ECUADOR

98th Ecuador ranks 98th among the 132 economies featured in the GII 2022.

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.

The following table shows the rankings of Ecuador over the past three years, noting that 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 2022 is between ranks 93 and 101.

Rankings for Ecuador (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	99	96	97
2021	91	92	94
2022	98	96	98

- Ecuador performs better in innovation inputs than innovation outputs in 2022.
- This year Ecuador ranks 96th in innovation inputs, lower than last year but the same as 2020.
- As for innovation outputs, Ecuador ranks 98th. This position is lower than both 2021 and 2020.

34th Ecuador ranks 34th among the 36 upper-middle-income group economies.

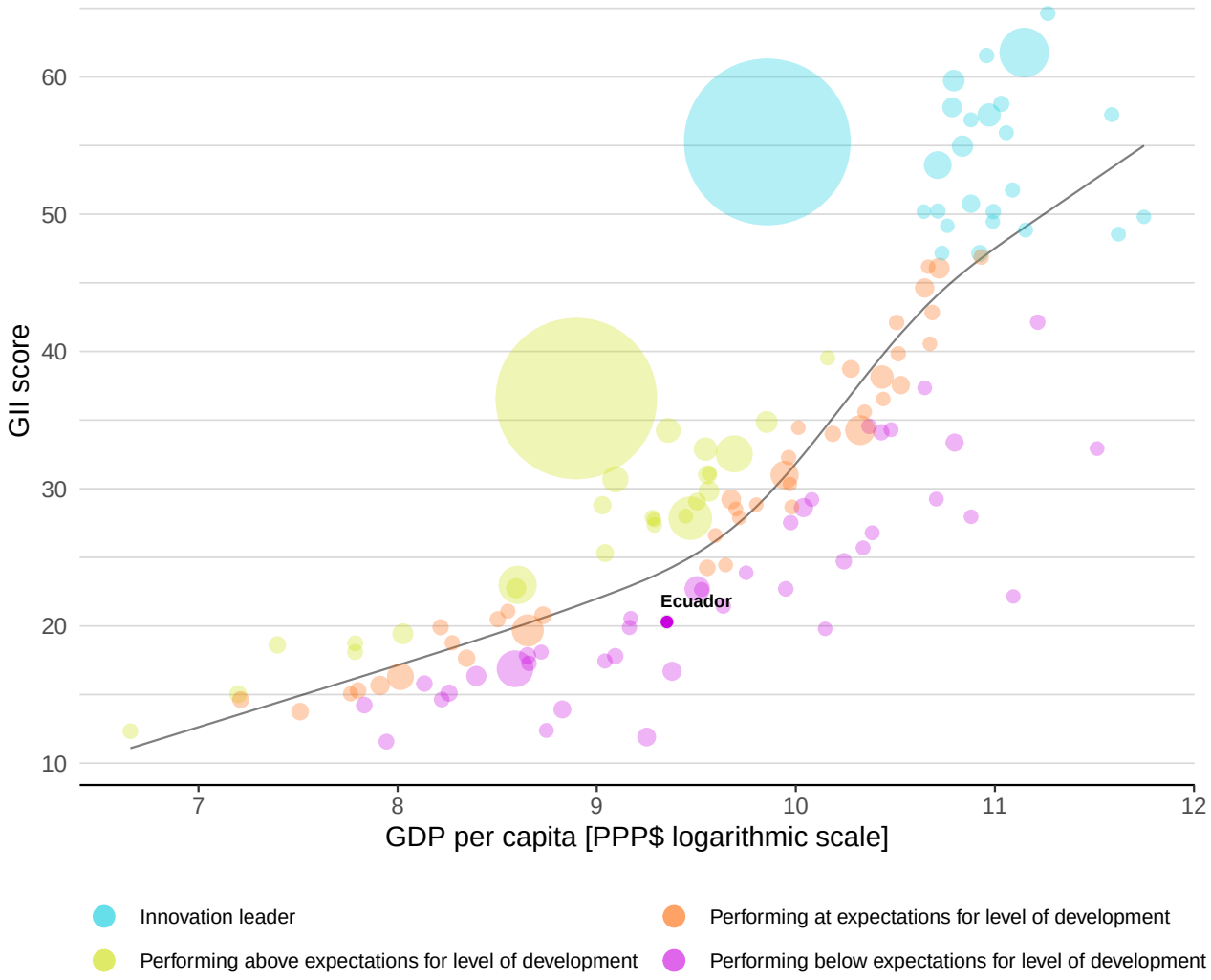
13th Ecuador ranks 13th among the 18 economies in Latin America and the Caribbean.

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.

The positive relationship between innovation and development

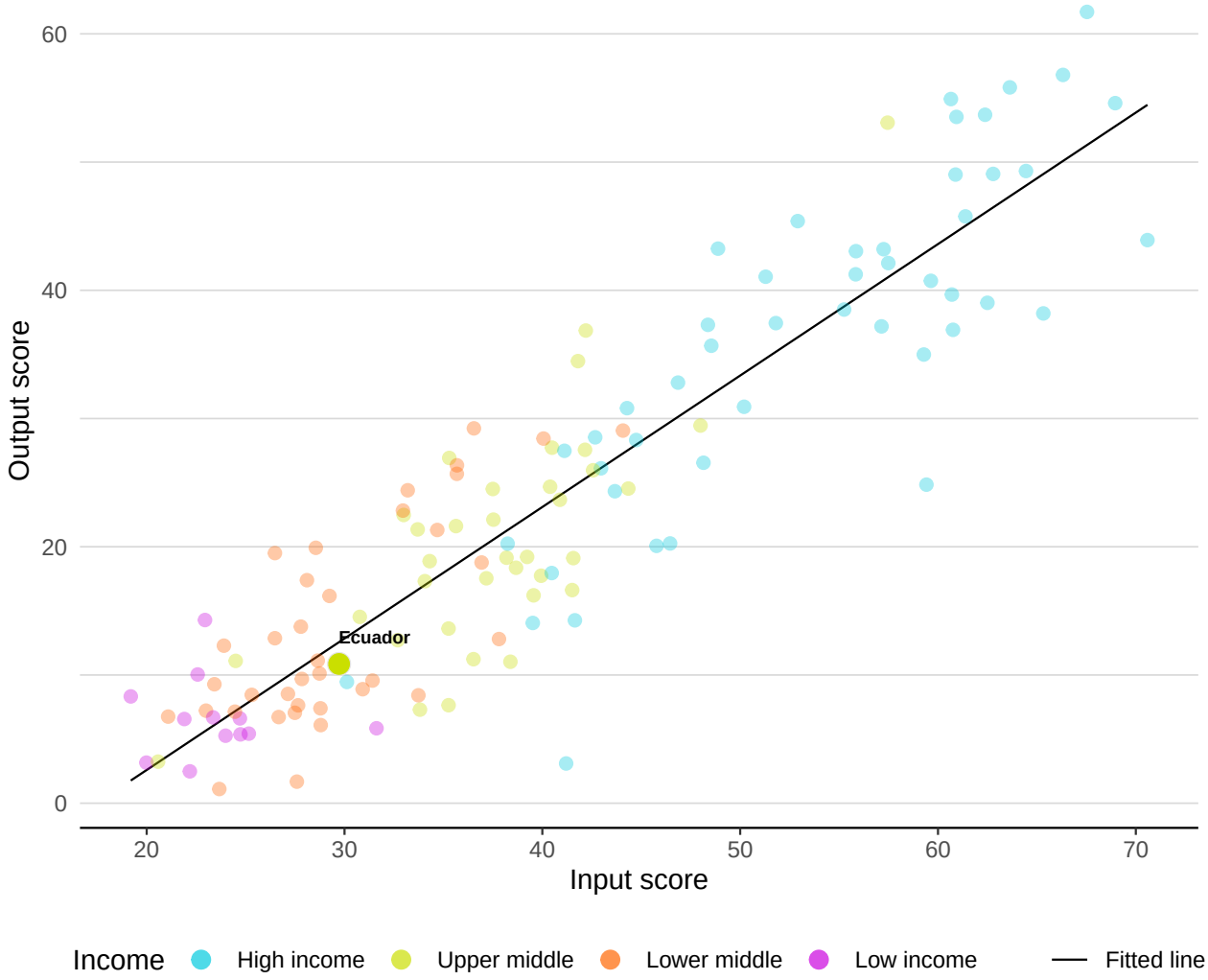


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

Innovation input to output performance



BENCHMARKING AGAINST OTHER UPPER MIDDLE-INCOME GROUP ECONOMIES AND LATIN AMERICA AND THE CARIBBEAN

The seven GII pillar scores for Ecuador

Upper-middle-income group economies

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

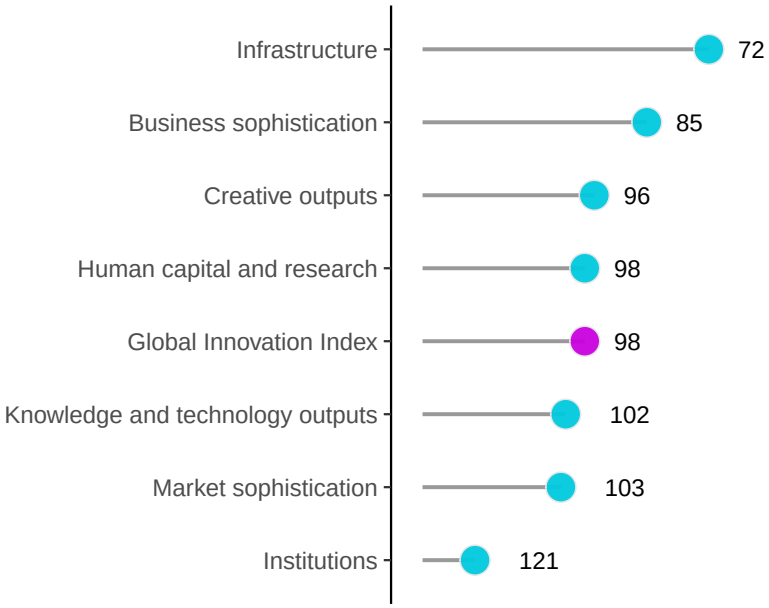
Latin America and the Caribbean

Ecuador performs above the regional average in Infrastructure.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Ecuador performs best in Infrastructure and its weakest performance is in Institutions.

The seven GII pillar ranks for Ecuador



Note: The highest possible ranking in each pillar is 1.

The full WIPO Intellectual Property Statistics profile for Ecuador can be found at:

https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=EC.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the indicator strengths and weaknesses of Ecuador in the GII 2022.

Strengths and weaknesses for Ecuador

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
3.1.3	Government's online service	40	1.2.1	Regulatory quality	120
3.1.4	E-participation	49	1.2.3	Cost of redundancy dismissal	123
3.2.3	Gross capital formation, % GDP	42	2.1.2	Government funding/pupil, secondary, % GDP/cap	106
3.3.1	GDP/unit of energy use	51	2.3.3	Global corporate R&D investors, top 3, mn USD	38
3.3.2	Environmental performance	52	4.2.3	Venture capital recipients, deals/bn PPP$ GDP	96
4.1.3	Loans from microfinance institutions, % GDP	18	5.1.4	GERD financed by business, %	99
5.1.2	Firms offering formal training, %	2	5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	118
5.3.2	High-tech imports, % total trade	41	6.2.1	Labor productivity growth, %	107
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	43	6.3.2	Production and export complexity	111
7.1.2	Trademarks by origin/bn PPP$ GDP	37	7.1.3	Global brand value, top 5,000, % GDP	77

GII 2022 rank

Ecuador

98

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
98	96	Upper middle	LCN	17.9	204.7	11,529

		Score/ Value	Rank	
Institutions		**39.4**	**121**	○ ◇
1.1	**Political environment**	48.3	101	
1.1.1	Political and operational stability*	56.4	108	◇
1.1.2	Government effectiveness*	40.3	93	
1.2	**Regulatory environment**	40.1	123	○ ◇
1.2.1	Regulatory quality*	22.8	120	○ ◇
1.2.2	Rule of law*	31.9	94	
1.2.3	Cost of redundancy dismissal	31.8	123	○ ◇
1.3	**Business environment**	29.9	111	
1.3.1	Policies for doing business†	32.8	110	
1.3.2	Entrepreneurship policies and culture* ◴	27.0	53	
Human capital and research		**20.2**	**98**	◇
2.1	**Education**	38.6	100	◇
2.1.1	Expenditure on education, % GDP	4.1	72	
2.1.2	Government funding/pupil, secondary, % GDP/cap	6.7	106	○ ◇
2.1.3	School life expectancy, years	14.6	58	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	20.8	96	◇
2.2	**Tertiary education**	18.4	94	
2.2.1	Tertiary enrolment, % gross	47.9	66	
2.2.2	Graduates in science and engineering, % ◴	16.2	89	
2.2.3	Tertiary inbound mobility, %	0.8	93	◇
2.3	**Research and development (R&D)**	3.7	77	
2.3.1	Researchers, FTE/mn pop. ◴	399.5	74	
2.3.2	Gross expenditure on R&D, % GDP ◴	0.4	66	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	38	○ ◇
2.3.4	QS university ranking, top 3*	5.0	68	
Infrastructure		**42.4**	**72**	
3.1	**Information and communication technologies (ICTs)**	71.0	74	
3.1.1	ICT access*	71.2	94	◇
3.1.2	ICT use*	51.7	90	
3.1.3	Government's online service*	81.2	40	●
3.1.4	E-participation*	79.8	49	●
3.2	**General infrastructure**	28.2	72	
3.2.1	Electricity output, GWh/mn pop.	1,767.0	88	
3.2.2	Logistics performance*	38.6	61	
3.2.3	Gross capital formation, % GDP	26.4	42	●
3.3	**Ecological sustainability**	28.1	57	
3.3.1	GDP/unit of energy use	11.9	51	●
3.3.2	Environmental performance*	46.5	52	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.9	72	
Market sophistication		**23.3**	**103**	
4.1	**Credit**	22.3	80	
4.1.1	Finance for startups and scaleups* ◴	25.9	65	
4.1.2	Domestic credit to private sector, % GDP	47.6	73	
4.1.3	Loans from microfinance institutions, % GDP ◴	1.7	18	●
4.2	**Investment**	3.0	[96]	
4.2.1	Market capitalization, % GDP	n/a	n/a	
4.2.2	Venture capital investors, deals/bn PPP$ GDP	n/a	n/a	
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	0.0	96	○
4.2.4	Venture capital received, value, % GDP	0.0	60	
4.3	**Trade, diversification, and market scale**	44.7	92	
4.3.1	Applied tariff rate, weighted avg., %	6.2	98	◇
4.3.2	Domestic industry diversification	69.9	87	
4.3.3	Domestic market scale, bn PPP$	204.7	67	

		Score/ Value	Rank	
Business sophistication		**23.2**	**85**	
5.1	**Knowledge workers**	28.3	72	
5.1.1	Knowledge-intensive employment, %	12.3	100	◇
5.1.2	Firms offering formal training, % ◴	73.7	2	● ◆
5.1.3	GERD performed by business, % GDP ◴	0.2	55	
5.1.4	GERD financed by business, % ◴	0.2	99	○ ◇
5.1.5	Females employed w/advanced degrees, %	8.8	79	
5.2	**Innovation linkages**	15.3	121	○
5.2.1	University-industry R&D collaboration†	34.5	103	
5.2.2	State of cluster development and depth†	37.6	110	◇
5.2.3	GERD financed by abroad, % GDP ◴	0.0	73	
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP ◴	0.0	118	○
5.2.5	Patent families/bn PPP$ GDP	0.0	88	
5.3	**Knowledge absorption**	26.1	86	
5.3.1	Intellectual property payments, % total trade	0.6	63	
5.3.2	High-tech imports, % total trade	10.1	41	●
5.3.3	ICT services imports, % total trade	0.7	95	
5.3.4	FDI net inflows, % GDP	1.1	97	
5.3.5	Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs		**11.3**	**102**	◇
6.1	**Knowledge creation**	6.8	93	
6.1.1	Patents by origin/bn PPP$ GDP	0.2	103	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.1	69	
6.1.3	Utility models by origin/bn PPP$ GDP ◴	0.2	47	
6.1.4	Scientific and technical articles/bn PPP$ GDP	12.4	76	
6.1.5	Citable documents H-index	8.9	80	
6.2	**Knowledge impact**	21.1	87	
6.2.1	Labor productivity growth, %	−1.3	107	○ ◇
6.2.2	New businesses/th pop. 15–64	n/a	n/a	
6.2.3	Software spending, % GDP	0.2	64	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	6.3	43	●
6.2.5	High-tech manufacturing, %	11.0	85	
6.3	**Knowledge diffusion**	6.0	118	◇
6.3.1	Intellectual property receipts, % total trade	0.0	92	
6.3.2	Production and export complexity	15.6	111	○ ◇
6.3.3	High-tech exports, % total trade	0.3	101	◇
6.3.4	ICT services exports, % total trade	0.4	111	
Creative outputs		**10.4**	**96**	
7.1	**Intangible assets**	16.3	88	
7.1.1	Intangible asset intensity, top 15, %	n/a	n/a	
7.1.2	Trademarks by origin/bn PPP$ GDP	64.3	37	●
7.1.3	Global brand value, top 5,000, % GDP	0.0	77	○ ◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.3	97	
7.2	**Creative goods and services**	7.6	[90]	
7.2.1	Cultural and creative services exports, % total trade	0.0	97	
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	Printing and other media, % manufacturing	0.9	52	
7.2.5	Creative goods exports, % total trade	0.0	111	
7.3	**Online creativity**	1.5	94	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.0	77	
7.3.2	Country-code TLDs/th pop. 15–69	1.0	85	
7.3.3	GitHub commit pushes received/mn pop. 15–69	2.5	77	
7.3.4	Mobile app creation/bn PPP$ GDP	0.3	88	

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/global_innovation_index/en/2022. Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.

DATA AVAILABILITY

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

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
4.2.1	Market capitalization, % GDP	n/a	2020	World Federation of Exchanges
4.2.2	Venture capital investors, deals/bn PPP$ GDP	n/a	2021	Refinitiv
5.3.5	Research talent, % in businesses	n/a	2020	UNESCO Institute for Statistics
6.2.2	New businesses/th pop. 15–64	n/a	2020	World Bank, Enterpreneurship Database
7.1.1	Intangible asset intensity, top 15, %	n/a	2021	Brand Finance
7.2.2	National feature films/mn pop. 15–69	n/a	2019	OMDIA
7.2.3	Entertainment and media market/th pop. 15–69	n/a	2021	PwC, GEMO

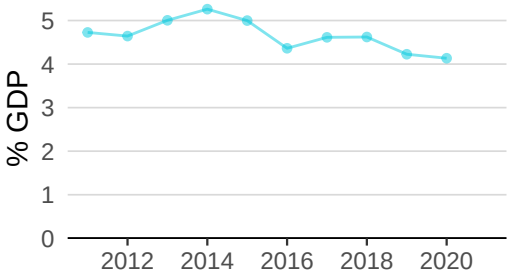
Outdated data for Ecuador

Code	Indicator name	Economy year	Model year	Source
1.3.2	Entrepreneurship policies and culture	2019	2021	Global Entrepreneurship Monitor
2.2.2	Graduates in science and engineering, %	2019	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2014	2020	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	2014	2020	UNESCO Institute for Statistics
4.1.1	Finance for startups and scaleups	2019	2021	Global Entrepreneurship Monitor
4.1.3	Loans from microfinance institutions, % GDP	2019	2020	International Monetary Fund, Financial Access Survey (FAS)
5.1.2	Firms offering formal training, %	2017	2019	World Bank Enterprise Surveys
5.1.3	GERD performed by business, % GDP	2014	2020	UNESCO Institute for Statistics
5.1.4	GERD financed by business, %	2014	2019	UNESCO Institute for Statistics
5.2.3	GERD financed by abroad, % GDP	2014	2019	UNESCO Institute for Statistics
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	2020	2021	Refinitiv
6.1.3	Utility models by origin/bn PPP$ GDP	2019	2020	World Intellectual Property Organization

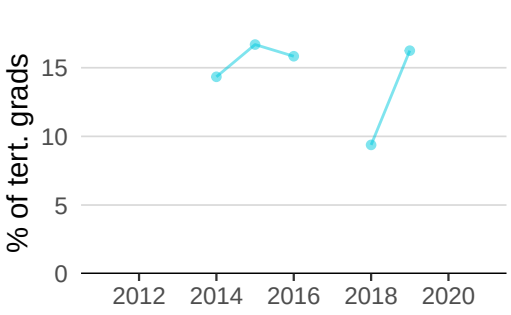
ECUADOR'S INNOVATION SYSTEM

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

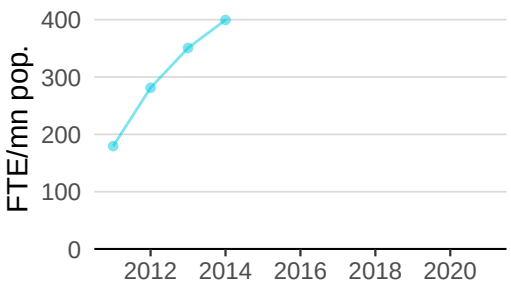
Innovation inputs



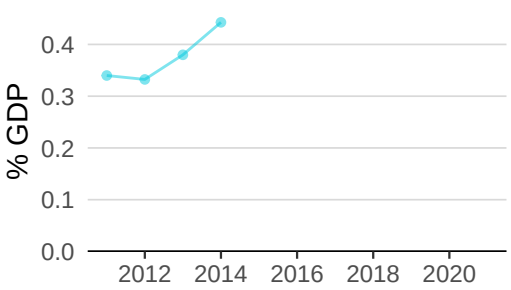
2.1.1 Expenditure on education was equal to 4.1% GDP in 2020–down by 2 percentage points from the year prior–and equivalent to an indicator rank of 72.



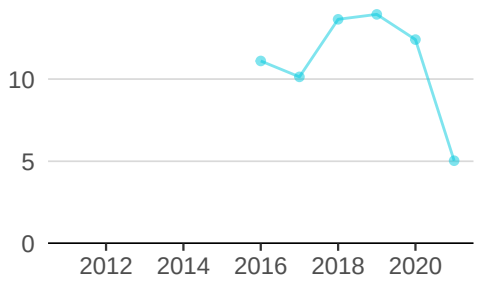
2.2.2 Graduates in science and engineering was equal to 16.2% of tert. grads in 2019–up by 73 percentage points from the year prior–and equivalent to an indicator rank of 89.



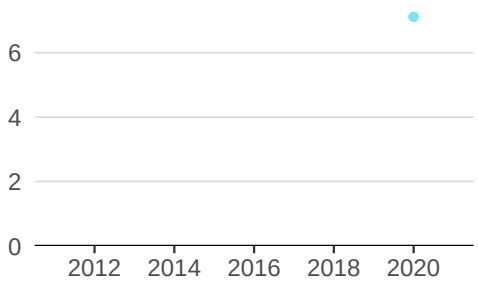
2.3.1 Researchers was equal to 399.5 FTE/mn pop. in 2014–up by 14 percentage points from the year prior–and equivalent to an indicator rank of 74.



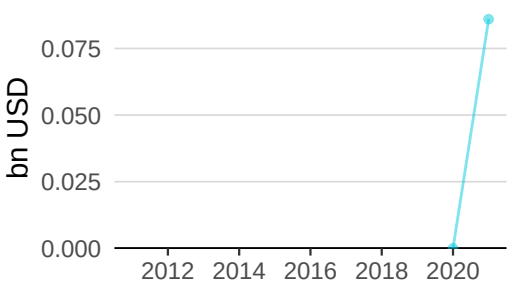
2.3.2 Gross expenditure on R&D was equal to 0.4% GDP in 2014–up by 17 percentage points from the year prior–and equivalent to an indicator rank of 66.



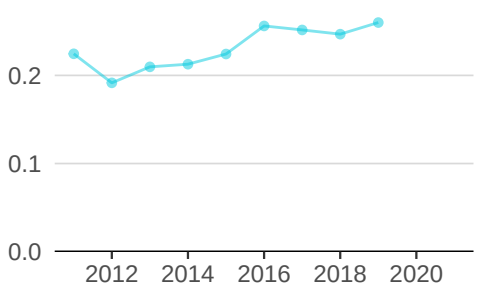
2.3.4 QS university ranking was equal to 5.0 in 2021–down by 59 percentage points from the year prior–and equivalent to an indicator rank of 68.



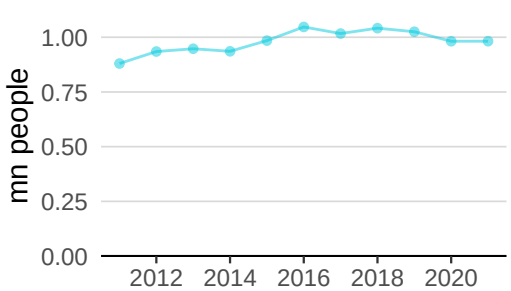
3.1.1 ICT access was equal to 7.1 in 2020 and equivalent to an indicator rank of 94.



4.2.4 Venture capital received was equal to 0.1 bn USD in 2021–up by Inf percentage points from the year prior–and equivalent to an indicator rank of 60.

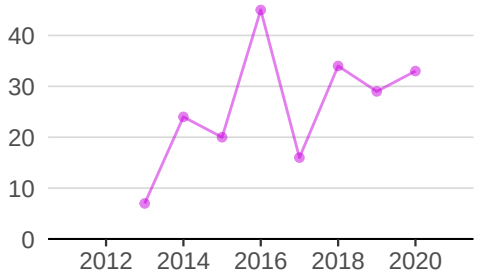


4.3.2 Domestic industry diversification was equal to 0.3 in 2019–up by 5 percentage points from the year prior–and equivalent to an indicator rank of 87.

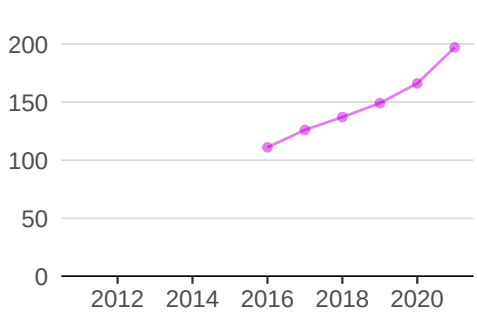


5.1.1 Knowledge-intensive employment was equal to 1.0 mn people in 2021–effectively unchanged from the year prior–and equivalent to an indicator rank of 100.

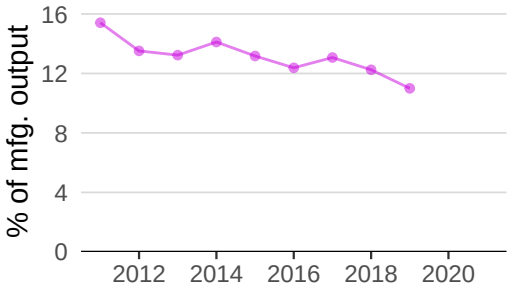
Innovation outputs



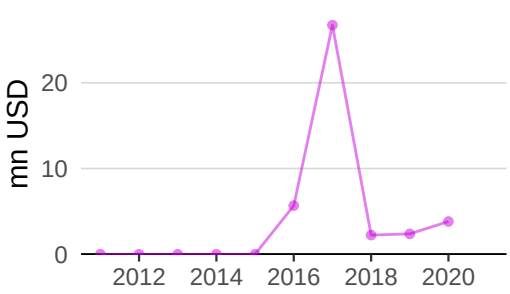
6.1.1 Patents by origin was equal to 33.0 in 2020–up by 14 percentage points from the year prior–and equivalent to an indicator rank of 103.



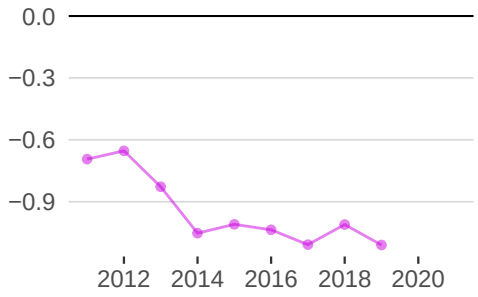
6.1.5 Citable documents H-index was equal to 197.0 in 2021–up by 19 percentage points from the year prior–and equivalent to an indicator rank of 80.



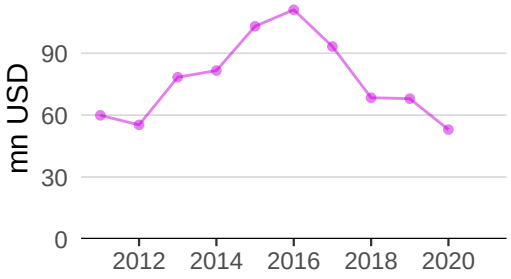
6.2.5 High-tech manufacturing was equal to 11.0% of mfg. output in 2019–down by 10 percentage points from the year prior–and equivalent to an indicator rank of 85.



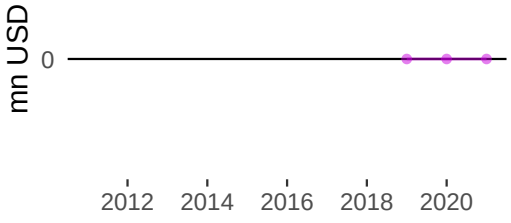
6.3.1 Intellectual property receipts was equal to 3.8 mn USD in 2020–up by 61 percentage points from the year prior–and equivalent to an indicator rank of 92.



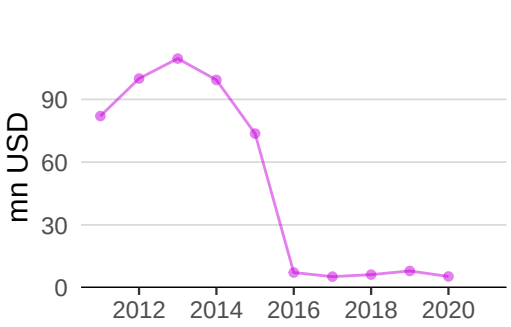
6.3.2 Production and export complexity was equal to -1.1 in 2019–down by 10 percentage points from the year prior–and equivalent to an indicator rank of 111.



6.3.3 High-tech exports was equal to 53.0 mn USD in 2020–down by 22 percentage points from the year prior–and equivalent to an indicator rank of 101.



7.1.3 Global brand value was equal to 0.0 mn USD in 2021–effectively unchanged from the year prior–and equivalent to an indicator rank of 77.



7.2.1 Cultural and creative services exports was equal to 5.4 mn USD in 2020–down by 33 percentage points from the year prior–and equivalent to an indicator rank of 97.

ECUADOR'S INNOVATION TOP PERFORMERS

2.3.3 Global corporate R&D investors

Firm	Industry	R&D	R&D Growth	R&D Intensity	Rank

No observations

Source: European Commission's Joint Research Centre (https://iri.jrc.ec.europa.eu/scoreboard/2021-eu-industrial-rd-investment-scoreboard).

2.3.4 QS university ranking

University	Score	Rank
UNIVERSIDAD SAN FRANCISCO DE QUITO	15.1	751-800

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2022).
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".

7.1.1 Intangible asset intensity, top 15

Firm	Rank

No observations

Source: Brand Finance (https://brandirectory.com/reports/gift-2021).

7.1.3 Global brand value, top 5,000

Brand	Industry	Rank

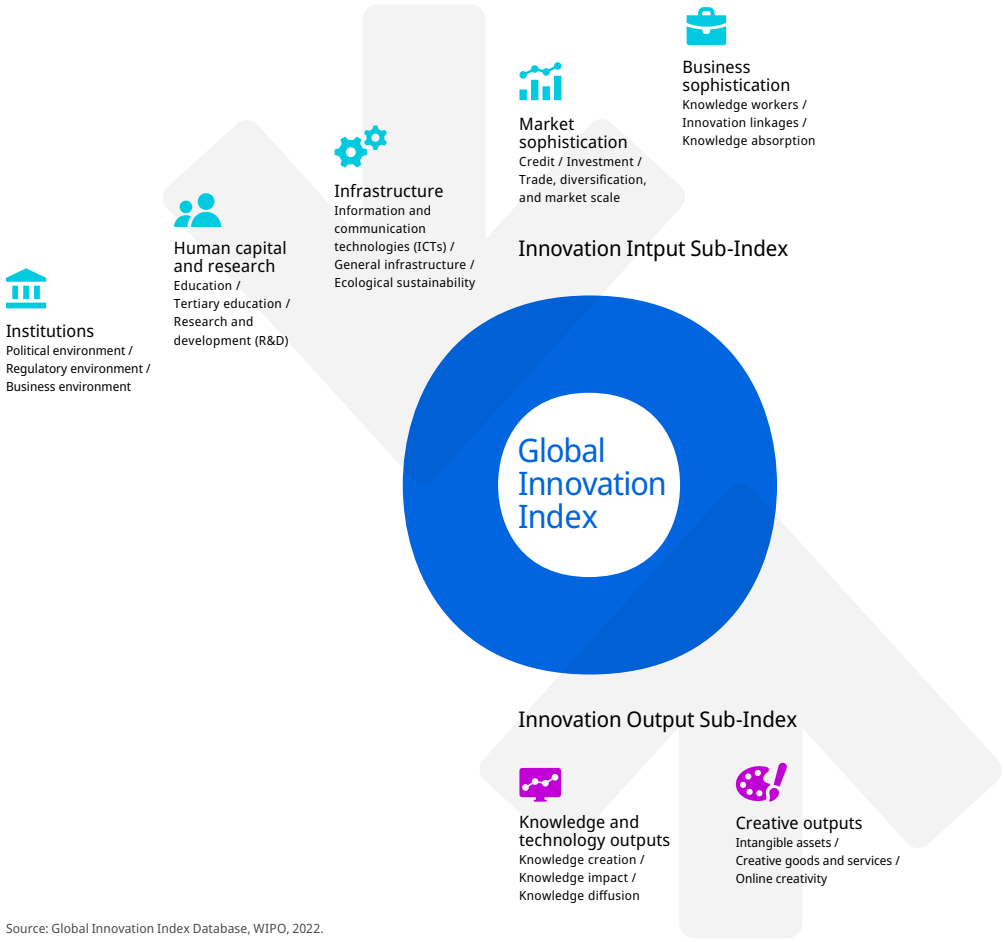
No observations

Source: Brand Finance (https://brandirectory.com).

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, 2022.

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.