6 INSTITUTIONS MATTER IN FIGHTING COVID-19

Public Health, Social Policies, and the Control Tower in South Korea

June Park

South Korea's Response to the COVID-19 Pandemic

What role do institutions play in overcoming a public health crisis? The case of COVID-19 in South Korea suggests that, amid the country's whirlwind of populism and geopolitical struggles, the country's resilience in the pandemic relies heavily on technocratic measures that derive from the political necessity of the leadership and the demand by the public to end the pandemic, while simultaneously relying on the participation of the people and resisting public protests as a democracy.

Institutions have been critical to South Korea's response to COVID-19. South Korea's handling of COVID-19 has been based on its experience of the Middle East respiratory syndrome (MERS) in 2015—another coronavirus that rocked the country, albeit in a relatively short period compared to COVID-19. In 2015 South Korea recorded 38 deaths and 186 confirmed cases, higher than anywhere in the world outside the Middle East—an appalling figure for a country that is well equipped with a universal healthcare system and high-quality public health infrastructure. The realization from MERS that full utilization of the country's extant facilities must be coupled with institutional change resonated through the public health bureaucracy. Many of the institutional measures that were transformed post-MERS were critical to the response to COVID-19, and additional institutional changes were made during the COVID-19 pandemic. Overall, institutional transformation of public health and social policies in South Korea is built on experience and responses from the public.

Specifically, what has become more salient during the COVID-19 pandemic is that public health authorities formulate policies from the technocratic perspective but at the same time are constantly met with demands to satisfy the public from their own perspectives. South Korea has evolved in the past three decades since the country's democratization in the 1980s, and the country can no longer tolerate a system whereby policies are dictated to its people. The policy think-through, therefore, must resonate with the public to bring about strong participation among

them. A plethora of its citizens would participate rigorously in a government-driven initiative to combat the virus by choice—be it large-scale real-time polymerase chain reaction (RT-PCR) testing and QR code-check-ins for personal data sharing under the Infectious Disease Control and Prevention Act (IDCPA) and the Medical Service Act, or social distancing measures and quarantine under the Quarantine Act—in the hopes of getting back to normal life as law-abiding citizens.

This chapter broadly examines the role of institutions in South Korea in its response to the COVID-19 pandemic through public health and social policies, embodied by the three Ts: testing, tracing, and treatment, spearheaded by the Korea Disease Control and Prevention Agency (KDCA). On health policy and public health measures, the chapter centers on the implementation of the revised IDCPA and the Medical Service Act. These provided legal grounds for emergency-use authorization (EUA) of RT-PCR test kits by KCDC in public and private hospitals as well as drive-through test sites; the electronic contact-tracing "Smart Management System" (SMS) under the by the Ministry of Land, Infrastructure and Transport (MOLIT) based on personal data; and free testing and treatment under South Korea's universal healthcare system. The implementation of the revised Quarantine Act allowed for quarantining individuals with confirmed cases of COVID-19, while social distancing measures based on the COVID-19 reproduction rate (R-value: the number of people that one infected person will pass on a virus to, on average) were enacted by the Ministry of Health and Welfare (MOHW) in lieu of full-fledged lockdowns. The chapter also examines disinfection and public mask provision through controlled domestic production by the Ministry of Food and Drug Safety (MFDS) and mask-wearing guidelines by the MOHW and KDCA. The public responded to these measures with proactive participation, which proved to be crucial for controlling the virus amid several unexpected peaks in confirmed case numbers throughout the pandemic. The limitations of South Korea's COVID-19 pandemic governance are revealed in domestic vaccine development for COVID-19, despite showing some progress on development of treatment drugs.

On social policy, the chapter examines the South Korean government's financial support for the public, the vulnerable, small business owners, and medical facilities as regions throughout the country were hard hit continuously by the COVID-19 pandemic. The distribution of financial relief packages by the South Korean government to revitalize the economy sparked a heated public debate on basic income, while simultaneously raising criticisms on populist policies, in a country where capitalism has prevailed. Emergency care was provided to children and the elderly in need of care.

Among these policies, what stirred the most heated debate were the paychecks to the overall population given out by the government. Although the government is responsible for the well-being of the citizens under the Framework Act on Social Security, the concept of basic income is underwritten in this law, and the concept was rather new to the South Korean citizens. Therefore, the provision of economic stimulus packages provided by the Ministry of Economy and

Finance (MOEF) was met with divided responses from the public. At the local government level, the Local Public Enterprises Act served as the legal grounds for regional development bond issuance toward the livelihood of citizens. The Framework Act on the Management of Disasters and Safety as well as the Disaster Relief Act gave way to financial support of the public in different forms, such as prepaid cards, cash, or regional currency cards. The amounts per household or business by regional governments varied as well.

Overall, this chapter argues that functioning institutions matter in pandemic governance and determines the level of their effectiveness by scrutinizing the case of South Korea under COVID-19, focusing on public health bureaucracy and policy coordination supported by public participation, which are vital to effective policy response. It serves as a record of South Korea's institutional experience of COVID-19 and provides an overview of the health policies and social policies in South Korea under the COVID-19 pandemic. Although the crux of the chapter lies with the institutional measures and the public response, it highlights the technocracy at the core in public health and the significant role it has come to play as the "control tower."

Nonetheless, although South Korea may have been relatively successful in controlling the virus compared to other nations, especially those in Europe and the United States, as of this writing, the country remains in the process of handling the crisis and faces further challenges for economic recovery ahead.

Health Policies and Public Health in South Korea under COVID-19

Upon the discovery of Patient Zero from Wuhan, China, in the city of Incheon, South Korea, on January 20, 2020 (the same date as the discovery of Patient Zero in Seattle in the state of Washington in the United States), South Korea's immediate public health response to COVID-19 (Government of Korea, 2020; Ministry of Health and Welfare, 2020a, 2020b) has been best described as the three Ts: test, trace, and treatment. Alongside public health policies of social distancing, disinfection, and public mask provision, the prescriptions of the South Korean public health officials embodying the three Ts became the fundamental pillars in carrying out public health policy under COVID-19 (Cha & Kim, 2020). South Korea was not new to coronaviruses—before encountering SARS-CoV-2 (COVID-19), the country had experienced SARS-CoV under the severe acute respiratory syndrome (SARS) outbreak in 2002 and the rather distinct SARS-CoV-1 under the MERS outbreak in 2015 (Koh, 2020; Our World in Data, 2020).

The amendments to the IDCPA in addition to the Medical Service Act and the Quarantine Act on February 26, 2020—only one month into the outbreak of COVID-19 in South Korea (Table 6.1)—were instrumental to shaping South Korea's policy choices under COVID-19, as the first two laws served as the cornerstone of the three Ts in public health policies and the final law the crux of

quarantine measures (Library of Congress, 2020). Without the legal foundations firmly in place, implementing new measures with public persuasion in an effective manner would not have been possible, regardless of the competency of public health officials (Park & Chung, 2021).

Testing: Large-Scale Testing at Drive-Through and Designated Test Sites by KDCA and MFDS

Most important, the IDCPA made possible large-scale testing nationwide through the EUA of RT-PCR test kits by KDCA and MFDS in public and private hospitals as well as drive-through test sites (Park & Chung, 2021). As of September 12, 2020, the Korea Center for Disease Control (KCDC) under the Ministry of Health and Welfare (MOHW) was elevated to the Korea Disease Control and Prevention Agency (KDCA), allowing for more independence in policy making. Nonetheless, it must still work in coordination with MOHW, as a new deputy minister position has been created to liaise with the KDCA. To ensure high levels of accuracy, only RT-PCR test kits (with accuracy levels of 95 percent) were given under EUA. A public-private partnership (PPP) mechanism between the KDCA and the MFDS ensured quality control and competition-based applications by leapfroggers of the South Korean In Vitro Diagnostics (IVD) industry. Notably, big data analysis conducted by supercomputers enabled by artificial intelligence relying only on the RNA information provided by the World Health Organization on COVID-19 at the time of outbreak in Wuhan gave impetus to RT-PCR kit development by a South Korean molecular diagnosis company, Seegene (Watson et al., 2020). Drive-through RT-PCR test sites (Kwon et al., 2020; D. Lee & Lee, 2020) and designated test sites at public and private hospitals nationwide enabled large-scale testing with results in an expedited six hours, which did not exist during MERS even with an EUA mechanism. Only the then-KCDC (now KDCA) processed tests at that time, prolonging wait times for test results. Under the IDCPA, the tests were provided free unless someone volunteered to be tested without being contacted and advised by KDCA's COVID-19 tracking team to be tested and tested negative.

Tracing: COVID-19 Smart Management System by MOLIT in Cooperation with KCDC

Electronic tracing was one of the crucial elements that prevented South Korea from lockdowns. The electronic contact tracing platform, SMS, under MOLIT, was launched based on the conditional use of personal data under public health emergency, based on Article 76–2(1) of the IDCPA, which was an existing clause written into law post-MERS.

Elaborate amendments to subsidiary clauses of the IDCPA have been made in accordance with the unfolding COVID-19 situation (Ministry of Health and Welfare, 2020h). The conditions that bolstered the use of such measures

in South Korea were its reliance on extant technology on smart cities: (1) its heavily wired environment with 5G stations rolled out where 95 percent of South Koreans possess a cell phone (Koh, 2019) and (2) its credit card distribution rate at 64 percent (World Bank Indicators, 2017), where nine out of ten South Koreans possess a credit card, with an average of 1.88 cards per person (J. Choi, 2020a), albeit the caveats of financial technology usage and provision rate under expansion but still at relatively lower levels (Yoon, 2019). Although GPS location data (based stations of the mobile networks) and credit card payment records are the main sources of information used for the SMS, CCTV-surveillance footage (e-National Figures, 2019), the most disputed component of data collection (originally implemented in South Korea for criminal investigation purposes), is not uploaded onto the SMS but used on a separate track. It was publicly noted by a MOLIT official at the joint MOLIT and KCDC online briefing on April 9, 2020, that GPS data and credit card payment data are only uploaded to SMS for additional verification efforts that are deemed necessary, at the request of health officials for epidemiological survey. Further, CCTV footage is used for supplementary efforts to connect the logistics of an infection case and to verify the testimonies of an infected person, given the crucial need of identifying the exact date of infection (day 1) of COVID-19 in the contact tracing process to accurately conduct epidemiological investigations (KTV YouTube Channel, 2020a).

In March 2020 the COVID-19 SMS (KTV YouTube Channel, 2020b; Smart City Korea, 2020) using GPS cell phone data and credit card transaction data, was developed by MOLIT (Lee, 2020c). Otherwise dubbed the "COVID-19 Epidemic Investigation Support System" by the KDCA, the SMS enabled the expedition of epidemiological surveys and exhaustive search for new cases of infection, which had been conducted entirely manually until that point (KTV YouTube Channel, 2020a). According to the KDCA, the manual method would take at least a day for results to be obtained, whereas the SMS enabled the tracking in ten minutes. Testimony by a MOLIT official revealed that the ministry had already been working on a Smart City application (app) system, which covered all regions of South Korea, and that the SMS was launched based on a suggestion by an official that had been working on the Smart City data hub technology at MOLIT. In addition to the SMS, the Ministry of the Interior and Safety launched the Self-Quarantine app and the Self-Diagnosis app, available for Android mobile phones on Google Play (March 7, 2020) and iPhones through the Apple App Store (March 16, 2020) for public download and use. The apps were used to implement strict two-week quarantine measures for South Korean nationals and foreign entrants through the South Korean border (Van der Veere & Ha, 2020).

Other digital technologies involving artificial intelligence (Lin & Hou, 2020; Ting et al., 2020) or internet of things (IoT) were also deployed in South Korea. Hi-COVIDNet (M. Kim et al., 2020), by the Korea Advanced Institute of Technology (KAIST), used big data and deep learning methods to predict the two-week number of infectees from abroad (KAIST Public Relations, 2020; H. Lee,

2020b). Korea Telecom (KT) developed the COVID-19 risk measurement model and AI hotel and food server robots (J. Park, 2020b) for servicing customers to further enhance the effects of social distancing (M. Choi, 2020; M. Park, 2020).

Treatment: Free Treatment under the Healthcare System and Community Treatment Centers

Article 6 of the IDCPA as amended on March 3, 2020, stipulates that all citizens have a "right to receive the diagnosis and medical treatment of any infectious disease" and that "State and local governments shall bear expenses incurred within." Free testing and treatment were provided to the South Korean public through its high-quality universal healthcare system (Maizland & Felter, 2020). According to the Organisation for Economic Cooperation and Development (OECD) based on 2017 figures, South Korea's number of hospital beds per 1,000 population remains the highest among OECD countries: South Korea (12.27), Germany (8), France (5.98), Italy (3.18), Spain (2.97), United States (2.77), and United Kingdom (2.54) (Ministry of Health and Welfare, 2020c; OECD, 2020). Maintenance of capacity of hospitals was emphasized to prevent the breakdown of the medical system in South Korea. Patients were categorized by severity of symptoms to prioritize the acute patients in the intensive care units with pressurized beds in hospitals. Up to 303 hospitals applied to be designated COVID-19 protection hospitals operating outpatient clinics for respiratory patients and confirmed patients with minor symptoms were housed at community treatment centers (W. S. Choi et al., 2020; Kang et al., 2020; Y.-H. Lee et al., 2020; P. G. Park et al., 2020), which proved to be a cost-effective and resource-saving strategy in managing massive cases of COVID-19 (Ministry of Health and Welfare, 2020b). The amended Medical Service Act required hospitals and medical facilities to streamline their management of charts and patient documents even after repose or closure of facilities, defined the term "medical related infections" arising from hospitals and related care facilities, and required medical institutions to voluntarily report any signs of infections in preemptive measures to track cluster infections in nursing homes and hospitals (Medical Service Act, 2020).

With the continued influx of confirmed cases of COVID-19 in foreigners entering the South Korean border that remained open, the free treatment and care for foreign entrants to South Korea came under scrutiny and received criticism by the South Korean public for wasting tax money. The free treatment scheme for foreigners was then shifted to conditional free treatment based on reciprocity by nationality to ensure reciprocal treatment of overseas South Koreans by foreign countries (Ministry of Health and Welfare, 2020i).

Social Distancing Measures without Total Lockdowns and Medical System Maintenance

Social distancing measures and quarantine guidelines were based on reproduction rate by the MOHW in lieu of full-fledged lockdowns. Under the amended

Quarantine Act, the quarantine at the South Korean border was streamlined for efficiency and quality control, and the MOHW was granted the authority to quarantine individuals arriving or transiting through the South Korean border if affected by COVID-19, under a period of fourteen days if confirmed COVID-19 positive or epidemiologically presumed positive. Those who broke quarantine under Article 6 of the IDCPA were subject to a fine of KRW 1,000,000 or 1 year in prison. Social distancing campaigns throughout the country contributed to preventing the spread of COVID-19 (S. W. Lee et al., 2020; S. W. Park et al., 2020), of which the levels for implementation would range from 1 to 3 (level 1: small cluster infections, level 2: community-level infections, level 3: massive scale infections) after weekly assessments by public health authorities. Each time a big cluster infection was witnessed—in the Shincheonji religious sect infections in Daegu in February 2020, the Itaewon clubs in early June 2020, or the August 15 Gwanghwamun protests, as seen in Figure 6.1—the levels were elevated to keep the virus reproduction rate under control and to maintain hospital capacity.

The MOHW evaluated the effects of social distancing and public participation, evidenced by tracking cell phone mobility during the targeted time periods (and cell phone mobility data during observed time periods and public transportation ridership fluctuations) (Ministry of Health and Welfare, 2020e). However, gradual increase of ridership after high-level social distancing periods (J. Park, 2020a) indicated a societal inertia returning to normal patterns, whereas the economic downturn (i.e., losses in business revenue from infections that lead to disinfection and temporary closures, or abiding by social distancing measures) from COVID-19 continued to be exacerbated (Park & Maher, 2020). Public criticisms were based on the grounds of the need to resume economic activities, as there were dire economic ramifications from reinforced measures of social distancing. The details of the criticisms were toward public health officials of MOHW formulating policy centering on reproduction rates (S. Choi & Ki, 2020; Ministry of Health and Welfare, 2020e), medical system capacity, and its maintenance, rather than economic consequences from the measures.

Disinfection of Public Venues for Prevention of Virus Spread

As much as the South Korean response to COVID-19 did not entail complete lockdowns, it was vital for the public health authorities to maintain and restore public health by sanitation and disinfection efforts, particularly public spaces, on a regular basis throughout the country under Articles 50 to 60 of the IDCPA. For this social endeavor the KDCA laid out guidelines for disinfection via official documents, indicating the training, equipment, and methods of disinfection, as well as a case-by-case approach on the use of specific nonmedical chemicals for virus disinfection efforts (Ministry of Health and Welfare, 2020f). The guidelines were updated in August 2020 (Ministry of Health and Welfare, 2020g).

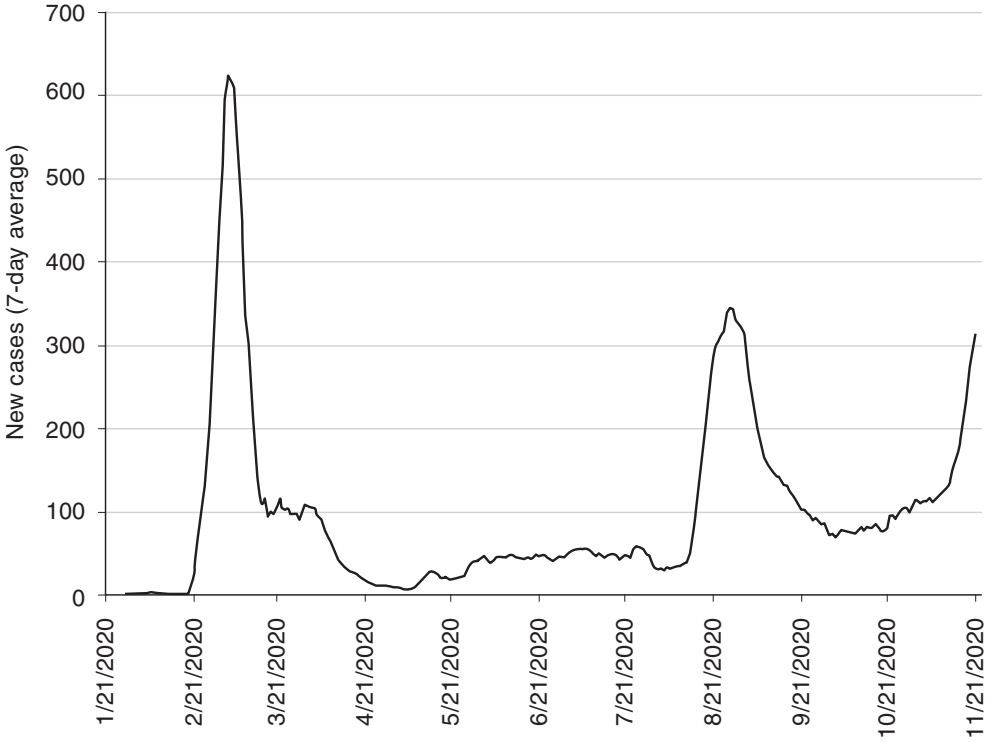

Figure 6.1. Daily new confirmed COVID-19 cases.
Source: "Our World in Data" based on data published by COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University. https://ourworldindata.org/coronavirus-data-explorer?zoomToSelection=true&time=2020-01-03..latest&country=~KOR&region=World&casesMetric=true&interval=smoothed&hideControls=true&smoothing=7&pickerMetric=total_cases&pickerSort=desc.
Note: The three main slopes point to the first, second, and third major waves of COVID-19 in South Korea. The first wave was caused by major cluster infections in Daegu surrounding the religious group Shincheonji, the second by the August 15 demonstrations in Gwanghwamun, and the third wave in which small and big cluster infections at the community and grassroots level are the main causes of newly confirmed cases.

Public Mask Provision System under IDCPA and Mandatory Mask-Wearing Guidelines

Before the COVID-19 pandemic, the use of face masks was common among South Korean citizens because of the micro-fine dust and yellow dust from China and domestic air pollution impacting the country seasonally. Cultural or religious taboos on mask wearing were therefore difficult to find, and as soon as the COVID-19 outbreak in China made headlines, the South Korean public sought to secure face masks. In a country where online retail and grocery delivery based on supply-and-demand algorithms worked smoothly, peculiar panic buying on masks continued in February 2020. To prevent unequal distribution of face

masks, under the amended IDCPA Article 6, public health officials were granted the legal authority to take "necessary means to make masks available to children and the elderly in a public health crisis involving any respiratory virus." The MFDS pursued a public mask provision program from March 2020 based on associating the final digit of birth year with day of the week, procuring masks sold at marts and pharmacies, whereby citizens would acquire masks with their ID cards. After controlled domestic production, the MFDS abolished the public mask provision system in July 2020 and lifted the export restriction on masks produced domestically in September 2020.

Mask-wearing guidelines by the MOHW and KDCA were not met with too much backlash as in the West, and the public responded with proactive participation to end the pandemic as soon as possible. Because there was a high level of policy reception on wearing masks by the public, mandatory mask-wearing guidelines were not in place until masks on public transport became compulsory on May 25, 2020, and in indoor and public spaces in thirteen out of seventeen metropolitan cities or provinces in South Korea, including Seoul Metropolitan City on August 24, 2020, by an administrative order, following the August 15 Gwanghwamun protests, which caused large cluster infections. From November 13, 2020, fines of up to KRW 100,000 on violations of mandatory mask-wearing guidelines in public were enforced in South Korea (Seoul Metropolitan City, 2020). Nonetheless, as in other Western countries, mandating mask-wearing guidelines resulted in public responses of noncompliance and refusal to cooperate in public health safety efforts. Such cases often resulted in escalated conflict and violence on public transport and other public venues in South Korea, to which the public health authorities responded by a fine and criminal prosecution by the Korean Police Agency (Ministry of the Interior and Safety, 2020). Overall, high public participation rate in wearing masks proved to be crucial for controlling the virus in the absence of vaccines, amid several unexpected peaks in confirmed case numbers throughout the pandemic.

Limitations in Treatment Drugs and Vaccine Development

Although South Korea made strides in the three Ts during the course of the COVID-19 pandemic, it still fell short of competency and speed in vaccine development, with a relatively shorter history of the industry compared to countries where Big Pharma—large pharmaceutical companies—has played a significant role in the development of vaccines. Although SK Bioscience demonstrated the potential for vaccine development with support from the Bill and Melinda Gates Foundation since 2016 (The Bill and Melinda Gates Foundation, 2016) coupled with an additional financial backing for research and development in May 2020 (Jung, 2020), it has gone nowhere near the global competition on COVID-19 vaccines. SK Bioscience is highly likely to produce vaccines on behalf of Big Pharma's vaccines when they are introduced, rather than

announce its own (H. Lee, 2020a). Such lackluster performance reaffirms the difficulty, time, and effort required to excel in the vaccines industry. Similarly, reagents of South Korean RT-PCR test kits have relied on imported sources; for them to excel further, domestic development and production of the reagents will be required to ensure stable supply and competitiveness (J. Choi, 2020b; Han, 2020).

On treatment drug development, South Korean pharmaceutical company Celltrion yielded positive results in the development of CT-P59, an anti-COVID-19 monoclonal antibody treatment candidate as a preventative measure, under the approval of the Investigational New Drug (IND) application under MFDS on October 8, 2020. The treatment entered phase III clinical trials in twelve different countries, with the planned timeline of completion by end of 2020 (S. Cha, 2020; Ministry of Food and Drug Safety, 2020).

Social and Economic Policies in South Korea under COVID-19

Fiscal Response by the South Korean Government and Supplementary Budgets Approved

The early successful efforts to reduce the incidence of COVID-19 cases received positive responses domestically and from abroad, but as time passed, public complaints from various sectors of the economy pressured the government to provide economic stimulus packages. The initial support package prepared by the executive branch and the MOEF in late February 2020 did not suffice in responding to the economic damages to the South Korean government. Leading up to the April 15, 2020, legislative election, the government faced more pressures on financial support provision.

COVID-19 Relief Funds by the South Korean Government and the Debate on Basic Income

These events led to a major supplementary budget allocation and approval prior to the election and subsequent series of supplementary budgets in the aftermath of the election under the Framework Act on the Management of Disasters and Safety and the Disaster Relief Act. Notably, the government's emergency relief payment (Ministry of Economy and Finance, 2020c) from the first supplementary budget sparked a long-awaited, heated debate on basic income in South Korea (Kim, 2018). Under the Framework Act on Social Security, South Korea focused more on public assistance and social insurance in welfare policy, but had not dwelt upon the concepts of social service and income provision leading up to COVID-19, and the legal grounds for a basic income concept are not made explicit in the law.

In disseminating the emergency funds, using digital tools, South Korea introduced cash transfers for quarantined individuals, coupons for low-income households, and wage and rent support for small businesses, which were administered by the MOEF and the Ministry of Interior and Safety. The government's initial rollout via the MOEF of comprehensive stimulus packages catering to all citizens received mixed responses from the public (Kim & Lee, 2020; Ministry of Health and Welfare, 2020d). Although some expressed gratitude for the lump-sum cash in their bank accounts, there was also backlash by critics for populist economic strategy and demands on targeted support. The Ministry of Employment and Labor then provided stabilization funds for individuals engaged in specific industries and freelancers the second time around (Ministry of Employment and Labor, 2020). As of this writing, the third wave of COVID-19 continues in South Korea, and there are discussions of a plausible third round of emergency relief payment.

Table 6.1 is a breakdown of the fiscal responses and disaster relief packages that were proposed by the South Korean government with the MOEF (executive branch) and later passed by the South Korean National Assembly. These stimulus packages would not be able to account for the array of economic damages resulting from COVID-19, which were accumulated through a series of social distancing periods. Going forward, the biggest challenge for South Korea will be recovery of its economic potential at the household level.

Institutions and the Control Tower in South Korea's COVID-19 Pandemic Governance

State capacity in pandemic governance in South Korea has been a combination of public health and socioeconomic policies on top of existing public health infrastructure, coupled with transparency and information delivered in a timely manner by the public health authorities that served as the control tower and public participation. For South Korea, large-scale RT-PCR testing made it possible to slow down the rate of virus transmission, thereby lowering mortality rate from COVID-19 at an early stage of the outbreak.

The policy choices made by South Korea indicate the significance of prior coronavirus experiences that have impacted solutions written into law, as in the IDCPA. South Korea's legislative election on April 15, 2020, during the pandemic, also influenced the government's need to demonstrate positive results in pandemic governance performance. The incumbent Moon Jae-in government won the general election by a landslide victory, having flattened the curve with the MOHW and KDCA at the forefront, acting as the control tower. The concept of the control tower in the South Korean policy-making system has been coined as the "Government Administrative Control Tower (GACT) in a Crisis Management System" in the aftermath of MERS. In engineering technology, a control tower

TABLE 6.1. South Korea's Fiscal Response to the COVID-19 Pandemic (as of November 24, 2020)

Package proposal and amount	Implementation/date	Details of fiscal response
Support package for the COVID-19 outbreak (Ministry of Economy and Finance, 2020a): KRW 20 trillion	Executive branch and MOEF/February 28, 2020	- About KRW 4 trillion, including government reserve funds and policy financing to support disease prevention, local governments, imports of manufacturing supplies, and small merchants - About KRW 7 trillion to provide financial and tax support for families and businesses affected, including 50 percent income tax cuts given to landlords for rent reduction and individual consumption tax cuts for car purchases to boost consumption - About KRW 9 trillion of loans, guarantees, and investment through financial institutions and public institutions - Supplementary budget to support local economies, as well as disease control
First 2020 supplementary budget (Ministry of Economy and Finance, 2020b): KRW 50 trillion	National Assembly and MOEF/March 19, 2020	*Help maintain business* 1. Provide small businesses with liquidity: a total of KRW 12 trillion to be spent on emergency funding for business operation and low-interest-rate loans (1.5 percent, lower than ordinary rates by an average of 2.3 percent) 2. Provide special guarantees on small and medium-sized enterprises (SMEs) and small business loans: a total of KRW 5.5 trillion worth of guarantees to be provided through Korea Technology Finance Corporation, Korea Credit Guarantee Fund, and local credit guarantee foundations 3. Provide a 100 percent loan guarantee worth KRW 3 trillion for small merchants

		Ease the burden on borrowers 4. Defer loan repayment for SMEs and small businesses: at least six months of deferment to be offered by banks and nonbanking financial institutions 5. Suspend loan interest payments for SMEs and small businesses for six months starting on April 1, 2020 6. Support debt workout programs: debt relief programs at Credit Counseling and Recovery Service, and outstanding debt purchases by Korea Asset Management Corporation *Avoid credit crunch* 7. Use Bond Market Stabilization Funds to provide liquidity to corporations 8. Issue a total of 6.7 trillion won worth of Primary Collateralized Bond Obligation (P-CBOs from the Korea Credit Guarantee Fund) over the next three years 9. Create an equity market stabilization fund: a temporary fund jointly invested by the financial sector, designed to be invested in equity index products
Second 2020 supplementary budget (Ministry of Economy and Finance, 2020d): KRW 7.6 trillion	National Assembly and MOEF/April 30, 2020	*Spending restructuring and public sector costs saved (KRW 3.6 trillion)* - Developing country aid programs suspended because of the lockdown (KRW 0.3 trillion) - Public projects suspended (KRW 2.0 trillion) - Public sector costs saved: labor costs (KRW 0.7 trillion) and government complex construction costs (KRW 0.1 trillion) - Energy costs saved because of falling oil prices (KRW 0.2 trillion) - Korea Treasury Bond (KTB) yield payments saved because of falling market interest rates (KRW 0.3 trillion)

(*continued*)

TABLE 6.1. *continued*

Package proposal and amount	Implementation/date	Details of fiscal response
		Borrowings from public funds (KRW 4.0 trillion) - Public funds saved because of the weak won (KRW 2.8 trillion) - Housing funds (KRW 1.2 trillion)
Third 2020 Supplementary Budget (Ministry of Economy and Finance, 2020e, 2020f): KRW 35.3 trillion	National Assembly and MOEF/July 3, 2020	*Budget* KRW 35.3 trillion = KRW 11.4 trillion (revenue adjustment) + KRW 23.9 trillion (new spending) - Revenue adjustment: KRW 11.4 trillion - Finance emergency support: KRW 5.0 trillion - Improve job security and expand social safety nets: KRW 9.4 trillion - Finance economic stimulus packages, including the Korean New Deal: KRW 11.3 trillion *Source of finance* - Spending restructuring: KRW 10.1 trillion - Borrowings from public fund reserves: KRW 1.4 trillion - Bond issuance: KRW 23.8 trillion
Fourth 2020 supplementary budget (Ministry of Economy and Finance, 2020g): KRW 7.8 trillion	National Assembly and MOEF/September 22, 2020	*COVID-19 reliefs* - Emergency support for small businesses and SMEs: KRW 3.9 trillion - Emergency unemployment reliefs: KRW 1.5 trillion - Emergency reliefs for low-income households: KRW 0.4 trillion - Emergency childcare support: KRW 1.8 trillion - Emergency disease prevention: KRW 0.2 trillion

Source: Based on press releases by the Ministry of Economy and Finance (2020a, 2020b, 2020c, 2020d, 2020e, 2020f, and 2020g) of the Republic of Korea.

refers to a central hub at the top of a tall building used in aviation, from which controllers with a high level of authority direct takeoff and landing. In supply chain management, a control tower refers to a process of decision making and execution by visualizing distribution flow with real-time data (Bentz, 2014).

The control tower concept, which is commonly found in engineering technology or supply chain management, is applied in domestic policy-making to refer to the chain of command, or in more narrowly defined terms, "a systematic method whereby a central organization controls a situation by directing certain individuals to act as planned, agilely adjusting its approach in the face of uncertainty and the ever-present possibility of expanding disaster" (Lee, 2015). The control tower is a system by which decisions are made through interorganizational efforts in the shape of a pyramid, in which every organization has its own role and task, akin to a chain of command. In spite of the existence of the KCDC in 2015, the absence of a clear and transparent control tower during MERS was considered one of the main elements of policy failure and gave a wake-up call to South Korea's lawmakers, which prompted them to make a series of institutional changes and legal amendments to make the MOHW the main and highest control tower for disaster prevention and control mechanisms.

Despite the economic downturn and low popularity because of the administration's constant maneuvers with North Korea, without delivering substantial results in foreign policy results, the early response to the pandemic led to victory for the incumbent party in the general election on April 15, 2020. The election results reveal that despite dissatisfaction with the incumbents, citizens hoped for ending the pandemic with a significant level of trust in the public health authorities, with further expectations of their role as control tower. Given public perception that South Korea has a relatively superb public health infrastructure among OECD countries but failed in pandemic governance in MERS, another pandemic governance failure in COVID-19, like that witnessed in MERS, would have been considered unforgivable by South Korean citizens.

South Korea's centralized power structure evolves around the presidency, and it extends to regional governments in a centrifugal manner. To secure nationwide support, the legislative efforts were crucial in pandemic governance, and fast-track processes were conducted to pass the amendments to the IDCPA. South Korea went through democratization in the 1980s; the impeachment process of former President Park Geun-hye in 2017 served as a litmus test to South Korean democracy while the remnants of authoritarianism remain embedded in the centralized power structure and the presidency. Responding to public opinion and pressures on the government for delivering on crisis management became central to leadership maintenance.

Conclusion: Crisis Recovery and the Road Ahead for South Korea

In the aftermath of the general election, having secured a majority in the National Assembly, bipartisanship is regrettably absent on multiple domestic and foreign

policy fronts. The left-leaning incumbent government has been turning a blind eye not just on public opinion but policy suggestions from other political parties. Since democratization, South Korean presidencies are five-year terms without reelections. With the next election coming up in 2022, the Moon Jae-in government needs to continuously deliver on pandemic governance for the progressives to stay in power. Nonetheless, pandemic governance, however successful it may be, will not suffice in clearing the Moon Jae-in administration of the missteps taken in the failed détente with North Korea and lackluster results on the economy. The probability of a more deeply divided political arena into progressive and conservative parties remains high in South Korea.

Into the future, pandemics or other infectious diseases will come in shorter cycles, with new viruses emerging constantly. Maintaining the quality of the universal healthcare system is paramount to South Korea, because the country's population is aging rapidly. The pressure on the government to perform well in public health crises will keep the government in check and public health technocrats occupied and strengthen legal foundations and institutions as the country experiences any subsequent pandemics. In the prolonged pandemic, the policy solutions on economic recovery from COVID-19 remains the elephant in the room in South Korea just as elsewhere in the world, and despite South Korea's Personal Information Protection Act, the questions regarding data privacy will arise more frequently as the shift to the contactless economy under COVID-19 demands more use of personal data in cyberspace. Data governance in this regard will be crucial under the tech-oriented features of South Korea's economy, as the contactless economy is further bolstered by the deployment of artificial intelligence and seamless network infrastructure, in which the control and use of data would be key.

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