Demographic Headwinds
Can Korea Avoid Japan’s Lost Decade?

Two great waves of change are sweeping across the world. The first is the economic and technological transformation of the Fourth Industrial Revolution. At the same time, declining birth rates and aging populations have triggered social and demographic changes, mostly in developed countries. The global demand for highly skilled labor is rising due to rapid technological progress, but the working-age population is shrinking. This has created a widening supply-demand imbalance for global talent. Companies and countries are locked in a fierce competition to attract the most talented individuals.

Korea is no exception. It severely lacks the workforce it needs to successfully navigate the Fourth Industrial Revolution. Moreover, the demographic changes noted above are proceeding at a much faster pace in Korea than in other developed countries. Until now, Korea has focused on attracting low-skilled labor from abroad to address domestic labor shortages. However, Korea must now pivot to attracting high-skilled talent from across the world to safeguard its future. New economic and demographic realities leave no alternative.

Although it faces such formidable challenges, Korea is lagging far behind in the global competition to attract talent. It does not present a welcoming environment for foreign workers. The size of Korea’s economy ranks in the top 15 worldwide, but it ranked 27 out of 134 countries in INSEAD’s 2021 Global Talent Competitiveness Index. Specifically, it falls worryingly short on two elements that are central to talent competitiveness: brain gain and tolerance for immigrants, respectively ranking at 45 and 65.

If Korea is to overcome its current demographic crisis and find a new engine of economic growth amidst the Fourth Industrial Revolution, it is vital to formulate policies and strategies to attract and utilize highly skilled talent from abroad. To be sure, the government has recognized this problem for many years. The Presidential Committee on Aging Society and Population Policy was formed in 2005, and the Yoon Suk-Yeol administration is preparing to create a new agency to coordinate and direct immigration policy. Nonetheless, government policies still fall short in many respects. Countries with a long history of immigration, such as the United States and Australia, are taking proactive steps to attract global talent. The same holds true of countries that have key historical and social similarities with Korea, including Japan and Germany. What can Korea learn from their experiences?

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The 21st century has given rise to a veritable global war to attract talent. The competition is quickly intensifying in cutting-edge technologies, including artificial intelligence, big data, self-driving vehicles, and robotics. Faced with falling birth rates and aging populations, many developed countries are eager to attract global talent. Since demand for such talent is not confined to any region or country, highly skilled individuals are crossing oceans and continents to destinations that provide the most promising opportunities. These individuals consider not only potential wages, but also quality of life and the socioeconomic environment. As their skills are in high demand, they hold all the cards.

**Political factors**, such as the rise of anti-immigrant sentiment and chauvinistic nationalism, are also having a significant impact on talent flows. Tensions between China and the United States, especially in the areas of technology and information, further complicate the picture. Silicon Valley is at the front lines of this Sino-U.S. competition, as well as the global war to attract talent. There is a sense of urgency in the struggle against China to secure talent in critical technologies like those mentioned above. Trade disputes between Washington and Beijing are only the tip of the iceberg. The real battle is taking place over technology, information, and the highly skilled individuals who work in these sectors. Since the Chinese government is making a concerted effort to gain the upper hand in talent recruitment, the United States is compelled to respond. The Biden administration has been taking legislative steps at home and crafting multilateral initiatives abroad to bolster economic security in key sectors, including semiconductors.

5 “100 Largest Companies in the World,” Statista.
contributed to South Korea’s declining birth rates and population: expensive housing, intense job market competition, and young people choosing to pursue their careers over starting families. However, Japan’s experiences prove cautionary: among advanced countries, Japan was the first to encounter a demographic crisis, and its failure to anticipate and properly respond to this problem was an important factor in its economic slowdown. The country’s “Lost Two Decades” were partly related to sudden changes in its birth rate and population age structure.

Korea’s demographic crisis is unfolding at a much faster pace. Its birth rate is already lower than that of Japan, and its population is aging more quickly. Combined with the severe brain drain, these demographic changes will have far-reaching effects on Korea’s society and economy.

According to Korea’s national statistical office, 260,600 infants were born in 2021.7 This represents a 4.3% decline compared to the previous year. The annual figure hovered around 600,000 until 2000, but it has fallen to less than half that figure in only two decades. In terms of the total fertility rate (TFR), Korea fell from 0.84 in 2020 to 0.81 in 2021. This statistic represents the average number of children that a woman would have by the end of her reproductive period (age 15 to 49).8 Simply put, Korea has reached the point where a woman does not give birth to even one child over her lifetime.

The OECD classifies countries with a TFR of 1.3 or lower as having an extremely low birth rate. Korea entered this category in 2002. Of the 38 OECD member states, Korea has had the lowest birth rate since 2017. The impact of this demographic downturn is already clear, with a noticeable decline in the population of college-age students.9 Korea’s economy will have an ever-shrinking domestic pool of talent to draw from.

Korea’s population is also aging rapidly. It is projected to become an “extremely aged society” by 2025, when 20.6% of its population will be 65 or older. This figure is expected to reach 40% by the middle of the century. The pace of this change is much faster than it was in Japan, which is well known across the world as an aged society. An Aging World: 2015, a 2016 report by the U.S. Census Bureau, predicts that Korea will become the second-most aged society by 2050, exceeded only by Japan. Korea had been one of the youngest countries, it notes, but will become one of the oldest in the next 50 years.10

Korea’s government may have succeeded in its efforts to control population growth, thereby facilitating the “Miracle on the Han River,” but the demographic consequences of those policies now pose a significant obstacle to the country’s sustainable development. The working-age population (age 15 to 64) peaked at 73.2% of the population in 2017. This proportion will plunge to 66.0% by 2030 and 51.1% by 2050. A shrinking labor force will have to shoulder an increasingly heavy burden to support the elderly.

While the government already recognized the gravity of the problem many years ago, its efforts to alleviate the situation have yielded only dismal results. It poured $200 billion into various initiatives aimed at lifting the birth rate over the last 16 years, but the country now has the lowest fertility rate.11 Attempts to address the aging problem have also been unsuccessful. Although the government is allocating greater resources to deal with the issue, the situation is dire. The relative poverty rate

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7 Unless noted otherwise, all population statistics in this section are from KOSIS (Korean Statistical Information Service), Korea’s national statistical office, https://kosis.kr/index/index.do.
8 The full definition of TFR given by the World Health Organization is “the average number of children a hypothetical cohort of women would have at the end of their reproductive period if they were subject during their whole lives to the fertility rates of a given period and if they were not subject to mortality.” See “Total Fertility Rate (per Woman),” WHO, https://www.who.int/data/gho/indicator-metadata-registry/imr-details/123.
9 Children who were born in 2002, when Korea’s TFR first fell below 1.3, would have entered college in 2020.
among the elderly reached 40.4% in 2020. In addition, the suicide rate among the elderly was 5.4 per 100,000 in 2017. This is 3.2 times the OECD average. More resources are required to effectively address the problem, which is likely to worsen in the coming decades.

**EXIT: AN OUTFLOW OF TALENT**

These population issues are compounded by the fact that Korea is also experiencing a serious brain drain. This is especially pronounced among highly educated individuals in STEM fields, who will play a vital role in the era of the Fourth Industrial Revolution. In 2016, the Biological Research Information Center, an online forum for biologists in Korea, surveyed 1,005 of its members about this issue. When asked, “If you had to find a job within a year, would you prefer staying in Korea or going abroad?” 47% of respondents indicated that they would look overseas. Furthermore, Korean students who graduate from PhD programs in the United States in STEM fields mostly prefer to find jobs in America instead of returning home. Around half of these individuals remain in the United States after graduation, and the number has grown over time. In 2011, the 5-year stay rate of Koreans who had graduated with a PhD from the United States in science or engineering was 42%. In 2017, it was 57%. Companies in China and Europe are working hard to recruit Korean talent in advanced technologies. Northvolt, a Swedish battery manufacturer, revealed that it hired personnel from LG Chemical to play a central role on its own R&D team soon after the company was established. The electric vehicle division of China’s Evergrande Group is hiring talent from abroad, including Korea. As the Sino-U.S. competition intensifies, Chinese companies are pulling out all the stops to attract foreign talent in key sectors, including the semiconductor industry. They are offering salaries that are two to four times higher than what Korean companies can provide. There are growing concerns that a brain drain could also lead to an outflow of critical technologies.

According to a 2016 report by the Swiss-based Institute for Management Development, Korea ranked 41st of 63 countries in terms of brain drain and 33rd in terms of brain gain. The countries analyzed in this report can be divided into four groups, depending on whether they rank high or low on the two dimensions of brain drain and brain gain. Countries such as the United States and the United Kingdom have low brain drain and high brain gain, which means that they can draw on a large talent pool. Korea, Japan, and Taiwan are in the opposite situation. They have high brain drain and low brain gain. Even among this group, Korea shows the largest gap between talent inflow and outflow. It finds itself in an especially disadvantageous position as it enters the era of the Fourth Industrial Revolution.

There is no time to lose. If Korea is to find its way out of the perfect storm of a demographic decline compounded by a brain drain, it must be able to attract and rely on foreign talent. It cannot remain a bystander in the intensifying global competition to recruit talent. Until now, Korea has mostly drawn on low-skilled workers from China and Southeast Asian countries. As of 2021, there were 855,000 such migrant workers in Korea. The number of highly skilled migrant workers is less than 10% of this figure. There must be a shift toward attracting foreign talent before it is too late.

This will not be a straightforward task. Immigration is a highly sensitive issue in Korea. Chronic youth unemployment, especially among college graduates, continues to be a serious problem. This is largely due to a mismatch in Korea’s labor market, whereby there is strong preference among young Koreans for skilled, professional jobs, which are on a decline. As youth unemployment is a structural problem that cannot be quickly resolved, the public will be anything but receptive to calls for high-skilled immigration. A wave of anti-immigrant sentiment...
swept across Europe and reached the shores of the United States, where Trump entered the White House by capitalizing on the anger of white working-class voters. It would be unwise to ignore similar political undercurrents in Korea. Nevertheless, concerns about the possible economic costs of high-skilled immigration fail to appreciate the bigger picture. An influx of foreign talent could contribute to job creation, especially in the skilled sector, thereby alleviating youth unemployment. Moreover, assembling a diverse workforce will stimulate creativity, which plays a pivotal role in the technology sector.  

WHO WILL MAKE THE NEXT IPHONE?  
Silicon Valley provides an important data point for informing discussions in Korea about high-skilled immigration. The region’s success would not be possible without the unique history of the United States as a nation of immigrants. However, it is the inclusive culture of Silicon Valley, which recruits diverse talent without regard for ethnicity or nationality, that has enabled its companies to become the driving engine of the global economy. In only 30 years, these individuals have transformed the orchards and vineyards of a small corner of northern California into the global epicenter of the technology industry. Some of them first arrived as students at Stanford or UC Berkeley and then settled down in the Bay Area. Others came in search of jobs from the very beginning. Together, they are competing and collaborating with each other as they push humanity toward new frontiers of technological innovation.

Without such a multinational, multiethnic workforce, Silicon Valley as we know it would not exist. It stands at the cutting edge of technologies that define the Fourth Industrial Revolution, including AI, self-driving vehicles, augmented reality, and IoT. The brightest minds in the world have gathered in Silicon Valley from all corners of the globe. It is no coincidence that engineers and entrepreneurs of Indian, Chinese, and Taiwanese heritage play a leading role in the region’s largest companies. Sundar Pichai (Google), Satya Nadella (Microsoft), and Rajeev Suri (Nokia) all completed their undergraduate studies in India before coming to the United States to build their careers. Jen-Hsun Huang (Nvidia) and Steven Chen (YouTube), both prominent figures in Silicon Valley, emigrated to the United States from Taiwan at a young age. Marc Tessier-Lavigne, the president of Stanford University, came to the United States as a post-doc after completing his PhD in France. It is common to see other faculty members who first came to the United States as students from India or China.

The INVEST Act of 2012, introduced by representatives Adam Schiff and Charles Bass, provides a pathway for foreign students in STEM fields to create companies and obtain permanent residency in the United States. In a March 2012 op-ed, Schiff and Bass observe that “for every foreign-born worker who puts his or her advanced degree to work in this country, more than two jobs for American-born workers are created.” They stress that “our universities are educating the next generation of Steve Jobs; let’s make sure that they build the next Apple—and the next iPhone—in the United States.”  

At a congressional hearing in 2008, Bill Gates similarly noted that “Microsoft hires four Americans for supporting roles for every high-skilled H-1B visa holder it hires,” calling on the U.S. government to take proactive measures to attract foreign talent.  

Around a quarter of all technology and engineering-related companies created in the United States between 2006 and 2012 were formed by immigrants. In Silicon Valley, the proportion is nearly 50%. The experiences of first-generation immigrant entrepreneurs such as Elon Musk (Tesla, SpaceX), Sergey Brin (Google), Andrew Grove (Intel), and Vinod Khosla (Sun Microsystems) are anything but exceptional. One analysis finds that “immigrant founders from top venture-backed firms have created an estimated average of 150 jobs per
Many countries have now entered the global competition for talent, some of which bear similarities to Korea. Widely hailed for its success as a “startup nation,” Israel was able to develop its economy by attracting talent from diverse countries. Just like Korea, Israel lacks natural resources and is located in a volatile, conflict-prone region. Despite these disadvantages, Israel succeeded in recruiting foreign talent and attracting multinational companies. After the Soviet Union collapsed, there was a large influx of immigrants into Israel. Many of them were professors, scientists, and engineers, and their skills and experiences played a pivotal role in facilitating Israel’s economic growth.

Germany, which is arguably the originator of ethnic nationalism, also merits a closer look. Before 2000, Germany enforced stringent restrictions on high-skilled immigration for foreign talent. Concerns about its declining birth rate, aging population, and shortage of highly trained STEM personnel prompted the government to revise its immigration policies. It introduced a “Blue Card” system in 2012 that enabled highly qualified foreign workers to seek employment in Germany. In only two years, Germany succeeded in attracting 17,000 individuals through this system from non-EU member states. Unlike the United Kingdom or France, where anti-immigrant sentiment remains prevalent, Germany is poised to further expand high-skilled immigration. This will bring economic benefits that will cement the country’s role as a pillar of the EU.

Japan has also transformed its policies to overcome its demographic malaise. While it previously focused on low-skilled immigration for “3D” occupations, just as Korea has, Japan has now set its sights on attracting foreign talent. One of the major elements of Abenomics was attracting foreign talent. The government announced a plan to host 300,000 foreign students. It provided tailored assistance at every step of the way, from admissions to graduation and job preparation. In particular, foreign students who sought to find employment in Japan after graduation were offered career counseling and employment assistance. Visa regulations were amended to allow such students to stay in Japan for a year while seeking employment. There has already been a change in atmosphere among Japanese businesses. In a survey of 732 Japanese companies in December 2018, 57.2% indicated that they had already hired (or planned to hire) a foreign worker with a college degree.

China has also thrown its hat in the ring. Hao Zhen, chief consultant for Zhaopin, a popular Chinese job search website, noted that “China desperately needs highly skilled workers in AI and other sectors, but it does not have an education system that is capable of creating such a workforce.” This is “why major Chinese IT companies such as Baidu and Alibaba are seeking to recruit foreign talent,” Hao added. China is taking steps to promote high-skilled immigration by relaxing regulations for employment visas and permanent residence. These policies were initiated by the central government, but in 2016 these measures were also extended to immigration policies at the provincial level. Furthermore, the Chinese government also introduced a policy to provide permanent residence to foreigners who start a company in Zhongguancun, also known as China’s Silicon Valley, provided that they meet certain criteria.

A truly global competition is underway to attract highly skilled workers, and it is past time for Korea to join the fray. This is matter of survival for Korea, given its demographic crises and brain drain. There is a pressing need to form a public consensus in Korea on high-skilled immigration.

Any number of policy proposals could help attract foreign talent. One example that could be implemented with relative ease in Korea is to draw foreign students into the labor market. Although the number of foreign students has surpassed 100,000, hosting foreign students is still primarily seen as a means of compensating for declining enrollment numbers at home. These students


23 Shin, “Beyond Representation.”

24 3D jobs are those that are dirty, dangerous, and demeaning (or demanding/difficult).


have the potential to make valuable contributions to Korea’s society and economy, but as some have noted, they are not always as skilled or qualified as their Korean counterparts. Moreover, the industries they seek to enter are not necessarily the ones where Korea needs foreign talent. This could be remedied by establishing a comprehensive system to nurture and train foreign students, starting from the admissions process. This can help ensure that foreign students play an essential role in Korea’s economy, especially in sectors that face critical labor shortages. Creating successful pathways to employment for foreign students will help attract even more students down the line.

The United States, the United Kingdom, Australia, Canada, and now Japan have already taken similar steps. In Japan, around 30,000 foreign students found jobs in 2019 after graduating. Assuming that around a quarter of the 300,000 foreign students in Japan graduated after full-time enrollment, the employment rate is roughly 40%. The goal is to reach 50% employment for foreign-born graduates, and the current success rate is already playing an important role in attracting more talented students from abroad. Korea should also put in place the institutions to enable this virtuous cycle and use global talent flows to its advantage.

Drawing highly skilled foreign workers into Korea’s economy will not only strengthen the overall talent pool, but also stimulate creative thinking and enhance productivity by raising cultural diversity. In an industrial economy, it was vital to have a homogeneous and cohesive workforce that could quickly and efficiently achieve a given objective. We now live in an economy where creativity and innovation are the order of the day. There is an emphasis on the power of creative destruction. Korea remains one of the most homogeneous societies in the world, and Koreans have traditionally placed a high value on ethnic and cultural unity. Increasing diversity is an urgent and daunting challenge. An influx of global talent could help revitalize Korea’s economy and stimulate technological innovation. The recent surge of interest in Korean culture across the world could provide a crucial window of opportunity to attract foreign talent.

In this vein, it is timely that the Yoon administration is preparing to establish a new agency to handle immigration policy. However, it will not be enough to revise the Immigration Act or pass laws to create new institutions. There must be a profound social and cultural transformation. In particular, Koreans must tear down the walls of their exclusionary “super-networks,” which are often built around common alma maters, shared regional backgrounds, and family ties. We must move beyond the emphasis on purity and homogeneity. Only then can Korea foster an open, inclusive, and tolerant culture where individuals of diverse backgrounds can freely come together and strive for new heights of innovation.

Two thousand years ago, all roads led to Rome. When in Rome, as the saying goes, people had to “do as the Romans do.” We now live in a world of complex global talent flows, where highly skilled individuals around the world cross oceans and continents to seek the most promising opportunities. If Koreans insist that foreigners “do as the Koreans do,” they will simply look elsewhere. **Translated by Raymond Ha**

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27 Shin, “Beyond Representation.”