisi by 2.46%, although despite the above, GDP per capita for Georgia as a whole increased by 0.17%. With this indicator, the Adjara region is the second after Tbilisi, while the rest of the regions are significantly below the average indicator.

Innovative development largely depends on investments. Due to the lack of investment resources for developing countries, direct foreign investments play an important role, which in turn represents an important financial and economic parameter of the innovative development of the region. Foreign direct investments made in Georgia in 2010-2021 are given in Table 4.

Table 4

Foreign direct investments, million US dollars. 2010-2021 years

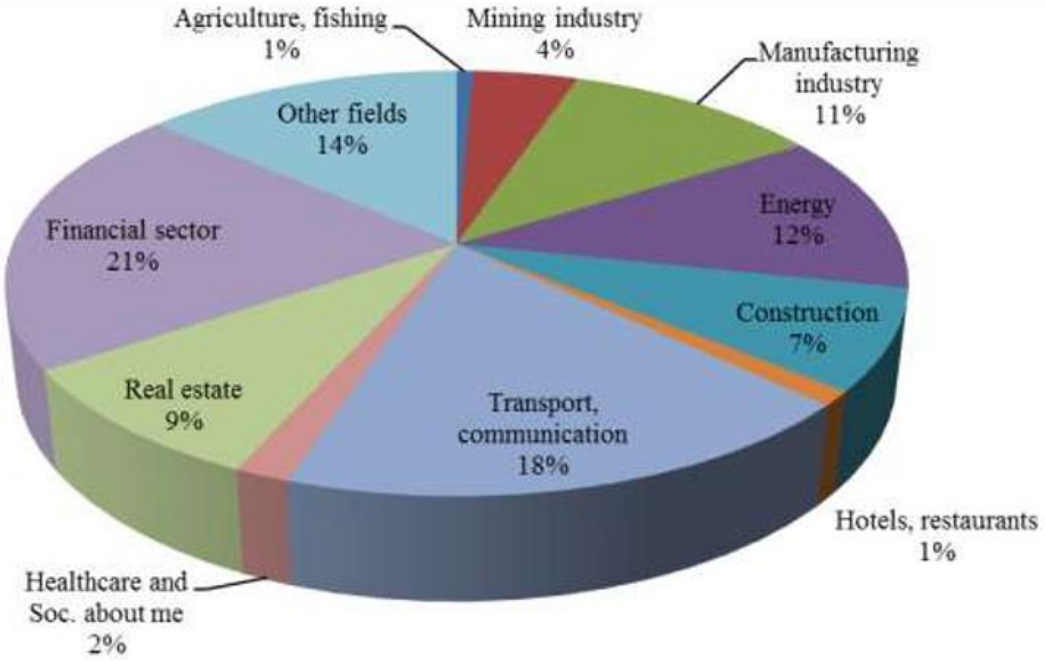
Year	GDP	growth	Tbilisi		Adjara		Kvemo Kartli	
			Absolute	Relative	Absolute	Relative	Absolute	Relative
2010	865.6	**-**	606.7	70.1%	58.9	6.8%	66.7	7.7%
2011	1134.0	**31%**	786.6	69.4%	95.8	8.4%	146.9	12.9%
2012	1048.2	**-7.6%**	772.7	73.7%	72.2	6.9%	41.6	4.0%
2013	1039.2	**-0.8%**	750.3	72.2%	83.1	8.0%	17.7	1.7%
2014	1837.0	**76.7%**	1343.2	73.1%	169.1	9.2%	55.7	3.0%
2015	1728.8	**-5.9%**	1382.9	80.0%	207.8	12.0%	21.2	1.2%
2016	1654.0	**-4.3%**	1416.0	85.6%	108.5	6.6%	29.1	1.8%
2017	1990.5	**17.9%**	1534.5	78.7%	212.9	10.9%	64.6	3.3%
2018	1351.5	**-30.7%**	1072.8	79.4%	85.0	6.3%	86.3	6.4%
2019	1352.2	**0.1%**	947.5	70.1%	193.3	14.3%	48.7	3.6%
2020	589.8	**-56.4%**	340.2	57.7%	78.5	13.3%	78.7	13.3%
2021	1241.8	110.5%	1043.4	84.0%	84.9	6.8%	21.3	1.7%

Source: compiled by the authors, based on the data of the National Statistical Service of Georgia

From the data in Table 4, it can be seen that foreign direct investments in Georgia increased by 43.5% in 2021 compared to 2010. We consider the mentioned norm of growth to be insufficient and does not correspond to the expected result of the state investment policy carried out during this period and the potential of the improved investment environment. If we take into account the annual change in the volume of foreign direct investments, in this case, out of 11 reporting periods, there was an increase in 5 cases, and a decrease in 6 cases. It is clear that the 56.4% decrease in 2020 is due to the severe economic consequences of the COVID-19 pandemic, in the rest of the period we consider the investment environment to be the main reason for the decrease, one of the determining factors of which is the innovativeness of the economy.

In Table 4, the three largest regions of Georgia are separated from the total foreign direct investments in terms of volume: Tbilisi, Adjara and Kvemo Kartli. According to the average specific share of regions, Tbilisi ranks first with 74.5%, where the highest 85.6% was recorded in 2016, and the lowest - 57.7% in 2020. Adjara region is in second place with 8.3%, where the highest rate was 14.3% in 2019, and the lowest - 6.3% in 2018. The third is Kvemo Kartli region with 5.1%, where the mentioned indicator ranges from 1.2% to 13.3%, respectively, in 2015 and 2020. It should be noted that the lowest rate for the Tbilisi region was recorded in the period when Adjara and Kvemo Kartli have the opposite situation, which means that the pandemic had a more negative effect on the Tbilisi region than on the Adjara and Kvemo Kartli regions. The dynamics indicating the percentage share of the regions may in some cases be caused by the implementation of single large investment projects and may not reflect the trends of economic development in the short term, however, it is a noteworthy circumstance for long-term analysis.

The specific share of investments made in the innovative sector of the economy in the total volume of investments is an important determining factor of the country's innovative development. The higher it is, the more developed the country's economy is, and vice versa (Chikava, 2006: 54- 55). That is why, when talking about foreign direct investment, it is always important to discuss its sectoral structure. In the years 2010-2021, the average relative indicators of direct foreign investments made in Georgia according to the sectors of the economy are given in Figure 5.



Source: compiled by the authors, based on the data of the National Statistical Service of Georgia

Fig. 5. **Sectoral structure of foreign direct investments, 2010-2021**

According to Figure 5, the first position is the financial sector (20.68%), the second is transport and communication (18.07%), it is followed by energy (12.13%), processing industry (11.00%), real estate (8.90%), construction (7.63%), mining industry (4.48%). The share of other industries is small or insignificant.

More than half (51%) of foreign direct investments made in Georgia in 2010-2021 come from three sectors of the economy: financial sector, transport and communication and energy. These sectors only guarantee a high rate of profit to foreign investors, which cannot ensure equal development of economic sectors. One of the tasks of the innovation policy is the equalization between sectors of economic development, which is achieved by increasing the role of innovations in the economy, which in itself implies the necessity and stimulation of investing in innovations.

Conclusions, proposals, recommendations

The innovative development of the region is a long and complex process, which largely depends on the effective functioning of the innovation system. National and regional innovation systems in Georgia are in the process of formation, its constituent elements are underdeveloped and there are no close business connections between them. Added to this is the inefficiency of the state innovation policy and the imperfection of legal norms. As a result of the research, the following financial and economic trends of the innovative development of the region were identified.

1) According to the Global Innovation Index, Georgia is in the 74th position in the ranking in 2022. It is ahead of neighbouring Armenia and Azerbaijan by this indicator, although it is significantly behind the Baltic countries, Ukraine, Russia and Turkey. The best result from 2011 to date was 48th place in 2019, and no significant positive trends can be observed in the dynamics, both according to the overall rating and its defining categories.

2) In Georgia, the gross domestic product is created unevenly according to regions and economic sectors, which means inter-regional and inter-sectoral inequality and indicates a low level of innovative development. In recent years, both GDP and GDP per capita have been characterized by an increasing

trend. In this regard, Adjara region stands out, where the average annual growth rate for 2010-2021 is almost 12%, while the average annual growth in Georgia is less than 9%. Considering the GDP deflator and other macroeconomic factors, the mentioned growth rates are insufficient for the innovative development of the economy.

3) The sectoral structure of foreign direct investments made in Georgia is unfavourable from the point of view of innovative development, those branches of the economy, which are represented by a high specific share in foreign direct investments, cannot provide innovative development of the economy. 74.5% of direct foreign investments come to Tbilisi, the specific share of the rest of the regions is small or insignificant, which is an obstacle to regional development, for which we consider a reasonable regional innovation-investment policy. The current growth rate of foreign direct investments cannot provide innovative development.

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