



21-15 Health and Economic Outcomes in South Korea and the United States During the COVID-19 Pandemic

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INTRODUCTION

A commonly held view early in the COVID-19 pandemic period was that countries faced a painful but inescapable tradeoff: They could perform well on the health front—by suppressing the virus and thereby avoiding a horrific toll of hospitalizations and deaths—or they could perform well on the economic front—by keeping establishments open and thereby avoiding mass joblessness and huge reductions in output. They could not do well on both fronts—or so it was generally believed.

The experience of South Korea suggests that it was, in fact, possible to do exceedingly well on the health front while incurring only a moderate cost on the economic front. In contrast, the experience of the United States suggests that it was possible to do poorly on the health front and yet still suffer terrible economic damage. To be sure, the natural circumstances of each country contributed to these relative outcomes, but the choices of policymakers and their respective populaces mattered, too. The stakes were enormous: South Korea performed well; the United States did not.

This Policy Brief first provides an overview of the course of the disease in each country. Section 2 reviews the health outcomes. Section 3 describes the impact of the pandemic on key economic indicators, including real GDP, employment and unemployment, and inflation. Section 4 examines the policy choices that contributed to the outcomes in each country. The key factor contributing to the

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success of South Korea was the effectiveness of the public health measures it implemented, including aggressive testing, contact tracing, quarantining, and graduated treatment of people with COVID-19. The last section summarizes the Policy Brief's main findings and identifies the near-term priorities for both countries.

The constellation of measures taken by the South Koreans turned out to be exceedingly well suited to combating a disease overwhelmingly transmitted by means of aerosols. The initial recommendations from the US health authorities did not reflect a clear understanding that curbing aerosol transmission was crucial. In all likelihood, the US public would not have tolerated a South Korean-style approach to combating the disease, given the relatively intrusive tracing methods and the strict quarantining requirements at the core of that approach. However, in return for their tolerance of such methods, the South Korean public reaped a huge payoff in terms of both health and economic outcomes. In the United States, a fierce adherence to a certain version of personal liberty is an important element of the ethos of a portion of the population. Mask requirements, vaccine mandates and certificates, and quarantine protocols have come to be seen by some as infringements on that version of personal liberty rather than as contributions to social wellbeing. The experience of the past 18 months raises difficult questions about the price American society as a whole sometimes pays in return for respecting that version of personal liberty.

COVID-19 will not be the last global pandemic. For the sake of future generations, it will be important for public health experts, elected representatives, and others in both countries to learn well the lessons of this painful period.

1. OVERVIEW OF THE DISEASE IN SOUTH KOREA AND THE UNITED STATES

Given its proximity to China, it is not surprising that South Korea was among the first countries to detect cases of COVID-19. Perhaps more surprising is that the United States was also an early host of the disease. The first case in South Korea was announced on January 20, 2020.¹ The first case in the United States was announced only a day later, on January 21, 2020.²

The Disease in South Korea

An early epicenter of the disease in South Korea was Daegu. By the end of February 2020, South Korea reached a first peak in daily new cases. This first surge reportedly was caused at least partly by the participation of an infected person in a church gathering in Daegu. After a lull of several months, a second, smaller surge followed in August 2020. The most serious outbreak occurred in December 2020, when the number of daily new cases climbed to a peak of

1 See Central Disaster Management Headquarters, Coronavirus Disease-19, press release, January 20, 2020, http://ncov.mohw.go.kr/tcmBoardView.do?brdId=&brdGubun=&dataGubun=&ncvContSeq=352435&contSeq=352435&board_id=140&gubun=BDJ (in Korean).

2 Centers for Disease Control and Prevention, "First Travel-Related Case of 2019 Novel Coronavirus Detected in United States," Press release, January 21, 2020, www.cdc.gov/media/releases/2020/p0121-novel-coronavirus-travel-case.html.

1,240, aided by a relaxation of social distancing guidelines and a reopening of the economy. As of early June 2021, social gatherings of five or more people were prohibited throughout the country. The Seoul metropolitan area was operating at Level 2 of the national social distancing guidelines, which requires cafes, restaurants, bars, and entertainment-related facilities to close indoor service by 9 pm and schools to limit room occupancy to no more than one-third the normal level.³ Other cities and provinces, which are experiencing a more limited increase in case numbers, are operating at Level 1.5 of the national social distancing guidelines. It requires restaurants and cafes to leave 1 meter distance between tables; no curfew is imposed. As of early June 2021, the daily number of confirmed cases nationwide in South Korea was 500–600, or about 10–12 cases per day per million residents of the country.

The Disease in the United States

The first recorded case in the United States occurred in Washington State. New York State—and especially New York City—absorbed a horrific blow early on. By mid-April 2020, cases had been reported in all 50 states.

Cumulatively, the heaviest concentrations of officially reported cases per capita have been reported in North Dakota, South Dakota, Utah, Tennessee, and Rhode Island. More generally, states in the center of the country and the south have been relatively hard-hit. States on the West Coast, in the mid-Atlantic region (North Carolina, Virginia, West Virginia, Ohio, Pennsylvania, and Delaware) as well as upper New England, and Hawaii have seen lighter caseloads.⁴

As of early June 2021, a little more than half of the US population had received at least one dose of a COVID-19 vaccine.⁵ That fact is credited with driving a substantial decline in cases and deaths. In May, the Centers for Disease Control and Prevention (CDC) announced a substantial relaxation of its social distancing guidelines. In particular, it announced that individuals who have been fully vaccinated are no longer required to wear masks in most circumstances (planes, trains, and healthcare settings being among the exceptions).

The seven-day average number of officially reported new cases per million people has plummeted in the United States from a peak of 750 in mid-January 2021 to about 45 as of early June. As substantial as that progress has been, the case rate in the United States remains about four times higher than the rate in South Korea, where the seven-day average as of early June was about 11.⁶

In the United States, no narrative of the pandemic period would be complete without discussing the disproportionate suffering of Blacks, Hispanics, Native Americans, and other historically marginalized segments of the population. These groups have suffered death and other adverse impacts from the disease at much higher rates than have whites and yet have been vaccinated at lower rates. For

3 For information about South Korea's social distancing level, see <https://masonkorea.gmu.edu/corona/national-regulations-in-korea/social-distancing>.

4 Centers for Disease Control and Prevention COVID Data Tracker, "United States COVID-19 Cases, Deaths, and Laboratory Testing (NAATs) by State, Territory, and Jurisdiction," https://covid.cdc.gov/covid-data-tracker/#cases_casesper100k.

5 Centers for Disease Control and Prevention COVID Data Tracker, "COVID-19 Vaccinations in the United States," <https://covid.cdc.gov/covid-data-tracker/#vaccinations>.

6 Our World in Data, "Coronavirus (COVID-19) Cases," <https://ourworldindata.org/covid-cases>.

example, the age-adjusted death rate from COVID-19 until May 8, 2021 had been 1.9 times higher for Blacks or African Americans than for whites, 2.3 times higher for Hispanics or Latinos than for whites, 2.4 times higher for American Indians or Alaska Natives than for whites, and the same for Asians as for whites.⁷ As of June 7, 44 percent of whites had been vaccinated, compared with 31 percent of Blacks, 35 percent of Hispanics, and 56 percent of Asian Americans.⁸ In South Korea, the population is much more homogeneous than in the United States. The Korea Disease Control and Prevention Agency provides daily statistics of confirmed cases by region, gender, and age but not by ethnicity.

2. HEALTH OUTCOMES IN SOUTH KOREA AND THE UNITED STATES

Relative to the United States, South Korea has been extremely successful in combating the COVID-19 pandemic. Compared with the experience in the United States, the manifestation of the disease in South Korea is barely visible in most charts of data from the two countries. That said, the deaths from COVID-19 in every country have caused great heartache, no matter where or how numerous.

COVID-19 Deaths across Countries

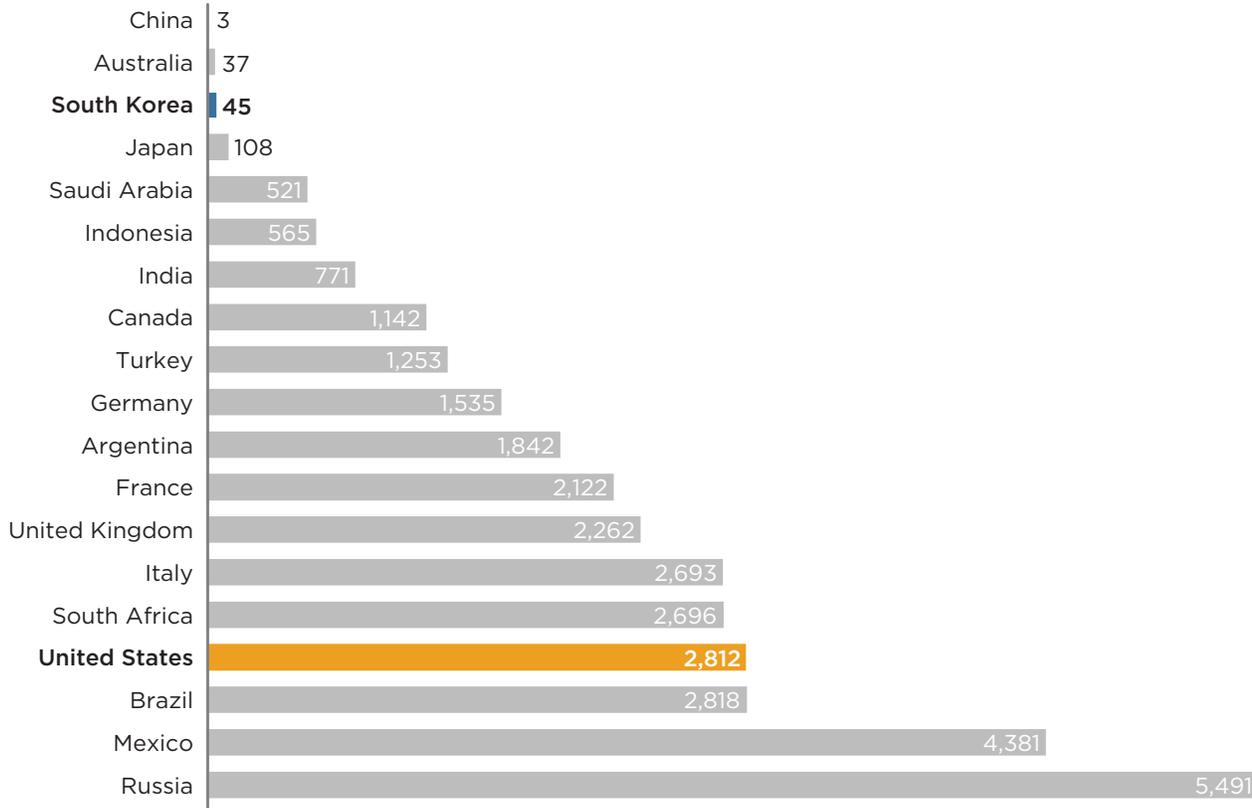
Figure 1 compares the experience of mortality from COVID-19 across countries in the Group of Twenty (G20). These estimates—constructed by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington—attempt to correct for underreporting of mortality from COVID-19; they are intended to put the experience of different countries on a comparable basis.⁹ South Korea ranked 18th of 159 countries in the overall IHME database, with an estimated cumulative total of 45 deaths per million people as of June 11, 2021. The United States ranked 124th, with an estimated cumulative total of 2,812 deaths per million people—62 times the death rate in South Korea.

7 See Centers for Disease Control, “Risk for COVID-19 Infection, Hospitalization, and Death by Race/Ethnicity,” www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html.

8 Nambi Ndugga, Olivia Pham, Latoya Hill, Samantha Artiga, and Noah Parker, “Latest Data on COVID-19 Vaccinations Race/Ethnicity,” Kaiser Family Foundation, June 9, 2021, www.kff.org/coronavirus-covid-19/issue-brief/latest-data-on-covid-19-vaccinations-race-ethnicity/.

9 These estimates are intended to include all deaths from COVID-19, whether officially reported or not. They adjust for various additional influences on mortality over the past 18 months. For example, the estimates attempt to adjust for the fact that traffic fatalities and other forms of death related to mobility have been below normal during the pandemic. On the other hand, deaths from heart attacks and cancer have been above normal, because much normal preventative screening did not take place. The researchers at IHME conclude that globally, the officially reported number of deaths as of early May 2021 captured only about half of the deaths that should have been attributed to COVID-19. The extent of the underestimate varied greatly by country. See Institute for Health Metrics and Evaluation, “Estimation of Total Mortality due to COVID-19,” May 13, 2021, www.healthdata.org/special-analysis/estimation-excess-mortality-due-covid-19-and-scalars-reported-covid-19-deaths.

Figure 1

Estimated cumulative COVID-19 deaths per million people in G20 countries, as of June 11, 2021

Note: The variable shown is “totdea_mean_smoothed_p100k_rate” in the IHME dataset, multiplied by 10. An estimate for the European Union—also a member of the G20—is not available.

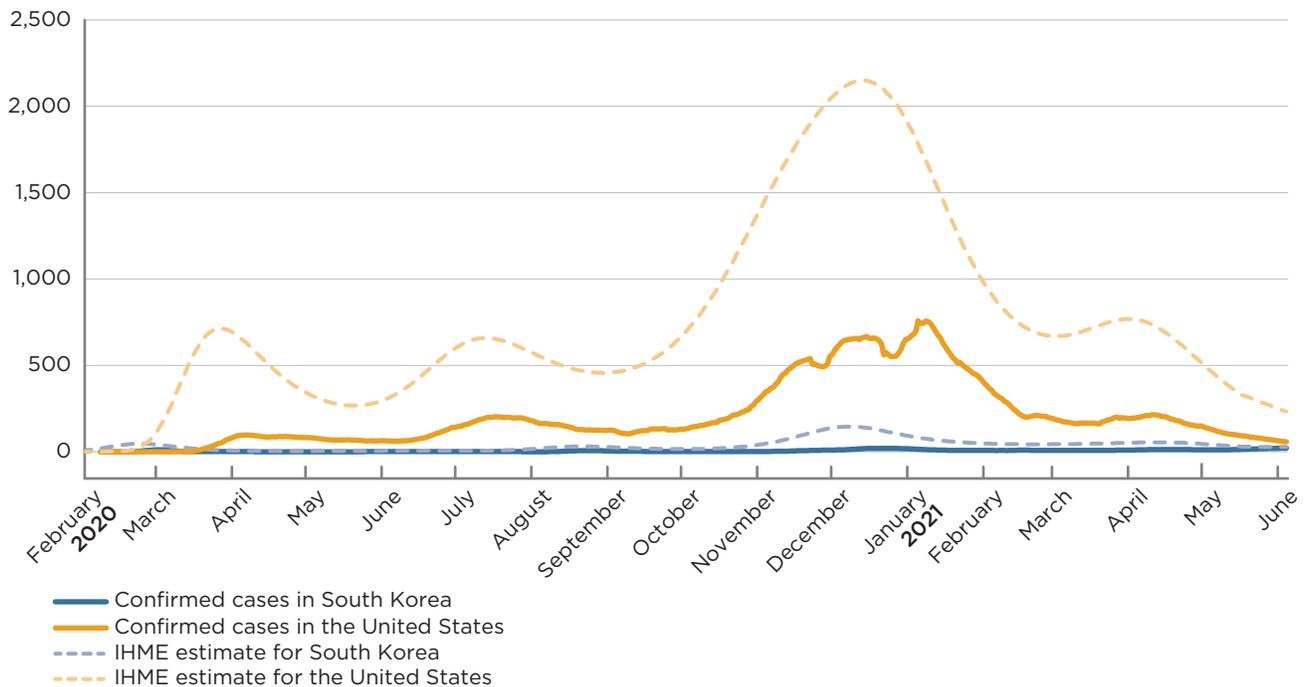
Source: Institute for Health Metrics and Evaluation (IHME), vintage of June 10, 2021.

Daily New Cases in South Korea and the United States

Both South Korea and the United States have experienced several surges of confirmed infections, but the surges in the United States have been vastly larger than in South Korea (figure 2). In South Korea, the highest officially recorded daily rate of new cases was 20 per million people (reached at the end of 2020). As part of its modelling efforts, the IHME attempts to estimate the true number of new infections occurring in the population on any given day.¹⁰ It estimates that the true number of infections in South Korea peaked in December 2020 at about 145 per million.

¹⁰ The true number will generally be considerably bigger than the officially reported number because even in a country with an aggressive testing regimen in place, not all cases will be detected.

Figure 2
Daily new COVID-19 cases per million people in South Korea and the United States, February 2020–June 2021



Note: The variables shown are “confirmed_infections_p100k_rate” and “est_infections_mean_p100k_rate” in the IHME dataset, each multiplied by 10.

Source: Institute for Health Metrics and Evaluation (IHME).

The numbers for the United States are much higher: According to officially reported data, confirmed daily new COVID-19 cases in the United States peaked at about 750 per million people in January 2021; the IHME puts the peak true number of new daily infections at about 2,150 per million. With vaccines having made substantial inroads in the United States, daily new cases have been trending down. As of early June, the case rate had fallen below 300 per million people, according to IHME estimates (below 70 per million according to official statistics).

In South Korea, the number of daily new cases has remained low despite the fact that as of early June, less than 25 percent of the population had received at least one dose of a vaccine and the South Korean government had eased some social distancing requirements. Although mask wearing remains mandatory, restaurants and bars have been allowed to resume indoor seating for customers, and sports and religious events have been allowed to occur at up to 30 percent of full capacity.

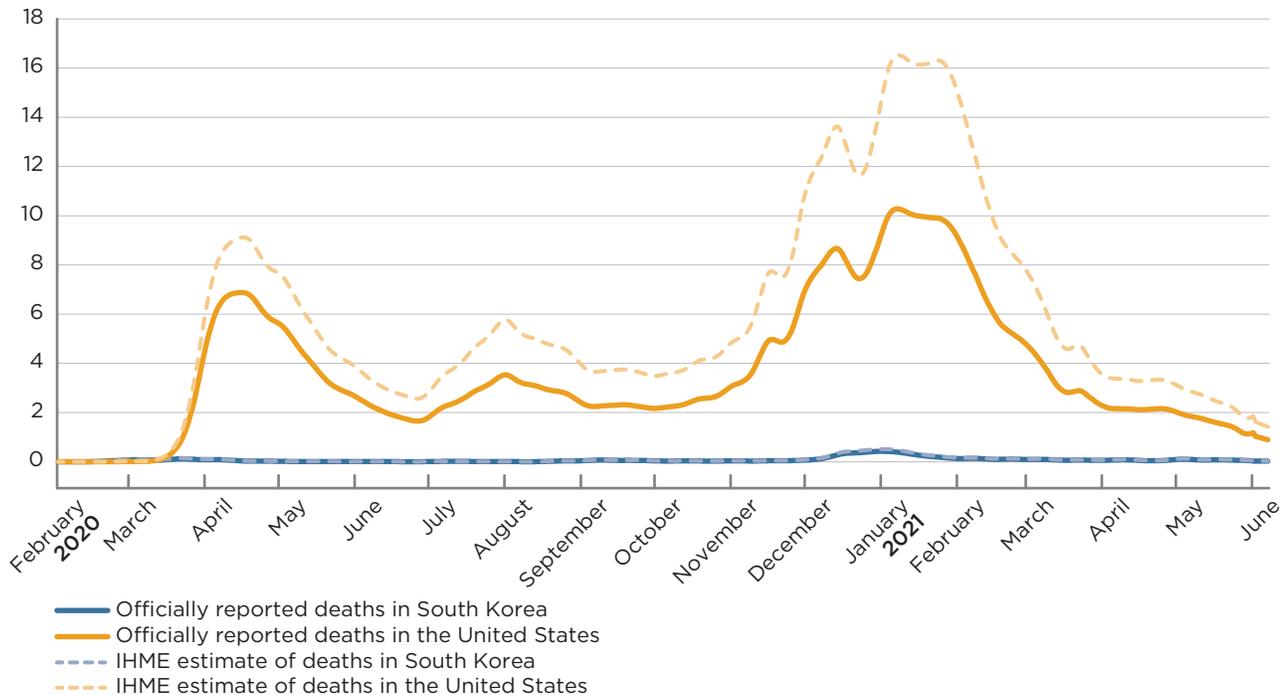
Deaths in South Korea and the United States

Figure 3 shows officially reported and estimated true numbers of new deaths per day from COVID-19 per million people. We focus on the IHME estimates but show the official numbers in the interest of completeness.

The United States has experienced two main surges in mortality. The first came early in the pandemic, when daily deaths approached 10 per million people

according to the IHME estimates; this surge was stemmed by the imposition of social distancing and other public-health-related requirements. A contributing factor in this surge was the fact that hospitals were not well prepared for the pandemic. Many facilities were overwhelmed with patients and caught short of basic equipment such as masks, gowns, and ventilators.

Figure 3
Daily new COVID-19 deaths per million people in South Korea and the United States, February 2020–June 2021



Note: The variables shown are “deaths_mean_smoothed_p100k_rate” and “deaths_reported_mean_smoothed_p100k_rate” in the IHME dataset, each multiplied by 10. The dotted line for South Korea is mostly obscured by the solid line.

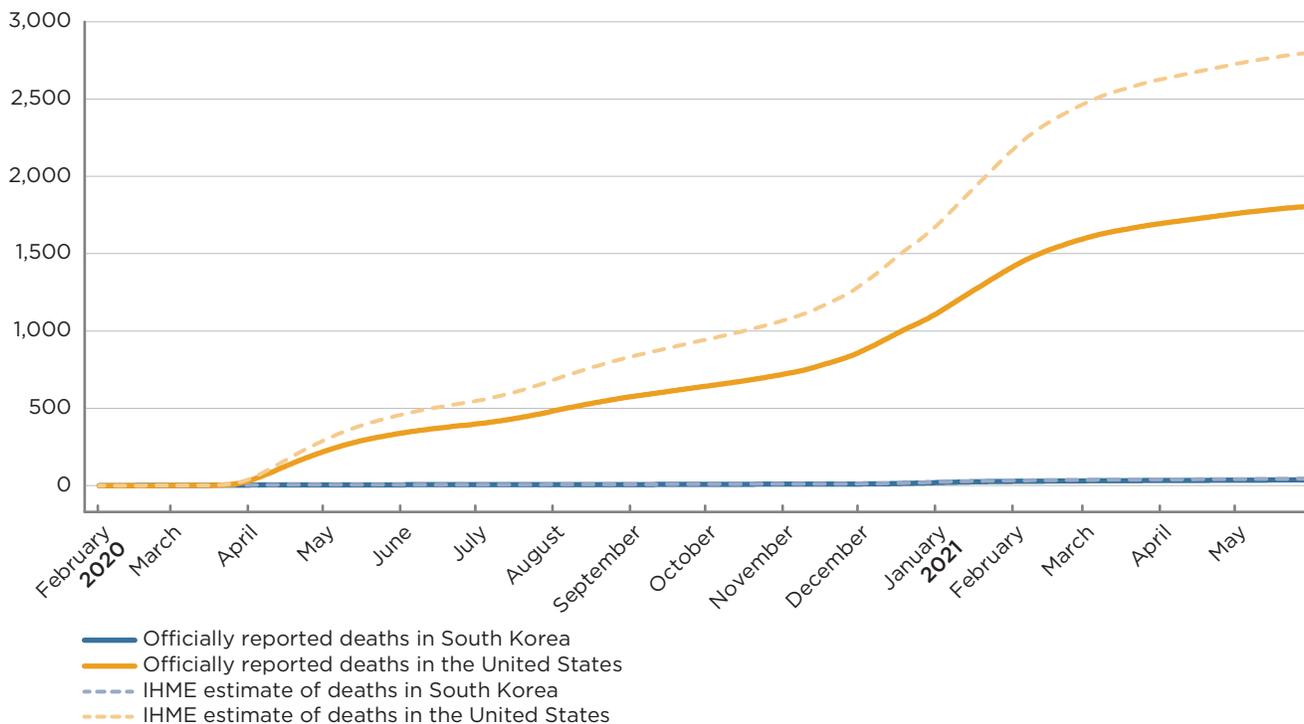
Source: Institute for Health Metrics and Evaluation (IHME).

The second main surge in deaths peaked in early 2021, when daily deaths briefly exceeded 16 per million people. This surge probably partly reflected the aftermath of gatherings associated with celebrations of Christmas and New Year’s. Since then, mortality from COVID-19 has declined steeply in the United States, thanks importantly to the rapid distribution of vaccines, especially to elderly people living in nursing homes and other communal settings.

In South Korea, the daily number of deaths from COVID-19 peaked at 0.5 per million. According to the IHME estimates, the peak daily death rate in South Korea was roughly 3 percent of the peak daily death rate in the United States.

Figure 4 shows the same data on a cumulative basis. As of June 11, 2021, the total estimated number of deaths from COVID-19 per million residents was approaching 3,000 in the United States and just 44 in South Korea. Cumulatively, the number of deaths per capita in South Korea was thus just 1½ percent what it was in the United States. This comparison may shine the clearest light on the relative success of the two countries in dealing with the health dimension of the crisis.

Figure 4
Cumulative COVID-19 deaths per million people in South Korea and the United States, February 2020–June 2021



Note: The variables shown are “totdea_mean_smoothed_p100k_rate” and “totdea_reported_mean_smoothed_p100k_rate” in the IHME dataset, each multiplied by 10. The dotted line for South Korea is mostly obscured by the solid line.

Source: Institute for Health Metrics and Evaluation (IHME).

3. ECONOMIC OUTCOMES IN SOUTH KOREA AND THE UNITED STATES

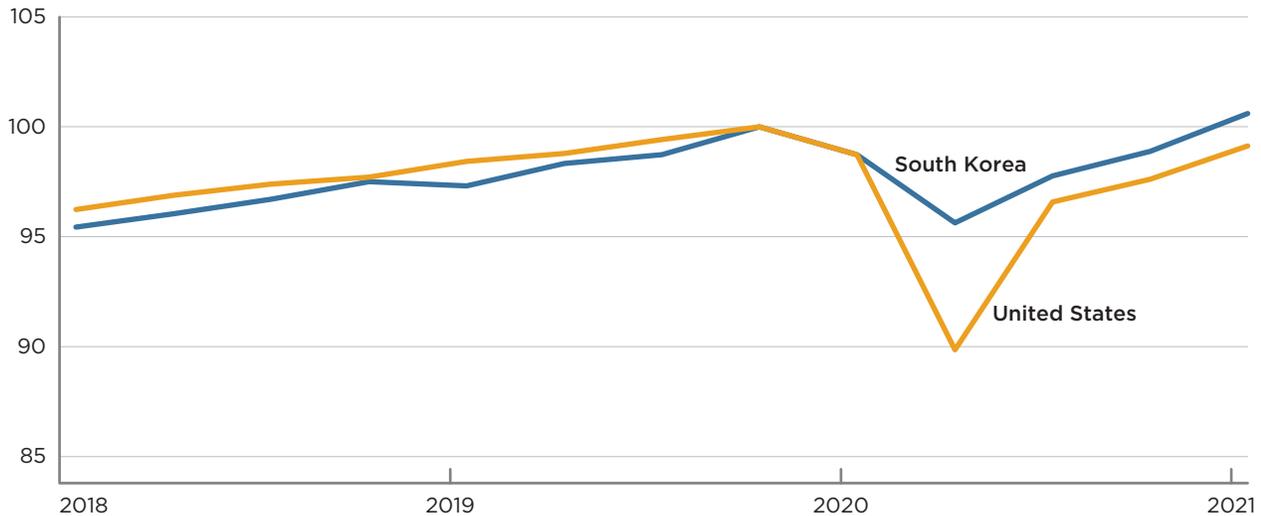
The pandemic has adversely affected the economies of both South Korea and the United States, but the impact has been much greater in the United States. Coming into 2020, output had been rising steadily in both countries (figure 5). The profile of real GDP since the onset of the pandemic has been similar in the two countries, but the drop in output during the second quarter of 2020 was much sharper in the United States. Output rebounded in both countries in the third quarter of 2020 and has been steadily rising since then. In South Korea, real GDP during the first quarter of 2021 was slightly above its level in the fourth quarter of 2019 but 2 percent below a linear trend drawn through quarterly real GDP from 2018 and 2019. In the United States, real GDP during the first quarter of 2021 was still slightly below its level in the fourth quarter of 2019 and about 3½ percent below its pre-pandemic trend.

Real GDP growth slowed substantially between 2019 and 2020 in all advanced G20 countries (figure 6). In South Korea, real GDP increased 2 percent in 2019 and decreased 1 percent in 2020, resulting in the 3 percentage point deceleration shown in figure 6. In the United States, the deceleration was nearly twice as sharp (from +2.2 percent to -3.5 percent). Australia was the only one of the nine countries shown to experience a milder slowdown in GDP growth than South Korea between 2019 and 2020, but the backdrop in Australia was different, as its economy had already contracted slightly in 2019, whereas output in South

Korea increased 2 percent in 2019.¹¹ The 1 percent contraction of GDP in South Korea in 2020 was the mildest contraction of any country shown in figure 6.

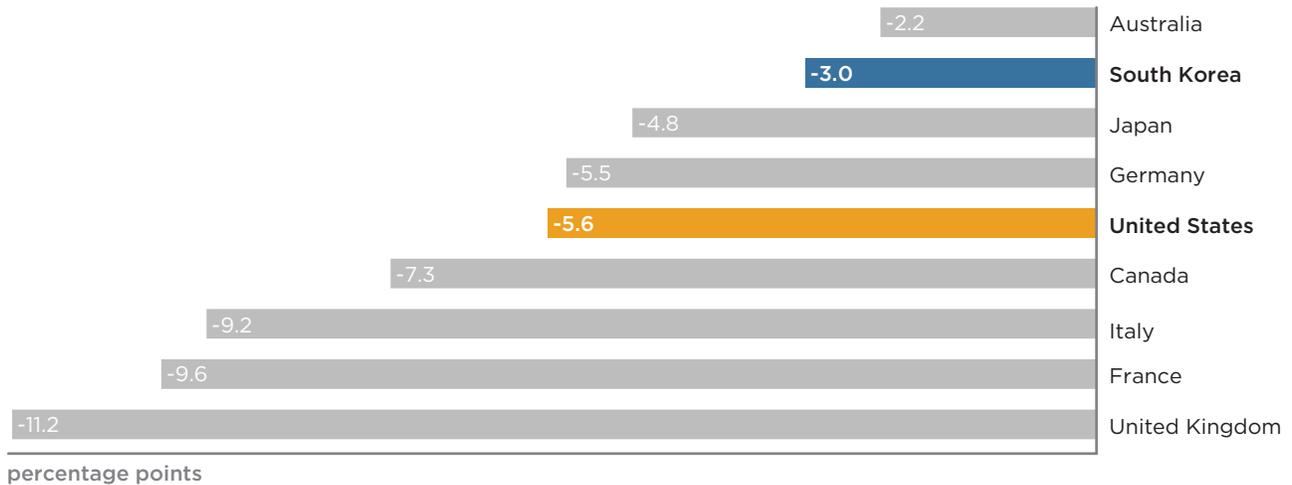
Figure 5
Real GDP in South Korea and the United States, 2018Q1-2021Q1

index (2019Q4 = 100)



Source: Korean Statistical Information Service and US Bureau of Economic Analysis via Macrobond.

Figure 6
Real GDP growth slowdown in advanced G20 economies between 2019 and 2020



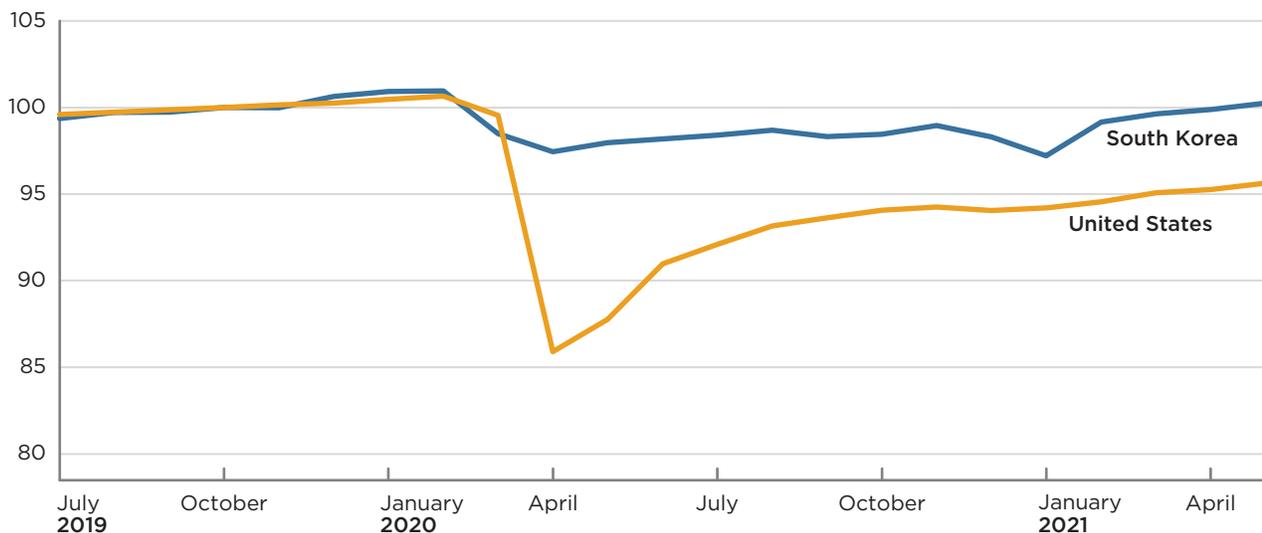
Source: OECD National Accounts via Macrobond and Japanese Cabinet Office via Federal Reserve Bank of St. Louis.

¹¹ The International Monetary Fund (IMF) conducted a more elaborate exercise to make essentially the same point, examining the deviation in actual growth of real GDP in 2020 from the IMF’s forecast at the beginning of the year. On that metric, South Korea ranked best among these nine countries, Australia came in second, followed closely by the United States. See Sohrab Rafiq and Andrew Swiston, “Mountains after Mountains: Korea Is Containing COVID-19 and Looking Ahead,” April 29, 2021, www.imf.org/en/News/Articles/2021/04/29/na042921-mountains-after-mountains-korea-is-containing-covid-19-and-looking-ahead.

The profile of employment in the two countries is similar to that of real GDP, with South Korea taking a much smaller hit than the United States (figure 7). In April 2020, employment was 2½ percent below its pre-pandemic peak in South Korea and nearly 15 percent below its pre-pandemic peak in the United States. Employment trended upward in both countries after April 2020, though it stumbled in South Korea in January 2021, reaching a lower level than it had in April 2020. By May 2021, employment in South Korea had returned to its pre-pandemic level, whereas employment remained nearly 5 percent below that benchmark in the United States.

Figure 7
Employment in South Korea and the United States, July 2019–May 2021

index (October 2019 = 100)

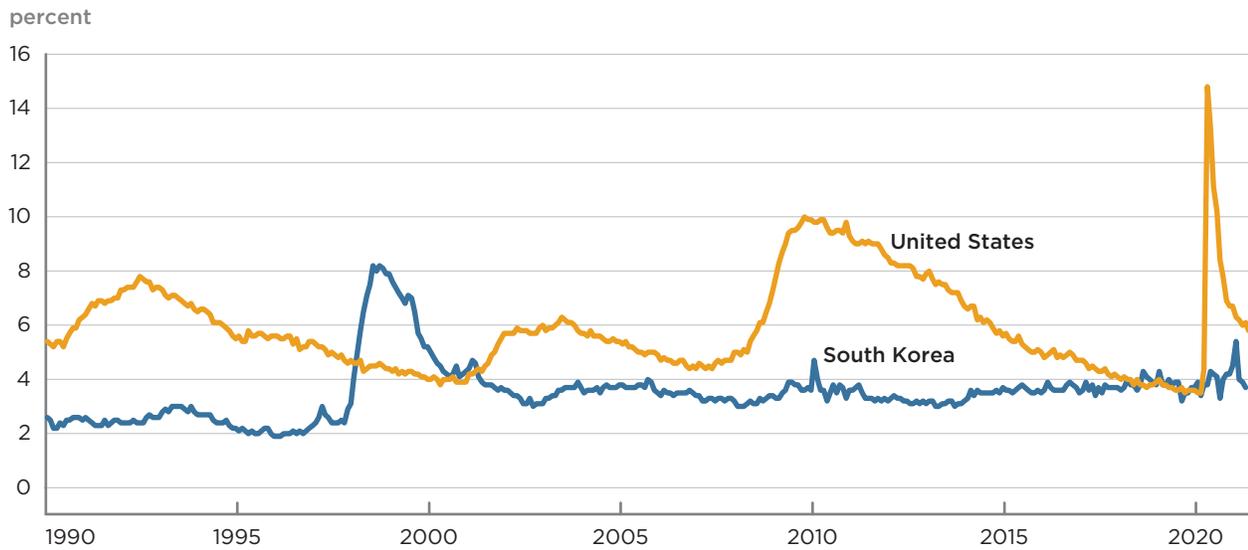


Note: Monthly data, seasonally adjusted.

Source: Korean Statistical Information Service and US Bureau of Labor Statistics via Macrobond.

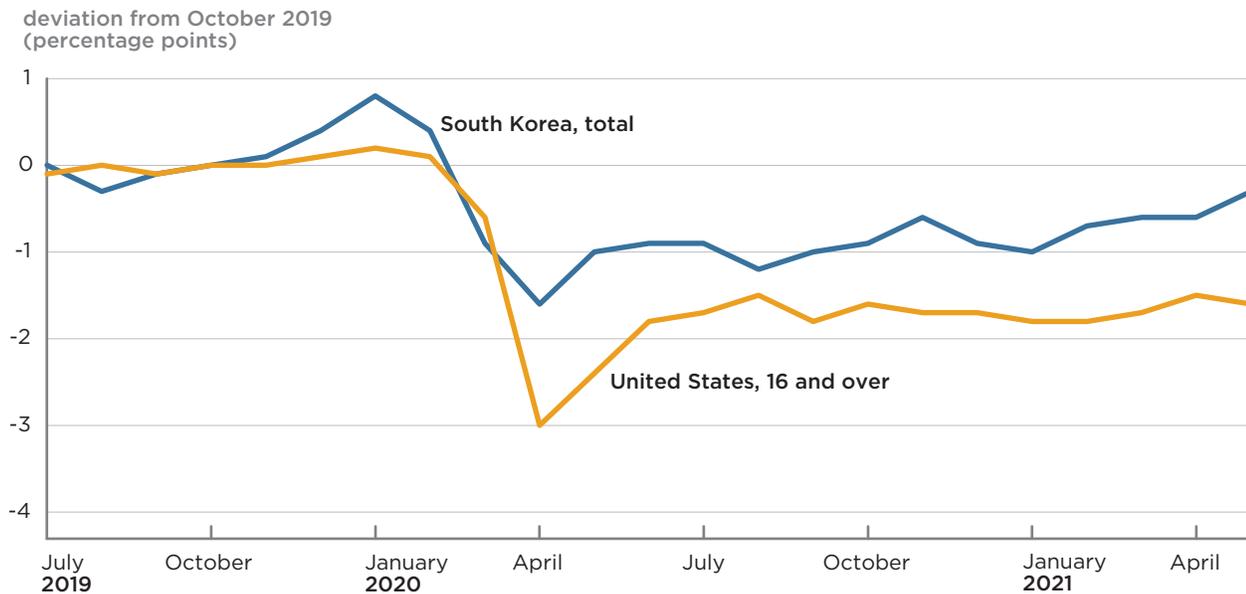
The reduction in employment played out differently in the two countries. In the United States, the unemployment rate spiked to nearly 15 percent—the highest level recorded since the Great Depression and far surpassing the peak reached during the aftermath of the financial crisis of 2008–10 (figure 8). Labor force participation in the United States declined abruptly, falling much more sharply than it had after the financial crisis (figure 9). Even so, in the United States, by far the largest share of the reduction in the employment rate manifested in the increase in unemployment rather than the reduction in participation. In South Korea, the unemployment rate moved up far less during the spring of 2020, reaching a peak of only 4.3 percent. The increase in unemployment in South Korea during the spring of 2020 was nothing like the increase during the Asian financial crisis of 1998. The unemployment rate in South Korea did reach 5½ percent in January 2021, but by April it had fallen back to 3.7 percent. Much of the reduction in the employment rate was reflected in withdrawal from the workforce (lower labor force participation) rather than higher unemployment. Labor force participation in South Korea trended up after January 2021, and by May was only slightly below its October 2019 level (figure 9). By comparison, the participation rate in the United States since June 2020 has been about flat.

Figure 8
Unemployment rate in South Korea and the United States, January 1990–May 2021



Source: OECD Harmonized Unemployment Rate via Federal Reserve Bank of St. Louis.

Figure 9
Labor force participation in South Korea and the United States, July 2019–May 2021



Source: Korean Statistical Information Service and US Bureau of Labor Statistics via Macrobond.

In both South Korea and the United States, the increase in unemployment was larger for women than for men, but the difference was larger in the United States. The larger gender gap in the United States reflected the overrepresentation of women in service industries, especially ones involving extensive contact between workers and colleagues or customers. The heavier incidence of unemployment on women in the United States represented a departure from the typical experience

in earlier recessions, when men bore the heavier burden, because they were overrepresented in industries such as manufacturing and construction that were typically hit hard by economic downturns.

One key difference between the South Korean and US economies is the extent to which they are exposed to trade. In South Korea, the ratio of total trade (nominal exports plus imports of goods and services) to GDP was roughly 75 percent during the second half of the 2010s. The comparable ratio for the United States was about one-third as large. China is an important trading partner of both countries, but the extent of the trading relationship for South Korea dwarfs that for the United States. In South Korea, exports to China accounted for 24.5 percent of total exports of goods and services in 2019—9.4 percent of GDP. For the United States, exports to China represented about 6 percent of overall exports,¹² and exports accounted for 11.7 percent of US GDP, so exports to China amounted to less than 1 percent of GDP.¹³ Although that figure surely understates the exposure of the US economy to China,¹⁴ the contrast between the importance of China to the two economies is striking. The fact that South Korea traded intensively with China and that China was able to sustain its activity as well as it did probably helped South Korea avoid a steeper downturn in its economic activity.

An unusual aspect of the pandemic period has been the distribution of employment losses across sectors. In the typical recession, employment losses are heavily concentrated in manufacturing and construction, and employment usually holds up relatively well in most service sectors. This time around, that pattern was disrupted. In South Korea, employment in the accommodations and food services sector was particularly hard hit, and employment in the construction sector held up better than the economywide total (indeed, since March 2021, construction employment has been above its pre-pandemic level). Employment in the manufacturing sector has also generally been in line with or a little stronger than economywide employment, although it has not yet reached its pre-pandemic level. Similarly, in the United States, employment losses in the manufacturing and construction sectors have been a little smaller than the average, whereas employment in the accommodations and food services sector in May 2021 was down 14 percent relative to February 2020 and employment in the air transportation sector was down 17.5 percent.

A final consideration on the macroeconomic front is the behavior of inflation. At the beginning of 2016, the Bank of Korea adopted a point inflation target of 2 percent, as measured by the consumer price index (CPI).¹⁵ Since the target was adopted, inflation has generally run below the 2 percent target; indeed, between the beginning of 2019 and March 2021, it generally ran below 1 percent (figure 10). Through most of the pandemic period, inflation remained low but did not weaken notably further. In April and May 2021, 12-month inflation burst above the 2 percent

12 According to the Office of the US Trade Representative, US exports of goods and services to China totaled \$163 billion in 2019 (<https://ustr.gov/countries-regions/china-mongolia-taiwan/peoples-republic-china>), and overall exports of goods and services were \$2,514.7 billion (National Income and Product Accounts, via Federal Reserve Economic Data (FRED)).

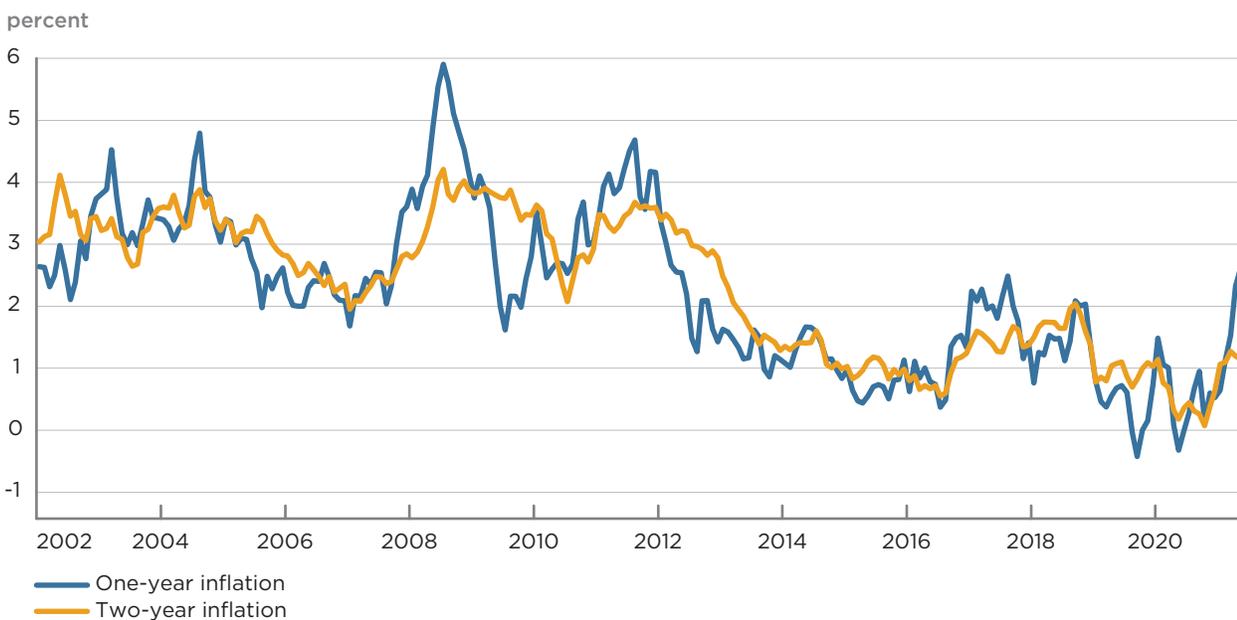
13 See www.census.gov/foreign-trade/statistics/highlights/top/top1912yr.html. Imports from China into the United States represented 18.1 percent of all imports in 2019 (<https://www.census.gov/foreign-trade/statistics/highlights/top/top1912yr.html#imports>).

14 For example, the US economy is further exposed to China by way of financial market linkages.

15 Before 2016, the Bank of Korea's target was a range of 2½–3½ percent.

target. Some of that burst probably has reflected so-called base effects (that is, the dropping out of the 12-month calculation of the unusually weak readings that were taken in the spring of 2020, no doubt driven down by the first wave of concern and economic weakness associated with the pandemic). Averaging over the past 24 months (and thus combining the extraordinary weakness of the outbreak period with the possibly temporary price surges associated with reopening), the most recent reading comes to only 1.1 percent (see the orange line in figure 10).

Figure 10
CPI inflation in South Korea, January 2002–May 2021

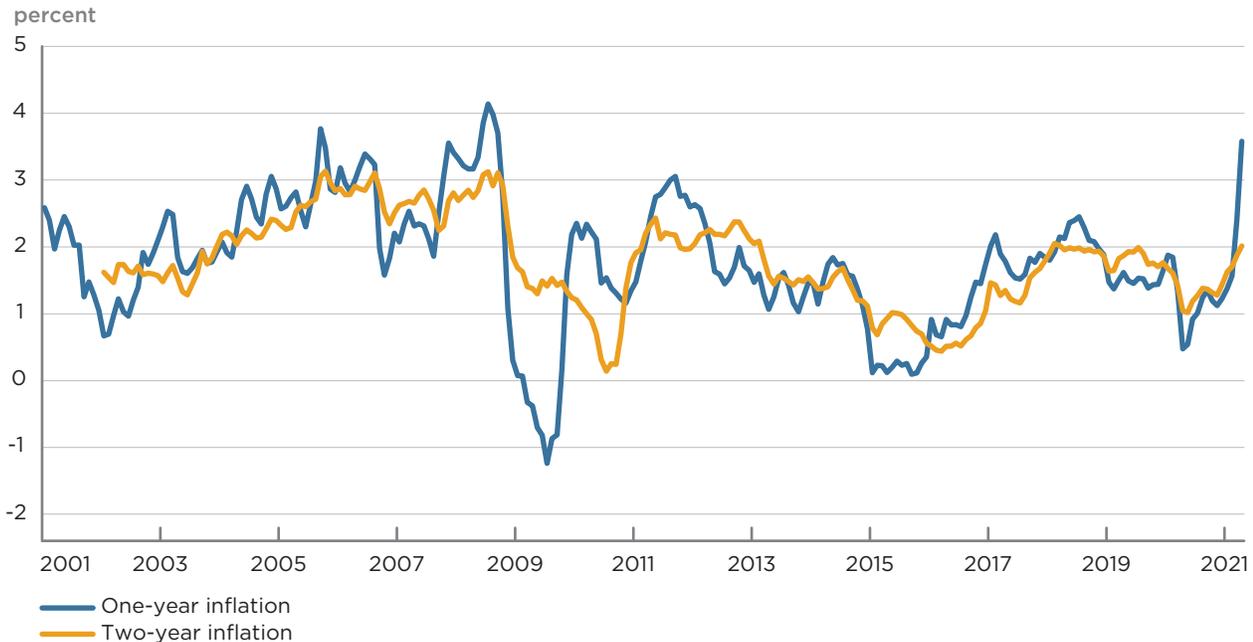


CPI = consumer price index

Source: Korean Statistical Information Service via Macrobond.

The experience has been similar in the United States, though perhaps somewhat more concerning. The Federal Reserve also has a 2 percent inflation target, though in this case measured by the price index for personal consumption expenditures (PCE). By this measure, inflation over the 12 months ending in April 2021 stood at 3.6 percent, the highest reading since 2008 (figure 11). As in South Korea, base effects have played a role in generating the recent upswing. Averaging over the 24 months ending in April 2021 rather than the most recent 12, PCE inflation exactly matched the 2 percent target. It remains an object of intense speculation as to whether the increase in inflation in the United States will prove limited in duration and magnitude (in which case the Fed may be able to wait it out) or turn out to be more persistent or uncomfortably large (in which case the Fed may have to respond). In this context, it is worth reiterating the observation that the toolkit for addressing too-high inflation is familiar and not constrained by the zero lower bound on nominal interest rates. Moreover, the Fed has made plain that it will tolerate—indeed welcome—a period of above-2-percent inflation as an offset for the lengthy period of below-2-percent inflation the United States has experienced since the Fed adopted its target in 2012.

Figure 11
PCE inflation in the United States, January 2001–April 2021



PCE = personal consumption expenditure

Source: US Bureau of Economic Analysis via Macrobond.

4. POLICY CHOICES THAT CONTRIBUTED TO OUTCOMES IN EACH COUNTRY

Much of South Korea's success in limiting both the health effects and the economic damage of the pandemic reflects health interventions that grew, in part, out of its earlier experience in dealing with SARS and MERS. The success of these interventions allowed South Korea to suppress the virus at extremely low levels, without ever imposing an across-the-board lockdown of the kind seen in many other countries, including the United States. The United States never adopted the types of public health interventions that figured importantly in South Korea's success. As a result, it ended up having to impose a much harsher lockdown, with severe consequences for the US economy. The United States ended up enduring a version of the pandemic that was not widely contemplated early on, with worse outcomes on both the health and economic dimensions.

Public Health Measures That Contributed to South Korea's Relative Success

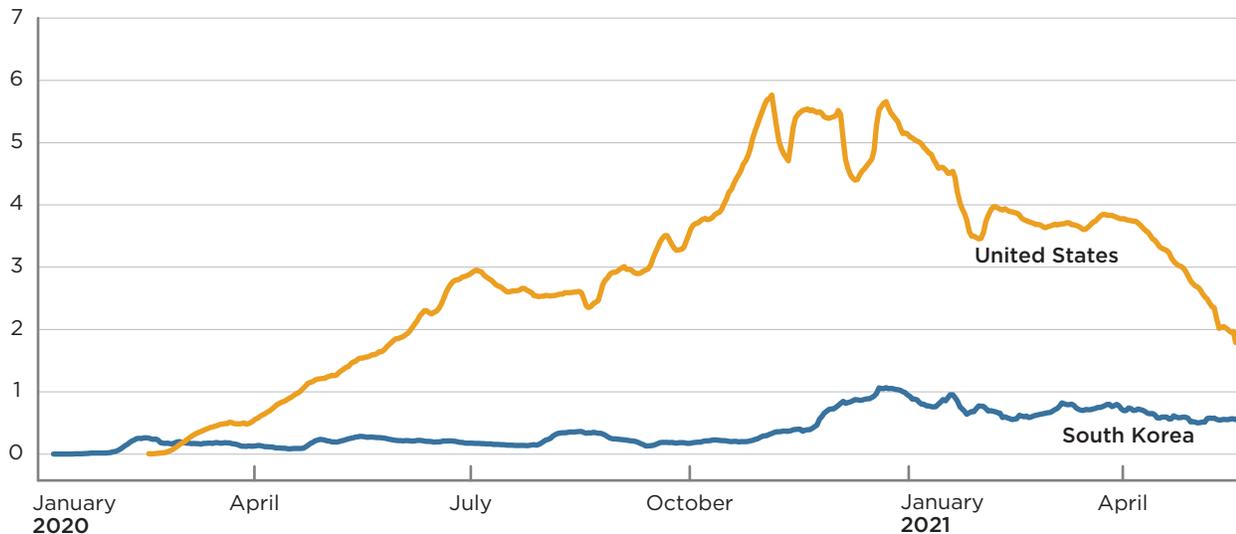
Four elements have combined to help South Korea contain COVID-19: testing, tracing, quarantining, and graduated treatment.

Testing

Both South Korea and the United States have conducted many COVID-19 tests. South Korea got an early start with testing, by making diagnostic testing kits available quickly and applying them aggressively to the outbreak in Daegu in February 2020. In comparison, the United States stumbled early on, partly

because the CDC insisted on developing its own test and some of the first test kits it distributed were faulty.¹⁶ By the end of March 2020, the United States was conducting more tests per capita than South Korea was, and the discrepancy increased much further (figure 12).

Figure 12
Daily COVID-19 tests per thousand people in South Korea and the United States, January 2020–June 2021



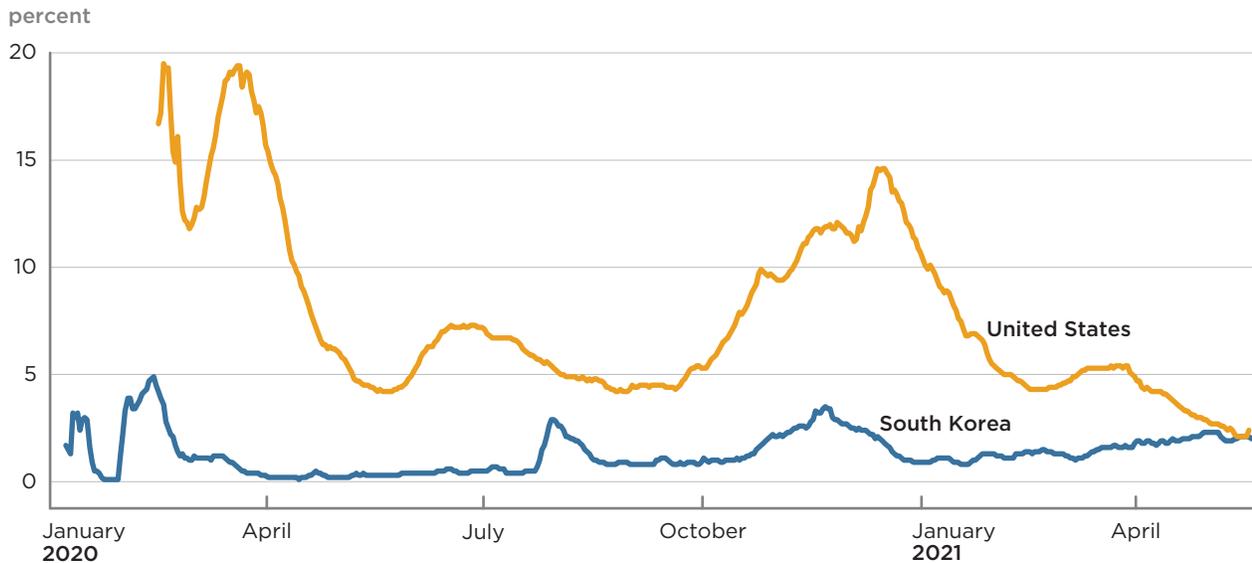
Note: For South Korea, the data are for people tested. For the United States, the data are for tests performed. In both cases, data are 7-day averages.

Source: Our World in Data, ourworldindata.org/coronavirus-testing.

By another (more meaningful) metric, however, South Korea was testing more intensively than the United States through most of the period since the outbreak. The share of tests that come back positive has consistently been lower in South Korea than in the United States (figure 13). In fact, South Korea's positivity rate has never been above 5 percent, whereas in the United States, it had rarely been below 5 percent until April 2021, and was well above 10 percent during two episodes.

¹⁶ Caroline Chen, Marshall Allen, Lexi Churchill, and Isaac Arnsforf, "Key Missteps at the CDC Have Set Back Its Ability to Detect the Potential Spread of Coronavirus," *ProPublica*, February 28, 2020, www.propublica.org/article/cdc-coronavirus-covid-19-test.

Figure 13
**Daily COVID-19 test positivity rate in South Korea and the United States,
 January 2020–June 2021**



Source: Our World in Data, ourworldindata.org/coronavirus-testing.

Contact tracing

South Korea adopted a much more aggressive program of contact tracing than did the United States. The Oxford Coronavirus Government Response Tracker (CGRT) categorizes South Korea's government as having a "comprehensive" contact tracing policy. Upon the outbreak of COVID-19, the South Korean government conducted aggressive contact tracing for every person identified to have been in contact with a confirmed case. This process involved (and continues to involve) collection of information such as facility visit records, GPS data from cell phones, credit card transaction logs, closed-circuit television footage, and personal interviews.

The Oxford CGRT identifies the United States as a country with a "limited" contact tracing policy. Unlike South Korea, the United States has not widely used electronic or administrative data, and the limited amount of tracing performed has been based on either phone or in-person interviews. These efforts have been frustrated by substantial lack of cooperation from people exposed to COVID-19, including a widespread unwillingness to divulge recent contacts out of concern for inconveniencing contacts.

Other social distancing measures, including quarantining

Another element in the fight against COVID-19 in South Korea has been a highly coordinated system of social distancing with graduated alert levels, mandatory mask-wearing for any person outside his or her home, and a system of self-quarantining. People are subject to fines if they do not wear masks in public.¹⁷ For

¹⁷ Yonhap, "Mask Mandate for All Indoor Spaces Touches off Controversy," *Korea Herald*, April 12, 2021.

the most part, however, compliance is very high even without the imposition of fines. Anyone who has been in contact with a confirmed case is required to self-quarantine for 14 days.

The United States did not adopt a coordinated national strategy for social distancing or quarantining. Practices have varied by and within states. Local authorities have had substantial discretion to increase or decrease the stringency of social distancing guidelines and requirements without reference to any fixed quantitative benchmarks.

Graduated treatment

In South Korea, individuals who have tested positive at COVID-19 screening centers have been sent to designated hospitals and facilities based on the severity of their illness and the availability of beds. Korean health officials developed a brief severity scoring system that classifies patients into categories (asymptomatic, mild, moderate, and severe).¹⁸ Asymptomatic patients are required to undergo a 14-day period of self-quarantine and to regularly report their health status to the health agency. Mildly ill patients are transferred and monitored at isolation facilities, such as community treatment centers; moderately to critically ill patients are hospitalized and treated at general or tertiary care hospitals that provide intensive medical care. This system has kept COVID-19-positive people separate from others at hospitals and other healthcare facilities and has also protected healthcare workers involved in other areas of health care from getting infected with the virus.

Vaccination

The distribution of vaccines has been the one area in which the United States has outperformed South Korea (figure 14). As of June 10, 2021, about 52 percent of the US population had received at least one dose of vaccine, putting the United States in the company of only a relatively small number of nations to have achieved a vaccination rate by that time in excess of 50 percent. In April, however, the pace of vaccination in the United States began slowing. By June 10, it had declined to only about one-third of its peak rate, putting at risk President Joseph R. Biden Jr.'s objective of having 70 percent of the adult population inoculated with at least one dose of vaccine by July 4.

South Korea got a slow start in vaccinating its population but picked up the pace sharply beginning in late May. By June 10, 21 percent of the population there had received at least one dose of vaccine. Despite the far smaller share of the population in South Korea that has been vaccinated, the spread of new cases has continued to be much slower in South Korea than in the United States. Until the end of May, the share of the population that had received at least one dose was below the global average in South Korea; since then, it has moved well above the global average.¹⁹

One factor that may help explain the slower rollout of vaccines in South Korea is that, like many other countries, South Korea had difficulty obtaining supply

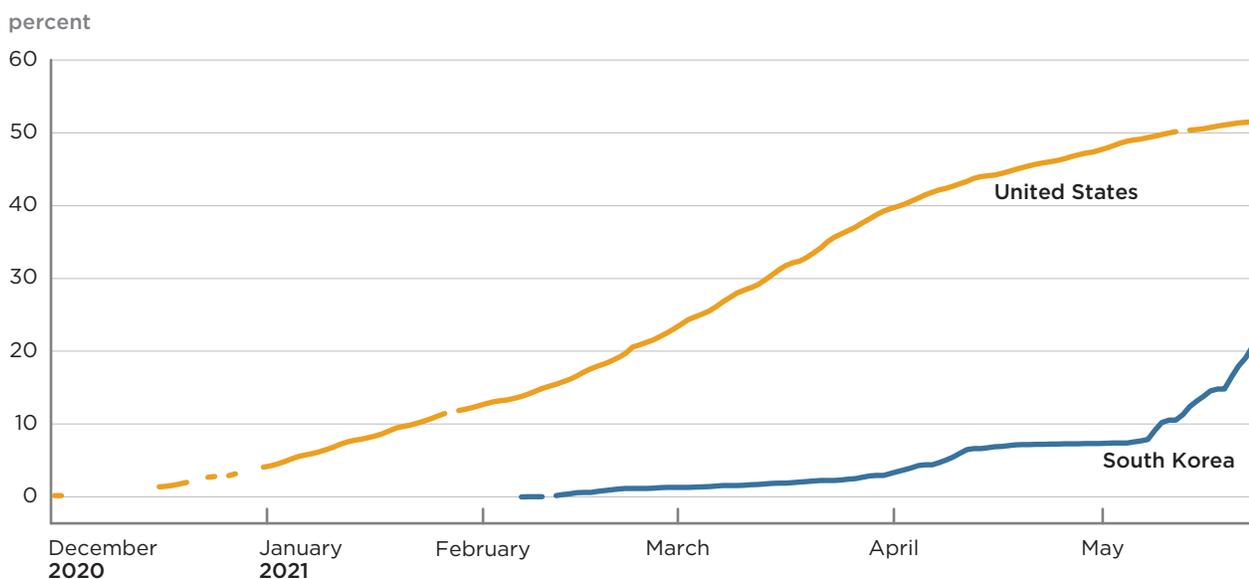
18 Ariadne Labs COVID-19 Global Learning, "Global Learnings Evidence Brief: Protecting Health Care Workers in South Korea During the COVID-19," May 2020.

19 The data cited in this section come from <https://ourworldindata.org/covid-vaccinations>.

early on. Some have criticized the South Korean government as having been too cautious in procuring vaccines.²⁰ It was slow to sign purchase agreements partly because the Korean government sought to produce vaccines domestically by financing domestic pharmaceutical companies—an effort that ultimately failed. During the summit between South Korea and the United States on May 21, 2021, the two countries agreed to establish a Korea-US Global Vaccine Partnership to strengthen joint responses to COVID-19 and to work together to expand manufacturing capacity for vaccines.²¹

Figure 14

Share of total population in South Korea and the United States that had received at least one dose of vaccine, December 2020–June 2021



Source: Our World in Data, ourworldindata.org/covid-vaccinations.

Vaccine hesitancy has been a factor in both countries. In South Korea, the Gallup organization conducted surveys in February, April, and May 2021 to ascertain the willingness of the population to get vaccinated.²² In May, 27 percent of South Koreans responded that they were unlikely to take a shot. Interestingly, people in their 20s and 30s in South Korea reported they were less willing to receive vaccines than people over 60. Survey results in the United States tend to show greater vaccine hesitancy than in South Korea, though international comparisons may be tricky.²³ For example, an April 2021 survey conducted by the Kaiser Family Foundation found that 34 percent of respondents either wanted to “wait and see” whether to get a vaccine, would get it “only if required,” or would “definitely not” get the

20 Sangmi Cha, “S. Korea Pays Price for Reliance on COVAX, Scrambles for Vaccines,” Reuters, April 1, 2021.

21 White House, “FACT SHEET: United States–Republic of Korea Partnership,” press release, May 21, 2021.

22 See www.gallup.co.kr/gallupdb/reportContent.asp?seqNo=1203 (in Korean).

23 Even survey results published by different organizations within the United States have pointed to somewhat different conclusions.

vaccine.²⁴ As high as that number was, it was markedly down from December 2020 (when the share respondents described themselves as falling into one of the three categories was 63 percent) and February 2021 (when it was 44 percent).

Another factor that may be limiting the incentive for people in the United States to get vaccinated is the absence of any authoritative version of a certificate of vaccination (often referred to as a “vaccine passport”). Moreover, a movement aiming to ensure that no system of certification is ever put in place seems to be gaining momentum.²⁵ As a result, people who are vaccinated cannot know the risk they may be exposing themselves to when they congregate with other people, and so-called anti-vaxxers do not have to abide by the restrictions to which they might otherwise be subjected. To a disquieting degree, as one commentator put it, the US population seems to be separating into two groups—one that does not need to wear masks (because they are already vaccinated) but continue to do so and another that should be wearing masks but refuse to do so.

In contrast to this experience, in April 2021 South Korea launched a digital vaccine certification program to show a person’s digital proof of vaccination through a mobile app. The government has also been very actively engaged in discussions with other countries about mutual recognition of vaccine certification.²⁶ For vaccinated people coming from a country with a mutually recognized vaccine certification program, South Korea plans to waive the standard requirement for a 14-day period of self-quarantine.

In addition to the smart policy choices made by its public health authorities, South Korea has probably been aided by its relatively isolated geographic setting. Given that the border to the north is closed, South Korea functions as an island, a circumstance that probably worked to its advantage during the pandemic. In an unpublished manuscript, Cullen Hendrix, of the Peterson Institute for International Economics, finds that a variable he calls “interdictability” has the highest predictive power among the several variables he examines in explaining the relative success of countries in limiting COVID-19-related deaths. (Hendrix defines interdictability as “the ability to tightly control borders and effectively monitor entrants at a limited number of entry ports.”)²⁷ On Hendrix’s scale, the United States ranks lowest among OECD countries in terms of interdictability. South Korea ranks sixth, trailing only Iceland, New Zealand, Australia, Japan, and Denmark. Although natural circumstances probably helped South Korea and posed added challenges for the United States, the sagacity of policy choices undoubtedly played a key role in both cases.

Economic Policy Responses

Fiscal policy responses

The fiscal authorities in both countries responded to the weakening in economic conditions with fiscal countermeasures. However, given the relatively limited

24 Liz Hamel, Lunna Lopes, Grace Sparks, Mellisha Stokes, and Mollyann Brodie, “KFF COVID-19 Vaccine Monitor: April 2021,” Kaiser Family Foundation, May 6, 2021.

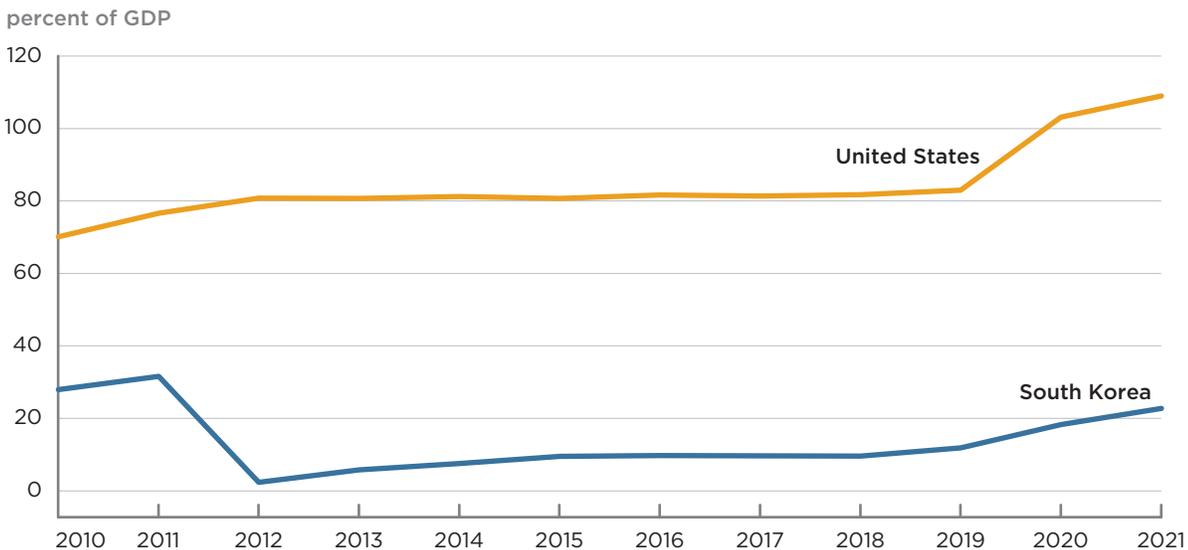
25 Isaac Stanley-Becker, “Resistance to Vaccine Mandates Is Building. A Powerful Network Is Helping,” *Washington Post*, May 26, 2021, www.washingtonpost.com/health/2021/05/26/vaccine-mandate-litigation-siri-glimstad-ican/.

26 Liu Caiyu, “Vaccine Passport: WHO Is Reluctant but There’s Hope China Can Be a Pathfinder,” *Global Times*, April 7, 2021.

27 Cullen S. Hendrix, “The Political Economy of Pre-Pandemic Preparedness and Ex-Post Effectiveness,” unpublished manuscript, Peterson Institute for International Economics.

economic fallout from the health crisis in South Korea, authorities there were not compelled to move with the same scale and force as the United States.

Figure 15
General government net debt in South Korea and the United States, 2010–2021



Source: IMF *World Economic Outlook*, April 2021.

Figure 15 provides one simple window into the extent of fiscal action. It shows that coming into the pandemic period, general government net debt as a percent of GDP had been essentially stable in both countries, but at a far lower level in South Korea than in the United States. Between 2019 and 2021, both countries are projected to experience a significant run-up in government debt, but the increase will be much greater in the United States. The projected increase in general government indebtedness in South Korea, while substantial, is projected to be the most modest of the nine countries shown in figure 16.

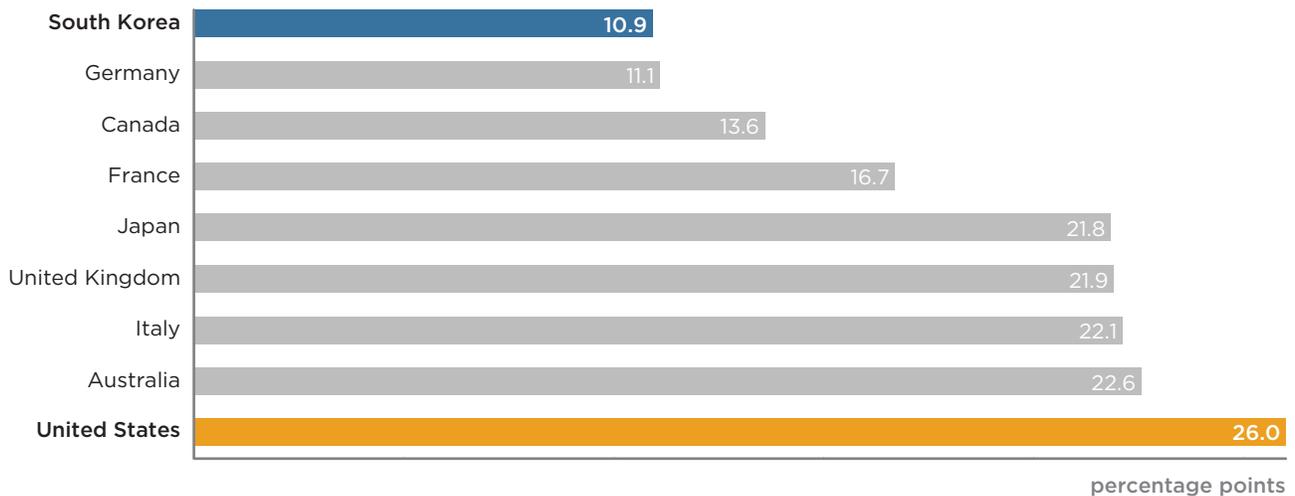
The IMF provides a more narrowly targeted assessment of fiscal actions taken in response to the COVID-19 crisis. Although other countries have done more on the fiscal front—in some cases much more—it is striking that South Korea has done as much as it has, given how limited the economic fallout from the pandemic has been there. The IMF estimates that spending undertaken in response to the pandemic has been more substantial in South Korea than in several other countries where the health consequences—and presumably economic fallout as well—of the pandemic have been much worse (figure 17). A forthcoming PIIE Policy Brief by Jacob Kirkegaard provides additional analysis of the fiscal response to the COVID-19 crisis in the two countries.

Monetary policy responses

The Bank of Korea (BOK) responded to the weakening in economic conditions since the onset of the pandemic with relatively mild monetary policy adjustments. It had been easing the stance of policy even before the outbreak of the pandemic. From a recent high of 1¾ percent, the BOK cut its base rate to 1½ percent in July

2019 and 1¼ percent in October 2019. As the seriousness of the pandemic-induced economic downturn became apparent, it cut the base rate to ¾ percent in March 2020, and ½ percent in May 2020, where it has been ever since, including in an announcement on May 27, 2021.²⁸ Although that level is a record low for the BOK, it is not as low as other central banks have gone, even those (like the Federal Reserve) that have chosen not to venture into negative territory—one indication that the economic situation in South Korea has not been as dire as elsewhere.

Figure 16
Projected increase in the ratio of general government net debt to GDP between 2019 and 2021



Source: IMF *World Economic Outlook*, April 2021.

Another indication along the same lines is given by the two-year government bond yield. It remains considerably higher in South Korea than in several other economies, including the United States, where the two-year Treasury yield in May 2021 averaged 0.16 percent.²⁹

A third indication is that the BOK has not used quantitative easing or other unconventional policy tools. The IMF’s Article IV report in March 2021 noted that “the BOK did not anticipate conditions arising that would call for considering” use of such tools.³⁰ According to a poll conducted by Reuters, most analysts expect the first hike in the policy rate in South Korea to come in 2022.³¹

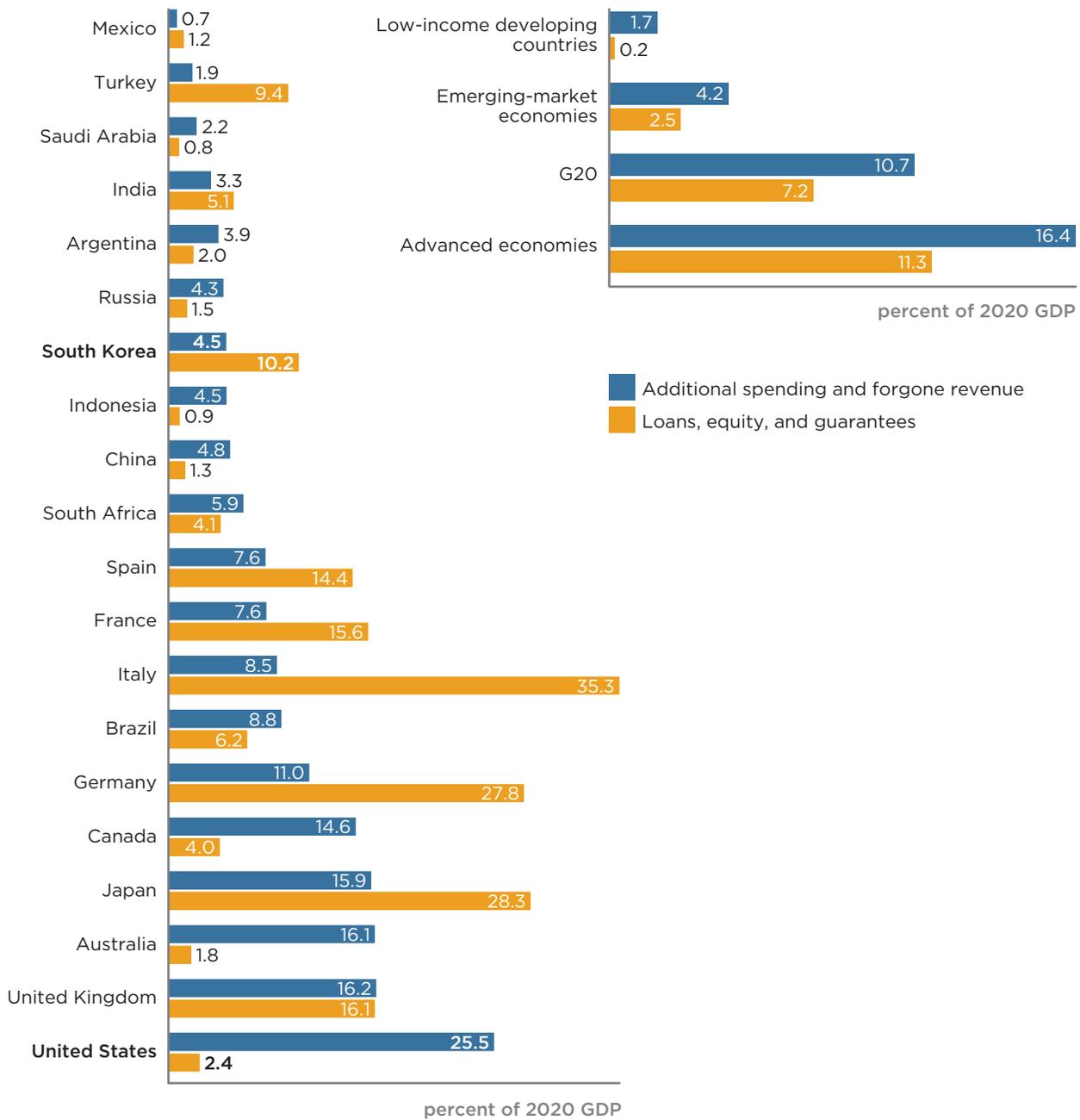
28 Bank of Korea, “The Bank of Korea Base Rate,” www.bok.or.kr/eng/singl/baseRate/progress.do?dataSeCd=01&menuNo=400016.

29 International Monetary Fund (IMF), “Republic of Korea 2021,” IMF Country Report No. 21/64, March 2021. See page 21 of www.imf.org/-/media/Files/Publications/CR/2021/English/IKOREA2021001.ashx.

30 International Monetary Fund (IMF), “Republic of Korea 2021,” IMF Country Report No. 21/64, March 2021. See page 22 of www.imf.org/-/media/Files/Publications/CR/2021/English/IKOREA2021001.ashx. The BOK did, however, temporarily draw down \$20 billion from the \$60 billion swap line established by the Federal Reserve.

31 Cynthia Kim and Joori Roh, “UPDATE 4: S. Korea Readies Monetary Tightening As Outlook Improves,” Reuters, May 26, 2021, www.reuters.com/article/southkorea-economy-rates/update-2-s-korea-c-bank-holds-rates-raises-growth-and-inflation-outlook-idUSL2N2ND02Q.

Figure 17
Fiscal responses to COVID-19 in selected countries



Source: IMF Fiscal Monitor, April 2021, page 10.

The Federal Reserve was compelled to move with much greater force to stem the contractionary forces unleashed by the economic collapse in 2020. On the eve of the collapse, the economic situation in the United States seemed exceedingly promising, with the unemployment rate at a 50-year low and inflation still running marginally below the Fed’s 2 percent target (indicating that the economy was not yet overheating). As the economic situation deteriorated in early 2020, the Fed quickly dropped the target range for its policy rate (the federal funds rate) to 0–¼ percent. It also initiated a very aggressive round of

large-scale asset purchases—far larger than what the Fed had done a dozen years earlier in the wake of the global financial crisis. In addition, the Fed implemented a range of special programs to stabilize various financial markets.

During the second half of 2020, after the crisis phase of the episode had passed but while the recovery was very much still a work in progress, the Fed announced a revised framework for the conduct of monetary policy. One key aspect of the revised framework was that the Fed established a set of economic thresholds that will have to be met before it will raise the policy interest rate. A second key aspect was the announced commitment to letting inflation run moderately above the 2 percent target for a period of time, in light of the persistent undershooting of inflation relative to target since the target was formally adopted in 2012. As of this writing, the Fed continues to hold the target range for the policy rate at 0–¼ percent and continues to purchase longer-term securities (Treasuries and mortgage-backed securities) at the pace of \$120 billion a month.

5. CONCLUSION

South Korea has been exceedingly successful in suppressing the virus that causes COVID-19. It benefited enormously from the adoption of a stringent set of public health measures that turned out to have been highly appropriate for addressing this particular health crisis and from the acquiescence of its population in adopting those measures. South Korea's success on the health front spared it from the crushing blow of disease and death experienced by many other countries and from the need to undertake more costly fiscal support measures and dramatic monetary policy moves.

The United States did not adopt comparable public health measures. Even if it had done so, it is highly debatable whether the population would have tolerated them. The United States has paid a heavy price for the version of personal liberty that seems to be at the psychological core of some of its people. That version sees mask requirements, vaccine mandates and certificates, and quarantine protocols as infringements on individual choice rather than as contributions to societal well-being. As long as a substantial portion of the population holds that perspective, the United States will have a difficult time combating pandemics, no matter how great its technical prowess and material wealth.

In the near term, the top priority in both countries must be to get as much of the population vaccinated as quickly as possible. In the United States, a key aspect of that effort will be to redress inequities in vaccination rates by race, ethnicity, and socioeconomic status. In both countries, substantial efforts will need to be made to overcome vaccine skepticism and resistance. In South Korea, a longer-term priority will be to prepare for building its post-COVID-19 economy; adopting a more flexible working environment (by, for example, allowing work from home); and helping women and seniors participate in the labor market. In the United States, a longer-term priority will be to find ways to restore a greater sense of cohesion and altruism as a counterbalance to the individualism that has cost lives and inflicted heavy economic losses during the pandemic. The most effective means of fostering social cohesion, however, is far from clear.



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