

GLOBAL INNOVATION INDEX AND GEORGIA

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Abstract

In recent years, the problems of innovation activity have become essential. Scientific and technological innovations have become the most important factors for sustainable economic growth in post-industrial society. For small-economy countries, it is essential to study innovative activities and their analysis. The following article is devoted to studying Georgia's innovation potential based on the Global innovation index. The article analyzes the importance of innovation, the dynamics of the Global innovation index, and its role in country's development process. There is a detailed examination of the change of dynamics of Georgia's innovative development indicators' and are indicated the weaknesses and strengths of the innovative environment. In the last part, the author's conclusions and recommendations for improving the innovative environment are presented.

Key words: *Economic analysis; Global Innovation Index; Innovations; Innovative economy; Innovative potential.*

JEL Classification: *C43; O39.*

I. INTRODUCTION

At present, a country's scientific and technological potential is the main driving force behind its economy (Kozak, Shengelia et al, 2020). Throughout the world today, innovation is becoming synonymous with competitiveness and efficiency. Innovation is the result of creative work that translates into new or improved products or in the form of technological processes that are practically used and ready for use (OECD, 2005).

In recent years, the issue of innovative activity has become imperative. It is a new perception of the role of innovation on the part of society, according to which all areas of life cannot be renewed without innovations in production, management, and finance. It is the innovations that lead to the expansion of the market, the improvement of the quality of products and services, the growth of the mix of goods and services, the creation of new production methods, the sale of products, and to the increase of the efficiency of the management (Lin and Chen, 2007).

Depending on the importance of innovation, the level of innovation in different countries has been measured by the Global Innovation Index (GII) since 2007, and year after year the research is organized by Cornell University, INSEAD Business School, and the World Intellectual Property Organization (WIPO).

II. DETERMINING THE CHARACTERISTICS OF A COUNTRY'S INNOVATION POTENTIAL BASED ON THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) reflects various aspects of the innovation process. Based on this indicator, countries should provide the necessary tools for future strategic planning and the development of their potential. The mission of GII must contribute to the creation of such an information environment, in which special importance is attached to the innovation potential, and its characteristics receive a reliable qualitative and quantitative assessment.

Taking into account the specifics of innovative potential, the index is based on several groups of indicators: Components: Institutions, Human capital and research, Infrastructure, Market sophistication, and Business sophistication; Last components: Knowledge and technology outputs, Creative outputs.

The first group represents the sub-index of the global innovation index, which reflects spending on innovation, and the second group is the sub-index for innovative products.

In total, the index includes up to 80 original indicators drawn from more than 30 different sources of information. Priority is given not to the results of evaluations and questionnaires, but to more objective statistical data first.

Specifically, the 7 groups of indicators in the Global Innovation Index are as follows: Institutions (political environment, regulatory environment, business environment); Human capital and research (education, tertiary education, research and development); Infrastructure (information and communication technologies, ecological sustainability, general infrastructure); Business sophistication (knowledge workers, innovation linkages, ability to obtain knowledge); Market sophistication (credit, investment, trade, diversification and market scale); Knowledge and technology outputs (knowledge creation, knowledge impact, knowledge absorption); Creative outputs (intangible assets, creative goods and services, online creativity).

The index defines the countries (131 countries) in order. The ranking of regions is also generalized, according to the global innovation indices of the countries included in it. It can be seen that countries with strong economies and diverse industries occupy the top positions in the ranking. The first place with the highest level of innovation in 2022 is occupied by Switzerland with 64.6 points (out of 100), which has held its top position for 12 years (Table 1). It is followed in the top ten by the USA, Sweden, the UK, the Netherlands, the Republic of Korea, Denmark, Singapore, Germany, and Finland.

Table 1. Global Innovation Index of the top 10 countries in 2022

Country	GII 2022 rank	Score (out of 100)
Switzerland	1	64,6
USA	2	61,8
Sweden	3	61,6
United Kingdom	4	59,7
Netherlands	5	58
Republic of Korea	6	57,8
Singapore	7	57,3
Germany	8	57,2
Finland	9	56,9
Denmark	10	55,9

Countries are also grouped by income group and the corresponding ranking is published. According to the WIPO report, the top 40 economies include two middle-income countries in addition to China, Bulgaria, and Malaysia, which lead their respective groups: Turkey (ranked 37th) and India (ranked 40th) (Table 2).

Table 2. 10 best-ranked economies by income group (rank)

Rank	High-income economies (48 in total)	Upper middle-income economies (36 in total)	Lower middle-income economies (36 in total)	Low-income economies (12 in total)
1	Switzerland	China (11)	India (40)	Rwanda (105)
2	USA	Bulgaria (35)	Viet Nam (48)	Madagascar (106)
3	Sweden	Malaysia (36)	Iran (Islamic Republic of) (53)	Ethiopia (117)
4	United Kingdom	Turkey (37)	Ukraine (57)	Uganda (119)
5	Netherlands	Thailand (43)	Philippines (59)	Burkina Faso (120)
6	Republic of Korea	Mauritius (45)	Morocco (67)	Togo (122)
7	Singapore	Russian Federation (47)	Mongolia (71)	Mozambique (123)
8	Germany	Romania (49)	Tunisia (73)	Niger (125)
9	Finland	Brazil (54)	Indonesia (75)	Mali (126)
10	Denmark	Serbia (55)	Uzbekistan (82)	Yemen (128)

In the middle-income group, the Islamic Republic of Iran (53rd) and Indonesia (75th) have significantly improved their position not only this year, but also over the past decade and now join Turkey, Vietnam, and the Philippines (59th) among the countries with opportunities to change the global innovation landscape.

India overtook Vietnam to lead the group of low-to-middle-income countries. The country continues to lead the world in the "export of ICT services" indicator (1st) and also ranks high in other indicators such as "value of venture capital recipients" (6th), "startup funding and scaling" (8th), "science and engineering graduates" (11th), "increase in labor productivity" (12th) and "diversification of national industry" (14th).

In the group of low-income countries, Rwanda (105th) retains its leading position, followed by Madagascar (106th) and Ethiopia (117th).

Innovation systems in low- and middle-income countries struggle with low levels of education, science, and technology; often weak science linkages; limited internal knowledge flows; inadequate use of innovation capacity by domestic firms; a difficult business environment; limited access to financial resources, limited use of intellectual property (www.wipo.int).

III. ANALYSIS OF THE INNOVATIVE ENVIRONMENT IN GEORGIA BASED ON THE GLOBAL INNOVATION INDEX

In the 2022 Global Innovation Index research, Georgia dropped 11 places to rank 74th

Table 3. Indicators of the Global Innovation Index for Georgia 2011-2022

Year	GII rank	Score (out of 100)	Innovation input	Innovation output
2011	73	31,87	58	75
2012	96	34	63	81
2013	73	35,56	62	83
2014	74	34,53	68	75
2015	73	33,83	67	86
2016	64	33,86	67	60
2017	68	34,39	69	62
2018	59	35,05	53	62
2019	48	36,98	44	60
2020	63	31,78	54	71
2021	63	32,4	49	74
2022	74	27,9	61	82

In the Global Innovation Index study, sub-indices for innovation costs (innovation inputs) and innovation outputs (innovation outputs) are also compiled, according to which Georgia ranks 61st in terms of costs and 82nd in terms of outputs. This is not the best ratio (Table 3).

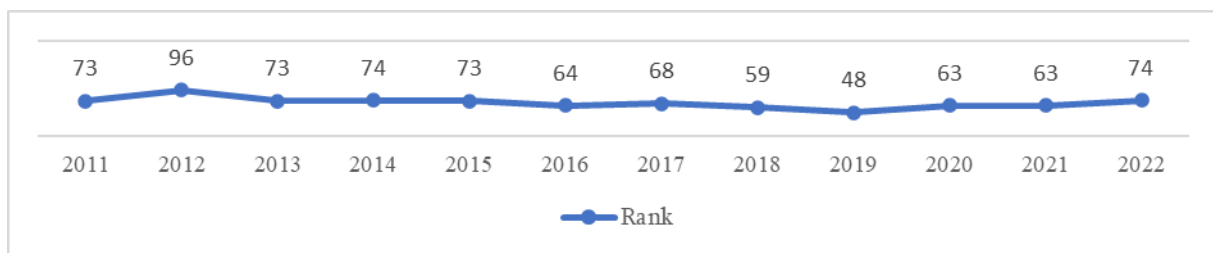


Figure 1 - Georgia's ranking on the global development index 2012-2022

During the years 2011-2022, the position of Georgia in the ranking of countries moved from 73 to 74. The worst position was in 2012, and the best rating was in 2019. This year, 50 reforms were implemented in the country in terms of improving both the institutional and regulatory environment, which had a positive impact on the innovation index (Figure 1).

According to the above data, it is obvious that the strength of Georgia is institutional strength (30th place, 70.7 points), which means regulatory quality (28th), cost of redundancy dismissal (16th), policies for doing business (28th) (Figure 2). In the corresponding categories, the following strong components of the index are mentioned: Pupil-teacher ratio, loans from microfinance organizations, applied tariff rate, net inflow of foreign direct investment, labor productivity growth, and new businesses. Weaknesses of the GII for Georgia are found in five of the seven components, namely: Human capital and research: PISA scales in reading, math and science; global corporate R&D investors and university rankings; Market environment: diversification of national production and volume of the domestic market; Infrastructure: logistics performance indicator; Level of business development: access to venture capital; Knowledge and technology outputs: software spending, high-tech manufacturing, intellectual property receipts (www.wipo.int).

Comparing Georgia's data with those of neighboring countries, we find that Georgia (74) has overtaken Armenia (80) and Azerbaijan (93) according to the 2022 date, but is behind Ukraine, Russia, and Turkey. It should be noted that Turkey is among the top 40 economies and 37th. Given Turkey's recent achievements and its status as a middle-income country, it has a chance to achieve innovation growth comparable to China in the coming years (Figure 3).

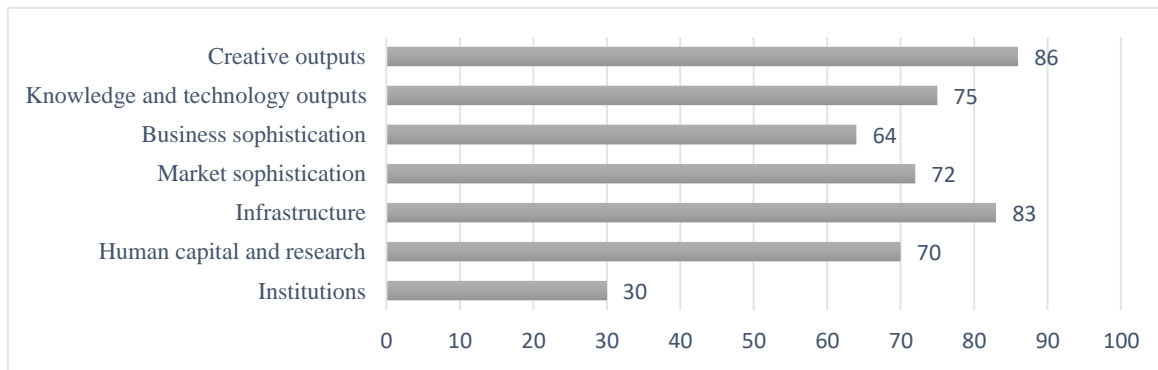


Figure 2 - 2022 ranking of Georgia by categories

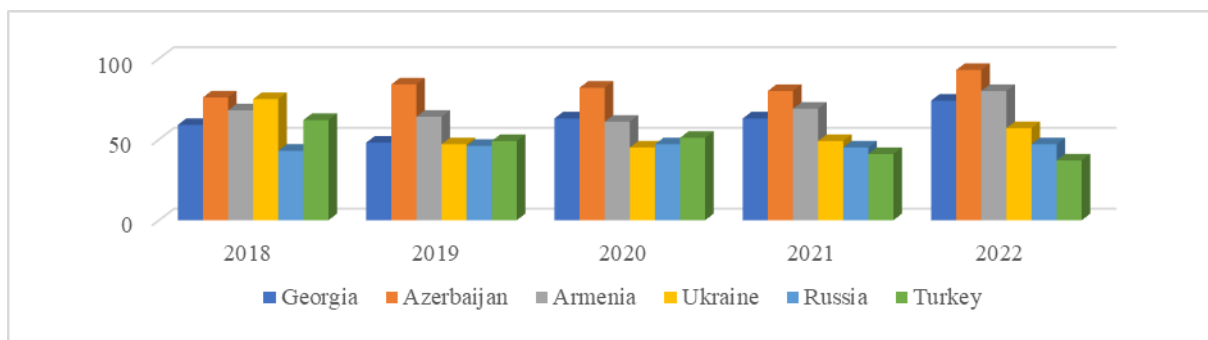


Figure 3 - Ranking of neighboring countries over the last 5 years

IV.CONCLUSION

According to the Global Innovation Index study, Georgia still has low scores in the components that are the main source of innovative development in the long term. The research shows in which direction the processes are more pronounced and which part needs faster development.

In 2022, Georgia has better indicators for innovation contribution than for innovation results, but has a lower score compared to previous years. The country produces fewer innovative products compared to the level of investment in innovation. It is necessary to create and export more innovative products. This requires skilled human resources, science development, specialized research centers and studies, a well-organized innovative infrastructure, an effective legal system, a favorable business environment, access to finance. Therefore, research results should be properly used and complex measures should be planned and implemented to improve Georgia's position in the ranking of the global innovation index.

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