

GLOBAL INNOVATION INDEX 2019

ECUADOR

99th

Ecuador ranks 99th among the 129 economies featured in the GII 2019.

The Global Innovation Index (GII) is a ranking of world economies based on 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 the GII model influence year-on-year comparisons of the GII ranks. The confidence interval for Ecuador's ranking in the GII 2019 is between 94 and 103.

Ecuador's Rankings, 2017 - 2019

	GII	Innovation Inputs	Innovation Outputs
2019	99	98	98
2018	97	96	97
2017	92	95	83

- Ecuador performs equally well in Innovation inputs and outputs in 2019.
- This year Ecuador ranks 98th in Innovation Inputs, lower than last year and lower compared to 2017.
- As for Innovation Outputs, Ecuador ranks 98th. This position is lower than last year and lower compared to 2017.

31st

Ecuador ranks 31st among the 34 upper middle-income economies.

14th

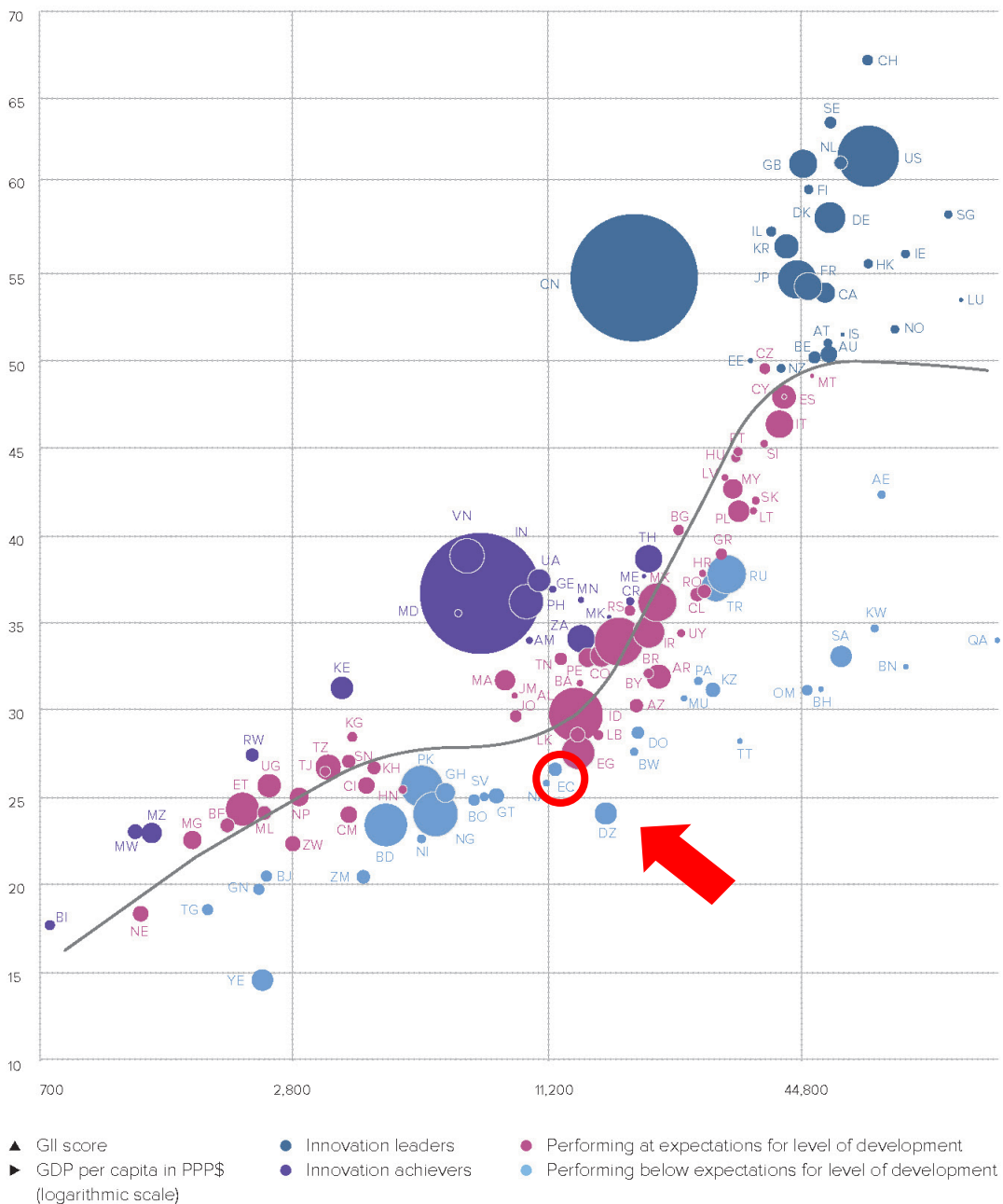
Ecuador ranks 14th among the 19 economies in Latin America and the Caribbean.

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 considered Innovation under-performers relative to GDP.

Relative to GDP, Ecuador performs below its expected level of development.

GII scores and GDP per capita in PPP US\$ (bubbles sized by population)

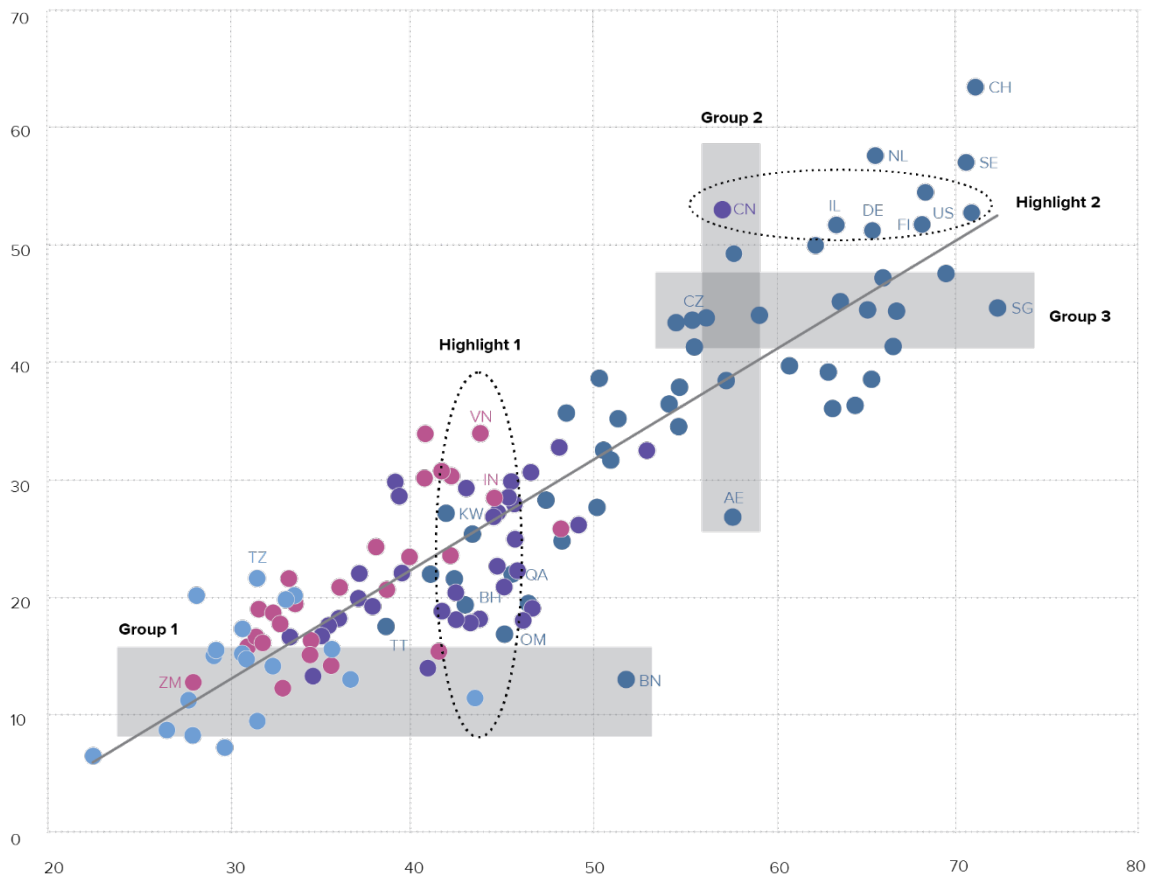


INNOVATION EFFICIENCY—EFFECTIVELY TRANSLATING INNOVATION INPUTS INTO OUTPUTS

The chart below shows the ratio between innovation inputs and innovation outputs. The linear gives an indication of the expected level of performance. Economies appearing above the trend line are performing better than expected. Those below are effectively not translating innovation inputs in to expected outputs at that level.

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

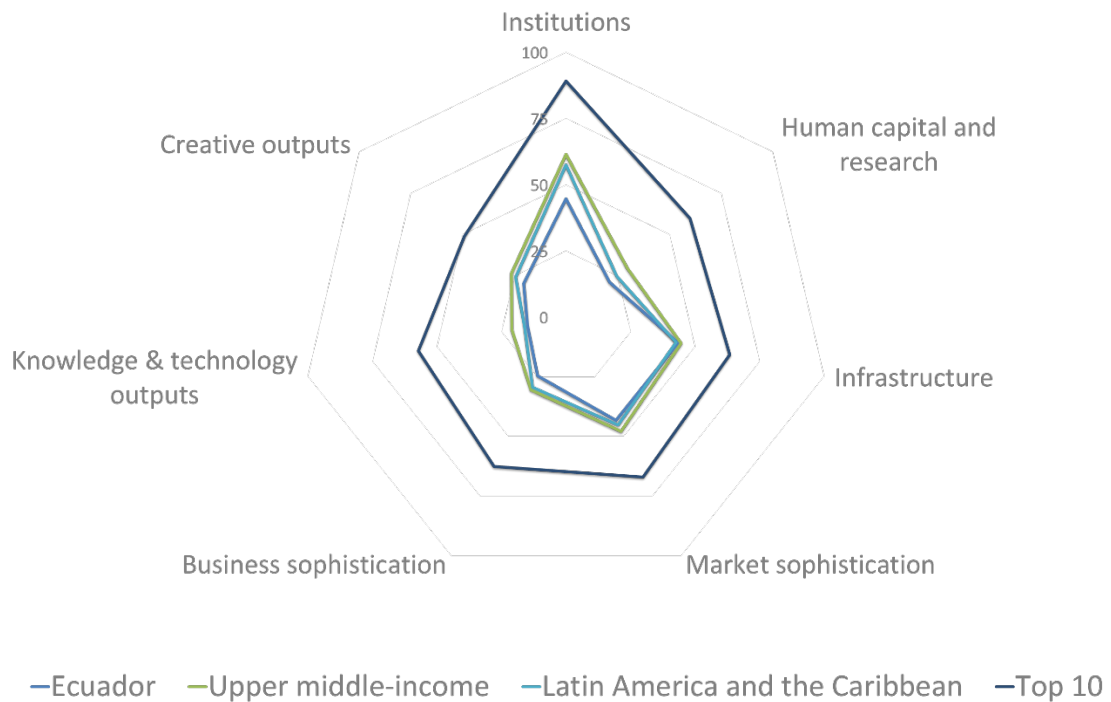
Innovation input/output performance by income group, 2019



- ▲ Output score
 - ▶ Input score
 - High income
 - Upper-middle income
 - Lower-middle income
 - Low income
 - Fitted values
-
- | | | | |
|-------------------------|-------------------|------------------------|--------------------------------|
| AE United Arab Emirates | CZ Czech Republic | NL Netherlands | TZ United Republic of Tanzania |
| BH Bahrain | DE Germany | OM Oman | US United States of America |
| BN Brunei Darussalam | FI Finland | QA Qatar | VN Viet Nam |
| CH Switzerland | IL Israel | SE Sweden | ZM Zambia |
| CN China | IN India | SG Singapore | |
| | KW Kuwait | TT Trinidad and Tobago | |

BENCHMARKING ECUADOR TO UPPER MIDDLE-INCOME ECONOMIES AND THE LATIN AMERICA AND THE CARIBBEAN REGION

Ecuador's scores in the seven GII pillars



Upper middle-income economies

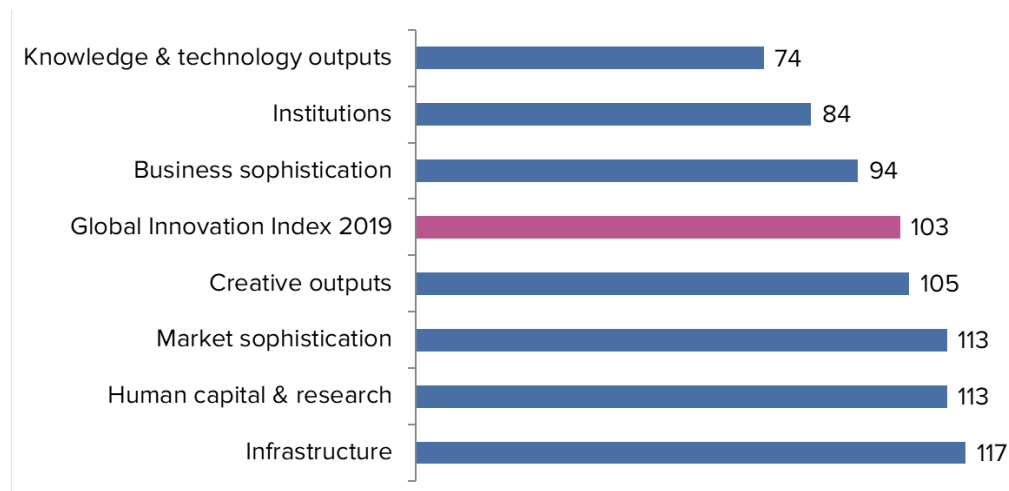
Ecuador scores below the upper middle-income group average in all seven GII pillars.

Latin America and the Caribbean Region

Compared to other economies in the Latin America and the Caribbean region, Ecuador performs above average in one of the 7 GII pillars, Infrastructure, attaining a top score in Information & Communication Technologies (ICTs).

OVERVIEW OF RANKING'S IN THE 7 GII AREAS FOR ECUADOR

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



*The highest possible ranking in each pillar is 1.

ECUADOR'S INNOVATION STRENGTHS AND WEAKNESSES IN THE GII 2019

The table below gives an overview of Ecuador's strengths and weaknesses in the GII 2019.

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
2.1.1	Expenditure on education, % GDP	49	1	Institutions	125
2.1.3	School life expectancy, years	42	1.1.1	Political & operational stability*	118
2.3.4	QS university ranking, average score top 3*	59	1.2.1	Regulatory quality*	123
3.2.3	Gross capital formation, % GDP	44	1.2.3	Cost of redundancy dismissal, salary weeks	119
3.3	Ecological sustainability	57	1.3	Business environment	126
3.3.1	GDP/unit of energy use	34	1.3.1	Ease of starting a business*	121
4.1.3	Microfinance gross loans, % GDP	19	1.3.2	Ease of resolving insolvency*	126
4.2	Investment	48	2.1.2	Government funding/pupil, secondary, % GDP/cap	104
4.3.3	Domestic market scale, bn PPP\$	60	2.3.3	Global R&D companies, top 3, in mn US\$	43
5.1.2	Firms offering formal training, % firms	2	5.1.4	GERD financed by business, %	96
5.3.2	High-tech imports, % total trade	55	5.3.3	ICT services imports, % total trade	127
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP	51	6.2.1	Growth rate of PPP\$ GDP/worker, %, 3-year average	108

STRENGTHS

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

- In Human capital & research (91), Ecuador exhibits strengths in indicators Expenditure on education (49), School life expectancy (42) and in Quality of universities (59).
- In Infrastructure (78), Ecuador's strengths are in sub-pillar Ecological sustainability (57) and in indicators Gross capital formation (44) and GDP per unit of energy use (34).
- In Market sophistication (89), Ecuador shows strengths in indicators Microfinance gross loans (19) and in Domestic market scale (60).
- In Business sophistication (102), strengths are identified in indicators Firms offering formal training—where Ecuador ranks 2nd in the GII 2019—and in High-tech imports as a percentage of total trade (55).
- In Knowledge & technology outputs (100), Ecuador exhibits strengths in indicator ISO 9001 quality certificates (51).

WEAKNESSES

Ecuador's weaknesses in the GII are found in four of the seven GII pillars:

- The pillar Institutions (125) is a weakness for Ecuador. Also showing relative weaknesses in five of the seven indicators and in the sub-pillar Business environment (126).
- In Human capital & research (91), Ecuador's weaknesses are in indicators Government funding per secondary school pupil (104) and in Global R&D companies (43).
- In Business sophistication (102), weaknesses are seen in indicators R&D financed by business (96) and ICT services imports (127).
- In Knowledge & technology outputs (100), Ecuador's weakness is in indicator Labor productivity growth (108).

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$	GDP per capita, PPP\$	GII 2018 rank
98	98	Upper middle	LCN	16.9	199.7	11,718.1	97
				Score/Value	Rank		
INSTITUTIONS				44.7	125		
1.1	Political environment		43.4	95			
1.1.1	Political and operational stability*		52.6	118			
1.1.2	Government effectiveness*		38.8	90			
1.2	Regulatory environment		42.6	119			
1.2.1	Regulatory quality*		15.1	123			
1.2.2	Rule of law*		27.8	106			
1.2.3	Cost of redundancy dismissal, salary weeks		31.8	119			
1.3	Business environment		48.0	126			
1.3.1	Ease of starting a business*		70.6	121			
1.3.2	Ease of resolving insolvency*		25.4	126			
HUMAN CAPITAL & RESEARCH				21.1	91		
2.1	Education		37.3	92			
2.1.1	Expenditure on education, % GDP		5.0	49			
2.1.2	Government funding/pupil, secondary, % GDP/cap		5.3	104			
2.1.3	School life expectancy, years		15.4	42			
2.1.4	PISA scales in reading, maths, & science		n/a	n/a			
2.1.5	Pupil-teacher ratio, secondary		21.9	92			
2.2	Tertiary education		19.1	97			
2.2.1	Tertiary enrolment, % gross		45.5	64			
2.2.2	Graduates in science & engineering, %		15.8	83			
2.2.3	Tertiary inbound mobility, %		0.8	92			
2.3	Research & development (R&D)		6.9	70			
2.3.1	Researchers, FTE/mn pop.		400.7	71			
2.3.2	Gross expenditure on R&D, % GDP		0.4	68			
2.3.3	Global R&D companies, avg. exp. top 3, mn US\$		0.0	43			
2.3.4	QS university ranking, average score top 3*		13.6	59			
INFRASTRUCTURE				43.4	78		
3.1	Information & communication technologies (ICTs)		58.4	80			
3.1.1	ICT access*		51.0	86			
3.1.2	ICT use*		42.4	83			
3.1.3	Government's online service*		72.9	63			
3.1.4	E-participation*		67.4	79			
3.2	General infrastructure		32.2	73			
3.2.1	Electricity output, kWh/mn pop.		1,666.5	84			
3.2.2	Logistics performance*		38.3	61			
3.2.3	Gross capital formation, % GDP		25.3	44			
3.3	Ecological sustainability		39.6	57			
3.3.1	GDP/unit of energy use		11.6	34			
3.3.2	Environmental performance*		57.4	76			
3.3.3	ISO 14001 environmental certificates/bn PPP\$ GDP		1.0	64			
MARKET SOPHISTICATION				43.3	89		
4.1	Credit		24.7	109			
4.1.1	Ease of getting credit*		45.0	94			
4.1.2	Domestic credit to private sector, % GDP		32.3	91			
4.1.3	Microfinance gross loans, % GDP		0.9	19			
4.2	Investment		46.7	[48]			
4.2.1	Ease of protecting minority investors*		46.7	101			
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, & market scale		58.5	73			
4.3.1	Applied tariff rate, weighted avg., %		7.0	98			
4.3.2	Intensity of local competition*		69.8	62			
4.3.3	Domestic market scale, bn PPP\$		199.7	60			
BUSINESS SOPHISTICATION				24.6	102		
5.1	Knowledge workers		37.4	61			
5.1.1	Knowledge-intensive employment, %		13.4	93			
5.1.2	Firms offering formal training, % firms		73.7	2			
5.1.3	GERD performed by business, % GDP		0.2	53			
5.1.4	GERD financed by business, %		0.1	96			
5.1.5	Females employed w/advanced degrees, %		8.8	76			
5.2	Innovation linkages		14.9	119			
5.2.1	University/industry research collaboration*		34.5	95			
5.2.2	State of cluster development*		36.5	103			
5.2.3	GERD financed by abroad, %		2.5	74			
5.2.4	JV-strategic alliance deals/bn PPP\$ GDP		0.0	97			
5.2.5	Patent families 2+ offices/bn PPP\$ GDP		0.0	83			
5.3	Knowledge absorption		21.6	115			
5.3.1	Intellectual property payments, % total trade		0.2	83			
5.3.2	High-tech imports, % total trade		8.1	55			
5.3.3	ICT services imports, % total trade		0.0	127			
5.3.4	FDI net inflows, % GDP		0.9	105			
5.3.5	Research talent, % in business enterprise		15.0	61			
KNOWLEDGE & TECHNOLOGY OUTPUTS				15.0	100		
6.1	Knowledge creation		5.8	93			
6.1.1	Patents by origin/bn PPP\$ GDP		0.1	114			
6.1.2	PCT patents by origin/bn PPP\$ GDP		0.2	56			
6.1.3	Utility models by origin/bn PPP\$ GDP		0.2	45			
6.1.4	Scientific & technical articles/bn PPP\$ GDP		5.9	70			
6.1.5	Citable documents H-index		8.0	79			
6.2	Knowledge impact		29.7	95			
6.2.1	Growth rate of PPP\$ GDP/worker, %		-2.0	108			
6.2.2	New businesses/th pop. 15-64		n/a	n/a			
6.2.3	Computer software spending, % GDP		0.2	64			
6.2.4	ISO 9001 quality certificates/bn PPP\$ GDP		6.1	51			
6.2.5	High- & medium-high-tech manufactures, %		0.1	74			
6.3	Knowledge diffusion		9.5	104			
6.3.1	Intellectual property receipts, % total trade		n/a	n/a			
6.3.2	High-tech net exports, % total trade		0.4	84			
6.3.3	ICT services exports, % total trade		0.2	116			
6.3.4	FDI net outflows, % GDP		0.3	83			
CREATIVE OUTPUTS				20.4	93		
7.1	Intangible assets		35.9	94			
7.1.1	Trademarks by origin/bn PPP\$ GDP		42.8	61			
7.1.2	Industrial designs by origin/bn PPP\$ GDP		1.0	67			
7.1.3	ICTs & business model creation*		53.3	92			
7.1.4	ICTs & organizational model creation*		52.9	66			
7.2	Creative goods & services		8.1	93			
7.2.1	Cultural & creative services exports, % total trade		0.1	85			
7.2.2	National feature films/mn pop. 15-69		2.1	62			
7.2.3	Entertainment & Media market/th pop. 15-69		n/a	n/a			
7.2.4	Printing & other media, % manufacturing		1.1	60			
7.2.5	Creative goods exports, % total trade		0.1	110			
7.3	Online creativity		1.7	88			
7.3.1	Generic top-level domains (TLDs)/th pop. 15-69		2.1	77			
7.3.2	Country-code TLDs/th pop. 15-69		1.1	79			
7.3.3	Wikipedia edits/mn pop. 15-69		5.0	82			
7.3.4	Mobile app creation/bn PPP\$ GDP		0.4	70			

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 missing or are outdated for Ecuador.

Missing data

Code	Indicator name	Country year	Model year	Source
2.1.4	PISA scales in reading, maths & science	n/a	2015	OECD Programme for International Student Assessment (PISA)
4.2.2	Market capitalization, % GDP	n/a	2017	World Federation of Exchanges
4.2.3	Venture capital deals/bn PPP\$ GDP	n/a	2018	Thomson Reuters
6.2.2	New businesses/th pop. 15–64	n/a	2016	World Bank
6.3.1	Intellectual property receipts, % total trade	n/a	2017	World Trade Organization
7.2.3	Entertainment & Media market/th pop. 15–69	n/a	2017	PwC

Outdated data

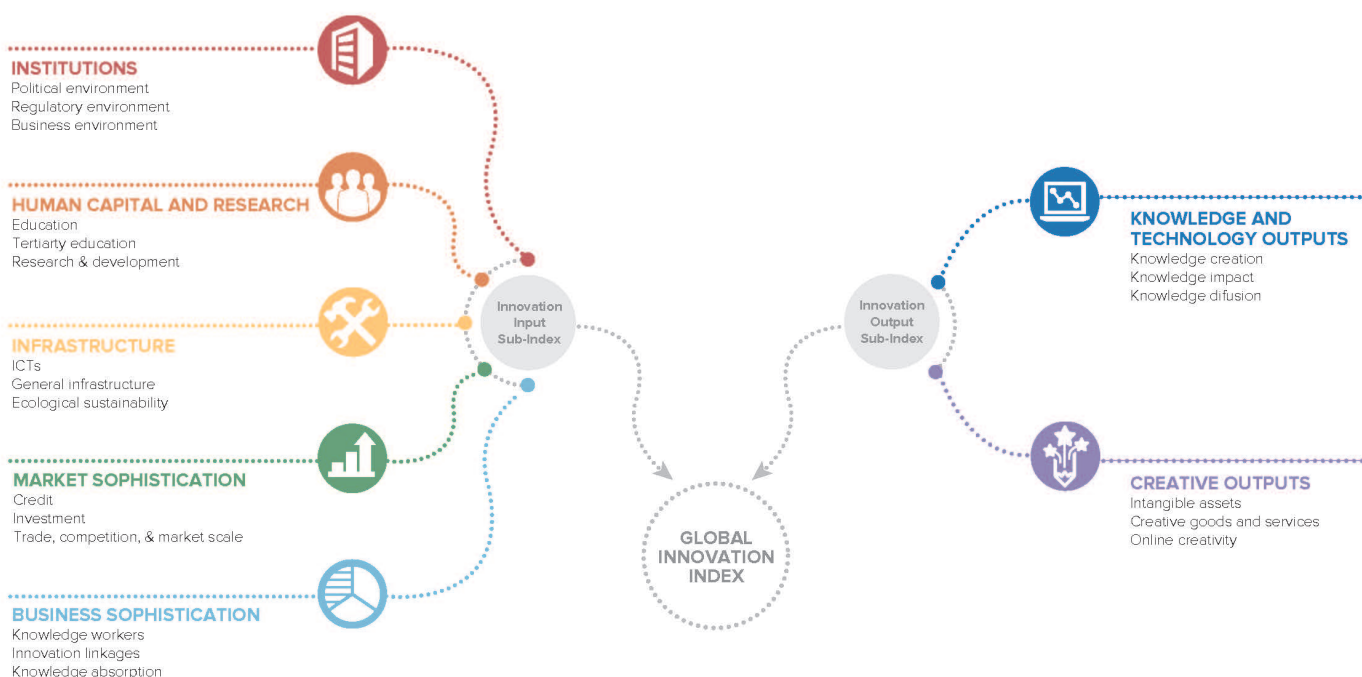
Code	Indicator name	Country year	Model year	Source
2.1.3	School life expectancy, years	2015	2016	UNESCO Institute for Statistics
2.1.5	Pupil-teacher ratio, secondary	2016	2017	UNESCO Institute for Statistics
2.2.1	Tertiary enrolment, % gross	2015	2017	UNESCO Institute for Statistics
2.2.3	Tertiary inbound mobility, %	2015	2016	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2014	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
2.3.2	Gross expenditure on R&D, % GDP	2014	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.3	GERD performed by business, % GDP	2014	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.1.4	GERD financed by business, %	2014	2016	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
5.2.3	GERD financed by abroad, %	2014	2016	UNESCO Institute for Statistics
5.3.5	Research talent, % in business enterprise	2008	2017	UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators
7.2.2	National feature films/mn pop. 15–69	2015	2017	UNESCO Institute for Statistics
7.3.3	Wikipedia edits/mn pop. 15–69	2014	2017	Wikimedia Foundation

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 2019, the GII presents its 12th edition devoted to the theme **Creating Healthy Lives—The Future of Medical Innovation**.

Recognizing that innovation is a key driver of economic development, the GII aims to provide a rich innovation ranking and 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 countries that incorporate the GII into their innovation agendas.

Framework of the Global Innovation Index 2019



The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that includes 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 containing three sub-pillars.

