

South Korea's COVID-19 Response



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Some Background Information of South Korea (KR)

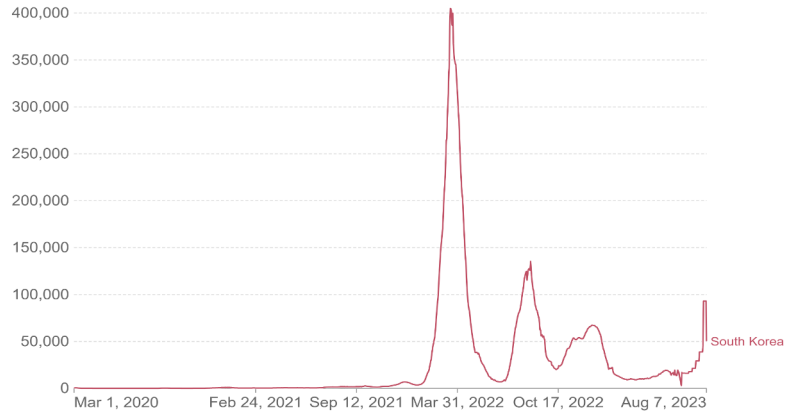
- Population: 51,764,822 as of 2019
- Gross domestic product (GDP) per capita: US\$31,640 as of 2019
- Education attainment level: 51.8% of individuals aged 25 - 64 years completed tertiary education as of 2015
 - The shares for primary schooling and secondary education: 3.7% and 44%
- Drastic demographic transition
 - Population aging: #2 oldest country in the world by 2050 (#1: HK, #3: Japan)
 - Low total fertility rate: 0.78 as of 2022 (the second lowest in the world)
 - Steady increases in the share of foreigner and foreign workers
 - The share increased from 0.7% to 4.9% between 1998 and 2019
 - Mainly work in low paying jobs

KR's COVID-19 Pandemic Experience

- Recorded its first Covid-19 case on January 20, 2020, and its first coronavirus death on February 20, 2020
 - Declared Daegu and three cities and counties of Gyeongbuk as special disaster zones on March 15, 2020

Daily new confirmed COVID-19 cases

7-day rolling average. Due to limited testing, the number of confirmed cases is lower than the true number of infections.



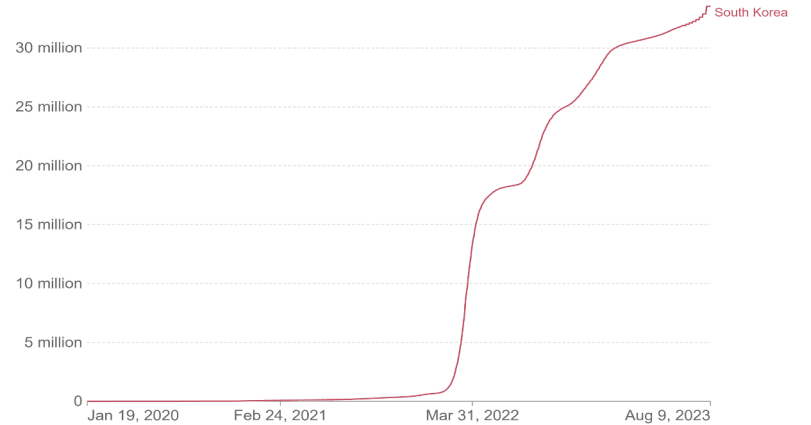
Source: WHO COVID-19 Dashboard

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Cumulative confirmed COVID-19 cases

Due to limited testing, the number of confirmed cases is lower than the true number of infections.



Source: WHO COVID-19 Dashboard

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KR's COVID-19 Pandemic Experience

Daily new confirmed COVID-19 deaths

7-day rolling average. Due to varying protocols and challenges in the attribution of the cause of death, the number of confirmed deaths may not accurately represent the true number of deaths caused by COVID-19.

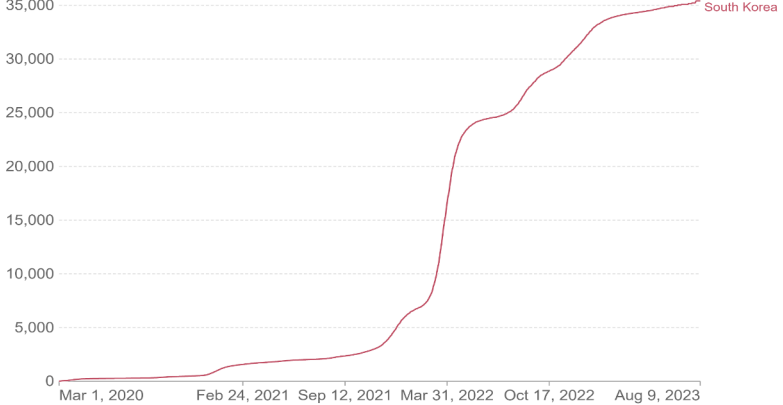


Source: WHO COVID-19 Dashboard

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Cumulative confirmed COVID-19 deaths

Due to varying protocols and challenges in the attribution of the cause of death, the number of confirmed deaths may not accurately represent the true number of deaths caused by COVID-19.



Source: WHO COVID-19 Dashboard

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KR's COVID-19 Pandemic Experience

- COVID-19 deaths per million population (OWID):
 - 900, 4,725, and 26,647 in 2020, 2021, and 2022
 - Total of 32,272 death by the end of 2022
 - 17, 91, 514 per million in 2020, 2021, and 2022

	South Korea	Singapore	Chile	Japan	United States
2020	17	5	842	28	1,041
2021	91	147	1,153	121	1,381
2022	514	157	1,227	316	786
Total	622	309	3,222	465	3,208

Unique Aspect of the Korean Government Response

- Lessons from the SARS and MERS epidemic
 - Establishment and Strengthening of the Korea Centers for Disease Control and Prevention (KCDC) after SARS
 - Securing Isolation Wards and Negative Pressure Rooms after MERS
- Government Strategy during COVID-19
 - Recorded its first COVID-19 case on January 20, 2020, and its first coronavirus death on February 20, 2020
 - **KR never imposed the large scale lockdown**
 - Employed 3T Strategy (Testing, Tracing, and Treatment with isolation)
 - Through public-private partnerships, Korea established a nationwide testing system
 - All confirmed cases were isolated in the designated hospitals or newly established “residential treatment centres”, based on the severity of the case at triage
 - Adopted innovative digital technology, such as comprehensive data collection and tracing/tracking supporting systems and the use of QR codes for entry regulations to indoor places

Pandemic Policy Context

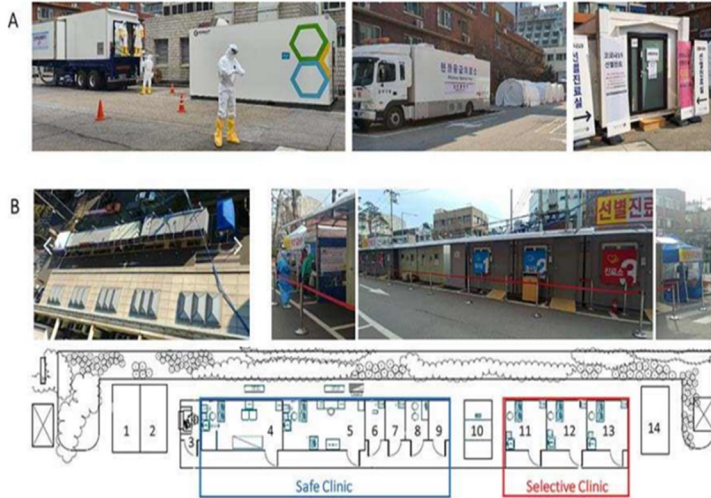


Fig . Examples of selective clinics in South Korea. Note: Picture A. A selective clinic outside the National Medical Center. From left to right, waiting rooms for the selective clinic; entrance of selective clinic; chest X-ray truck; and a computed tomography (CT) truck on the left and a generator for the CT truck. Picture B. A safe clinic and a selective clinic located outside Soonchunhyang University Seoul Hospital. Floor plan B. (1) Waiting area for a safe clinic, (2) Waiting area for a pediatric safe clinic, (3) Questionnaire checking and registration desk, (4) Negative-pressure safe clinic room, (5) Negative-pressure safe clinic room for pediatric patients, (6) Negative-pressure donning personal protective equipment (PPE) room, (7) Negative-pressure sputum-collecting room, (8) Waiting room for health care personnel, (9) Donning PPE room, (10) Restrooms, (11) Negative-pressure test laboratory 1, (12) Negative-pressure test laboratory 2, (13) Negative-pressure selective clinic, and (14) Waiting area for selective clinic. All pictures were provided by coauthors at the above mentioned hospitals.

Source: Kang et al.(2020)



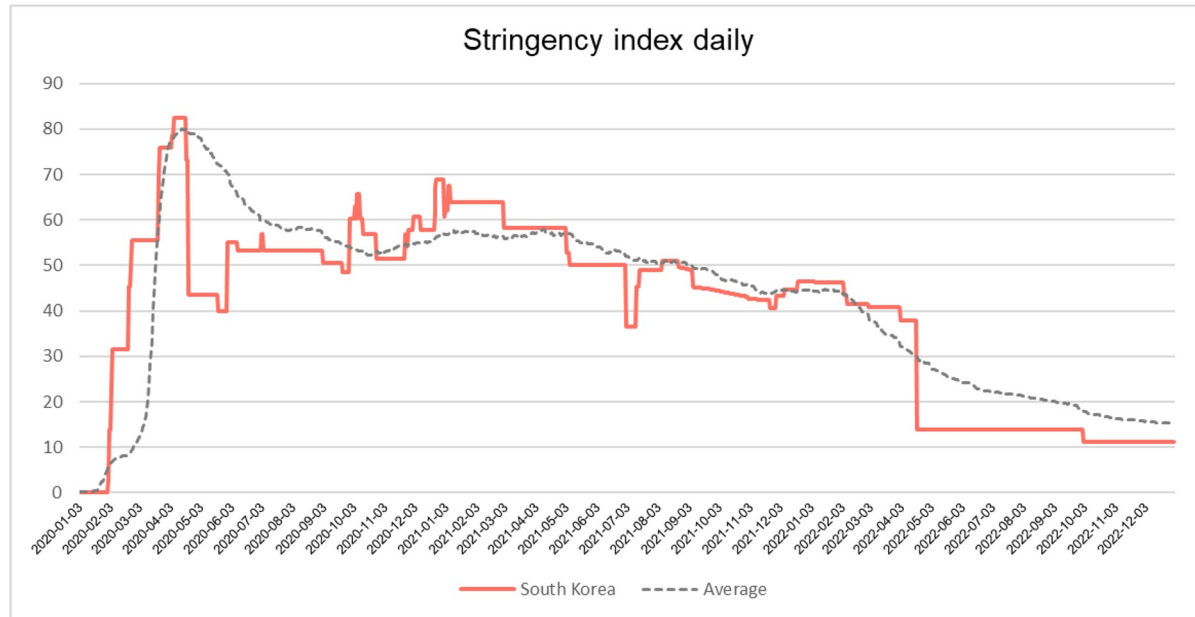
Source: SEOUL CREDIT GUARANTEE FOUNDATION (2020)

Pandemic Policy Context

- Social distancing measures (Feb 2020 - Apr 2022)
 - Facial masking
 - Oct 2020 and Apr 2021: wearing of masks became mandatory primarily in multi-purpose facilities and all indoor areas and some outdoor areas
 - Sep 2022 and Jan 2023: the mandatory mask-wearing for outdoors and indoor was lifted
 - Quarantine
 - COVID-19 patients and close contacts should undergo self-quarantine for 14 days in the early stage of COVID-19
 - It was reduced to 10, 7, 5 days in Nov 2021, Jan 2022, and May 2023

Pandemic Policy Context

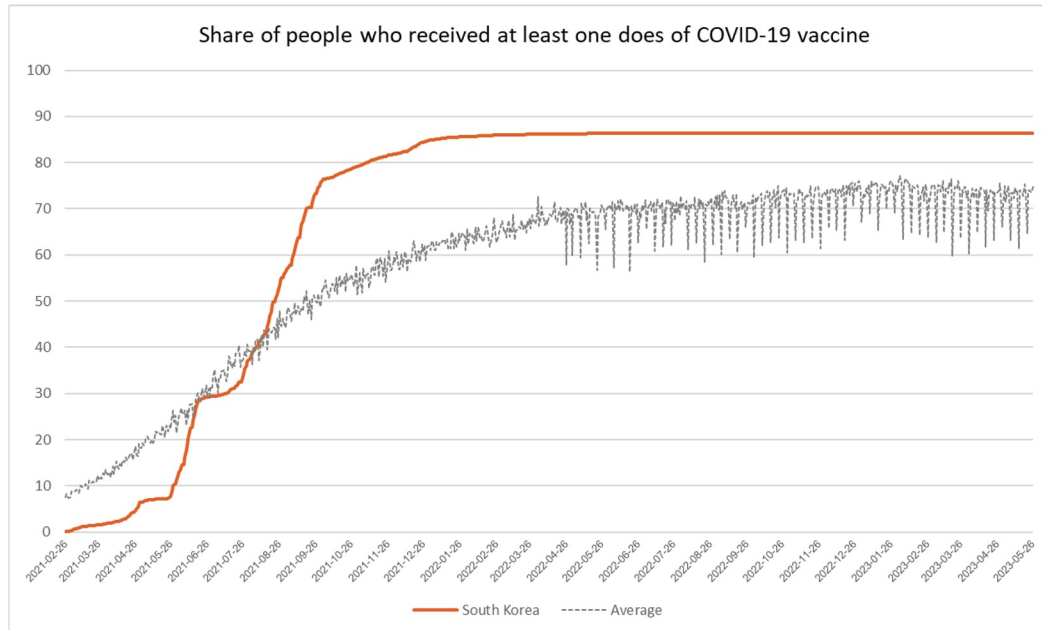
- Stringency Index weighted by vaccinated and non-vaccinated population
 - Compared to other countries (e.g. SG), more frequent adjustments of the stringency of government response



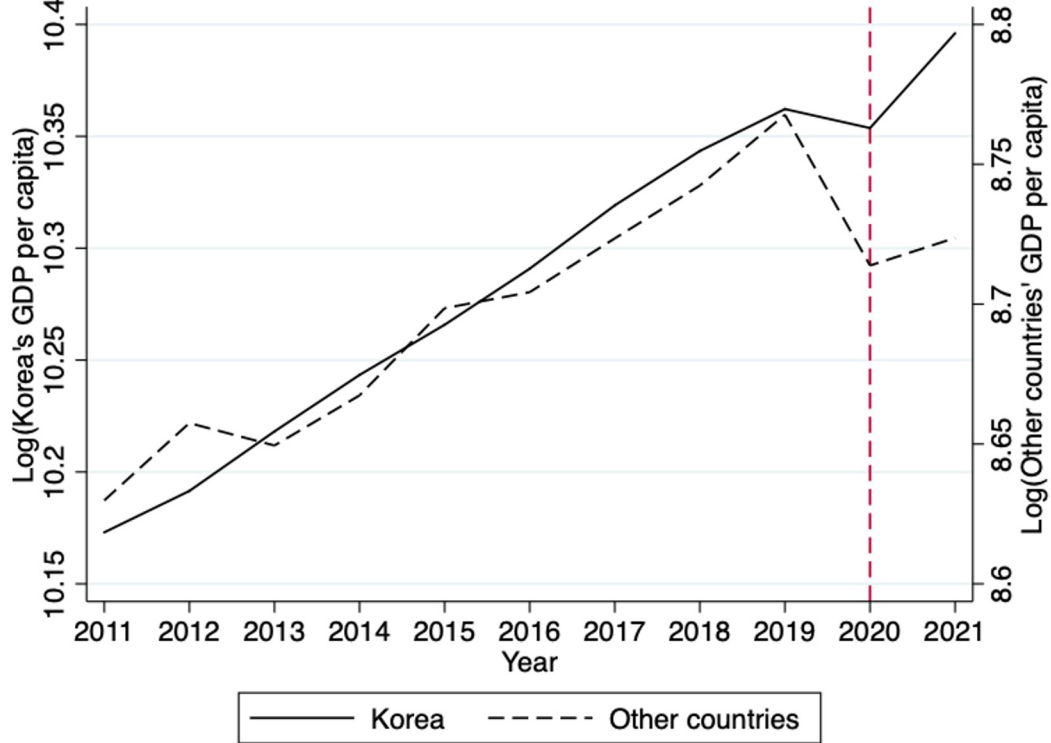
Source: Our World In Data

Pandemic Policy Context

- 26 February 2021: COVID-19 vaccination campaign started
 - Care facilities, healthcare professionals, and related personnel are the first vaccine recipients



Economic Impacts



Economic Impacts

Year	Unemployment rate	Average real monthly wage per worker	Median monthly household income	GDP growth rate	Inflation
2019	3.40%	3,155 hundred won	3,877 thousand won	2.2%	0.40%
2020	4.10%	3,180 hundred won	4,030 thousand won	-0.7%	0.50%
2021	3.50%	3,191 hundred won	4,185 thousand won	4.1%	2.50%
2022	3.00%	3,274 hundred won	-	2.6%	5.10%

Source 1) Economically Active Population Survey, 2022

2) MOEI, 2023

3) Statistics Korea, 2023

4) World bank, 2023

Economic Impacts of Small-scale Lockdowns

- The economic impact of South Korea's targeted responses to the local COVID-19 clusters in a highly concentrated business area (Guro) and a highly concentrated entertainment area (Itaewon) in Seoul
 - The reductions appear to be driven by temporary business closures rather than by citizens' risk avoidance behavior
 - However, the adverse economic impacts measured by foot traffic and retail sales of another outbreak of the COVID-19 cluster in Itaewon were persistent.

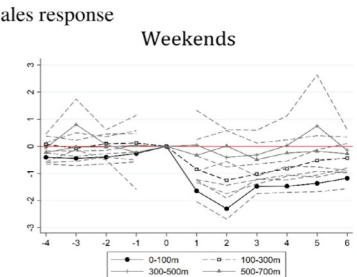
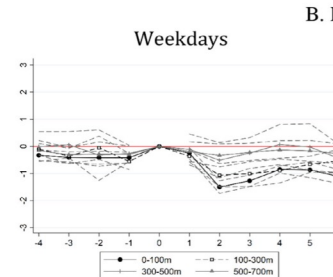
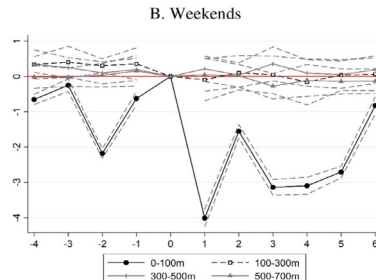
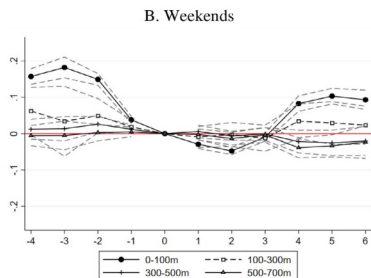
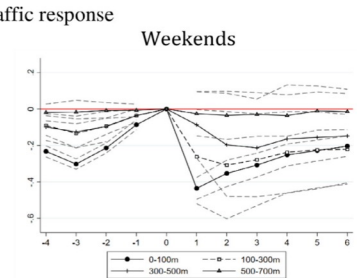
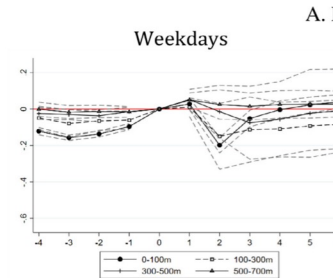
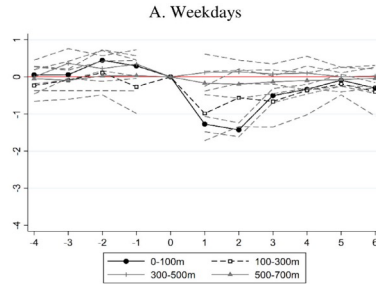
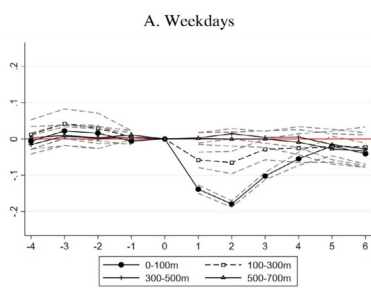


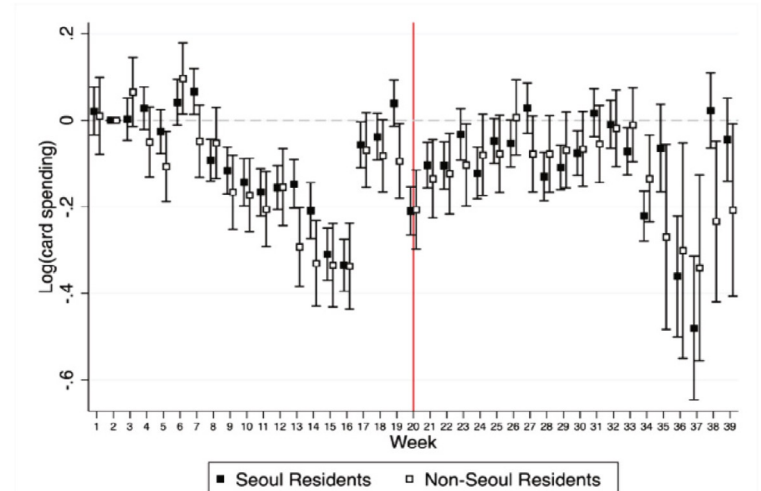
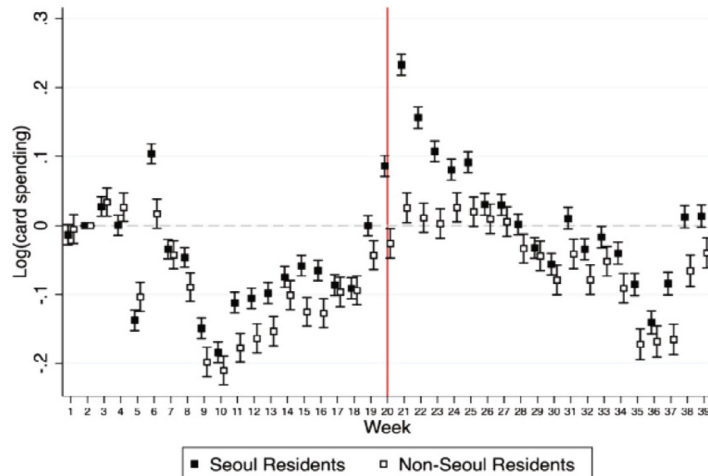
Fig. Foot traffic response to the Guro call center cluster

Fig. Retail sales response to the Guro call center cluster

Fig. Foot traffic and retail sales responses to Itaewon cluster.

Economic Impacts of Stimulus Payments

- Economic assistance or stimulus program
 - On April 30, 2020, the National Assembly passed a law that authorized Korea's first-ever nationwide economic stimulus payment program to cushion the negative impact of the COVID-19 outbreak and boost the economy
 - Households did not consider the stimulus payments fungible and that stimulus payments discontinuously increased Seoul residents' card spending only in allowed sectors



Economic Impacts

- COVID-19 Relief Funds

	First round	Second round	Third round	Fourth round	Fifth round
Recipients	National (Up to 1 million won for a 4-person household)	Small business owners, freelancers, special form workers, child care, unemployed youth, etc (1.5 - 2 million won)	Small business owners, self-employed, visiting and caring service workers, etc (0.5 - 1 million won)	Small business owners, self-employed, corporate taxi driver, etc (0.5 - 1 million won)	Bottom 80% of income (0.25 million won per person)
Date	May 2020	Sep 2020	Jan 2021	March 2021	Sep 2021
Amount	14.3 trillion won	7.8 trillion won	9.3 trillion won	20.7 trillion won	10.4 trillion won

- Emergency Employment Security Support Fund

- The Support program was financial aid to special form workers, freelancers, small self-employed individuals, and those on unpaid leave, who have faced economic difficulties due to COVID-19
- It has been provided six times, and the average amount given is between 0.5 million to 2 million won per person.

Social Impacts

Year	Crime cases (unit: 100,000 population)	Homicide rate (unit: 100,000 population)	Crude birth rate (unit: per 1,000 population)	Crude divorce rate (unit: per 1,000 residents)	Crude marriage rate (unit: per 1,000 residents)
2019	2,012	1.6	5.9	2.2	4.7
2020	2,015	1.6	5.3	2.1	4.2
2021	1,774	1.3	5.1	2	3.8
2022	-	-	-	-	-

Source 1) PS, 2022

2) Statistics Korea, 2022

Social Impacts

- Mental health
 - Based on the survey on the mental health of the citizens during the COVID-19, the percentage of respondents in the at-risk group for depression was 17.5% of respondents in March 2020 (MOHW, 2022)
 - It increased to 22.8% in March 2021 but decreased to 16.9% in June 2022, showing a trend of gradual stabilization

Discussion and Conclusion

- Without hard lockdowns, the 3T strategy appears to be effective to control for the spread of disease at least first two years of the pandemic
 - Underlying technology and health care capacity matter - Korean government's previous experiences with the SARS and MERS could be crucial
 - It might not be effective for a prolonged pandemic
 - We need the game changer - vaccination was little too late
- Government response discouraged economic activities and could have resulted in a recession
 - KR experienced relatively mild economic losses
 - School closure could result in long-term adverse consequences in human capital accumulation and inequality
 - Use of tax revenue for the stimulation of the economy - more targeted approach such as wage/rent support might be efficient
- Without consideration of social impacts, the overall costs of society can be underestimated
 - KR appears to experience relatively mild social impacts

Appendix

More Background Information of South Korea

- Demography of the country
 - Population (based on OECD): 51,764,822 as of 2019 - accompanied with quick growth in aging population
 - Mortality (based on WDI): The number of deaths per 1,000 people was 5.7 as of 2019
 - Education attainment level (Barro and Lee, 2013): The shares of individuals with primary schooling, secondary schooling, and tertiary schooling were 3.7%, 44%, and 51.8% as of 2015
 - Unemployed rate (WDI): 3.75 % as of 2019
- Political system and culture
 - The president and the National Assembly (parliament) are directly elected.
 - Democracy index ranges from 7.88 in 2008 to 8.16 in 2021 (EIU, 2022)
 - The democracy index is composed of 1) electoral process and pluralism, 2) functioning of government, 3) political participation, 4) political culture, and 5) civil liberties
 - A measure of the quality of democratic governance (functioning of government) and political participation, assigning importance to the degree of popular sovereignty exercised

More Background Information of South Korea

- Economy and industry
 - Korea's gross domestic product (GDP) per capita was US\$31,640 as of 2019
 - Major industries: manufacturing (particularly automobile, shipbuilding, steel), information and communication devices, secondary batteries
- Healthcare system
 - The National Health Insurance (NHI) system provides healthcare coverage to all citizens
 - The medical aid program is a form of public assistance that uses government subsidies to provide low-income groups with healthcare services
- The role of guest workers in the nation
 - Foreigner workers are recruited in industries facing a labor shortage
 - The number of foreign residents residing in South Korea was about 2.22 million, accounting for approximately 4.3% of the total population
 - Among them, the number of individuals who qualify as foreign workers without Korean citizenship is 515,051

More Background Information of South Korea

- Other social system
 - Four social insurance programs: National Pension, National Health Insurance, Employment Insurance, and Workers' Compensation Insurance
 - Education: All South Korean citizens must attend elementary and middle schools unless an exemption is granted
- International relationships
 - As of June 2020, South Korea maintains diplomatic relations in 191 countries
 - The top 5 export partners were China, the United States, Vietnam, Hong Kong, and Japan in 2020 (WITS, 2020).
 - The top 5 import partners were China, the United States, Japan, Germany, and Vietnam in 2020 (WITS, 2020).

Pandemic Policy Context

Four levels of social distancing measures

- Level 1
 - The average number of daily cases per 100,000 people is less than one and the nationwide total is below 500
 - Compliance with preventive measures against COVID-19 while maintaining everyday life
- Level 2
 - The average number of daily cases per 100,000 people is less than one and the nationwide total is above 500
 - To avoid unnecessary gatherings and to avoid visiting crowded multi-purpose facilities
 - Certain facilities such as entertainment facilities under strict management are required to suspend operations after 9 PM, and gatherings of more than 9 individuals are prohibited, implementing restrictions on the number of people by facilities.
- Level 3
 - The average number of daily cases per 100,000 people is less than two and the nationwide total is above 1,000
 - Restrictions on the operation of non-essential facilities and private gatherings of more than 5 individuals
 - Elementary, middle, and high schools will switch to remote learning, and social welfare facilities are recommended to temporarily close
- Level 4
 - The average number of daily cases per 100,000 people is less than four and the nationwide total is above 2,000
 - Recommended to prohibit gatherings and to stay at home
 - Recommended to refrain from using multi-purpose facilities, and private gatherings are limited to a maximum of 2 individuals after 6 PM

Pandemic Policy Context

- Border restrictions
 - Did not impose a separate entry restriction but implemented border control measures
 - The COVID-19 immigration quarantine policy was lifted from March 11, 2023, for incoming travelers

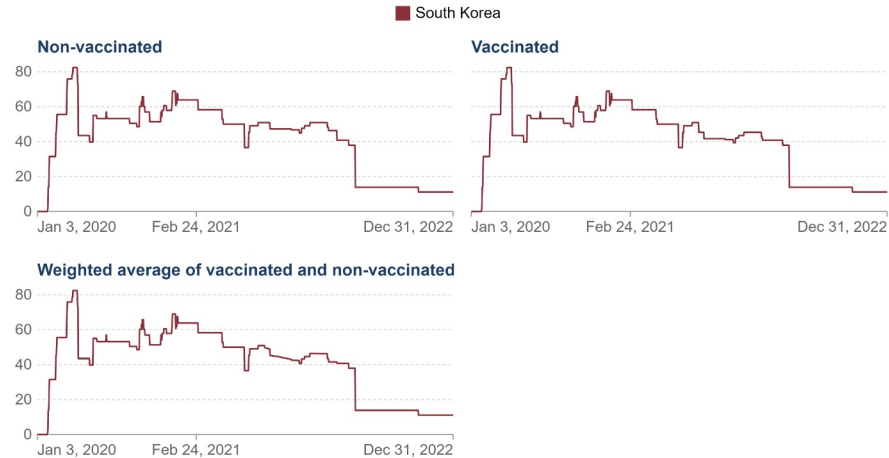
Pandemic Policy Context

- Stringency Index

COVID-19: Stringency Index, South Korea

The stringency index is a composite measure based on nine response indicators including school closures, workplace closures, and travel bans, rescaled to a value from 0 to 100 (100 = strictest).

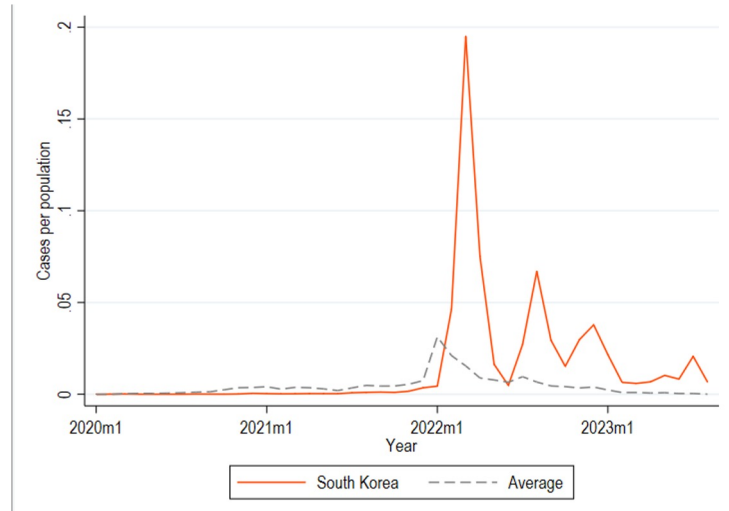
Our World
in Data



Source: Hale, T., Angrist, N., Goldszmidt, R. et al. A global panel database of pandemic policies (Oxford COVID-19 Government Response Tracker). *Nat Hum Behav* 5, 529–538 (2021). <https://doi.org/10.1038/s41562-021-01079-8>
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Health Impacts

- Trend of confirmed COVID-19 cases



Health Impacts

- Excess deaths from other health conditions
 - WHO estimates of excess mortality associated with COVID-19 in 2021 showed that Korea has 12 all-cause excess deaths per 100,000 (WHO, 2022)
- Distribution of COVID-19 deaths among income quintiles
 - The COVID-19 death risk for the bottom 10% income group, the vulnerable population, was more than twice as high as other income brackets

Economic Impacts

- National Debts (balance of government budget)
 - The total central government debt was 769.21 trillion won in 2019, 901.11 trillion won in 2020, and 1.02 quadrillion won in 2021 (Worldbank, 2021)
- Trade balance
 - The trade balance was 38,909 million dollars in 2019 and 45,212 million dollars in 2020 (WITS, 2020)
- GNI
 - GNI was 1.67 trillion US\$ in 2019, 1.66 trillion US\$ in 2020, 1.83 trillion US\$ in 2021, and 1.69 trillion US\$ in 2022 (Worldbank, 2022)