



# Global Innovation Index 2021



## REPUBLIC OF KOREA

**5th**

The Republic of Korea ranks 5th among the 132 economies featured in the GII 2021.

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 the Republic of Korea 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 the Republic of Korea in the GII 2021 is between ranks 3 and 5.

### Rankings for the Republic of Korea (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	5	9	5
2020	10	10	10
2019	11	10	13

- The Republic of Korea performs better in innovation outputs than innovation inputs in 2021.
- This year the Republic of Korea ranks 9th in innovation inputs, higher than both 2020 and 2019.
- As for innovation outputs, The Republic of Korea ranks 5th. This position is higher than both 2020 and 2019.

**5th**

Korea ranks 5th among the 51 high-income group economies.

**1st**

Korea ranks 1st among the 17 economies in South East Asia, East Asia, and Oceania.

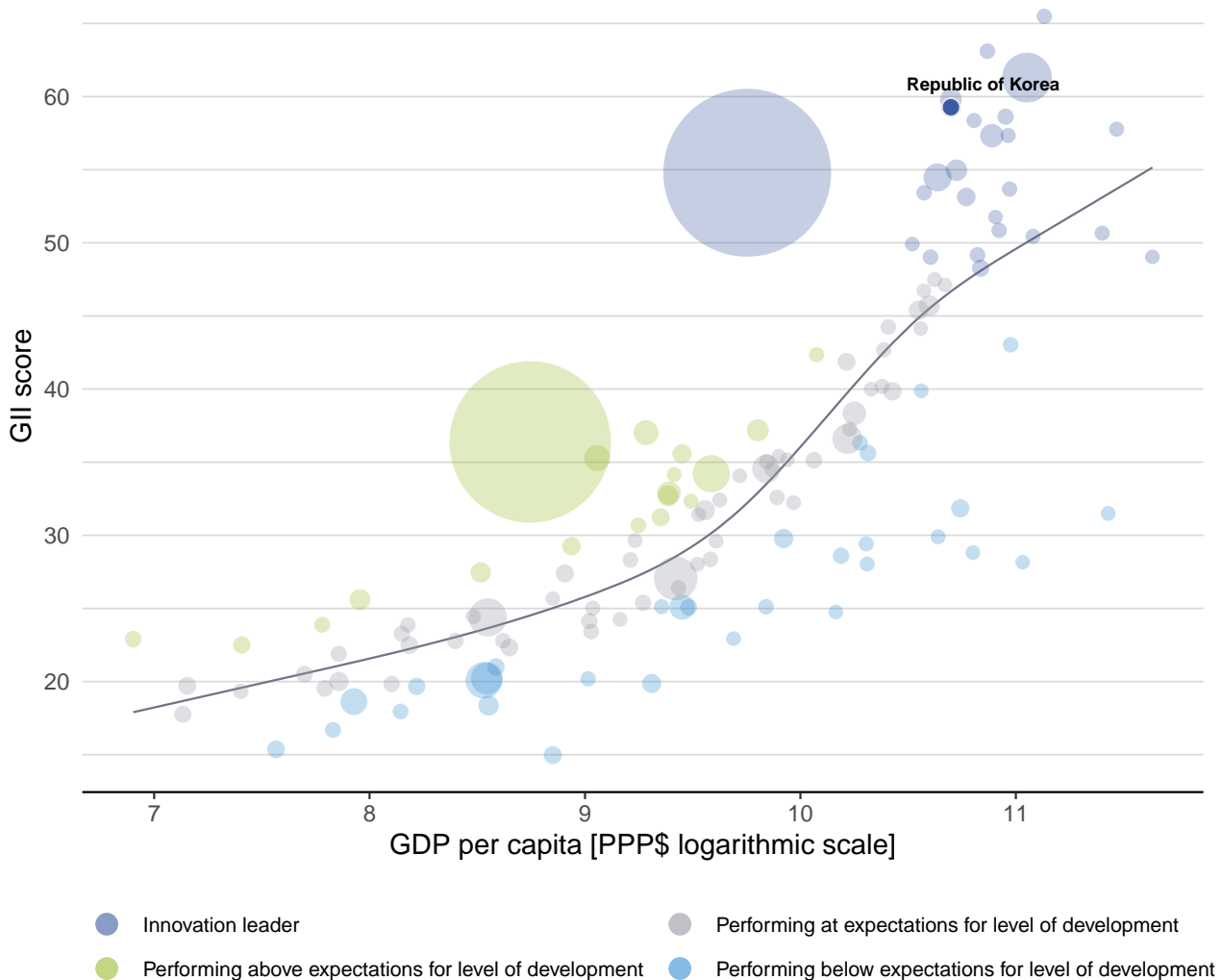


## EXPECTED VS. OBSERVED INNOVATION PERFORMANCE

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, the Republic of Korea's performance is above expectations for its level of development.

### The positive relationship between innovation and development



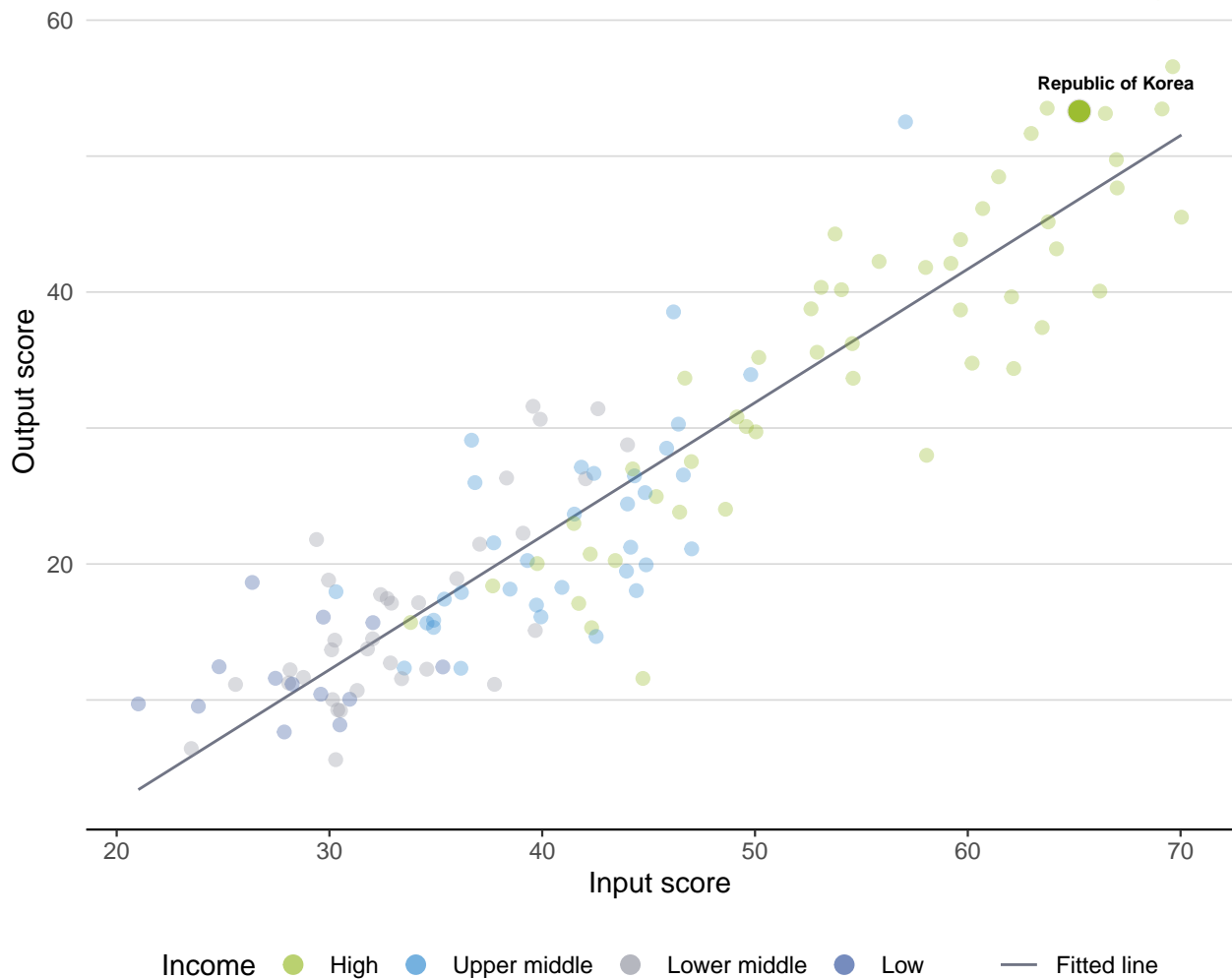


## EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

The Republic of Korea produces more innovation outputs relative to its level of innovation investments.

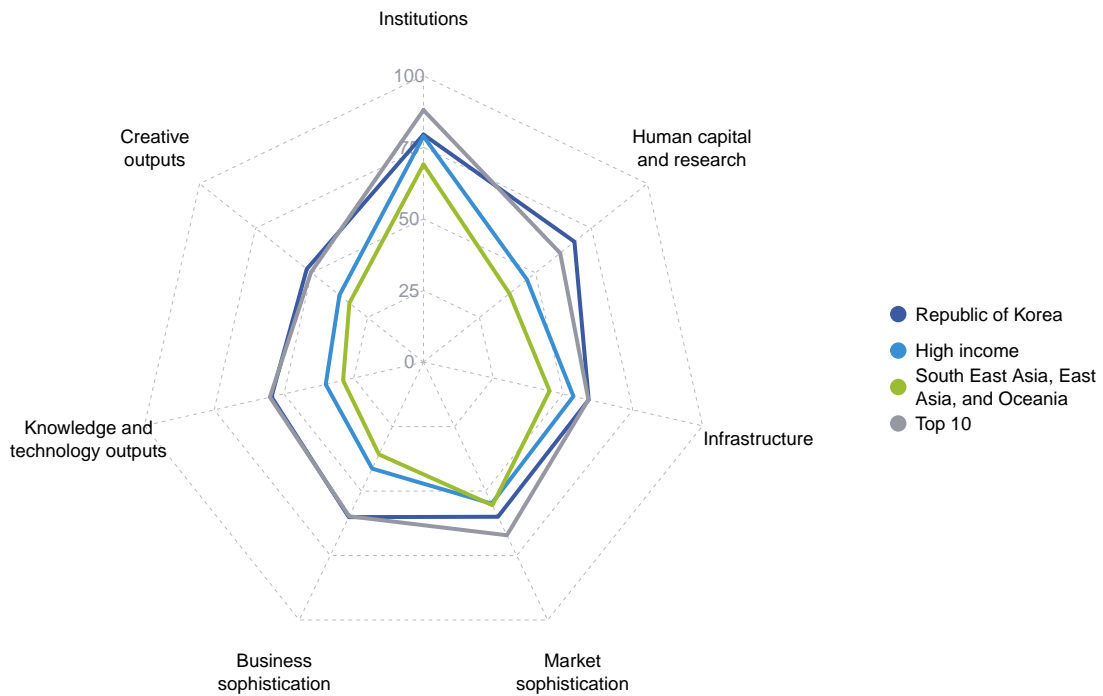
### Innovation input to output performance





# BENCHMARKING AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND SOUTH EAST ASIA, EAST ASIA, AND OCEANIA

## The seven GII pillar scores for the Republic of Korea

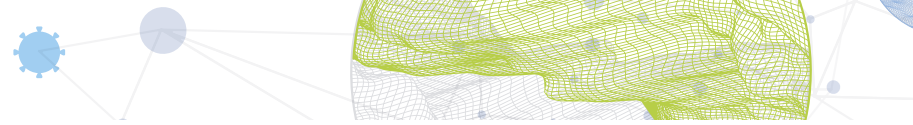


### High-income group economies

The Republic of Korea performs above the high-income group average in all GII pillars.

### South East Asia, East Asia, and Oceania

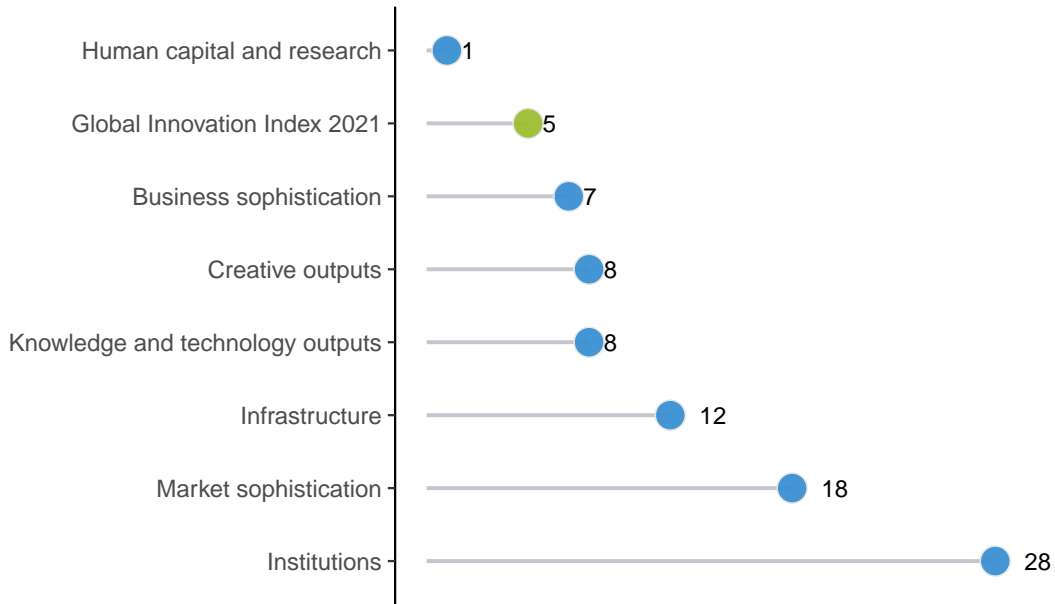
The Republic of Korea performs above the regional average in all GII pillars.



## OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

The Republic of Korea performs best in Human capital and research and its weakest performance is in Institutions.

### The seven GII pillar ranks for the Republic of Korea



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



## INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of the Republic of Korea in the GII 2021.

### Strengths and weaknesses for the Republic of Korea

Strengths			Weaknesses		
Code	Indicator name	Rank	Code	Indicator name	Rank
2.3	Research and development (R&D)	1	1.2.3	Cost of redundancy dismissal	110
2.3.1	Researchers, FTE/mn pop.	1	2.2.3	Tertiary inbound mobility, %	71
2.3.2	Gross expenditure on R&D, % GDP	2	3.3.1	GDP/unit of energy use	95
2.3.3	Global corporate R&D investors, top 3, mn US\$	4	4.1.1	Ease of getting credit	61
3.1	Information and communication technologies (ICTs)	1	4.2.4	Venture capital recipients, deals/bn PPP\$ GDP	63
3.1.3	Government's online service	1	4.3.1	Applied tariff rate, weighted avg., %	82
3.1.4	E-participation	1	5.3.3	ICT services imports, % total trade	104
5.1	Knowledge workers	1	5.3.4	FDI net inflows, % GDP	111
5.1.3	GERD performed by business, % GDP	2	6.3.4	ICT services exports, % total trade	85
5.1.4	GERD financed by business, %	3	7.2.4	Printing and other media, % manufacturing	100
5.2.5	Patent families/bn PPP\$ GDP	1			
5.3.5	Research talent, % in businesses	1			
6.1.1	Patents by origin/bn PPP\$ GDP	1			
6.1.2	PCT patents by origin/bn PPP\$ GDP	1			
6.3.2	Production and export complexity	3			
6.3.3	High-tech exports, % total trade	1			
7.1	Intangible assets	1			
7.1.3	Industrial designs by origin/bn PPP\$ GDP	1			

# Republic of Korea

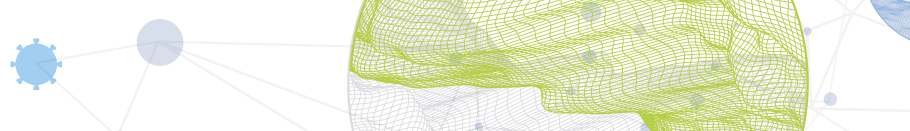
GII 2021 rank

**5**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP\$ (bn)	GDP per capita, PPP\$	GII 2020 rank
5	9	High	SEAO	51.3	2,293.5	44,292	10

	Score/ Value	Rank		Score/ Value	Rank
<b>Institutions</b>	79.5	28	<b>Business sophistication</b>	60.1	7
<b>1.1 Political environment</b>	82.1	18	<b>5.1 Knowledge workers</b>	78.1	1 ●◆
1.1.1 Political and operational stability*	83.9	13	5.1.1 Knowledge-intensive employment, %	39.1	28 ◊
1.1.2 Government effectiveness*	81.2	21	5.1.2 Firms offering formal training, %	n/a	n/a
<b>1.2 Regulatory environment</b>	68.2	57 ◊	5.1.3 GERD performed by business, % GDP	3.7	2 ●◆
1.2.1 Regulatory quality*	71.5	29 ◊	5.1.4 GERD financed by business, %	76.9	3 ●◆
1.2.2 Rule of law*	78.2	23	5.1.5 Females employed w/advanced degrees, %	20.2	30
1.2.3 Cost of redundancy dismissal	27.4	110 ◊◊	<b>5.2 Innovation linkages</b>	48.3	15
<b>1.3 Business environment</b>	88.1	10	5.2.1 University-industry R&D collaboration†	62.5	18
1.3.1 Ease of starting a business*	93.4	31	5.2.2 State of cluster development and depth†	61.6	24
1.3.2 Ease of resolving insolvency*	82.9	10	5.2.3 GERD financed by abroad, % GDP	0.1	46
			5.2.4 Joint venture/strategic alliance deals/bn PPP\$ GDP	0.0	37 ◊
			5.2.5 Patent families/bn PPP\$ GDP	11.0	1 ●◆
<b>Human capital and research</b>	67.4	1 ●◆	<b>5.3 Knowledge absorption</b>	54.0	8
<b>2.1 Education</b>	61.5	22	5.3.1 Intellectual property payments, % total trade	1.5	25
2.1.1 Expenditure on education, % GDP	4.6	55	5.3.2 High-tech imports, % total trade	15.9	11
2.1.2 Government funding/pupil, secondary, % GDP/cap	28.4	11 ◆	5.3.3 ICT services imports, % total trade	0.5	104 ◊◊
2.1.3 School life expectancy, years	16.5	26	5.3.4 FDI net inflows, % GDP	0.8	111 ◊
2.1.4 PISA scales in reading, maths and science	519.7	6	5.3.5 Research talent, % in businesses	82.3	1 ●◆
2.1.5 Pupil-teacher ratio, secondary	12.6	53			
<b>2.2 Tertiary education</b>	51.0	13	<b>Knowledge and technology outputs</b>	54.5	8
2.2.1 Tertiary enrolment, % gross	95.9	4 ◆	<b>6.1 Knowledge creation</b>	66.1	7
2.2.2 Graduates in science and engineering, %	29.3	18	6.1.1 Patents by origin/bn PPP\$ GDP	74.5	1 ●◆
2.2.3 Tertiary inbound mobility, %	2.7	71 ◊◊	6.1.2 PCT patents by origin/bn PPP\$ GDP	8.7	1 ●◆
<b>2.3 Research and development (R&amp;D)</b>	89.8	1 ●◆	6.1.3 Utility models by origin/bn PPP\$ GDP	2.2	11
2.3.1 Researchers, FTE/mn pop.	8,407.8	1 ●◆	6.1.4 Scientific and technical articles/bn PPP\$ GDP	30.0	29
2.3.2 Gross expenditure on R&D, % GDP	4.6	2 ●◆	6.1.5 Citable documents H-index	45.1	17
2.3.3 Global corporate R&D investors, top 3, mn US\$	90.2	4 ●◆	<b>6.2 Knowledge impact</b>	40.0	23
2.3.4 QS university ranking, top 3*	74.9	9	6.2.1 Labor productivity growth, %	1.1	41
			6.2.2 New businesses/th pop. 15–64	2.6	51
			6.2.3 Software spending, % GDP	0.2	66 ◊
			6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP	6.2	45
			6.2.5 High-tech manufacturing, %	59.1	5
			<b>6.3 Knowledge diffusion</b>	57.2	7
			6.3.1 Intellectual property receipts, % total trade	1.2	18
			6.3.2 Production and export complexity	92.6	3 ●◆
			6.3.3 High-tech exports, % total trade	24.1	1 ●◆
			6.3.4 ICT services exports, % total trade	0.9	85 ◊
<b>Infrastructure</b>	59.2	12	<b>Creative outputs</b>	52.1	8
<b>3.1 Information and communication technologies (ICTs)</b>	94.8	1 ●◆	<b>7.1 Intangible assets</b>	74.1	1 ●◆
3.1.1 ICT access*	90.0	8	7.1.1 Trademarks by origin/bn PPP\$ GDP	99.1	8 ◆
3.1.2 ICT use*	89.1	5 ◆	7.1.2 Global brand value, top 5,000, % GDP	191.6	5
3.1.3 Government's online service*	100.0	1 ●◆	7.1.3 Industrial designs by origin/bn PPP\$ GDP	26.6	1 ●◆
3.1.4 E-participation*	100.0	1 ●	7.1.4 ICTs and organizational model creation†	64.0	32 ◊
<b>3.2 General infrastructure</b>	49.4	11	<b>7.2 Creative goods and services</b>	32.4	20
3.2.1 Electricity output, GWh/mn pop.	11,358.9	11	7.2.1 Cultural and creative services exports, % total trade	0.6	40
3.2.2 Logistics performance*	72.7	25	7.2.2 National feature films/mn pop. 15–69	12.5	13
3.2.3 Gross capital formation, % GDP	31.3	23 ◆	7.2.3 Entertainment and media market/th pop. 15–69	51.7	16
<b>3.3 Ecological sustainability</b>	33.4	50 ◊	7.2.4 Printing and other media, % manufacturing	0.3	100 ◊◊
3.3.1 GDP/unit of energy use	7.7	95 ◊	7.2.5 Creative goods exports, % total trade	3.6	14
3.3.2 Environmental performance*	66.5	28	<b>7.3 Online creativity</b>	28.1	37 ◊
3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP	2.6	33	7.3.1 Generic top-level domains (TLDs)/th pop. 15–69	8.2	43 ◊
			7.3.2 Country-code TLDs/th pop. 15–69	8.2	43 ◊
			7.3.3 Wikipedia edits/mn pop. 15–69	61.8	48 ◊
			7.3.4 Mobile app creation/bn PPP\$ GDP	32.5	14
<b>Market sophistication</b>	60.0	18			
<b>4.1 Credit</b>	64.2	12			
4.1.1 Ease of getting credit*	65.0	61 ◊			
4.1.2 Domestic credit to private sector, % GDP	151.7	8			
4.1.3 Microfinance gross loans, % GDP	n/a	n/a			
<b>4.2 Investment</b>	31.5	65 ◊			
4.2.1 Ease of protecting minority investors*	74.0	24			
4.2.2 Market capitalization, % GDP	91.6	15			
4.2.3 Venture capital investors, deals/bn PPP\$ GDP	0.1	34 ◊			
4.2.4 Venture capital recipients, deals/bn PPP\$ GDP	0.0	63 ◊◊			
<b>4.3 Trade, diversification, and market scale</b>	84.2	16			
4.3.1 Applied tariff rate, weighted avg., %	4.8	82 ◊			
4.3.2 Domestic industry diversification	97.3	14			
4.3.3 Domestic market scale, bn PPP\$	2,293.5	14			

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 IV 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 the Republic of Korea.

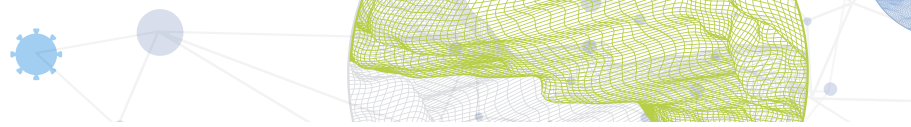
### Missing data for the Republic of Korea

Code	Indicator name	Economy year	Model year	Source
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange
5.1.2	Firms offering formal training, %	n/a	2019	World Bank

### Outdated data for the Republic of Korea

Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	2018	2019	UNESCO Institute for Statistics
4.2.2	Market capitalization, % GDP	2018	2019	World Federation of Exchanges
4.3.1	Applied tariff rate, weighted avg., %	2018	2019	World Bank
6.2.2	New businesses/th pop. 15–64	2016	2018	World Bank
7.2.4	Printing and other media, % manufacturing	2017	2018	United Nations Industrial Development Organization

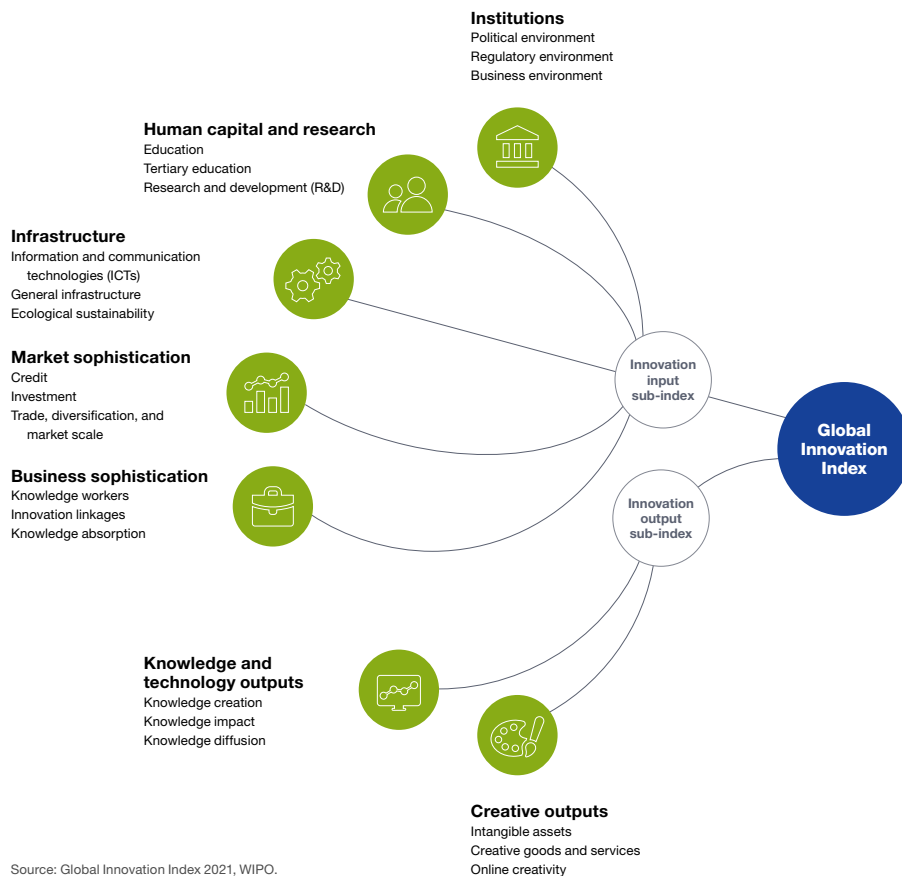




## ABOUT THE GLOBAL INNOVATION INDEX

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.



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.