Global Innovation Index 2022

CHILE

50th Chile ranks 50th 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 Chile 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 Chile in the GII 2022 is between ranks 46 and 50.

Rankings for Chile (2020–2022)

GIIYR	GII	Innovation inputs	Innovation outputs
2020	54	41	66
2021	53	44	61
2022	50	43	57

- Chile performs better in innovation inputs than innovation outputs in 2022.
- This year Chile ranks 43rd in innovation inputs, higher than last year but lower than 2020.
- As for innovation outputs, Chile ranks 57th. This position is higher than both 2021 and 2020.

40th Chile ranks 40th among the 48 high-income group economies.

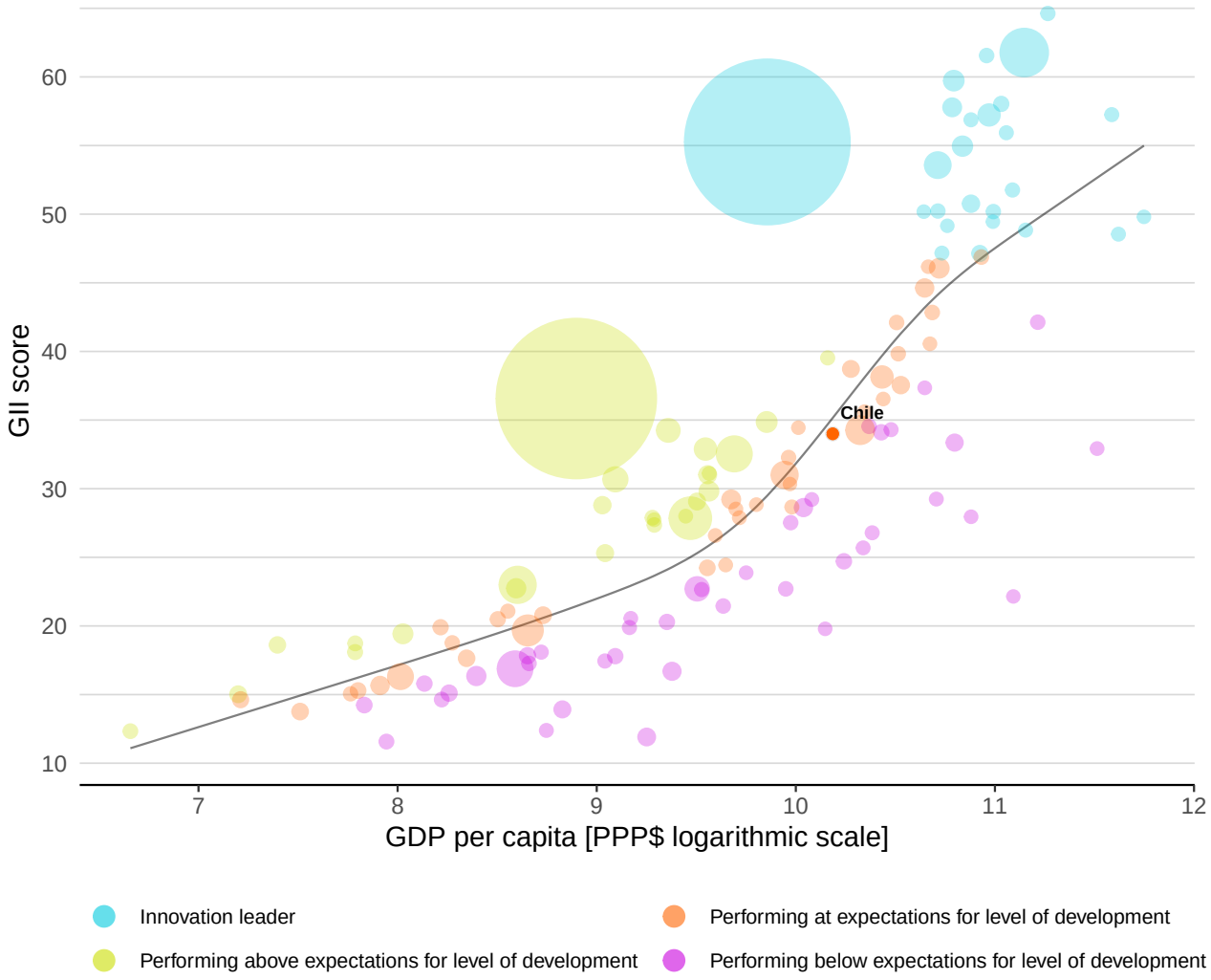
1st Chile ranks 1st among the 18 economies in Latin America and the Caribbean.

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, Chile's performance is at expectations for its level of development.

The positive relationship between innovation and development

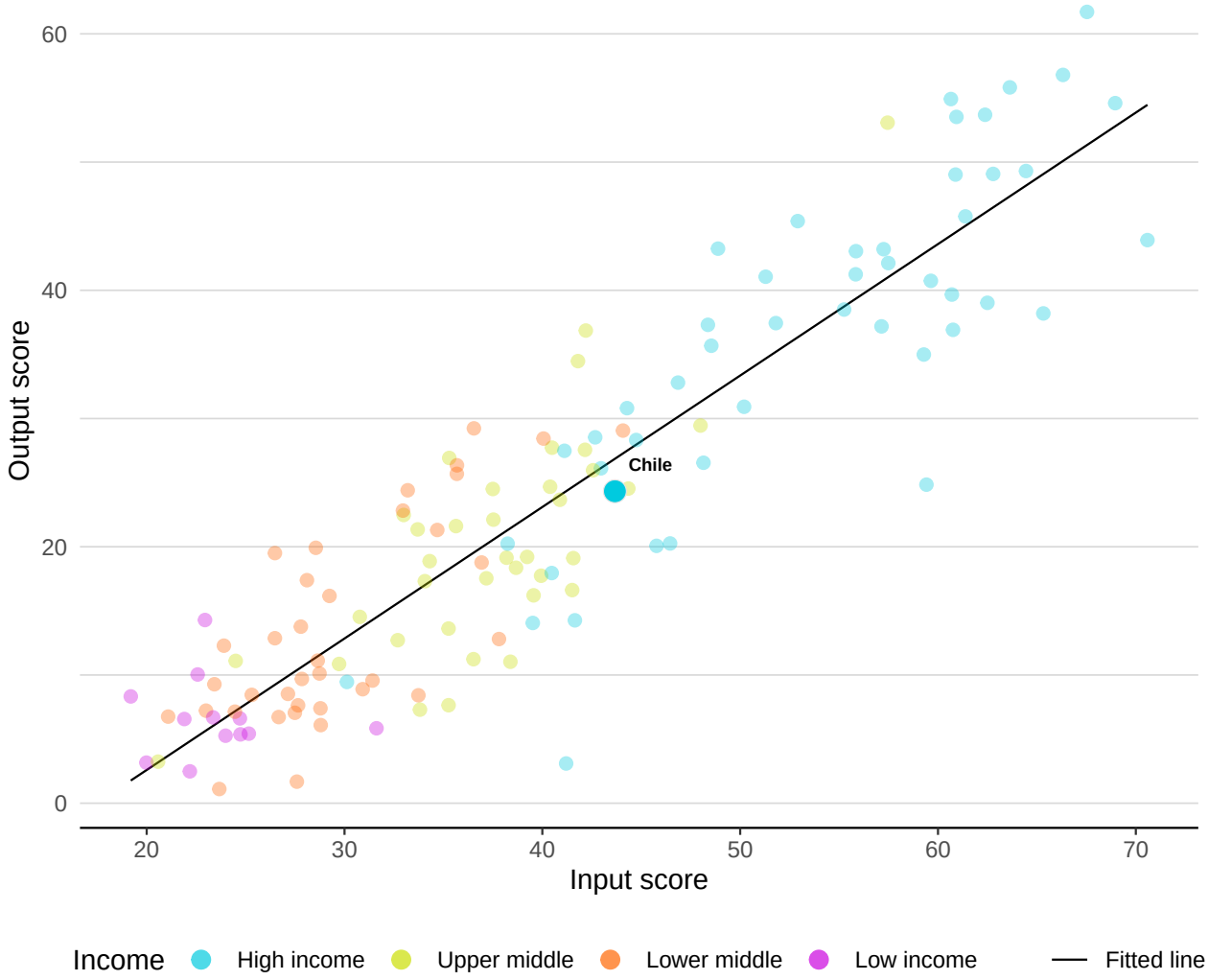


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

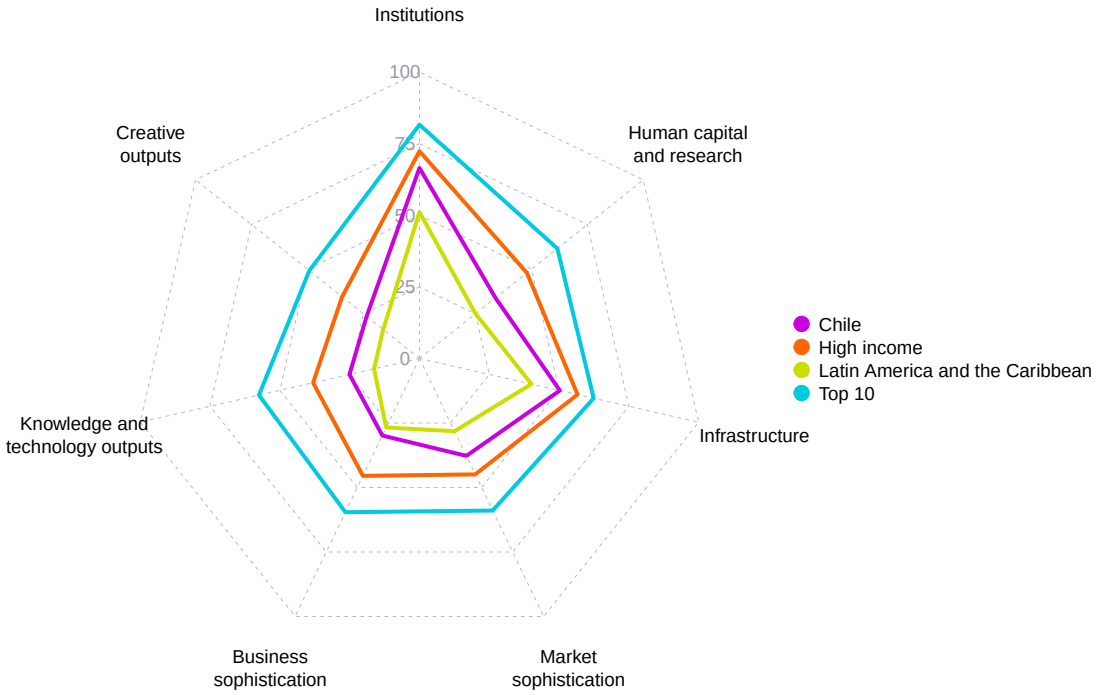
Chile produces less innovation outputs relative to its level of innovation investments.

Innovation input to output performance



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

The seven GII pillar scores for Chile



High-income group economies

Chile performs below the high-income group average in all GII pillars.

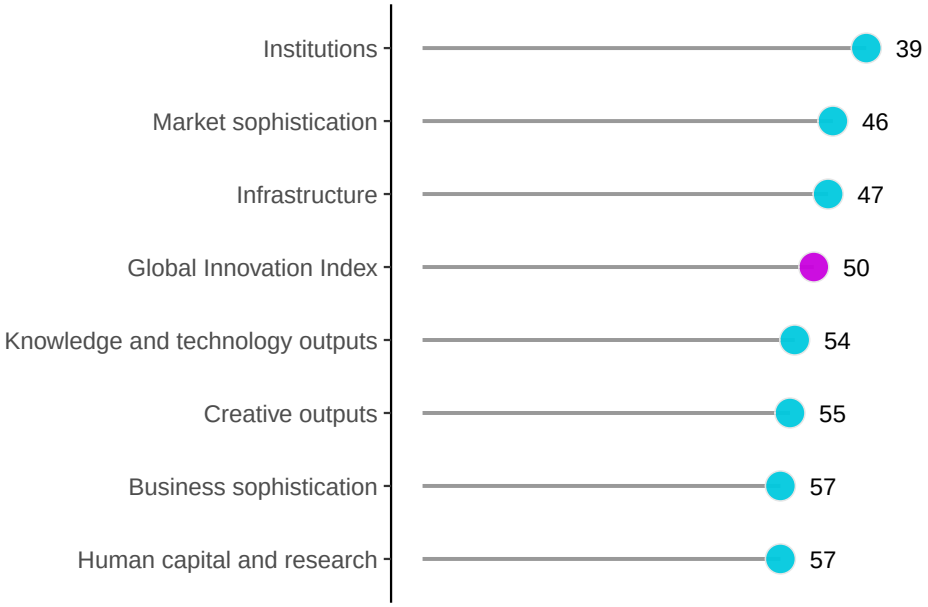
Latin America and the Caribbean

Chile performs above the regional average in all GII pillars.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Chile performs best in Institutions and its weakest performance is in Human capital and research and Business sophistication.

The seven GII pillar ranks for Chile



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

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

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

INNOVATION STRENGTHS AND WEAKNESSES

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

Strengths and weaknesses for Chile

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
1.2.2	Rule of law	25	1.2.3	Cost of redundancy dismissal	111
2.1.3	School life expectancy, years	22	2.1.5	Pupil-teacher ratio, secondary	85
2.2.1	Tertiary enrolment, % gross	7	2.2.3	Tertiary inbound mobility, %	97
4.1.2	Domestic credit to private sector, % GDP	19	2.3.3	Global corporate R&D investors, top 3, mn USD	38
4.3.1	Applied tariff rate, weighted avg., %	5	4.1.1	Finance for startups and scaleups	52
5.3.1	Intellectual property payments, % total trade	12	4.3.2	Domestic industry diversification	78
6.2.1	Labor productivity growth, %	16	6.3.4	ICT services exports, % total trade	96
6.2.2	New businesses/th pop. 15–64	10	7.1.4	Industrial designs by origin/bn PPP$ GDP	108
6.2.3	Software spending, % GDP	21	7.2.4	Printing and other media, % manufacturing	75
7.1.2	Trademarks by origin/bn PPP$ GDP	12	7.2.5	Creative goods exports, % total trade	91

GII 2022 rank

Chile

50

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
57	43	High	LCN	19.2	522.8	26,513

		Score/ Value	Rank	
Institutions		**66.5**	**39**	
1.1	**Political environment**	71.9	40	
1.1.1	Political and operational stability*	72.7	46	
1.1.2	Government effectiveness*	71.0	32	
1.2	**Regulatory environment**	67.0	61	◇
1.2.1	Regulatory quality*	71.2	31	
1.2.2	Rule of law*	73.8	25 ●	
1.2.3	Cost of redundancy dismissal	27.4	111 ○	◇
1.3	**Business environment**	60.6	34	
1.3.1	Policies for doing business†	63.4	30	
1.3.2	Entrepreneurship policies and culture*	57.9	26	
Human capital and research		**33.9**	**57**	◇
2.1	**Education**	52.6	65	◇
2.1.1	Expenditure on education, % GDP	5.4	28	
2.1.2	Government funding/pupil, secondary, % GDP/cap	18.9	58	
2.1.3	School life expectancy, years	16.7	22 ●	
2.1.4	PISA scales in reading, maths and science	437.8	46	◇
2.1.5	Pupil-teacher ratio, secondary	17.6	85 ○	◇
2.2	**Tertiary education**	33.5	58	
2.2.1	Tertiary enrolment, % gross	93.1	7 ●	
2.2.2	Graduates in science and engineering, %	20.6	63	
2.2.3	Tertiary inbound mobility, %	0.6	97 ○	◇
2.3	**Research and development (R&D)**	15.7	46	◇
2.3.1	Researchers, FTE/mn pop.	510.3	68	◇
2.3.2	Gross expenditure on R&D, % GDP	0.3	74	◇
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	38 ○	◇
2.3.4	QS university ranking, top 3*	41.3	31	
Infrastructure		**50.3**	**47**	◇
3.1	**Information and communication technologies (ICTs)**	84.8	28	
3.1.1	ICT access*	92.1	28	
3.1.2	ICT use*	76.2	34	
3.1.3	Government's online service*	85.3	24	
3.1.4	E-participation*	85.7	29	
3.2	**General infrastructure**	36.4	45	
3.2.1	Electricity output, GWh/mn pop.	4,210.4	50	
3.2.2	Logistics performance*	59.1	33	
3.2.3	Gross capital formation, % GDP	22.3	77	
3.3	**Ecological sustainability**	29.6	53	
3.3.1	GDP/unit of energy use	10.9	61	
3.3.2	Environmental performance*	46.7	51	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.2	41	
Market sophistication		**37.7**	**46**	
4.1	**Credit**	39.4	32	
4.1.1	Finance for startups and scaleups*	31.9	52 ○	◇
4.1.2	Domestic credit to private sector, % GDP	124.5	19 ●	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	12.6	48	
4.2.1	Market capitalization, % GDP	76.7	22	
4.2.2	Venture capital investors, deals/bn PPP$ GDP	0.0	47	
4.2.3	Venture capital recipients, deals/bn PPP$ GDP	0.0	57	
4.2.4	Venture capital received, value, % GDP	0.0	49	
4.3	**Trade, diversification, and market scale**	61.2	50	
4.3.1	Applied tariff rate, weighted avg., %	0.4	5 ●	
4.3.2	Domestic industry diversification	74.9	78 ○	
4.3.3	Domestic market scale, bn PPP$	522.8	44	

		Score/ Value	Rank	
Business sophistication		**29.9**	**57**	◇
5.1	**Knowledge workers**	32.2	64	◇
5.1.1	Knowledge-intensive employment, %	31.7	47	◇
5.1.2	Firms offering formal training, %	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.1	60	◇
5.1.4	GERD financed by business, %	31.0	58	
5.1.5	Females employed w/advanced degrees, %	12.3	62	◇
5.2	**Innovation linkages**	21.3	77	◇
5.2.1	University-industry R&D collaboration†	41.4	75	◇
5.2.2	State of cluster development and depth†	45.4	77	◇
5.2.3	GERD financed by abroad, % GDP	0.0	65	◇
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	56	
5.2.5	Patent families/bn PPP$ GDP	0.2	41	
5.3	**Knowledge absorption**	36.0	46	
5.3.1	Intellectual property payments, % total trade	2.1	12 ●	
5.3.2	High-tech imports, % total trade	9.2	52	
5.3.3	ICT services imports, % total trade	1.0	86	
5.3.4	FDI net inflows, % GDP	3.5	34	
5.3.5	Research talent, % in businesses	27.7	44	
Knowledge and technology outputs		**25.1**	**54**	
6.1	**Knowledge creation**	15.3	57	
6.1.1	Patents by origin/bn PPP$ GDP	0.8	69	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.3	37	
6.1.3	Utility models by origin/bn PPP$ GDP	0.3	42	
6.1.4	Scientific and technical articles/bn PPP$ GDP	23.5	38	
6.1.5	Citable documents H-index	24.2	38	
6.2	**Knowledge impact**	42.3	17 ●	
6.2.1	Labor productivity growth, %	3.3	16 ● ◆	
6.2.2	New businesses/th pop. 15–64	12.1	10 ●	
6.2.3	Software spending, % GDP	0.4	21 ●	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	6.4	42	
6.2.5	High-tech manufacturing, %	23.9	54	
6.3	**Knowledge diffusion**	17.6	79	◇
6.3.1	Intellectual property receipts, % total trade	0.1	70	◇
6.3.2	Production and export complexity	36.8	69	◇
6.3.3	High-tech exports, % total trade	1.9	65	
6.3.4	ICT services exports, % total trade	0.6	96 ○	
Creative outputs		**23.6**	**55**	
7.1	**Intangible assets**	39.3	38	
7.1.1	Intangible asset intensity, top 15, %	47.9	53	
7.1.2	Trademarks by origin/bn PPP$ GDP	102.8	12 ● ◆	
7.1.3	Global brand value, top 5,000, % GDP	33.1	42	
7.1.4	Industrial designs by origin/bn PPP$ GDP	0.2	108 ○	◇
7.2	**Creative goods and services**	9.6	85	◇
7.2.1	Cultural and creative services exports, % total trade	0.3	67	
7.2.2	National feature films/mn pop. 15–69	3.0	38	
7.2.3	Entertainment and media market/th pop. 15–69	11.9	30	◇
7.2.4	Printing and other media, % manufacturing	0.7	75 ○	
7.2.5	Creative goods exports, % total trade	0.1	91 ○	
7.3	**Online creativity**	6.2	57	◇
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	2.1	75	◇
7.3.2	Country-code TLDs/th pop. 15–69	15.0	33	
7.3.3	GitHub commit pushes received/mn pop. 15–69	5.4	54	◇
7.3.4	Mobile app creation/bn PPP$ GDP	2.2	68	

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 Chile.

Missing data for Chile

Code	Indicator name	Economy year	Model year	Source
4.1.3	Loans from microfinance institutions, % GDP	n/a	2020	International Monetary Fund, Financial Access Survey (FAS)
5.1.2	Firms offering formal training, %	n/a	2019	World Bank Enterprise Surveys

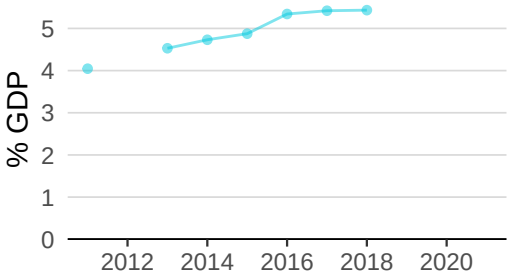
Outdated data for Chile

Code	Indicator name	Economy year	Model year	Source
2.1.1	Expenditure on education, % GDP	2018	2020	UNESCO Institute for Statistics
2.2.2	Graduates in science and engineering, %	2019	2020	UNESCO Institute for Statistics
2.3.1	Researchers, FTE/mn pop.	2019	2020	UNESCO Institute for Statistics
2.3.2	Gross expenditure on R&D, % GDP	2019	2020	UNESCO Institute for Statistics
4.3.2	Domestic industry diversification	2017	2019	United Nations Industrial Development Organization
5.1.3	GERD performed by business, % GDP	2019	2020	UNESCO Institute for Statistics
5.3.5	Research talent, % in businesses	2019	2020	UNESCO Institute for Statistics
6.2.5	High-tech manufacturing, %	2017	2019	United Nations Industrial Development Organization
7.2.4	Printing and other media, % manufacturing	2017	2019	United Nations Industrial Development Organization

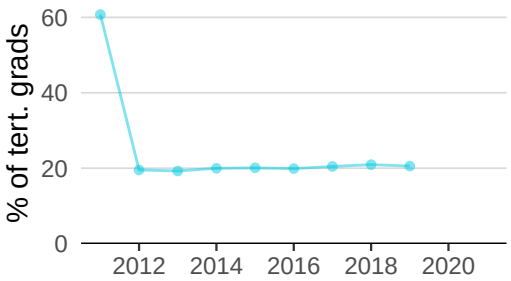
CHILE'S INNOVATION SYSTEM

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

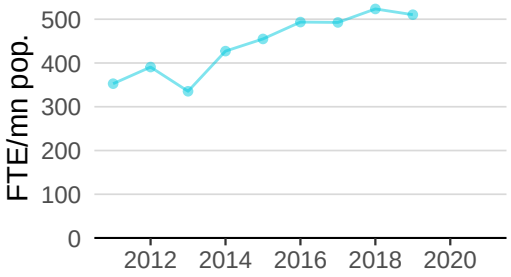
Innovation inputs



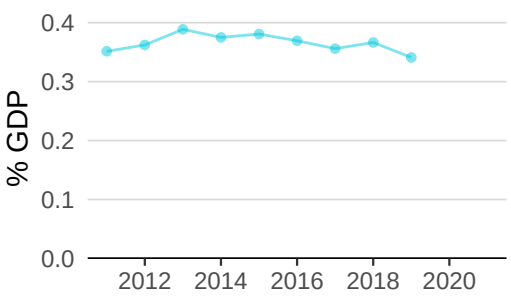
2.1.1 Expenditure on education was equal to 5.4% GDP in 2018–effectively unchanged from the year prior–and equivalent to an indicator rank of 28.



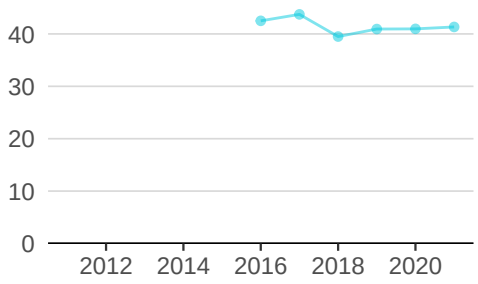
2.2.2 Graduates in science and engineering was equal to 20.6% of tert. grads in 2019–down by 2 percentage points from the year prior–and equivalent to an indicator rank of 63.



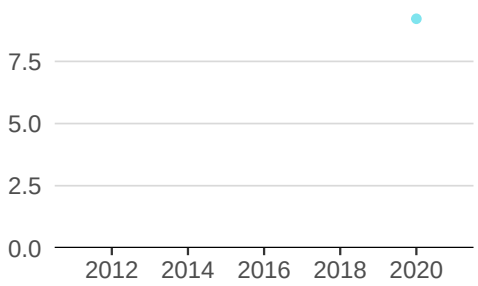
2.3.1 Researchers was equal to 510.3 FTE/mn pop. in 2019–down by 3 percentage points from the year prior–and equivalent to an indicator rank of 68.



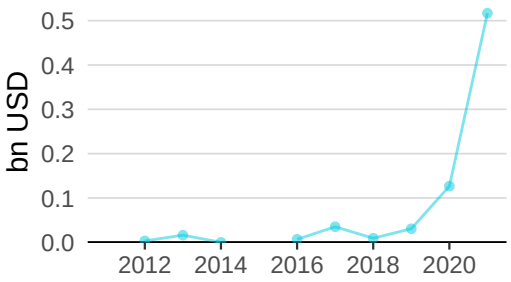
2.3.2 Gross expenditure on R&D was equal to 0.3% GDP in 2019–down by 7 percentage points from the year prior–and equivalent to an indicator rank of 74.



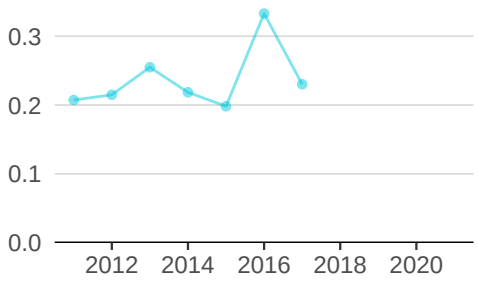
2.3.4 QS university ranking was equal to 41.3 in 2021–up by 1 percentage point from the year prior–and equivalent to an indicator rank of 31.



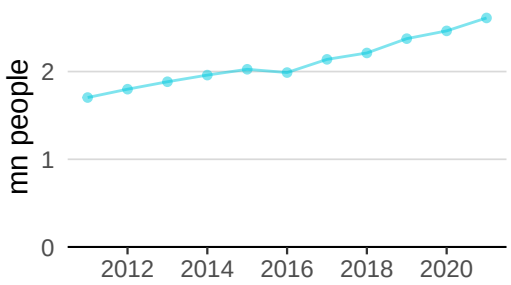
3.1.1 ICT access was equal to 9.2 in 2020 and equivalent to an indicator rank of 28.



4.2.4 Venture capital received was equal to 0.5 bn USD in 2021–up by 308 percentage points from the year prior–and equivalent to an indicator rank of 49.

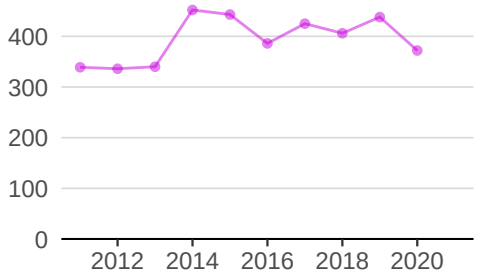


4.3.2 Domestic industry diversification was equal to 0.2 in 2017–down by 31 percentage points from the year prior–and equivalent to an indicator rank of 78.

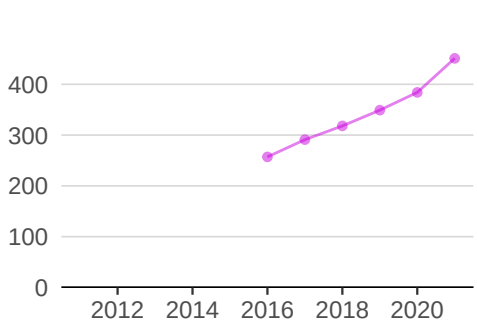


5.1.1 Knowledge-intensive employment was equal to 2.6 mn people in 2021–up by 6 percentage points from the year prior–and equivalent to an indicator rank of 47.

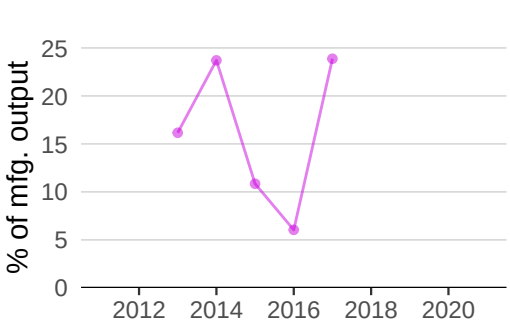
Innovation outputs



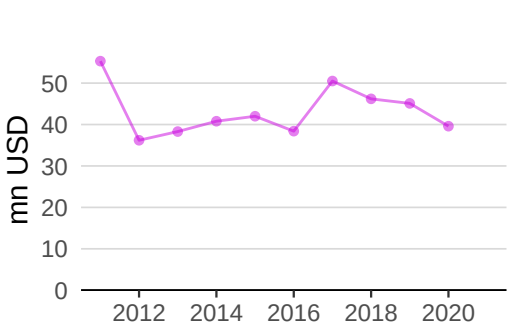
6.1.1 Patents by origin was equal to 372.0 in 2020–down by 15 percentage points from the year prior–and equivalent to an indicator rank of 69.



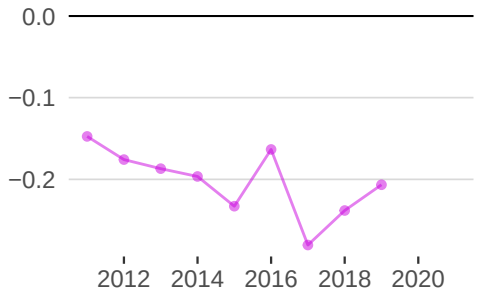
6.1.5 Citable documents H-index was equal to 451.0 in 2021–up by 17 percentage points from the year prior–and equivalent to an indicator rank of 38.



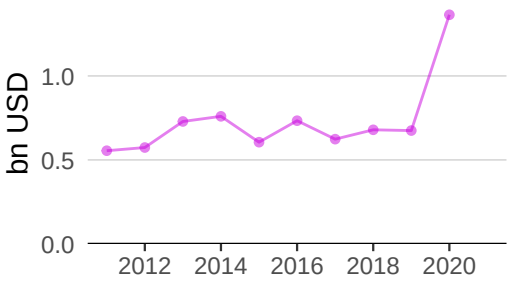
6.2.5 High-tech manufacturing was equal to 23.9% of mfg. output in 2017–up by 295 percentage points from the year prior–and equivalent to an indicator rank of 54.



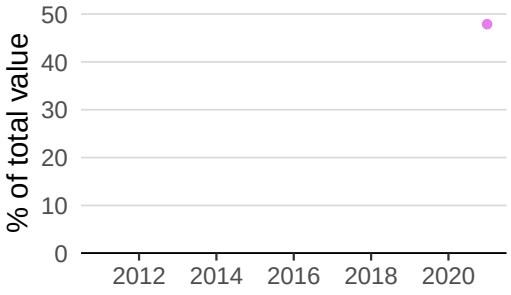
6.3.1 Intellectual property receipts was equal to 39.6 mn USD in 2020–down by 12 percentage points from the year prior–and equivalent to an indicator rank of 70.



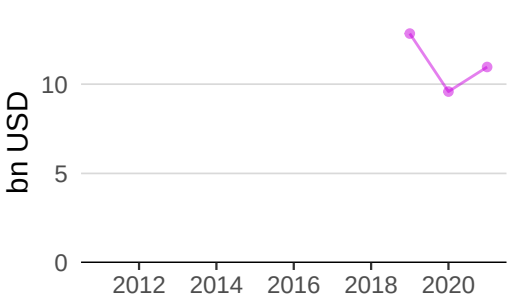
6.3.2 Production and export complexity was equal to -0.2 in 2019–up by 13 percentage points from the year prior–and equivalent to an indicator rank of 69.



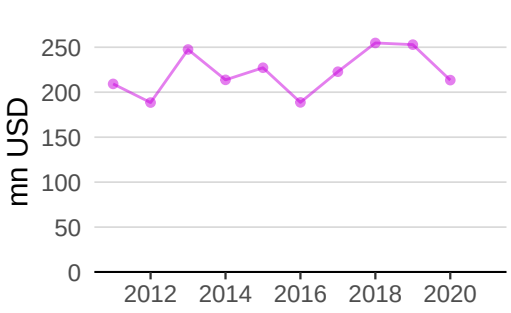
6.3.3 High-tech exports was equal to 1.4 bn USD in 2020–up by 102 percentage points from the year prior–and equivalent to an indicator rank of 65.



7.1.1 Intangible asset intensity was equal to 47.9% of total value in 2021 and equivalent to an indicator rank of 53.



7.1.3 Global brand value was equal to 11.0 bn USD in 2021–up by 14 percentage points from the year prior–and equivalent to an indicator rank of 42.



7.2.1 Cultural and creative services exports was equal to 213.4 mn USD in 2020–down by 16 percentage points from the year prior–and equivalent to an indicator rank of 67.

CHILE'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
PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE	53.6	135
UNIVERSIDAD DE CHILE	46.0	183=
UNIVERSIDAD DE SANTIAGO DE CHILE	24.4	487=

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
SOC QUIMICA Y MINERA CHILE	1
ANTOFAGASTA	2
EMPRESAS COPEC	3

Source: Brand Finance (https://brandirectory.com/reports/gift-2021).
Note: Brand Finance only provides within economy ranks.

7.1.3 Global brand value, top 5,000

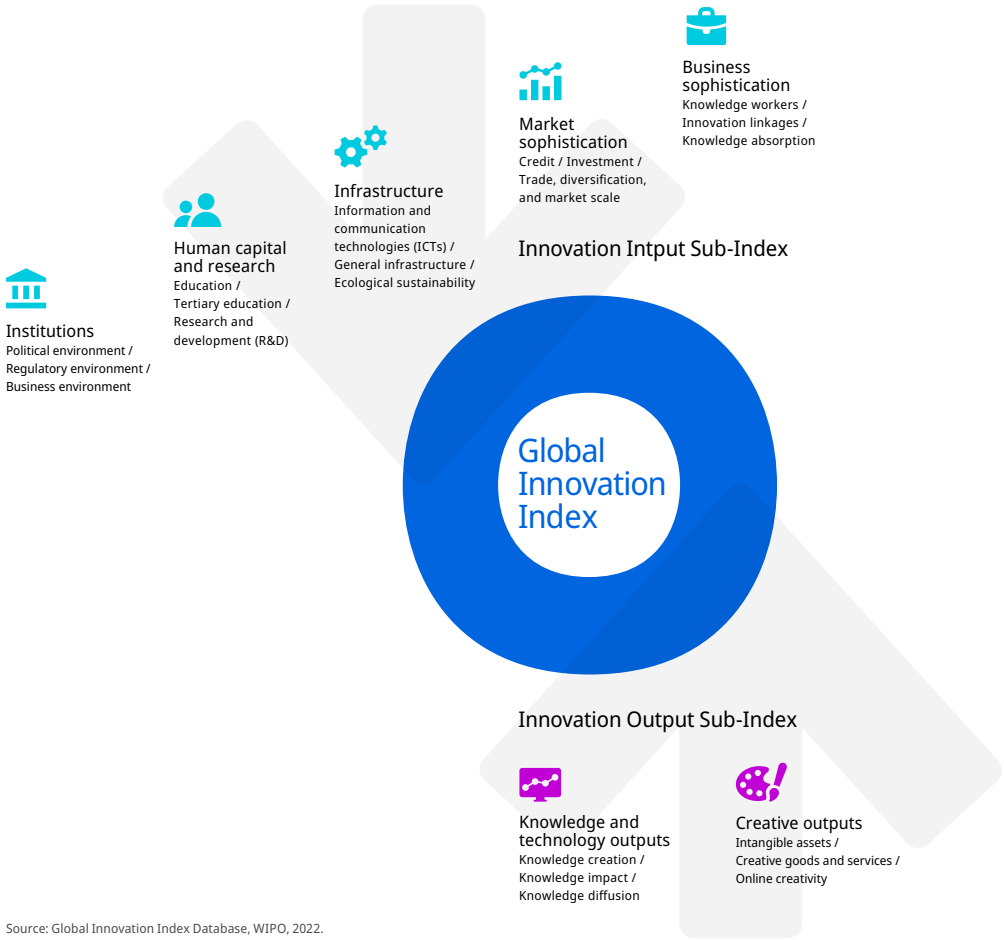
Brand	Industry	Rank
EMPRESAS COPEC	Oil & Gas	1
BANCO DE CHILE	Banking	2
LATAM AIRLINES	Airlines	3

Source: Brand Finance (https://brandirectory.com).
Note: Rank corresponds to within economy ranks.

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.