GLOBAL INNOVATION INDEX 2020

ECUADOR

99th Ecuador ranks 99th among the 131 economies featured in the GII 2020.

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 2020 is between ranks 92 and 100.

Rankings of Ecuador (2018–2020)

	GII	Innovation inputs	Innovation outputs
2020	99	96	97
2019	99	98	98
2018	97	96	97

- Ecuador performs better in innovation inputs than innovation outputs in 2020.
- This year Ecuador ranks 96th in innovation inputs, higher than last year and the same as 2018.
- As for innovation outputs, Ecuador ranks 97th. This position is higher than last year and the same as 2018.

33rd Ecuador ranks 33rd among the 37 upper middle-income group economies.

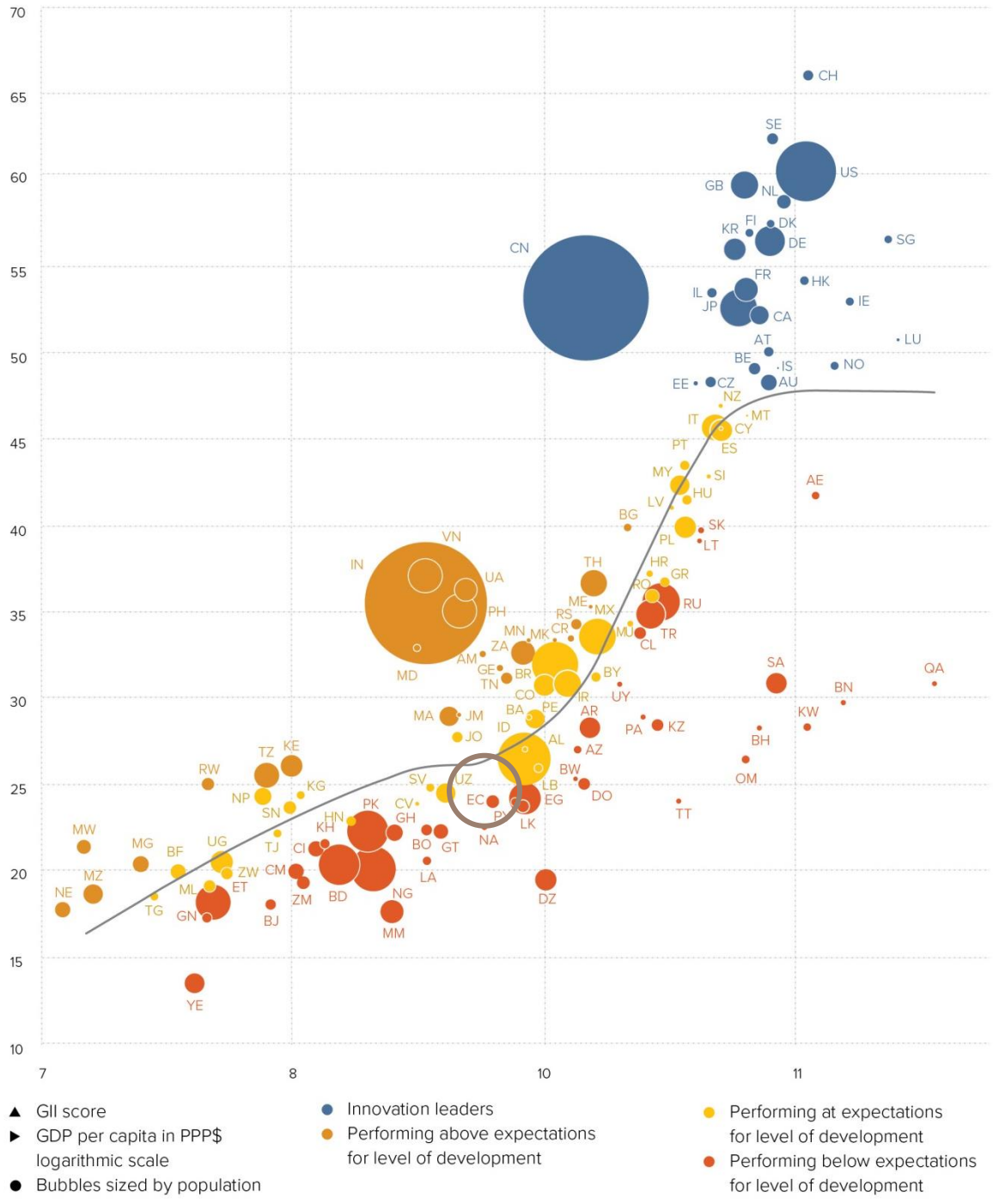
15th Ecuador ranks 15th among the 18 economies in Latin America and the Caribbean.

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 is performing below expectations for its level of development.

The positive relationship between innovation and development

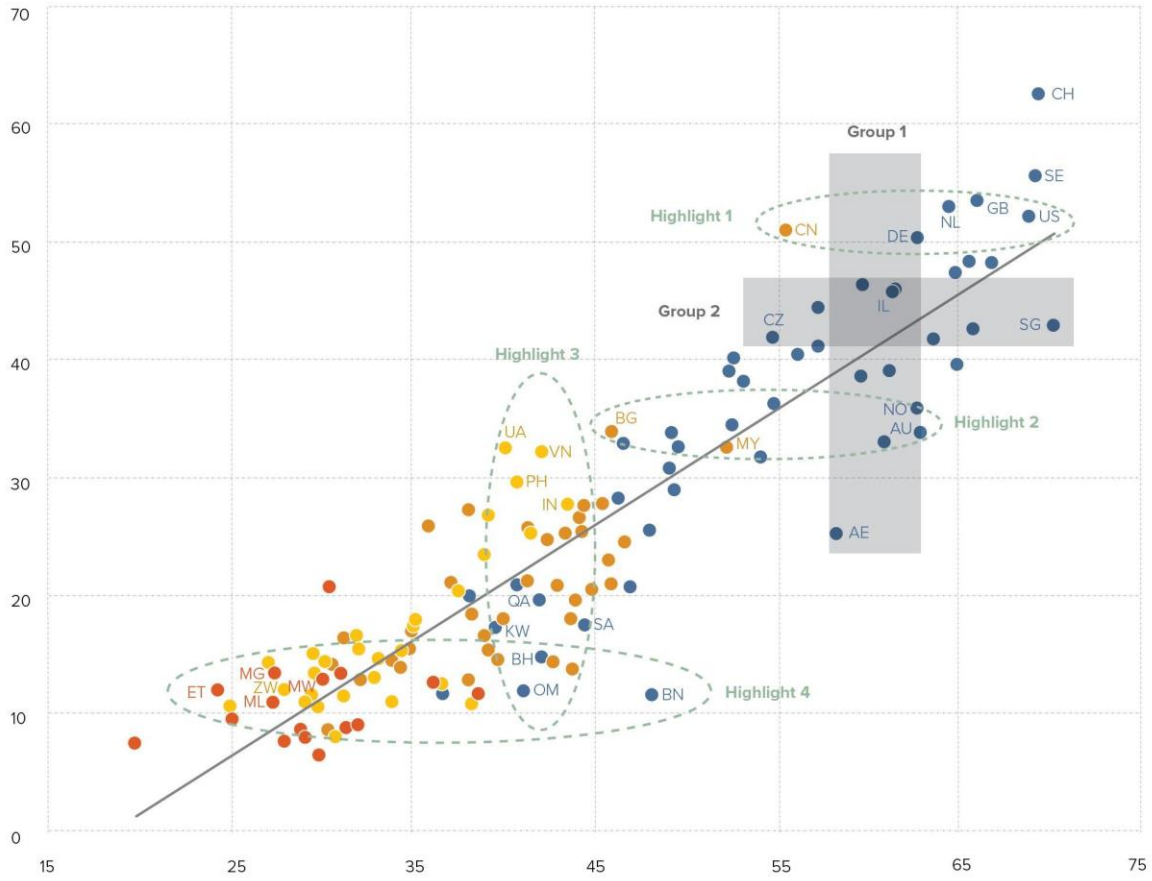


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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, 2020



▲ Output score
► Input score

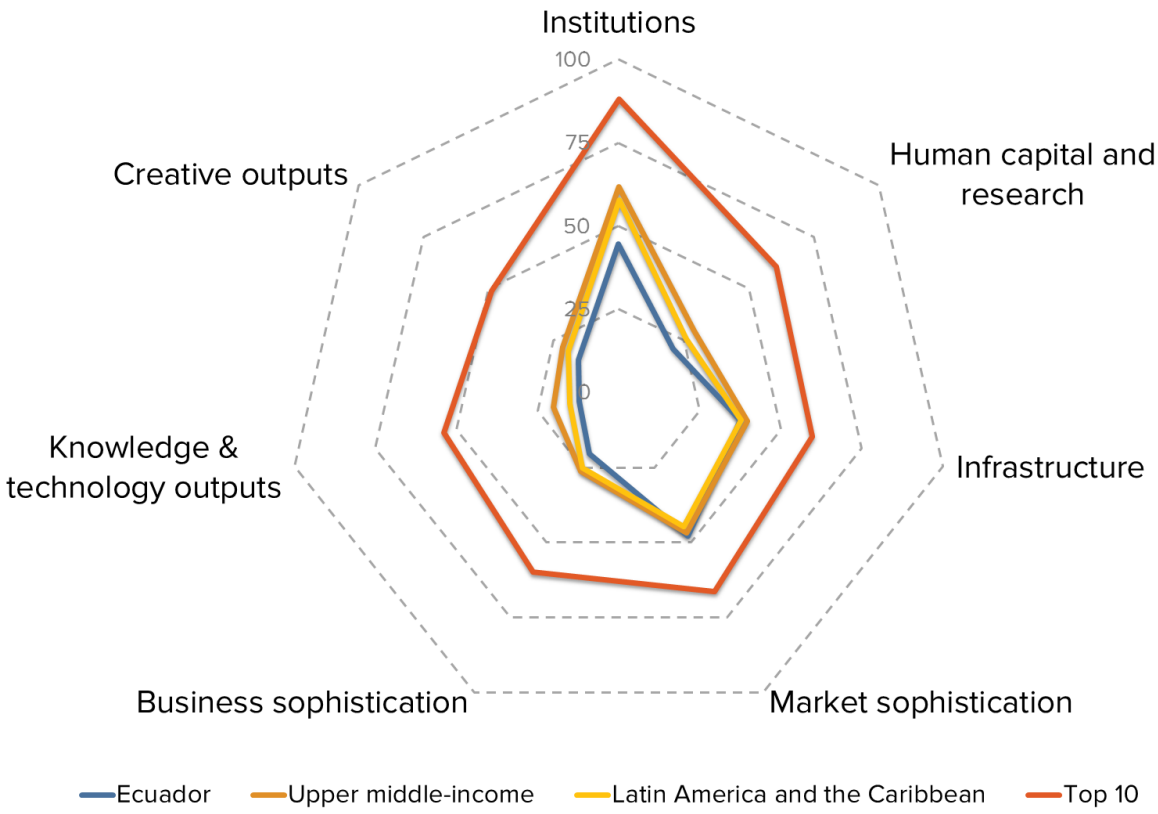
● High income group
● Upper middle-income group
● Lower middle-income group
● Low income group

— Fitted values

AU	Australia	IN	India	NL	Netherlands	CH	Switzerland
BH	Bahrain	IL	Israel	NO	Norway	UA	Ukraine
BN	Brunei Darussalam	KW	Kuwait	OM	Oman	AE	United Arab Emirates
BG	Bulgaria	MG	Madagascar	PH	Philippines	GB	United Kingdom
CN	China	MW	Malawi	QA	Qatar	US	United States of America
CZ	Czech Republic	ML	Mali	SA	Saudi Arabia	VN	Viet Nam
ET	Ethiopia	MY	Malaysia	SG	Singapore	ZW	Zimbabwe
DE	Germany			SE	Sweden		

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

Ecuador's scores in the seven GII pillars



Upper middle-income group economies

Ecuador has high scores in one out of the seven GII pillars: Market sophistication, which is above average for the upper middle-income group.

Conversely, Ecuador scores below average for its income group in six pillars: Institutions, Human capital & research, Infrastructure, Business sophistication, Knowledge & technology outputs and Creative outputs.

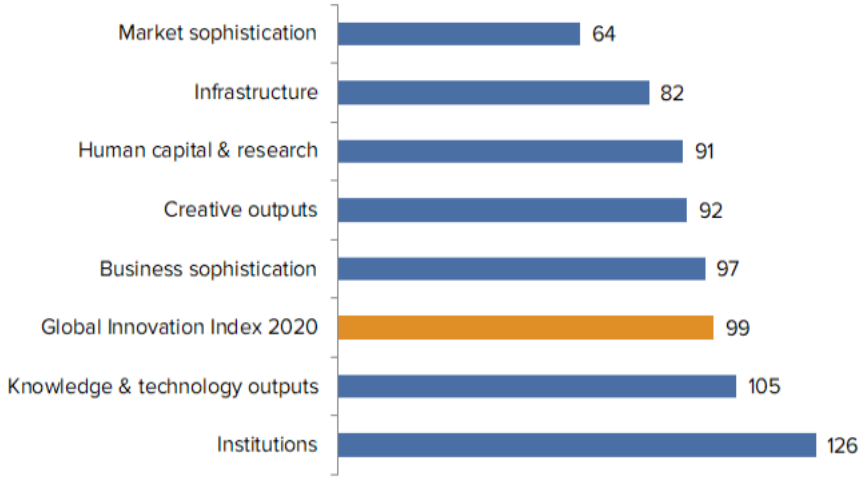
Latin America and the Caribbean

Compared to other economies in Latin America and the Caribbean, Ecuador performs:

- above average in one of the seven GII pillars: Market sophistication; and
- below average in six out of the seven GII pillars: Institutions, Human capital & research, Infrastructure, Business sophistication, Knowledge & technology outputs and Creative outputs.

OVERVIEW OF ECUADOR RANKINGS IN THE SEVEN GII AREAS

Ecuador performs best in Market sophistication and its weakest performance is in Institutions.



*The highest possible ranking in each pillar is 1.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Ecuador in the GII 2020.

Strengths

Code	Indicator name	Rank
2.1.1	Expenditure on education, % GDP	41
2.1.3	School life expectancy, years	47
2.3.4	QS university ranking, average score top 3*	58
3.2.3	Gross capital formation, % GDP	54
3.3	Ecological sustainability	58
3.3.1	GDP/unit of energy use	34
3.3.2	Environmental performance*	54
4.1.3	Microfinance gross loans, % GDP	2
5.1.2	Firms offering formal training, %	2
5.3.2	High-tech imports, % total trade	54
7.1.1	Trademarks by origin/bn PPP$ GDP	39

Weaknesses

Code	Indicator name	Rank
1	Institutions	126
1.2.1	Regulatory quality*	123
1.2.3	Cost of redundancy dismissal, salary weeks	121
1.3	Business environment	128
1.3.1	Ease of starting a business*	127
1.3.2	Ease of resolving insolvency*	126
2.1.2	Government funding/pupil, secondary, % GDP/cap	104
2.3.3	Global R&D companies, top 3, mn US$	42
5.1.4	GERD financed by business, %	100
5.3.3	ICT services imports, % total trade	128
6.3.3	ICT services exports, % total trade	121
7.1.2	Global brand value, top 5,000, % GDP	80

STRENGTHS

GII strengths for Ecuador are found in five of the seven GII pillars.

- Human capital & research (91): shows strengths in the indicators Expenditure on education (41), School life expectancy (47) and QS university ranking (58).
- Infrastructure (82): demonstrates strengths in the sub-pillar Ecological sustainability (58) and in the indicators Gross capital formation (54), GDP/unit of energy use (34) and Environmental performance (54).
- Market sophistication (64): has strength in the indicator Microfinance gross loans (2).
- Business sophistication (97): displays strengths in the indicators Firms offering formal training (2) and High-tech imports (54).
- Creative outputs (92): the indicator Trademarks by origin (39) reveals a strength.

WEAKNESSES

GII weaknesses for Ecuador are found in five of the seven GII pillars.

- Institutions (126): exhibits weaknesses in the sub-pillar Business environment (128) and in the indicators Regulatory quality (123), Cost of redundancy dismissal (121), Ease of starting a business (127) and Ease of resolving insolvency (126).
- Human capital & research (91): shows weaknesses in the indicators Government funding/pupil (104) and Global R&D companies (42).
- Business sophistication (97): demonstrates weaknesses in the indicators GERD financed by business (100) and ICT services imports (128).
- Knowledge & technology outputs (105): displays weakness in the indicator ICT services exports (121).
- Creative outputs (92): the indicator Global brand value (80) reveals a weakness.

ECUADOR

GII 2020 rank

99

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$	GDP per capita, PPP$	GII 2019 rank
97	96	Upper middle	LCN	17.4	202.8	10,251.7	99

		Score/Value	Rank	
INSTITUTIONS		**44.6**	**126**	○ ◇
1.1	**Political environment**	**48.0**	**94**	
1.1.1	Political and operational stability*	55.4	116	◇
1.1.2	Government effectiveness*	44.3	87	
1.2	**Regulatory environment**	**38.6**	**121**	◇
1.2.1	Regulatory quality*	18.3	123	○ ◇
1.2.2	Rule of law*	30.2	103	
1.2.3	Cost of redundancy dismissal, salary weeks	31.8	121	○ ◇
1.3	**Business environment**	**47.3**	**128**	○ ◇
1.3.1	Ease of starting a business*	69.1	127	○ ◇
1.3.2	Ease of resolving insolvency*	25.5	126	○ ◇
HUMAN CAPITAL & RESEARCH		**21.0**	**91**	
2.1	**Education**	**35.8**	**93**	
2.1.1	Expenditure on education, % GDP	5.0	41	●
2.1.2	Government funding/pupil, secondary, % GDP/cap	5.3	104	○ ◇
2.1.3	School life expectancy, years	15.2	47	●
2.1.4	PISA scales in reading, maths, & science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	20.6	99	◇
2.2	**Tertiary education**	**20.5**	**95**	
2.2.1	Tertiary enrolment, % gross	44.9	66	
2.2.2	Graduates in science & engineering, %	15.8	90	
2.2.3	Tertiary inbound mobility, %	0.8	92	
2.3	**Research & development (R&D)**	**6.8**	**70**	
2.3.1	Researchers, FTE/mn pop.	399.5	72	
2.3.2	Gross expenditure on R&D, % GDP	0.4	70	
2.3.3	Global R&D companies, avg. exp. top 3, mn $US	0.0	42	○ ◇
2.3.4	QS university ranking, average score top 3*	13.9	58	●
INFRASTRUCTURE		**37.3**	**82**	
3.1	**Information & communication technologies (ICTs)**	**57.9**	**84**	
3.1.1	ICT access*	47.6	94	◇
3.1.2	ICT use*	43.7	90	◇
3.1.3	Government's online service*	72.9	64	
3.1.4	E-participation*	67.4	80	
3.2	**General infrastructure**	**23.3**	**80**	
3.2.1	Electricity output, kWh/mn pop	1,763.4	84	
3.2.2	Logistics performance*	38.1	61	
3.2.3	Gross capital formation, % GDP	24.7	54	●
3.3	**Ecological sustainability**	**30.8**	**58**	●
3.3.1	GDP/unit of energy use	11.9	34	●
3.3.2	Environmental performance*	51.0	54	●
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.6	73	
MARKET SOPHISTICATION		**47.8**	**64**	
4.1	**Credit**	**40.4**	**69**	
4.1.1	Ease of getting credit*	45.0	101	◇
4.1.2	Domestic credit to private sector, % GDP	35.7	85	
4.1.3	Microfinance gross loans, % GDP	6.1	2	● ◆
4.2	**Investment**	**44.0**	**[37]**	
4.2.1	Ease of protecting minority investors*	44.0	98	
4.2.2	Market capitalization, % GDP	n/a	n/a	
4.2.3	Venture capital deals/bn PPP$ GDP	n/a	n/a	
4.3	**Trade, competition, and market scale**	**59.0**	**78**	
4.3.1	Applied tariff rate, weighted avg., %	7.4	99	
4.3.2	Intensity of local competition+	69.8	62	
4.3.3	Domestic market scale, bn PPP$	202.8	65	

		Score/Value	Rank	
BUSINESS SOPHISTICATION		**20.6**	**97**	
5.1	**Knowledge workers**	**28.2**	**74**	
5.1.1	Knowledge-intensive employment, %	13.1	98	◇
5.1.2	Firms offering formal training, %	73.7	2	● ◆
5.1.3	GERD performed by business, % GDP	0.2	53	
5.1.4	GERD financed by business, %	0.1	100	○ ◇
5.1.5	Females employed w/advanced degrees, %	8.7	77	
5.2	**Innovation linkages**	**13.4**	**119**	◇
5.2.1	University/industry research collaboration+	34.7	99	
5.2.2	State of cluster development+	39.0	100	
5.2.3	GERD financed by abroad, % GDP	0.0	78	
5.2.4	JV-strategic alliance deals/bn PPP$ GDP	0.0	112	
5.2.5	Patent families 2+ offices/bn PPP$ GDP	0.0	90	
5.3	**Knowledge absorption**	**20.1**	**97**	
5.3.1	Intellectual property payments, % total trade	0.2	95	
5.3.2	High-tech imports, % total trade	8.2	54	●
5.3.3	ICT services imports, % total trade	0.0	128	○ ◇
5.3.4	FDI net inflows, % GDP	0.9	115	◇
5.3.5	Research talent, % in business enterprise	n/a	n/a	
KNOWLEDGE & TECHNOLOGY OUTPUTS		**12.3**	**105**	
6.1	**Knowledge creation**	**7.2**	**86**	
6.1.1	Patents by origin/bn PPP$ GDP	0.2	107	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.1	63	
6.1.3	Utility models by origin/bn PPP$ GDP	0.2	47	
6.1.4	Scientific & technical articles/bn PPP$ GDP	6.5	71	
6.1.5	Citable documents H-index	9.1	80	
6.2	**Knowledge impact**	**18.2**	**89**	
6.2.1	Growth rate of PPP$ GDP/worker, %	-0.5	103	
6.2.2	New businesses/th pop. 15-64	n/a	n/a	
6.2.3	Computer software spending, % GDP	0.0	65	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	4.3	59	
6.2.5	High- and medium-high-tech manufacturing, %	12.8	75	
6.3	**Knowledge diffusion**	**11.4**	**116**	◇
6.3.1	Intellectual property receipts, % total trade	n/a	n/a	
6.3.2	High-tech net exports, % total trade	0.3	92	
6.3.3	ICT services exports, % total trade	0.1	121	○
6.3.4	FDI net outflows, % GDP	0.9	59	
CREATIVE OUTPUTS		**15.6**	**92**	
7.1	**Intangible assets**	**23.1**	**81**	
7.1.1	Trademarks by origin/bn PPP$ GDP	57.1	39	●
7.1.2	Global brand value, top 5,000, % GDP	0.0	80	○ ◇
7.1.3	Industrial designs by origin/bn PPP$ GDP	1.2	62	
7.1.4	ICTs & organizational model creation+	52.9	66	
7.2	**Creative goods and services**	**5.2**	**103**	
7.2.1	Cultural & creative services exports, % total trade	0.0	93	
7.2.2	National feature films/mn pop. 15-69	2.1	64	
7.2.3	Entertainment & Media market/th pop. 15-69	n/a	n/a	
7.2.4	Printing and other media, % manufacturing	1.0	59	
7.2.5	Creative goods exports, % total trade	0.1	109	
7.3	**Online creativity**	**11.0**	**81**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69	2.0	79	
7.3.2	Country-code TLDs/th pop. 15-69	1.1	82	
7.3.3	Wikipedia edits/mn pop. 15-69	43.9	73	
7.3.4	Mobile app creation/bn PPP$ GDP	0.3	78	

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 Appendix II for details, including the year of the data, at http://globalinnovationindex.org. 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 data that are either missing or outdated for Ecuador.

Missing data

Code	Indicator name	Country year	Model year	Source
2.1.4	PISA scales in reading, maths & science	n/a	2018	OECD Programme for International Student Assessment (PISA)
4.2.2	Market capitalization, % GDP	n/a	2018	World Federation of Exchanges
4.2.3	Venture capital deals/bn PPP$ GDP	n/a	2019	Thomson Reuters
5.3.5	Research talent, % in business enterprise	n/a	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
6.2.2	New businesses/th pop. 15–64	n/a	2018	World Bank
6.3.1	Intellectual property receipts, % total trade	n/a	2018	World Trade Organization
7.2.3	Entertainment & Media market/th pop. 15–69	n/a	2018	PwC

Outdated data

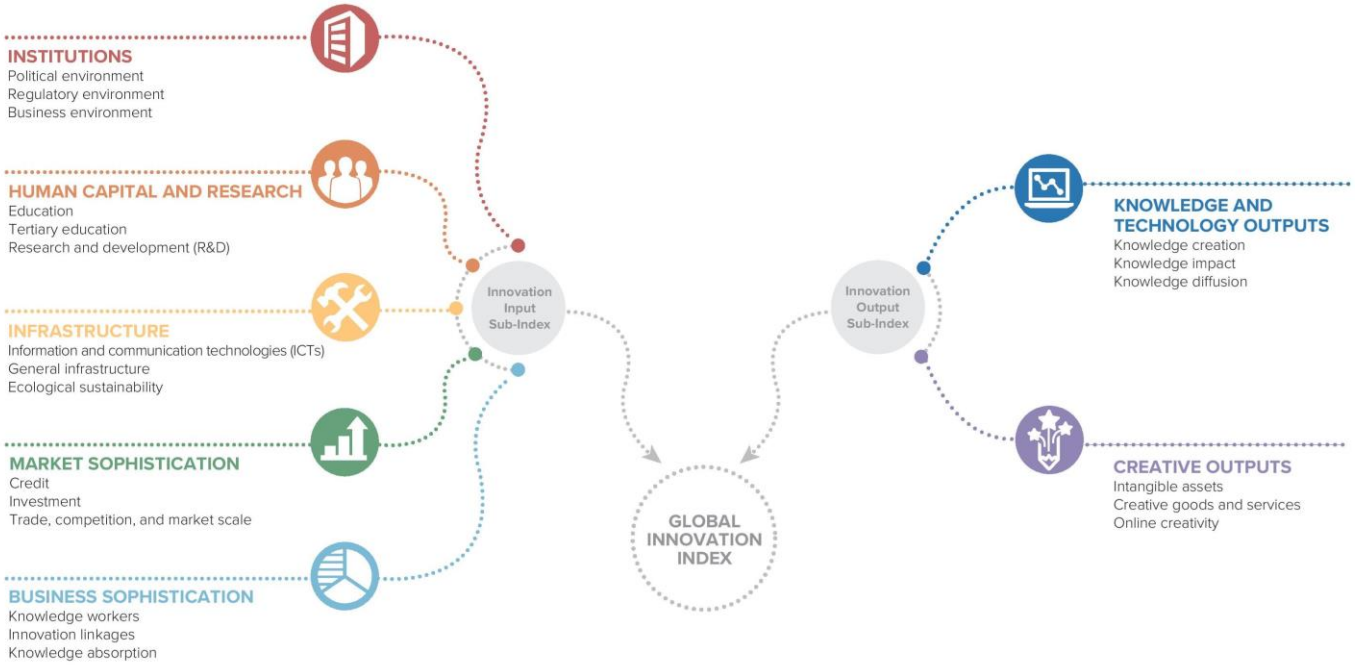
Code	Indicator name	Country year	Model year	Source
2.1.1	Expenditure on education, % GDP	2015	2018	UNESCO Institute for Statistics
2.1.3	School life expectancy, years	2015	2017	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2015	2017	UNESCO Institute for Statistics
2.2.2	Graduates in science & engineering, %	2016	2017	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2015	2017	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2014	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2014	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.2	Firms offering formal training, %	2016	2018	World Bank
5.1.3	GERD performed by business, % GDP	2014	2018	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.1.4	GERD financed by business, %	2014	2017	UNESCO Institute for Statistics; Eurostat; OECD – Main Science and Technology Indicators
5.2.3	GERD financed by abroad, % GDP	2014	2017	UNESCO Institute for Statistics
7.2.2	National feature films/mn pop. 15–69	2015	2017	UNESCO Institute for Statistics

ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. In 2020, the GII presents its 13th edition devoted to the theme *Who Will Finance Innovation?*

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.

Framework of the Global Innovation Index 2020



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.