Global Innovation Index 2023

The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

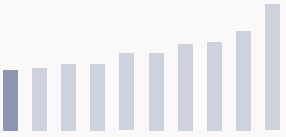
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation**.

Tajikistan ranking in the Global Innovation Index 2023

> Tajikistan ranks 111st among the 132 economies featured in the GII 2023.

> Tajikistan ranks 27th among the 37 lower-middle-income group economies.

> Tajikistan ranks 10th among the 10 economies in Central and Southern Asia.



> Tajikistan GII Ranking (2020-2023)

The table shows the rankings of Tajikistan over the past four years. Data availability and changes to the GII model framework influence year-on-year comparisons of the GII rankings. The statistical confidence interval for the ranking of Tajikistan in the GII 2023 is between ranks 105 and 114.

	GII Position	Innovation Inputs	Innovation Outputs
2020	109th	108th	99th
2021	103rd	104th	96th
2022	104th	104th	101st
2023	111st	109th	107th

Tajikistan performs better in **innovation outputs** than innovation inputs in 2023.

This year **Tajikistan ranks 109th in innovation inputs.** This position is lower than last year.

Tajikistan ranks 107th in innovation outputs. This position is lower than last year.

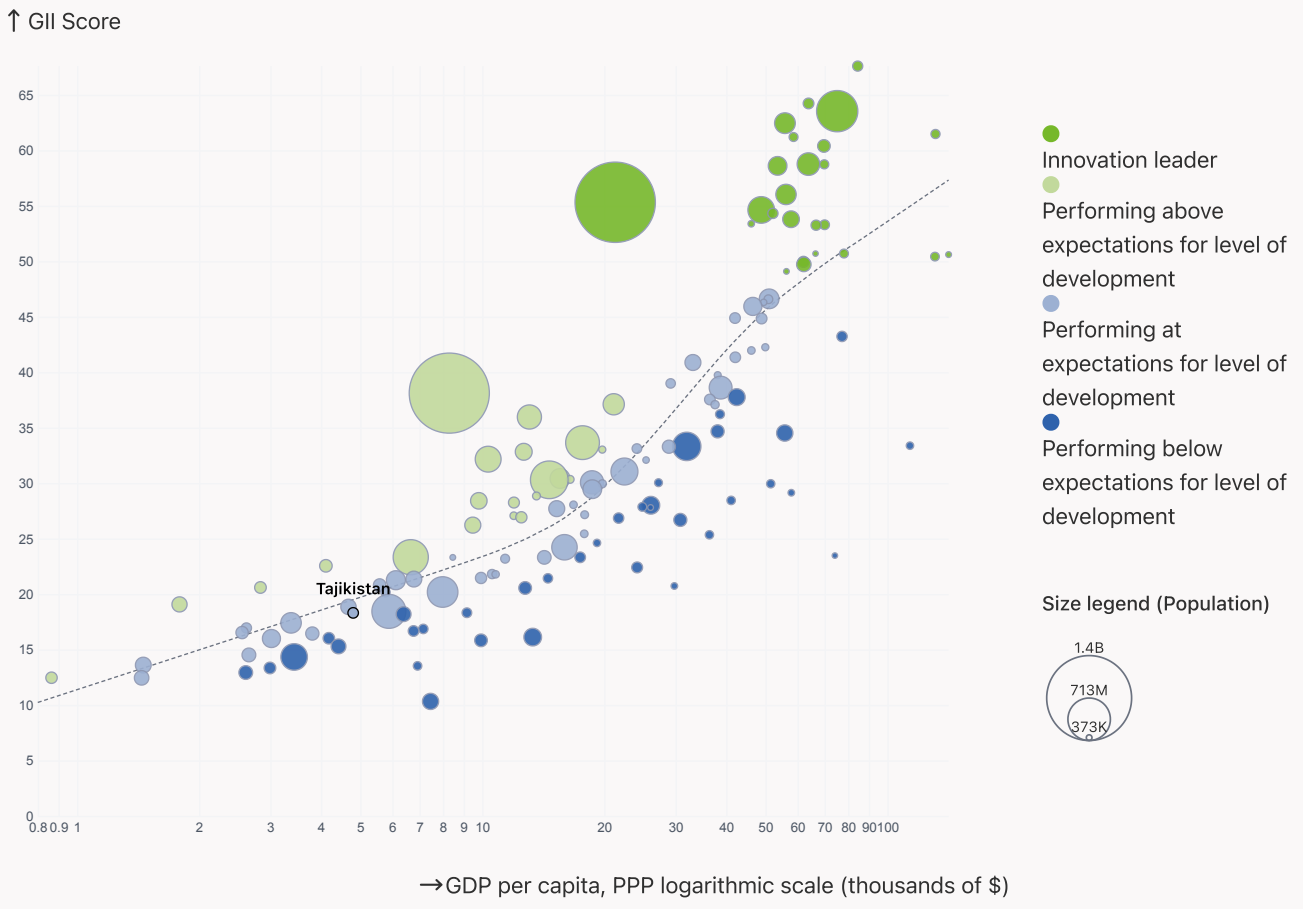
Global Innovation Index 2023

→ Expected vs. observed innovation performance

The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.

> Relative to GDP, Tajikistan's performance is at expectations for its level of development.

> Innovation overperformers relative to their economic development



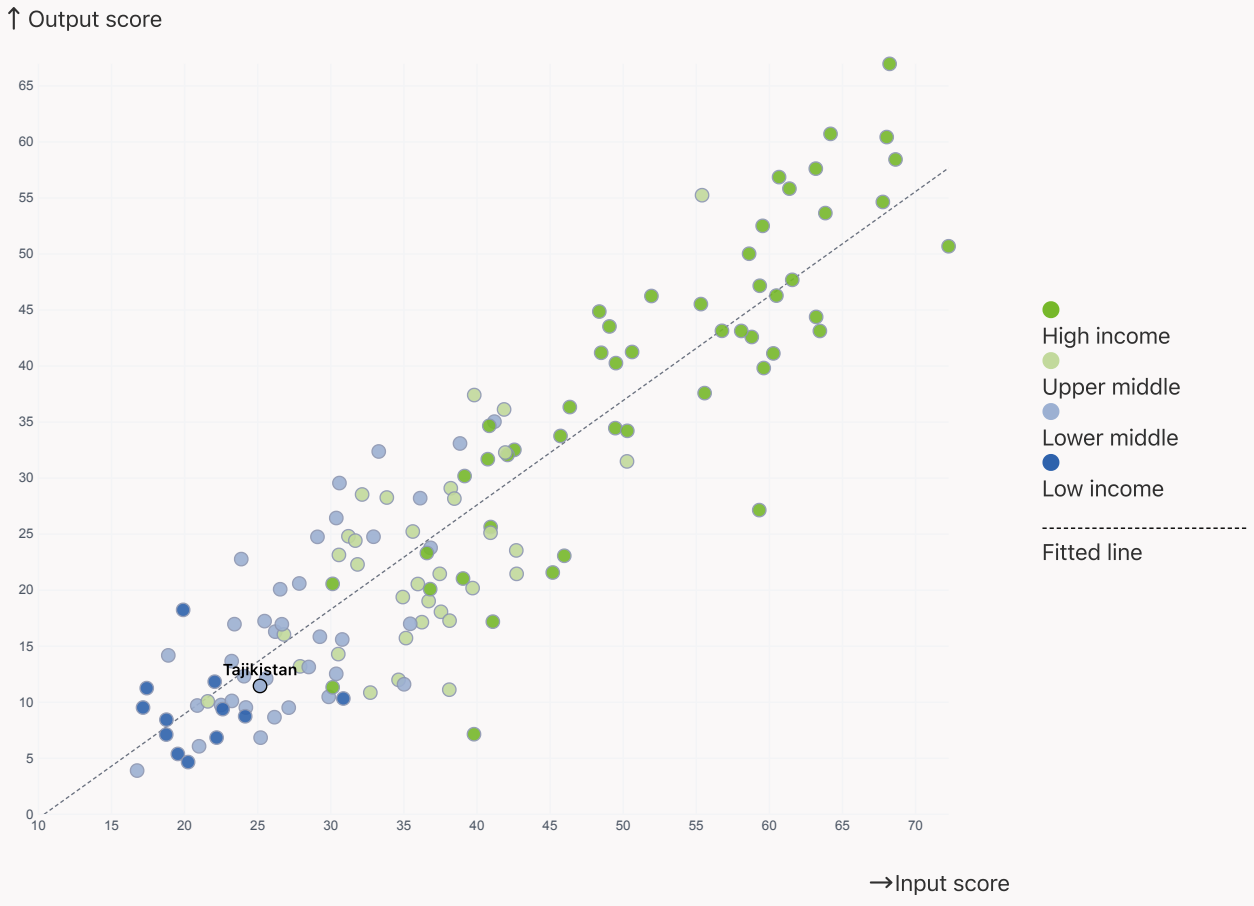
Global Innovation Index 2023

→ Effectively translating innovation investments into innovation outputs

The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

> Tajikistan produces more innovation outputs relative to its level of innovation investments.

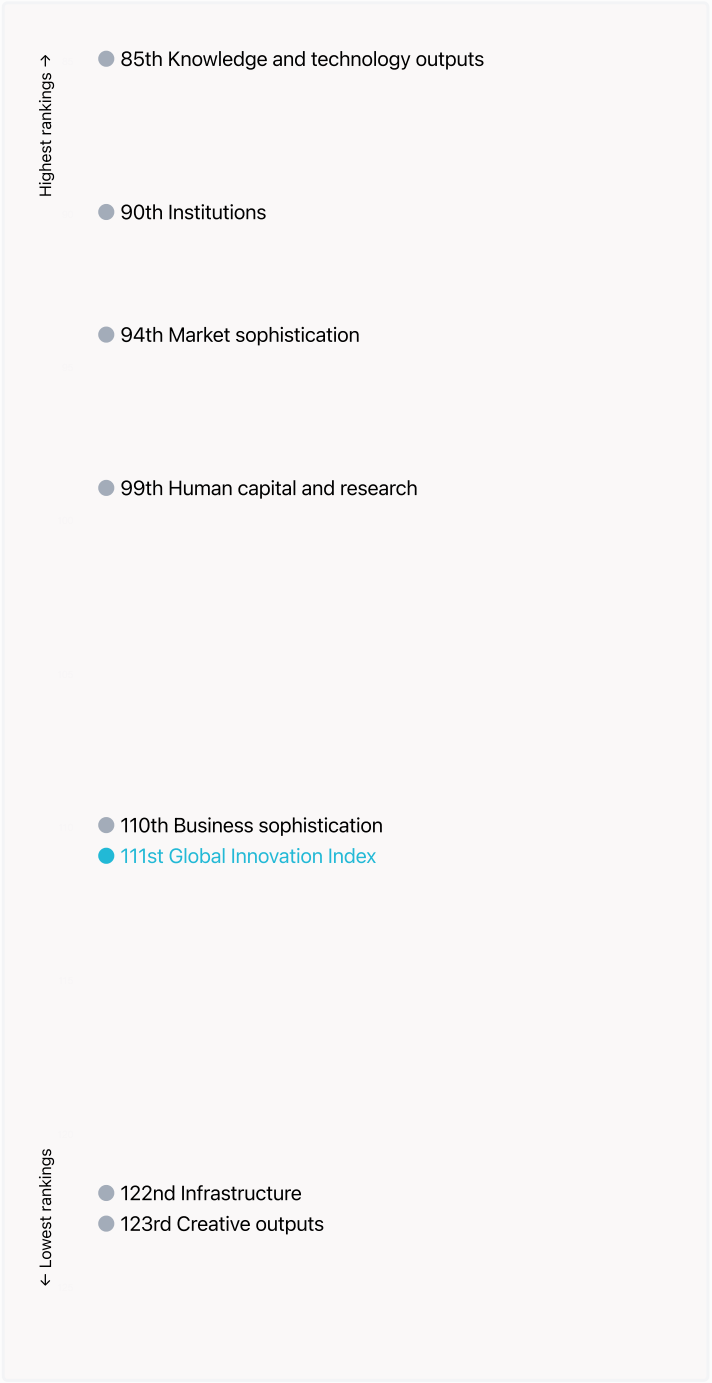
> Relationship between innovation inputs and outputs



Global Innovation Index 2023

→ Overview of Tajikistan's rankings in the seven areas of the GII in 2023

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for Tajikistan are those that rank above the GII (shown in blue) and the weakest are those that rank below.



> Highest rankings

Tajikistan ranks highest in Knowledge and technology outputs (85th), Institutions (90th), Market sophistication (94th), Human capital and research (99th) and Business sophistication (110th).

> Lowest rankings

Tajikistan ranks lowest in Creative outputs (123rd), Infrastructure (122nd) and Business sophistication (110th).

The full WIPO Intellectual Property Statistics profile for Tajikistan can be found on this link.

Global Innovation Index 2023

→ Benchmark of Tajikistan against other country groupings for each of the seven areas of the GII Index

The charts shows the relative position of Tajikistan (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

> Lower-Middle-Income economies

Tajikistan performs below the lower-middle-income group average in Creative outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure.

> Central And Southern Asia

Tajikistan performs below the regional average in Knowledge and technology outputs, Creative outputs, Business sophistication, Market sophistication, Human capital and research, Infrastructure.

Knowledge and technology outputs

- Top 10 | Score: 58.96
- Central and Southern Asia | Score: 20.48
- Tajikistan | Score: 17.50
- Lower middle income | Score: 17.21

Creative outputs

- Top 10 | 56.09
- Central and Southern Asia | 17.93
- Lower middle income | 16.35
- Tajikistan | 5.29

Business sophistication

- Top 10 | 64.39
- Central and Southern Asia | 22.96
- Lower middle income | 22.71
- Tajikistan | 19.68

Market sophistication

- Top 10 | 61.93
- Central and Southern Asia | 33.20
- Lower middle income | 28.01
- Tajikistan | 24.79

Human capital and research

- Top 10 | 60.28
- Central and Southern Asia | 23.87
- Lower middle income | 21.73
- Tajikistan | 20.77

Infrastructure

- Top 10 | 62.83
- Central and Southern Asia | 30.45
- Lower middle income | 27.83
- Tajikistan | 19.46

Institutions

- Top 10 | 79.85
- Tajikistan | 41.31
- Lower middle income | 39.43
- Central and Southern Asia | 38.68

Global Innovation Index 2023

→ Innovation strengths and weaknesses in Tajikistan

The table below gives an overview of the indicator strengths and weaknesses of Tajikistan in the GII 2023.

> Tajikistan's main innovation strengths are **Labor productivity growth, %** (rank 5), **Loans from microfinance institutions, % GDP** (rank 16) and **Expenditure on education, % GDP** (rank 21).

Strengths

Rank	Code	Indicator name
5	6.2.1	Labor productivity growth, %
16	4.1.3	Loans from microfinance institutions, % GDP
21	2.1.1	Expenditure on education, % GDP
49	1.3.1	Policies for doing business
58	5.3.2	High-tech imports, % total trade
58	4.2.3	VC recipients, deals/bn PPP$ GDP
61	2.2.2	Graduates in science and engineering, %
73	5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP
75	3.3.1	GDP/unit of energy use

Weaknesses

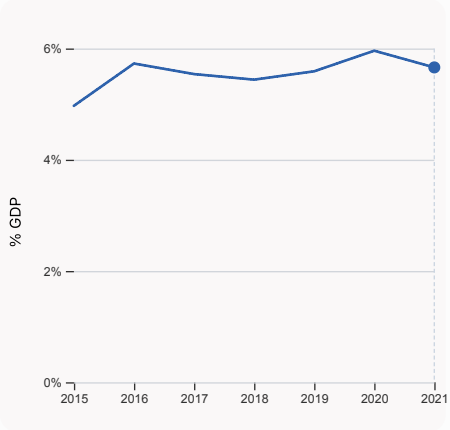
Rank	Code	Indicator name
131	6.3.5	ISO 9001 quality/bn PPP$ GDP
130	3.3.3	ISO 14001 environment/bn PPP$ GDP
101	6.1.2	PCT patents by origin/bn PPP$ GDP
96	5.2.3	GERD financed by abroad, % GDP
95	5.2.5	Patent families/bn PPP$ GDP
74	7.1.3	Global brand value, top 5,000
71	2.3.4	QS university ranking, top 3
48	6.2.2	Unicorn valuation, % GDP
40	2.3.3	Global corporate R&D investors, top 3, mn US$

Global Innovation Index 2023

→ Tajikistan's innovation system

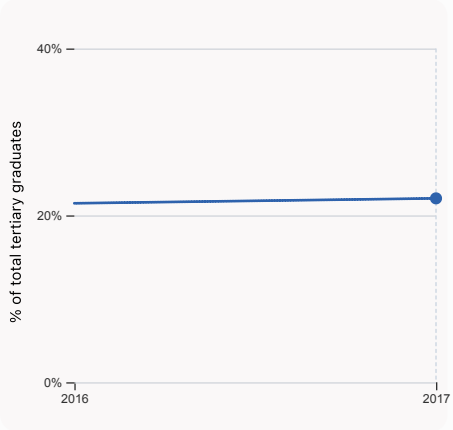
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Tajikistan



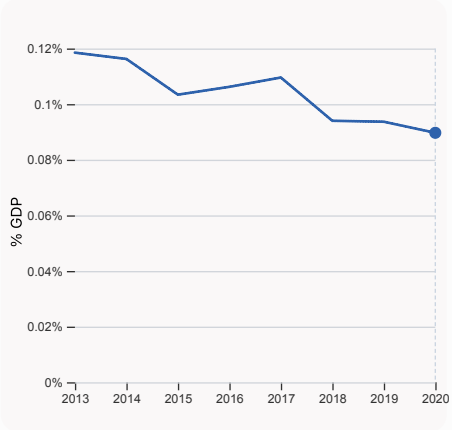
2.1.1 Expenditure on education, % GDP

was equal to 5.66% GDP in 2021, down by 0.3 percentage points from the year prior – and equivalent to an indicator rank of 21.



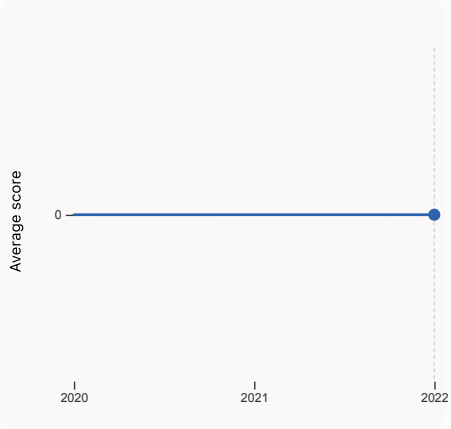
2.2.2 Graduates in science and engineering, %

was equal to 22.04% of total tertiary graduates in 2017, up by 0.59 percentage points from the year prior – and equivalent to an indicator rank of 61.



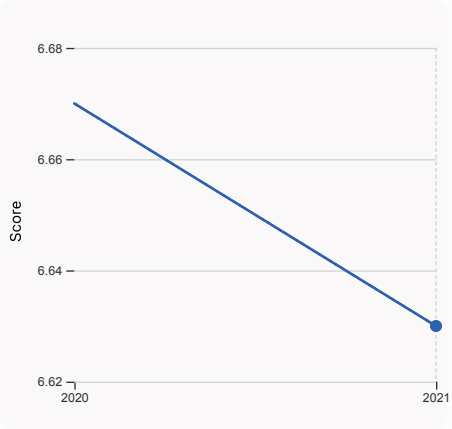
2.3.2 Gross expenditure on R&D, % GDP

was equal to 0.09% GDP in 2020, down by 0.004 percentage points from the year prior – and equivalent to an indicator rank of 105.



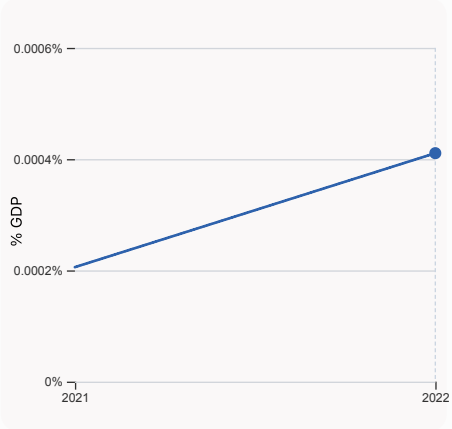
2.3.4 QS university ranking, top 3

was equal to an average score of 0 for the top 3 universities in 2022, equivalent to an indicator rank of 71.



3.1.1 ICT access

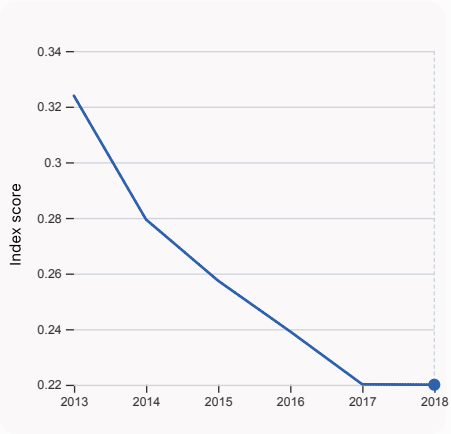
was equal to a score of 6.63 in 2021, down by 0.6% from the year prior – and equivalent to an indicator rank of 110.



4.2.4 VC received, value, % GDP

was equal to 0.00041% GDP in 2022, up by 0.0002 percentage points from the year prior – and equivalent to an indicator rank of 69.

Global Innovation Index 2023

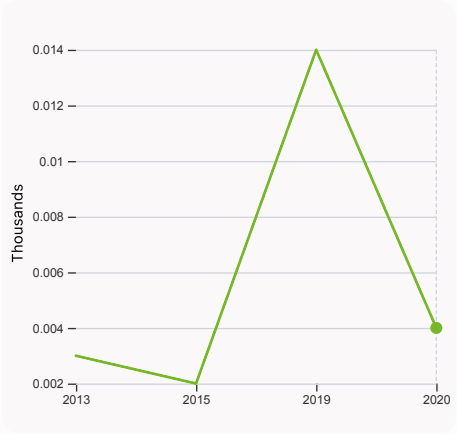


4.3.2 **Domestic industry diversification**

was equal to an index score of 0.22 in 2018, down by 0.07% from the year prior – and equivalent to an indicator rank of 73.

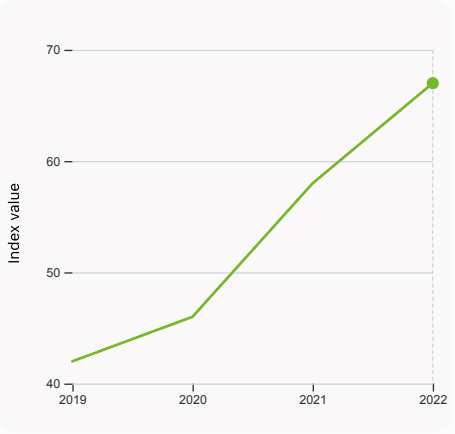
Global Innovation Index 2023

> Innovation outputs in Tajikistan



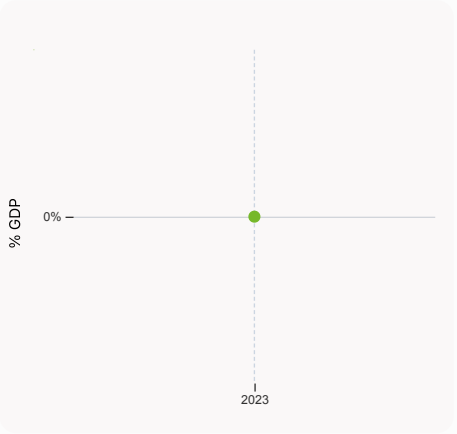
6.1.1 Patents by origin

was equal to 0.004 Thousands in 2020, down by 71.43% from the year prior – and equivalent to an indicator rank of 110.



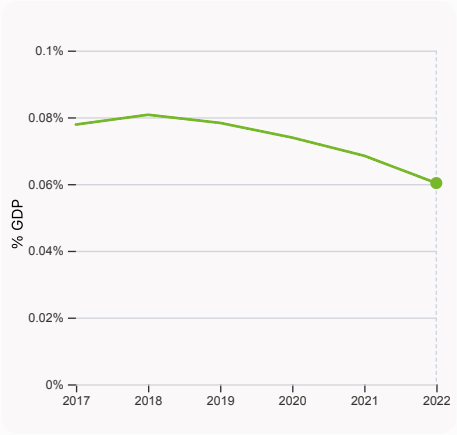
6.1.5 Citable documents H-index

was equal to an index value of 67 in 2022, up by 15.52% from the year prior – and equivalent to an indicator rank of 128.



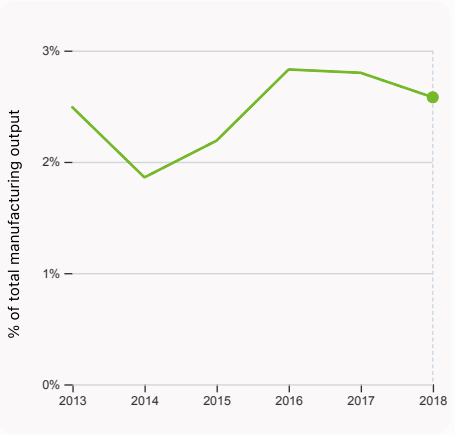
6.2.2 Unicorn valuation, % GDP

was equal to 0 % GDP in 2023 – and equivalent to an indicator rank of 48.



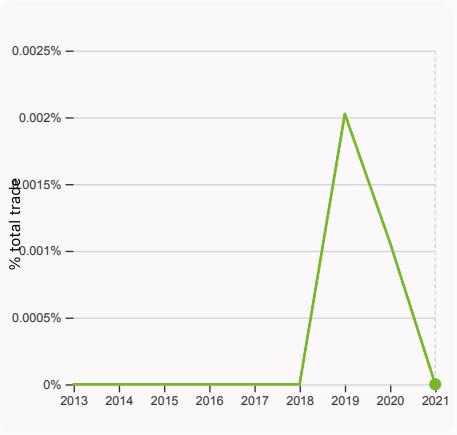
6.2.3 Software spending, % GDP

was equal to 0.06% GDP in 2022, down by 0.0082 percentage points from the year prior – and equivalent to an indicator rank of 101.



6.2.4 High-tech manufacturing, %

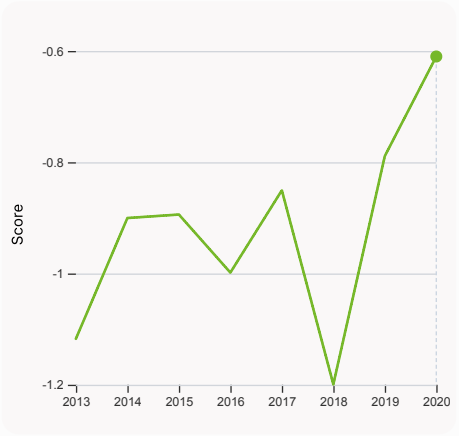
was equal to 2.58% of total manufacturing output in 2018, down by 0.22 percentage points from the year prior – and equivalent to an indicator rank of 109.



6.3.1 Intellectual property receipts, % total trade

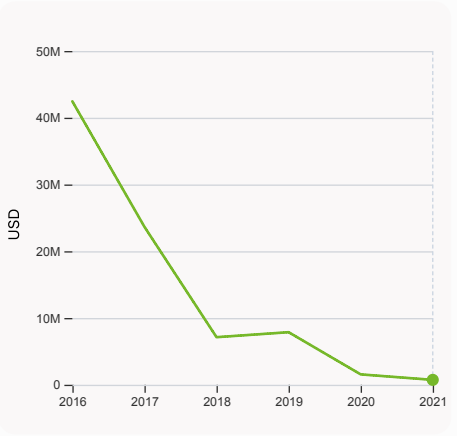
was equal to 0% total trade in 2021, down by 0.0011 percentage points from the year prior – and equivalent to an indicator rank of 103.

Global Innovation Index 2023



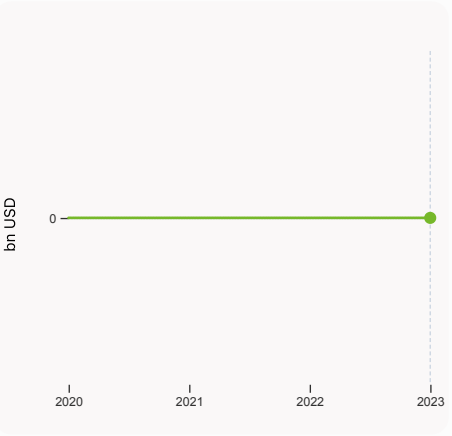
6.3.2 Production and export complexity

was equal to a score of -0.61 in 2020, up by 22.69% from the year prior – and equivalent to an indicator rank of 93.



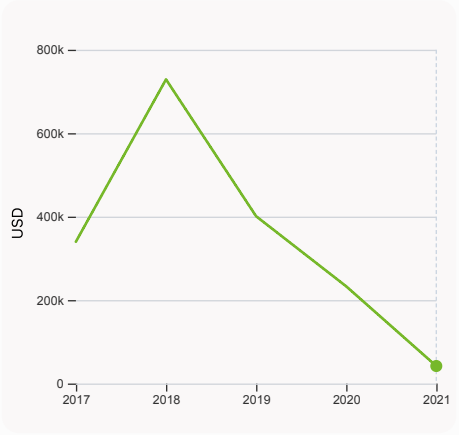
6.3.3 High-tech exports

was equal to 734,896 USD in 2021, down by 52.74% from the year prior – and equivalent to an indicator rank of 129.



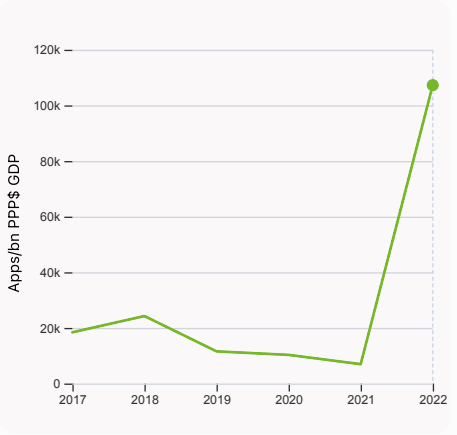
7.1.3 Global brand value, top 5,000

was equal to 0 bn USD in 2023 – and equivalent to an indicator rank of 74.



7.2.1 Cultural and creative services exports

was equal to 42,000 USD in 2021, down by 81.97% from the year prior – and equivalent to an indicator rank of 108.



7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 107,284.73 Apps/bn PPP$ GDP in 2022, up by 1439.49% from the year prior – and equivalent to an indicator rank of 82.

Global Innovation Index 2023

Tajikistan

GII 2023 rank **111**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
107	109	Lower middle	CSA	10.0	47.2	4,802.8

	Score / Value	Rank
Institutions	**41.3**	**90**
1.1 Institutional environment	**26.9**	**107**
1.1.1 Operational stability for businesses*	33.3	114
1.1.2 Government effectiveness*	20.4	102
1.2 Regulatory environment	**40.9**	**119**
1.2.1 Regulatory quality*	12.9	128 ◇
1.2.2 Rule of law*	5.0	129 ◇
1.2.3 Cost of redundancy dismissal	21.7	96
1.3 Business environment	**56.1**	**45**
1.3.1 Policies for doing business†	56.1	49 ●
1.3.2 Entrepreneurship policies and culture†	n/a	n/a
Human capital and research	**20.8**	**99**
2.1 Education	**42.4**	**90**
2.1.1 Expenditure on education, % GDP	5.7	21 ●
2.1.2 Government funding/pupil, secondary, % GDP/cap	n/a	n/a
2.1.3 School life expectancy, years	11.4	95
2.1.4 PISA scales in reading, maths and science	n/a	n/a
2.1.5 Pupil-teacher ratio, secondary	n/a	n/a
2.2 Tertiary education	**19.4**	**92**
2.2.1 Tertiary enrolment, % gross	31.3	87
2.2.2 Graduates in science and engineering, %	22.0	61 ●
2.2.3 Tertiary inbound mobility, %	0.8	94
2.3 Research and development (R&D)	**0.5**	**110**
2.3.1 Researchers, FTE/mn pop.	n/a	n/a
2.3.2 Gross expenditure on R&D, % GDP	0.1	105
2.3.3 Global corporate R&D investors, top 3, mn US$	0.0	40 ○ ◇
2.3.4 QS university ranking, top 3*	0.0	71 ○ ◇
Infrastructure	**19.5**	**122** ◇
3.1 Information and communication technologies (ICTs)	**29.6**	**120** ◇
3.1.1 ICT access*	49.1	110
3.1.2 ICT use*	12.7	129 ◇
3.1.3 Government's online service*	33.3	117
3.1.4 E-participation*	23.3	115
3.2 General infrastructure	**11.3**	**119**
3.2.1 Electricity output, GWh/mn pop.	2,107.4	79
3.2.2 Logistics performance*	18.2	89
3.2.3 Gross capital formation, % GDP	14.9	120 ◇
3.3 Ecological sustainability	**17.5**	**93**
3.3.1 GDP/unit of energy use	9.5	75 ●
3.3.2 Environmental performance*	30.8	87
3.3.3 ISO 14001 environment/bn PPP$ GDP	0.1	130 ○
Market sophistication	**24.8**	**94**
4.1 Credit	**16.3**	**99**
4.1.1 Finance for startups and scaleups†	n/a	n/a
4.1.2 Domestic credit to private sector, % GDP	13.0	124
4.1.3 Loans from microfinance institutions, % GDP	2.5	16 ●
4.2 Investment	**6.0**	**70**
4.2.1 Market capitalization, % GDP	n/a	n/a
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	n/a	n/a
4.2.3 VC recipients, deals/bn PPP$ GDP	0.0	58 ●
4.2.4 VC received, value, % GDP	0.0	69
4.3 Trade, diversification, and market scale	**52.0**	**83**
4.3.1 Applied tariff rate, weighted avg., %	3.9	82
4.3.2 Domestic industry diversification	80.5	73
4.3.3 Domestic market scale, bn PPP$	47.2	110

	Score / Value	Rank
Business sophistication	**19.7**	**110**
5.1 Knowledge workers	**25.2**	**76**
5.1.1 Knowledge-intensive employment, %	n/a	n/a
5.1.2 Firms offering formal training, %	24.3	67
5.1.3 GERD performed by business, % GDP	n/a	n/a
5.1.4 GERD financed by business, %	n/a	n/a
5.1.5 Females employed w/advanced degrees, %	n/a	n/a
5.2 Innovation linkages	**10.6**	**118**
5.2.1 University-industry R&D collaboration†	31.0	95
5.2.2 State of cluster development†	16.3	119
5.2.3 GERD financed by abroad, % GDP	0.0	96 ○ ◇
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	73 ●
5.2.5 Patent families/bn PPP$ GDP	0.0	95 ○ ◇
5.3 Knowledge absorption	**23.3**	**113**
5.3.1 Intellectual property payments, % total trade	0.0	116 ◇
5.3.2 High-tech imports, % total trade	8.5	58 ●
5.3.3 ICT services imports, % total trade	0.4	117
5.3.4 FDI net inflows, % GDP	1.6	83
5.3.5 Research talent, % in businesses	n/a	n/a
Knowledge and technology outputs	**17.5**	**85**
6.1 Knowledge creation	**19.4**	**55**
6.1.1 Patents by origin/bn PPP$ GDP	0.1	110
6.1.2 PCT patents by origin/bn PPP$ GDP	0.0	101 ○ ◇
6.1.3 Utility models by origin/bn PPP$ GDP	3.6	4
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a
6.1.5 Citable documents H-index	1.3	128 ◇
6.2 Knowledge impact	**24.9**	**74**
6.2.1 Labor productivity growth, %	5.3	5 ●
6.2.2 Unicorn valuation, % GDP	0.0	48 ○ ◇
6.2.3 Software spending, % GDP	0.1	101
6.2.4 High-tech manufacturing, %	2.6	109 ◇
6.3 Knowledge diffusion	**8.2**	**115**
6.3.1 Intellectual property receipts, % total trade	0.0	103
6.3.2 Production and export complexity	39.7	93
6.3.3 High-tech exports, % total trade	0.0	129
6.3.4 ICT services exports, % total trade	0.1	123
6.3.5 ISO 9001 quality/bn PPP$ GDP	0.1	131 ○ ◇
Creative outputs	**5.3**	**123** ◇
7.1 Intangible assets	**2.7**	**126** ◇
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a
7.1.2 Trademarks by origin/bn PPP$ GDP	13.2	104
7.1.3 Global brand value, top 5,000	0.0	74 ○ ◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.0	120
7.2 Creative goods and services	**0.6**	**121**
7.2.1 Cultural and creative services exports, % total trade	0.0	108
7.2.2 National feature films/mn pop. 15-69	n/a	n/a
7.2.3 Entertainment and media market/th pop. 15-69	n/a	n/a
7.2.4 Creative goods exports, % total trade	0.1	99
7.3 Online creativity	**15.3**	**95**
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	0.1	124
7.3.2 Country-code TLDs/th pop. 15-69	0.3	106
7.3.3 GitHub commits/mn pop. 15-69	0.4	122
7.3.4 Mobile app creation/bn PPP$ GDP	60.3	82

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question, 🕓 indicates that the economy's data are older than the base year; see appendices for details, including the year of the data, at https://www.wipo.int/gii-ranking. Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.

Global Innovation Index 2023

→ Data availability

The following tables list indicators that are either missing or outdated for Tajikistan.

> Tajikistan has missing data for sixteen indicators and outdated data for seventeen indicators.

> Missing data for Tajikistan

Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture	n/a	2022	Global Entrepreneurship Monitor
2.1.2	Government funding/pupil, secondary, % GDP/cap	n/a	2019	UNESCO Institute for Statistics
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD, PISA
2.1.5	Pupil-teacher ratio, secondary	n/a	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.1.1	Finance for startups and scaleups	n/a	2022	Global Entrepreneurship Monitor
4.2.1	Market capitalization, % GDP	n/a	2020	World Federation of Exchanges; World Bank
4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP	n/a	2022	Refinitiv; International Monetary Fund
5.1.1	Knowledge-intensive employment, %	n/a	2022	International Labour Organization
5.1.3	GERD performed by business, % GDP	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	n/a	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.5	Females employed w/advanced degrees, %	n/a	2022	International Labour Organization
5.3.5	Research talent, % in businesses	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
7.1.1	Intangible asset intensity, top 15, %	n/a	2022	Brand Finance
7.2.2	National feature films/mn pop. 15-69	n/a	2021	OMDIA; United Nations, World Population Prospects
7.2.3	Entertainment and media market/th pop. 15-69	n/a	2022	PwC, GEMO; United Nations, World Population Prospects; International Monetary Fund

Global Innovation Index 2023

> Outdated data for Tajikistan

Code	Indicator name	Economy Year	Model Year	Source
1.3.1	Policies for doing business	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
2.1.3	School life expectancy, years	2013	2020	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2017	2020	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	2017	2020	UNESCO Institute for Statistics; Eurostat; OECD
2.2.3	Tertiary inbound mobility, %	2017	2020	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	2020	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
3.2.1	Electricity output, GWh/mn pop.	2020	2021	International Energy Agency
4.3.2	Domestic industry diversification	2018	2020	United Nations Industrial Development Organization
5.2.1	University-industry R&D collaboration	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.2.2	State of cluster development	2021	2022	World Economic Forum, Executive Opinion Survey (EOS)
5.2.3	GERD financed by abroad, % GDP	2018	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	2021	2022	Refinitiv; International Monetary Fund
6.1.1	Patents by origin/bn PPP$ GDP	2020	2021	World Intellectual Property Organization; International Monetary Fund
6.1.3	Utility models by origin/bn PPP$ GDP	2015	2021	World Intellectual Property Organization; International Monetary Fund
6.2.4	High-tech manufacturing, %	2018	2020	United Nations Industrial Development Organization
7.1.2	Trademarks by origin/bn PPP$ GDP	2020	2021	World Intellectual Property Organization; International Monetary Fund
7.1.4	Industrial designs by origin/bn PPP$ GDP	2015	2021	World Intellectual Property Organization; International Monetary Fund

Global Innovation Index 2023

→ About the Global Innovation Index

- The Global Innovation Index (GII) is published by the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.
- Recognizing that innovation is a key driver of economic development, the GII aims to provide an innovation ranking and rich analysis referencing around 130 economies. Over the last decade, the GII has established itself as both a leading reference on innovation and a "tool for action" for economies that incorporate the GII into their innovation agendas.

Source: Global Innovation Index Database, WIPO, 2023.

The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that include institutions, human capital and research, infrastructure, credit, investment, linkages; the creation, absorption and diffusion of knowledge; and creative outputs.

The GII has two sub-indices: the Innovation Input Sub-Index and the Innovation Output Sub-Index, and seven pillars, each consisting of three sub-pillars.