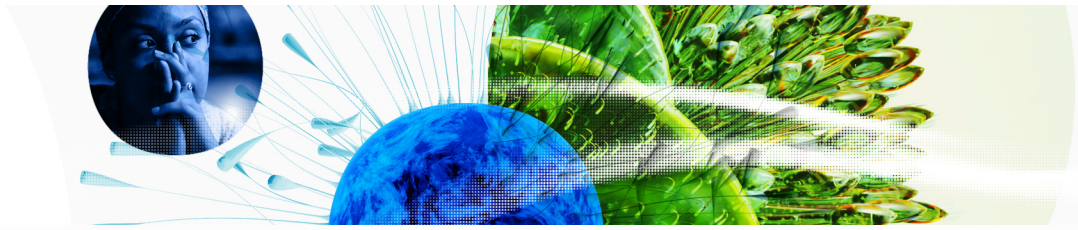
Global Innovation Index 2023



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**.

Ecuador ranking in the Global Innovation Index 2023

> Ecuador ranks 104th among the 132 economies featured in the GII 2023.

> Ecuador ranks 32nd among the 33 upper-middle-income group economies.

> Ecuador ranks 16th among the 19 economies in Latin America and the Caribbean.

> Ecuador GII Ranking (2020-2023)

The table shows the rankings of Ecuador 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 Ecuador in the GII 2023 is between ranks 95 and 104.

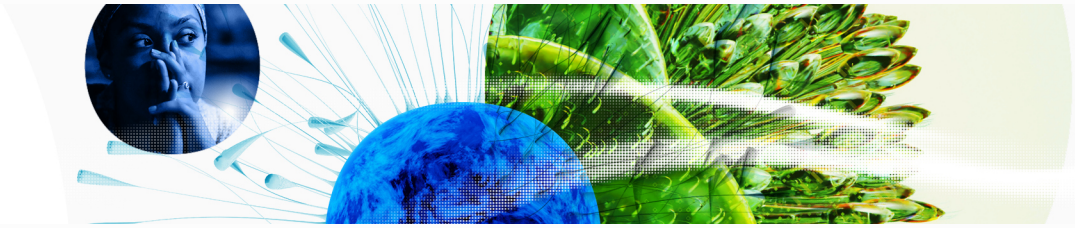
	GII Position	Innovation Inputs	Innovation Outputs
2020	99th	96th	97th
2021	91st	92nd	94th
2022	98th	96th	98th
2023	104th	98th	99th

Ecuador performs worse in **innovation outputs** than innovation inputs in 2023.

This year **Ecuador ranks 98th in innovation inputs.** This position is lower than last year.

Ecuador ranks 99th in innovation outputs. This position is lower than last year.

Global Innovation Index 2023



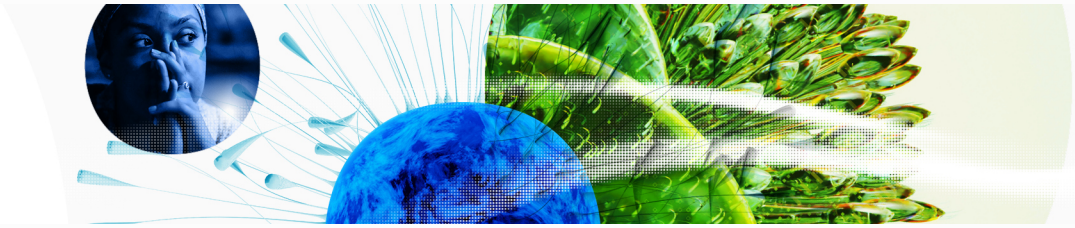
→ Expected vs. observed innovation performance

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, Ecuador's performance is below expectations for its level of development.

> Innovation overperformers relative to their economic development

Global Innovation Index 2023

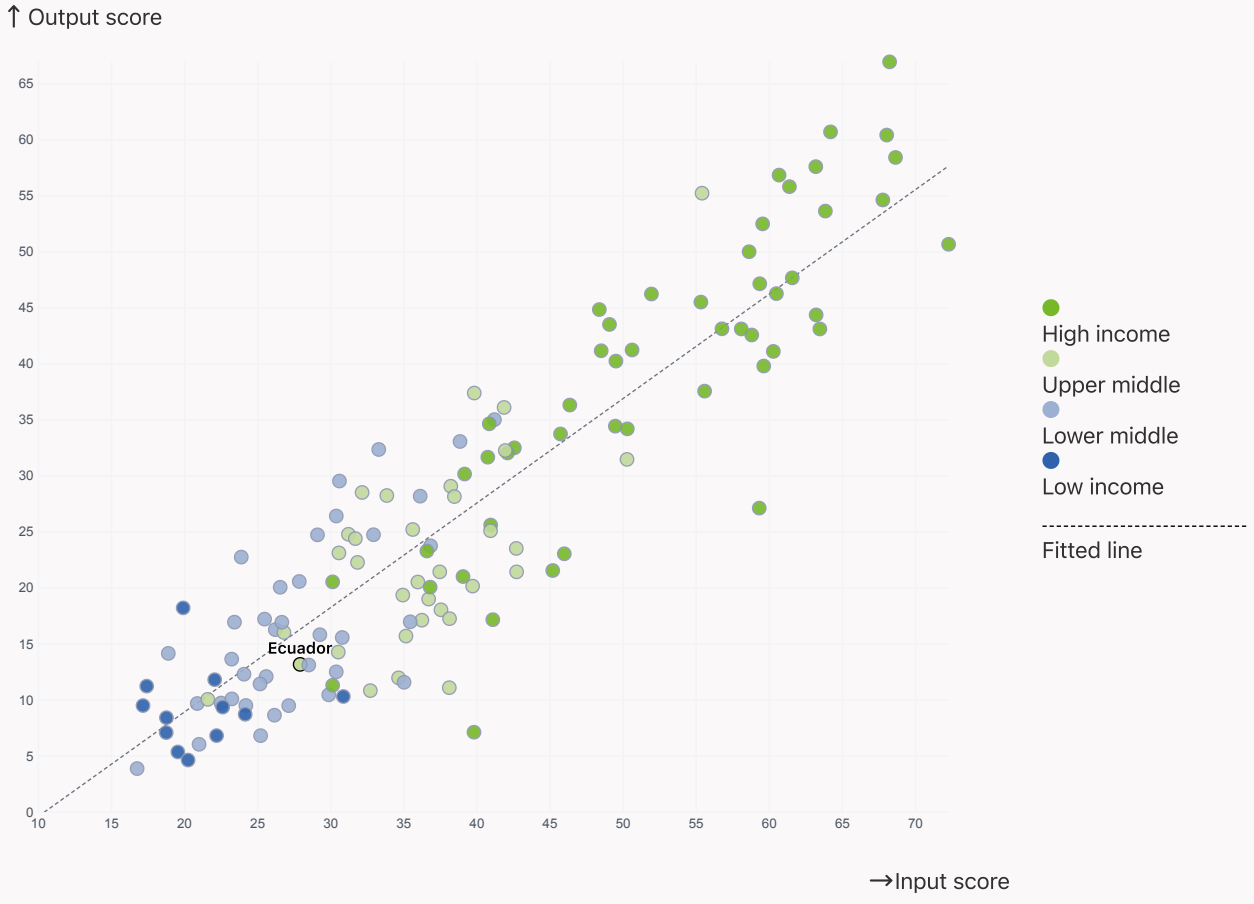


→ Effectively translating innovation investments into innovation outputs

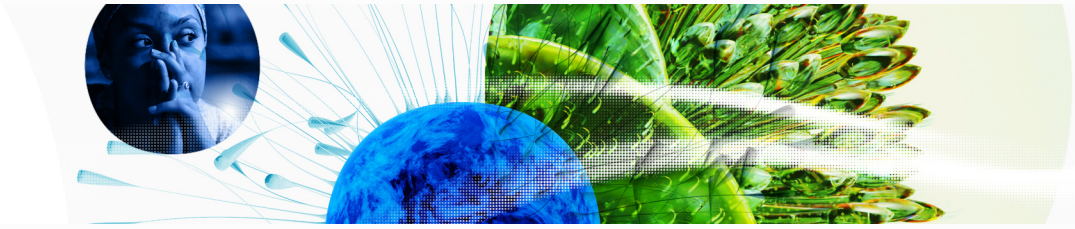
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

> Ecuador produces less innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs

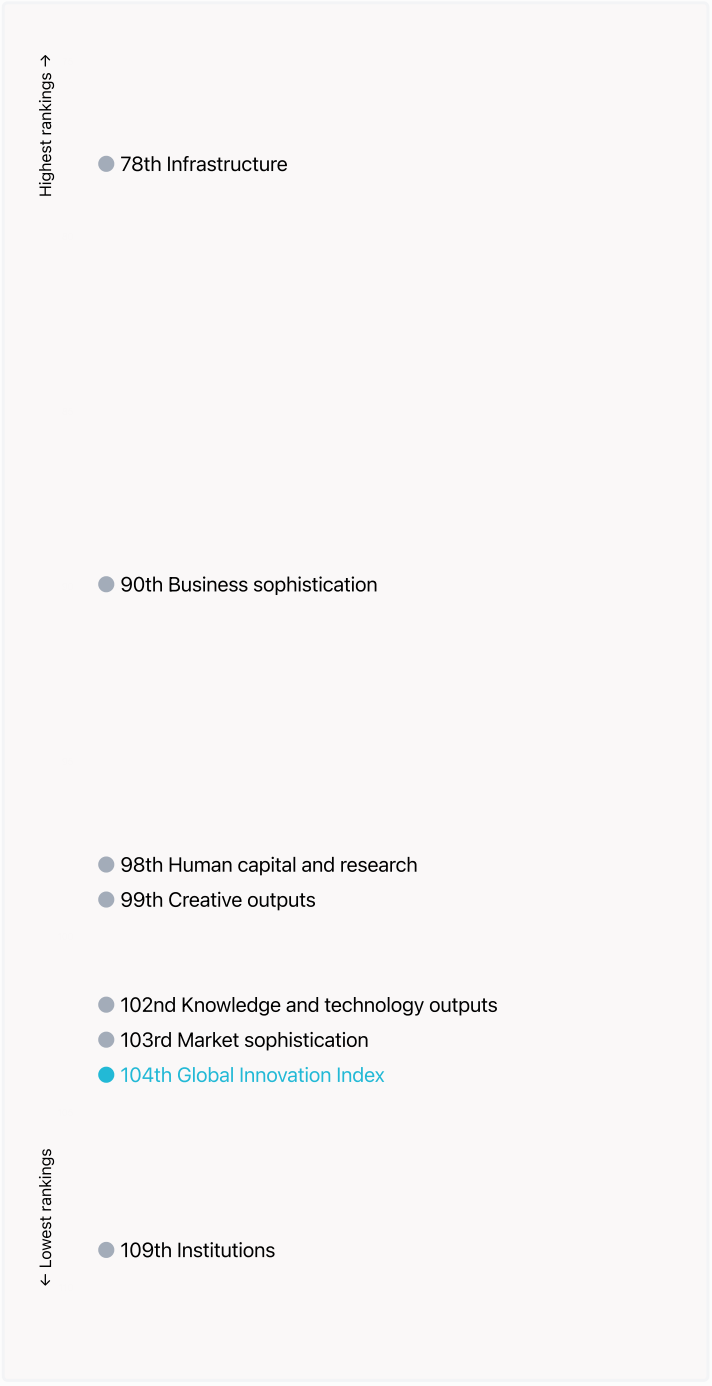


Global Innovation Index 2023



→ Overview of Ecuador'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 Ecuador are those that rank above the GII (shown in blue) and the weakest are those that rank below.



> Highest rankings

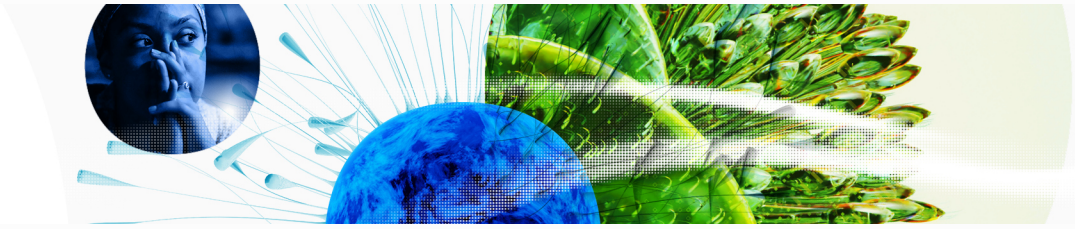
Ecuador ranks highest in Infrastructure (78th), Business sophistication (90th), Human capital and research (98th), Creative outputs (99th), Knowledge and technology outputs (102nd) and Market sophistication (103rd).

> Lowest rankings

Ecuador ranks lowest in Institutions (109th), Market sophistication (103rd) and Knowledge and technology outputs (102nd).

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

Global Innovation Index 2023



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

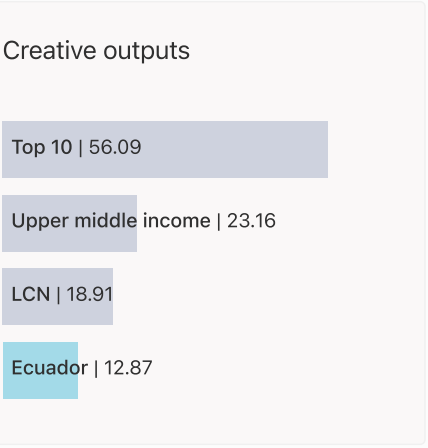
The charts shows the relative position of Ecuador (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

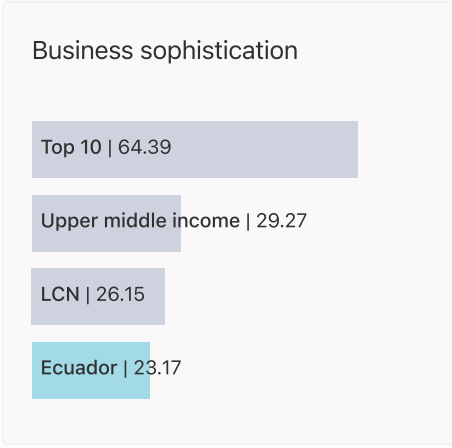
> Upper-Middle-Income economies

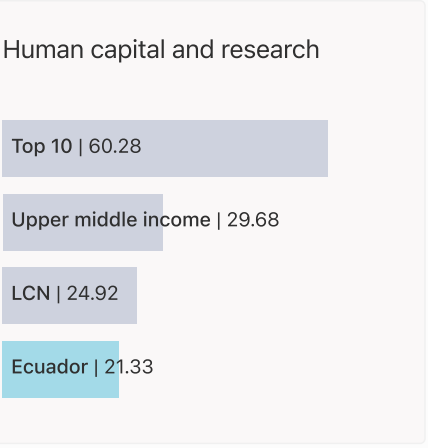
Ecuador performs below the upper-middle-income group average in all the pillars.

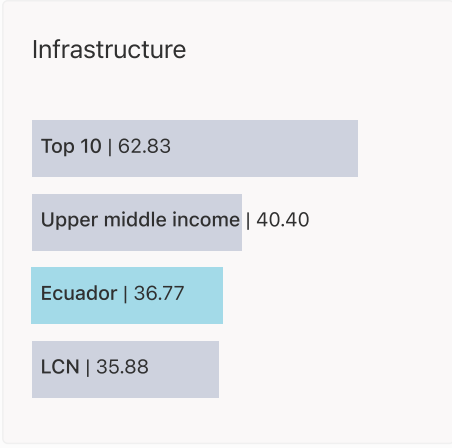
> Latin America And The Caribbean

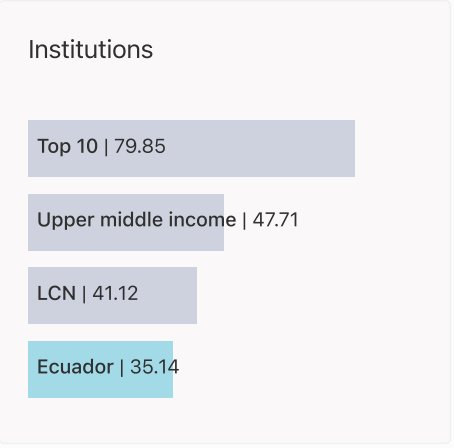
Ecuador performs below the regional average in Knowledge and technology outputs, Creative outputs, Business sophistication, Market sophistication, Human capital and research, Institutions.



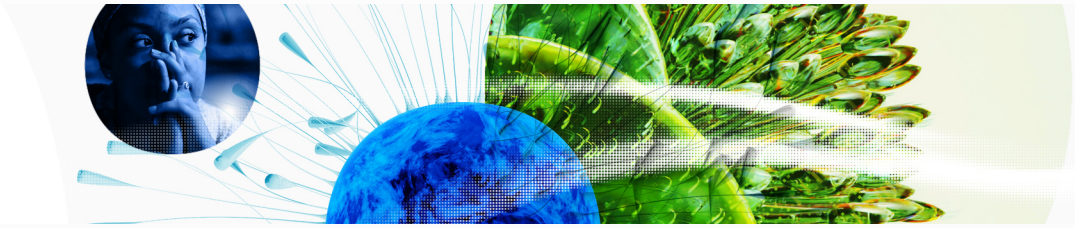








Global Innovation Index 2023



→ Innovation strengths and weaknesses in Ecuador

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

> Ecuador's main innovation strengths are **Firms offering formal training, %** (rank 1), **Loans from microfinance institutions, % GDP** (rank 19) and **Trademarks by origin/bn PPP$ GDP** (rank 28).

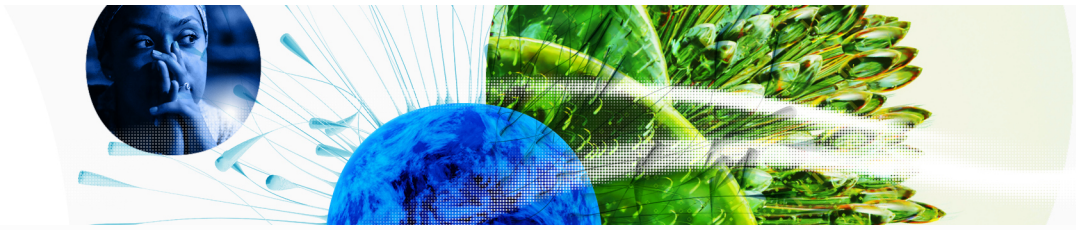
Strengths

Rank	Code	Indicator name
1	5.1.2	Firms offering formal training, %
19	4.1.3	Loans from microfinance institutions, % GDP
28	7.1.2	Trademarks by origin/bn PPP$ GDP
32	6.2.2	Unicorn valuation, % GDP
37	3.2.3	Gross capital formation, % GDP
40	3.3.1	GDP/unit of energy use
41	3.1.4	E-participation
42	5.3.2	High-tech imports, % total trade
47	6.3.5	ISO 9001 quality/bn PPP$ GDP
50	3.1.3	Government's online service

Weaknesses

Rank	Code	Indicator name
124	5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP
122	1.2.3	Cost of redundancy dismissal
115	6.2.1	Labor productivity growth, %
113	6.3.2	Production and export complexity
101	7.2.1	Cultural and creative services exports, % total trade
99	2.1.2	Government funding/pupil, secondary, % GDP/cap
96	4.2.3	VC recipients, deals/bn PPP$ GDP
74	7.1.3	Global brand value, top 5,000
40	2.3.3	Global corporate R&D investors, top 3, mn US$

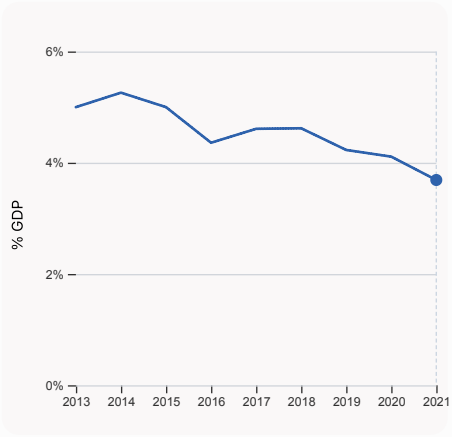
Global Innovation Index 2023



→ Ecuador's innovation system

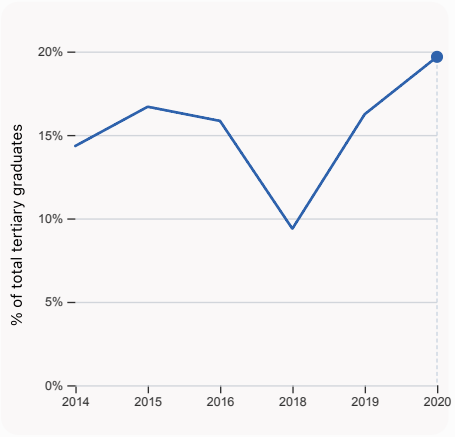
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Ecuador



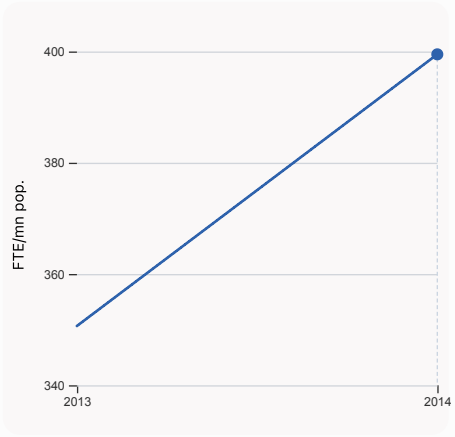
2.1.1 Expenditure on education, % GDP

was equal to 3.69% GDP in 2021, down by 0.42 percentage points from the year prior – and equivalent to an indicator rank of 83.



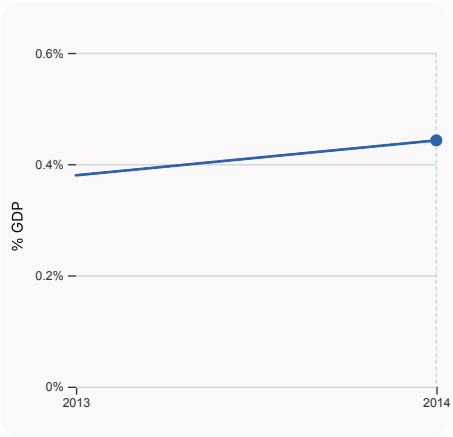
2.2.2 Graduates in science and engineering, %

was equal to 19.68% of total tertiary graduates in 2020, up by 3.44 percentage points from the year prior – and equivalent to an indicator rank of 72.



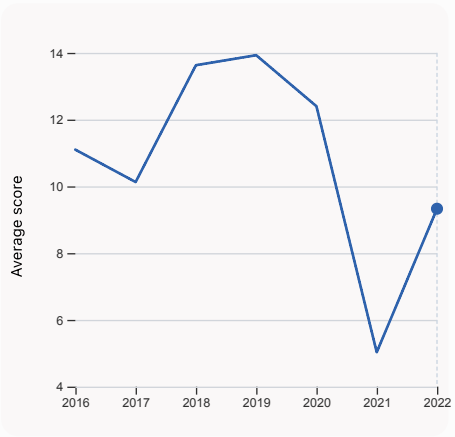
2.3.1 Researchers, FTE/mn pop.

was equal to 399.49 FTE/mn pop. in 2014, up by 13.93% from the year prior – and equivalent to an indicator rank of 74.



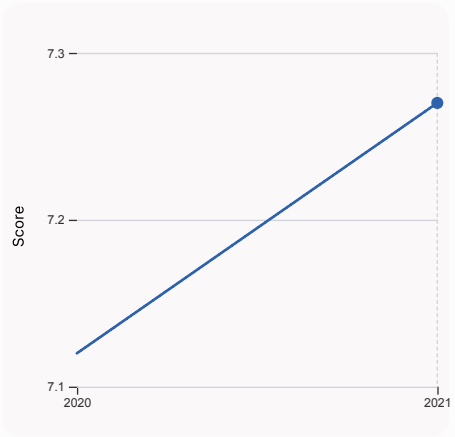
2.3.2 Gross expenditure on R&D, % GDP

was equal to 0.443% GDP in 2014, up by 0.063 percentage points from the year prior – and equivalent to an indicator rank of 65.



2.3.4 QS university ranking, top 3

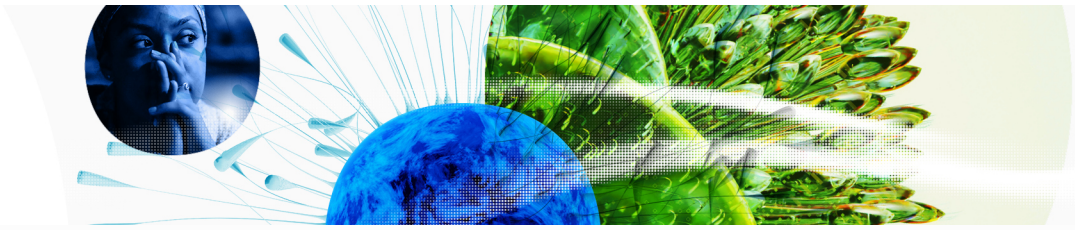
was equal to an average score of 9.33 for the top 3 universities in 2022, up by 85.49% from the year prior – and equivalent to an indicator rank of 68.

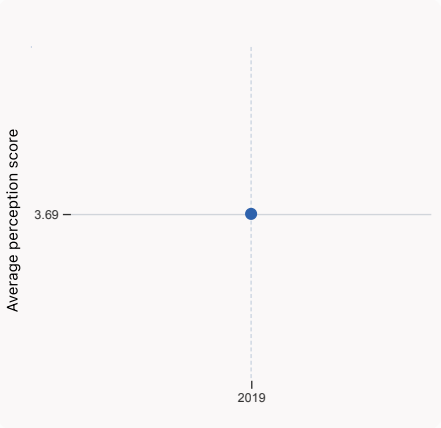


3.1.1 ICT access

was equal to a score of 7.27 in 2021, up by 2.11% from the year prior – and equivalent to an indicator rank of 99.

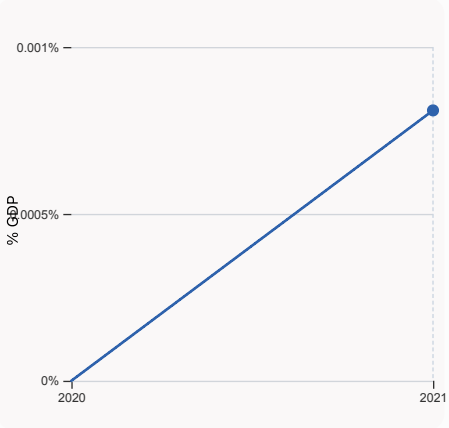
Global Innovation Index 2023





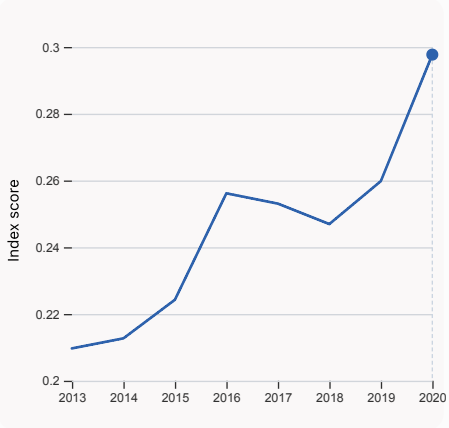
4.1.1 Finance for startups and scaleups

was equal to an average perception score of 3.69 in 2019, equivalent to an indicator rank of 68.



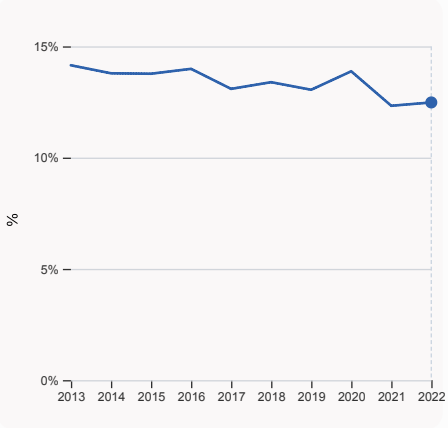
4.2.4 VC received, value, % GDP

was equal to 0.00081 % GDP in 2021, equivalent to an indicator rank of 66.



4.3.2 Domestic industry diversification

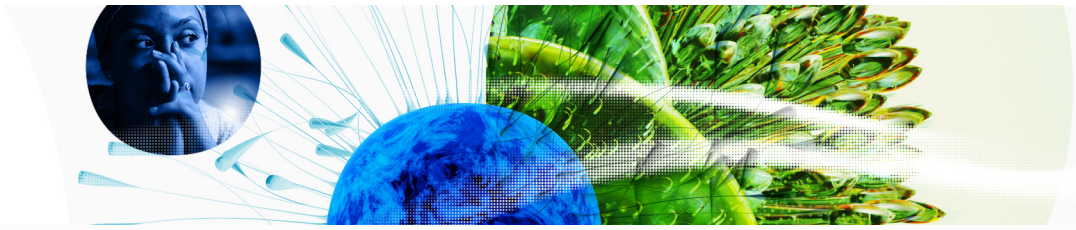
was equal to an index score of 0.298 in 2020, up by 14.59% from the year prior – and equivalent to an indicator rank of 95.



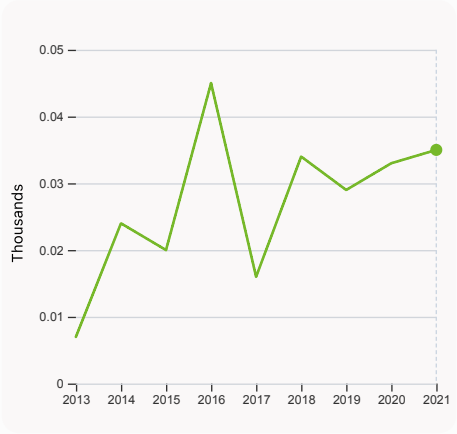
5.1.1 Knowledge-intensive employment, %

was equal to 12.48% in 2022, up by 0.15 percentage points from the year prior – and equivalent to an indicator rank of 100.

Global Innovation Index 2023

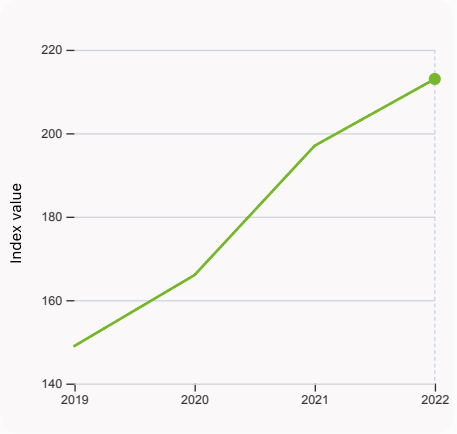


> Innovation outputs in Ecuador



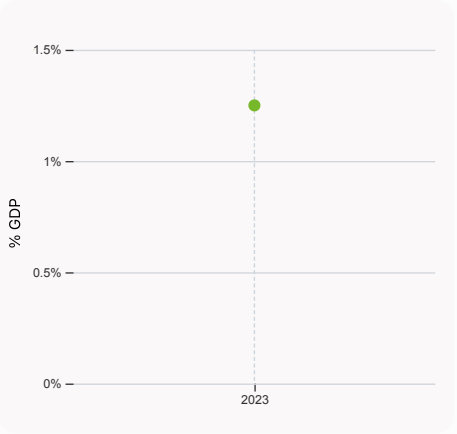
6.1.1 Patents by origin

was equal to 0.035 Thousands in 2021, up by 6.061% from the year prior – and equivalent to an indicator rank of 104.



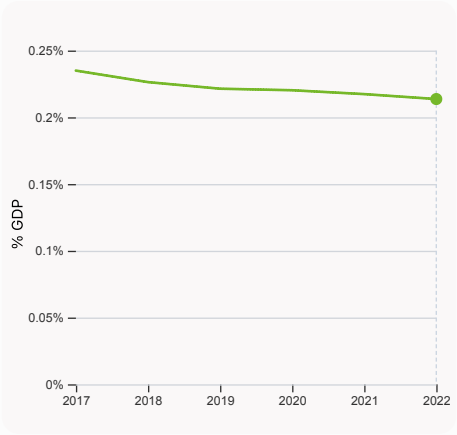
6.1.5 Citable documents H-index

was equal to an index value of 213 in 2022, up by 8.12% from the year prior – and equivalent to an indicator rank of 83.



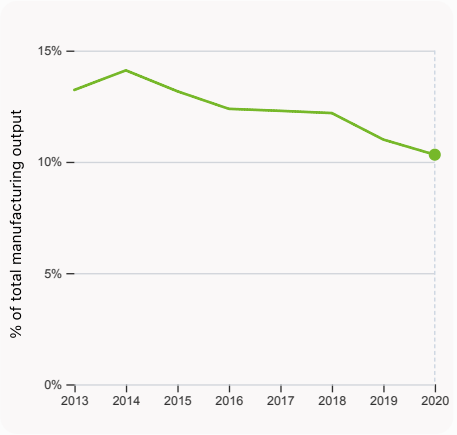
6.2.2 Unicorn valuation, % GDP

was equal to 1.25 % GDP in 2023 – and equivalent to an indicator rank of 32.



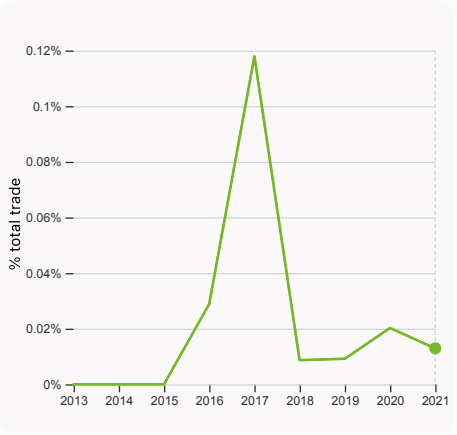
6.2.3 Software spending, % GDP

was equal to 0.214% GDP in 2022, down by 0.0037 percentage points from the year prior – and equivalent to an indicator rank of 69.



6.2.4 High-tech manufacturing, %

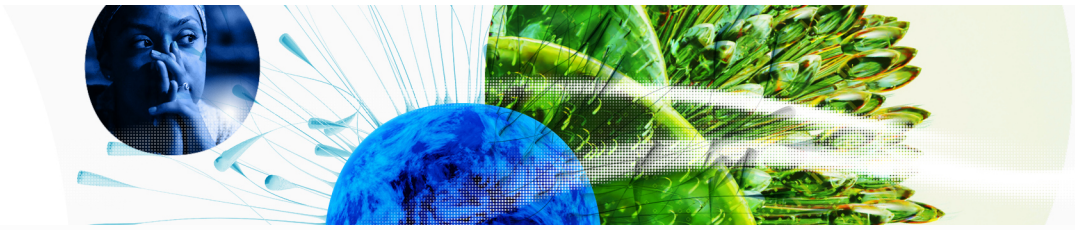
was equal to 10.32% of total manufacturing output in 2020, down by 0.68 percentage points from the year prior – and equivalent to an indicator rank of 89.

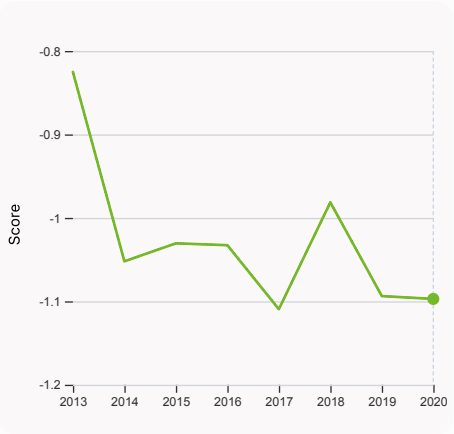


6.3.1 Intellectual property receipts, % total trade

was equal to 0.013% total trade in 2021, down by 0.0073 percentage points from the year prior – and equivalent to an indicator rank of 91.

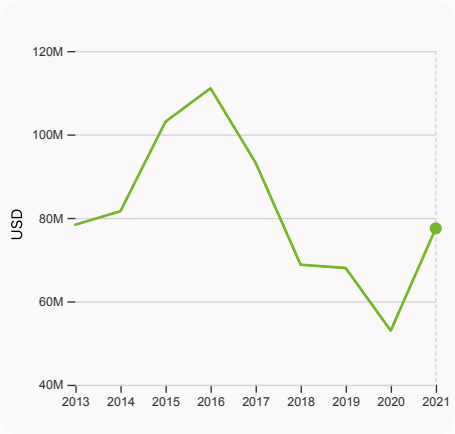
Global Innovation Index 2023





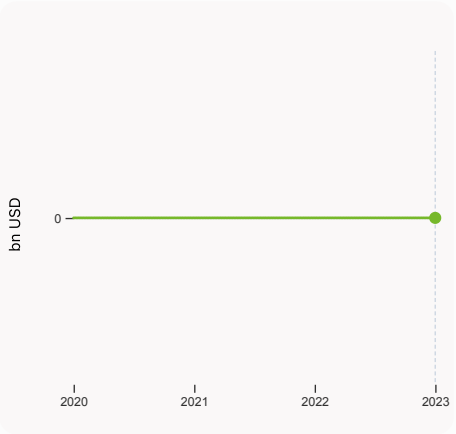
6.3.2 Production and export complexity

was equal to a score of -1.097 in 2020, down by 0.31% from the year prior – and equivalent to an indicator rank of 113.



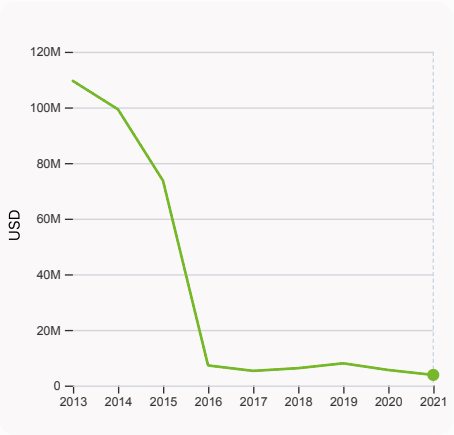
6.3.3 High-tech exports

was equal to 77,485,342 USD in 2021, up by 46.27% from the year prior – and equivalent to an indicator rank of 102.



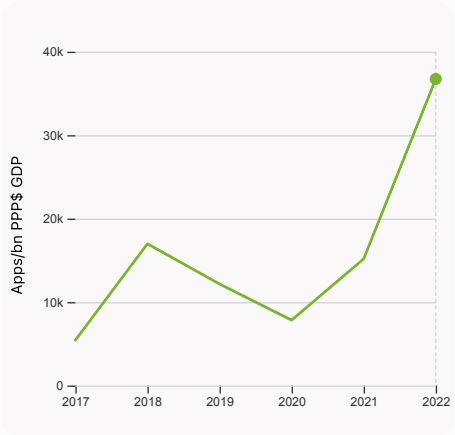
7.1.3 Global brand value, top 5,000

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



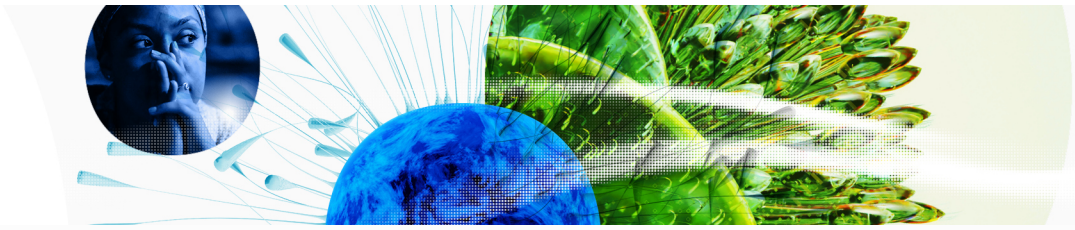
7.2.1 Cultural and creative services exports

was equal to 3,816,000 USD in 2021, down by 31.7% from the year prior – and equivalent to an indicator rank of 101.



7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 36,739.85 Apps/bn PPP$ GDP in 2022, up by 142.039% from the year prior – and equivalent to an indicator rank of 93.



→ Ecuador's innovation top performers

> 2.3.4 QS university ranking of Ecuador's top universities

Rank	University	Score
701-750	UNIVERSIDAD SAN FRANCISCO DE QUITO (USFQ)	16.90
801-1000	PONTIFICIA UNIVERSIDAD CATOLICA DEL ECUADOR (PUCE)	11.10
1001-1200	ESCUELA SUPERIOR POLITECNICA DEL LITORAL (ESPOL)	10.90

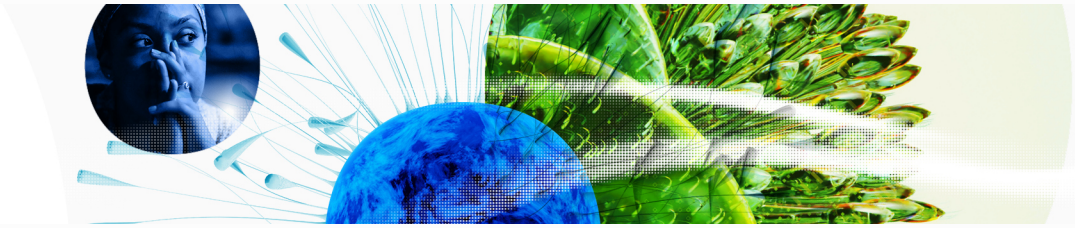
Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2023).
Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100]. Ranks can represent a single value "x", a tie "x=" or a range "x-y".

> 6.2.2 Top Unicorn Companies in Ecuador

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	KUSHKI	Fintech	Quito	2

Source: CBInsights, Tracker – The Complete List of Unicorn Companies: https://www.cbinsights.com/research-unicorn-companies

Global Innovation Index 2023



Ecuador

GII 2023 rank **104**

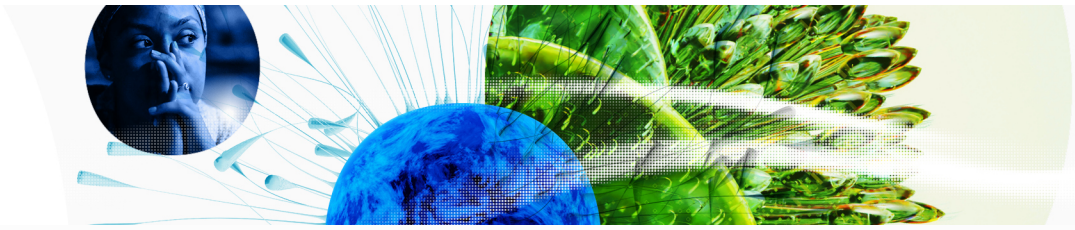
Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
99	98	Upper middle	LCN	18.0	229.8	12,763.1

	Score / Value	Rank	
Institutions	**35.1**	**109**	◇
1.1 Institutional environment	**33.9**	**95**	
1.1.1 Operational stability for businesses*	36.8	107	◇
1.1.2 Government effectiveness*	31.0	86	
1.2 Regulatory environment	**39.9**	**120**	◇
1.2.1 Regulatory quality*	23.9	112	◇
1.2.2 Rule of law*	29.8	83	
1.2.3 Cost of redundancy dismissal	31.8	122	○ ◇
1.3 Business environment	**31.7**	**96**	
1.3.1 Policies for doing business†	26.0	113	
1.3.2 Entrepreneurship policies and culture†	37.3	52	
Human capital and research	**21.3**	**98**	◇
2.1 Education	**36.5**	**109**	◇
2.1.1 Expenditure on education, % GDP	3.7	83	
2.1.2 Government funding/pupil, secondary, % GDP/cap	6.0	99	○ ◇
2.1.3 School life expectancy, years	14.8	59	
2.1.4 PISA scales in reading, maths and science	n/a	n/a	
2.1.5 Pupil-teacher ratio, secondary	21.0	102	◇
2.2 Tertiary education	**22.1**	**85**	
2.2.1 Tertiary enrolment, % gross	52.6	67	
2.2.2 Graduates in science and engineering, %	19.7	72	
2.2.3 Tertiary inbound mobility, %	1.0	89	
2.3 Research and development (R&D)	**5.3**	**74**	
2.3.1 Researchers, FTE/mn pop.	399.5	74	
2.3.2 Gross expenditure on R&D, % GDP	0.4	65	
2.3.3 Global corporate R&D investors, top 3, mn US$	0.0	40	○ ◇
2.3.4 QS university ranking, top 3*	9.5	68	
Infrastructure	**36.8**	**78**	
3.1 Information and communication technologies (ICTs)	**65.3**	**76**	
3.1.1 ICT access*	58.9	99	◇
3.1.2 ICT use*	58.6	95	
3.1.3 Government's online service*	74.0	50	●
3.1.4 E-participation*	69.8	41	●
3.2 General infrastructure	**17.0**	**102**	
3.2.1 Electricity output, GWh/mn pop.	1,807.9	86	
3.2.2 Logistics performance*	n/a	n/a	
3.2.3 Gross capital formation, % GDP	27.1	37	●
3.3 Ecological sustainability	**28.0**	**57**	
3.3.1 GDP/unit of energy use	12.5	40	●
3.3.2 Environmental performance*	46.8	52	
3.3.3 ISO 14001 environment/bn PPP$ GDP	1.0	65	
Market sophistication	**23.3**	**103**	◇
4.1 Credit	**22.5**	**85**	
4.1.1 Finance for startups and scaleups†	31.3	68	
4.1.2 Domestic credit to private sector, % GDP	47.4	75	
4.1.3 Loans from microfinance institutions, % GDP	1.7	19	●
4.2 Investment	**2.7**	**96**	
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	96	○
4.2.4 VC received, value, % GDP	0.0	66	
4.3 Trade, diversification, and market scale	**44.8**	**97**	◇
4.3.1 Applied tariff rate, weighted avg., %	6.2	98	◇
4.3.2 Domestic industry diversification	69.7	95	◇
4.3.3 Domestic market scale, bn PPP$	229.8	65	

	Score / Value	Rank	
Business sophistication	**23.2**	**90**	
5.1 Knowledge workers	**29.5**	**72**	
5.1.1 Knowledge-intensive employment, %	12.5	100	◇
5.1.2 Firms offering formal training, %	73.7	1	●
5.1.3 GERD performed by business, % GDP	0.2	56	
5.1.4 GERD financed by business, %	0.2	97	
5.1.5 Females employed w/advanced degrees, %	8.6	81	
5.2 Innovation linkages	**11.3**	**114**	◇
5.2.1 University-industry R&D collaboration†	30.9	96	
5.2.2 State of cluster development†	21.2	112	◇
5.2.3 GERD financed by abroad, % GDP	0.0	64	
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	124	○
5.2.5 Patent families/bn PPP$ GDP	0.0	80	
5.3 Knowledge absorption	**28.7**	**85**	
5.3.1 Intellectual property payments, % total trade	0.6	61	
5.3.2 High-tech imports, % total trade	9.7	42	●
5.3.3 ICT services imports, % total trade	0.6	106	
5.3.4 FDI net inflows, % GDP	0.9	101	
5.3.5 Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs	**13.4**	**102**	
6.1 Knowledge creation	**6.9**	**99**	
6.1.1 Patents by origin/bn PPP$ GDP	0.2	104	
6.1.2 PCT patents by origin/bn PPP$ GDP	0.0	83	
6.1.3 Utility models by origin/bn PPP$ GDP	0.1	56	
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a	
6.1.5 Citable documents H-index	9.5	83	
6.2 Knowledge impact	**22.5**	**91**	
6.2.1 Labor productivity growth, %	-0.8	115	○ ◇
6.2.2 Unicorn valuation, % GDP	1.2	32	●
6.2.3 Software spending, % GDP	0.2	69	
6.2.4 High-tech manufacturing, %	10.3	89	
6.3 Knowledge diffusion	**10.9**	**104**	◇
6.3.1 Intellectual property receipts, % total trade	0.0	91	
6.3.2 Production and export complexity	29.5	113	○ ◇
6.3.3 High-tech exports, % total trade	0.3	102	
6.3.4 ICT services exports, % total trade	0.3	108	
6.3.5 ISO 9001 quality/bn PPP$ GDP	6.0	47	●
Creative outputs	**12.9**	**99**	◇
7.1 Intangible assets	**17.7**	**90**	
7.1.1 Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2 Trademarks by origin/bn PPP$ GDP	66.9	28	●
7.1.3 Global brand value, top 5,000	0.0	74	○ ◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	0.4	90	
7.2 Creative goods and services	**0.3**	**127**	
7.2.1 Cultural and creative services exports, % total trade	0.0	101	○
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	0.0	115	
7.3 Online creativity	**15.8**	**92**	
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	2.1	80	
7.3.2 Country-code TLDs/th pop. 15-69	1.2	85	
7.3.3 GitHub commits/mn pop. 15-69	3.9	80	
7.3.4 Mobile app creation/bn PPP$ GDP	56.0	93	

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 Ecuador.

> Ecuador has missing data for eight indicators and outdated data for eleven indicators.

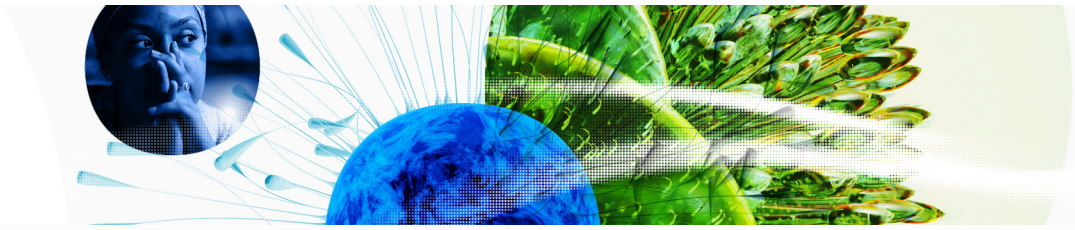
> Missing data for Ecuador

Code	Indicator name	Economy Year	Model Year	Source
2.1.4	PISA scales in reading, maths and science	n/a	2018	OECD, PISA
3.2.2	Logistics performance	n/a	2023	World Bank, Logistics Performance Index 2023 (https://lpi.worldbank.org/); and World Bank 2023, Connecting to Compete 2023: Trade Logistics in the Global Economy ÔÇô The Logistics Performance Index and its Indicators.
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
5.3.5	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

> Outdated data for Ecuador

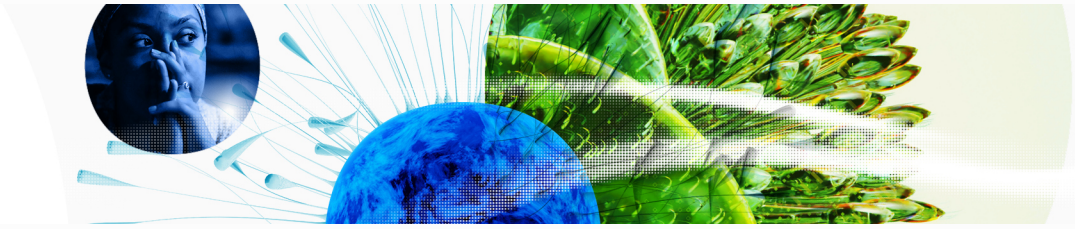
Code	Indicator name	Economy Year	Model Year	Source
1.3.2	Entrepreneurship policies and culture	2019	2022	Global Entrepreneurship Monitor
2.3.1	Researchers, FTE/mn pop.	2014	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
2.3.2	Gross expenditure on R&D, % GDP	2014	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.1.1	Finance for startups and scaleups	2019	2022	Global Entrepreneurship Monitor
4.1.3	Loans from microfinance institutions, % GDP	2019	2021	International Monetary Fund, Financial Access

Global Innovation Index 2023



Code	Indicator name	Economy Year	Model Year	Source
				Survey (FAS)
4.2.3	VC recipients, deals/bn PPP$ GDP	2021	2022	Refinitiv; International Monetary Fund
4.2.4	VC received, value, % GDP	2021	2022	Refinitiv; International Monetary Fund
5.1.2	Firms offering formal training, %	2017	2019	World Bank Enterprise Surveys
5.1.3	GERD performed by business, % GDP	2014	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.1.4	GERD financed by business, %	2014	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
5.2.3	GERD financed by abroad, % GDP	2014	2020	UNESCO Institute for Statistics; Eurostat; OECD; RICYT

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.