



What Can Drive the Republic of Korea's Future Growth?

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Introduction

As highlighted by a recent report entitled “Is Korea’s Economic Growth Miracle Over?” (Davies 2024) there is considerable concern that the current growth model that has fostered the Republic of Korea’s meteoric rise is in dire need of refurbishment. Korea’s strong growth performance prior to the Financial Crisis of 2008–09 was halved between 2011 and 2019 to an average annual rate of 2.9 percent and it then dipped further to 1.8 percent per annum during 2020–23. With near-term forecasts indicating only a modest improvement and the workforce peaking, the government is looking for ways to reverse the slowdown and to restore Korea’s previous economic momentum. In fact, the OECD has Korea’s potential growth rate sinking to 1 percent by 2030 (Davies 2024).

President Yoon has announced the goal of enlarging the economy’s “structural growth potential” by promoting advanced manufacturing and services and bolstering economic innovativeness through research both basic and applied. Mid-sized firms and start-ups are expected to reinforce the efforts of the large corporations and to increase their role in the innovation process. The underlying question is whether any of these proposed measures is sufficient to slow down Korea’s negative growth trajectory.

The Search for Answers

How might Korea, a mature industrial economy, raise its growth potential sustainably by several notches? Capital accumulation, the labor supply, human capital, and factor productivity are the conventional determinants of growth (Inklaar et al. 2022). Historically, much of Korea’s growth and that of all other countries has been sourced from domestic and foreign investment, followed by factor productivity with labor and skills responsible for the balance. The balance in Korea has shifted, with both economic development and the contribution of labor declining, and productivity’s contribution to growth declining even more rapidly.

Since 2000, gross capital formation in Korea has averaged 32 percent of GDP; however, each unit of capital has generated less and less growth (the ICOR has risen). This level of investment is well above the OECD average—currently 24 percent of GDP—and over the course of the decade, is unlikely to change. The contribution of labor and of human capital has stabilized and will begin to slip (barring changes in participation rates) as the working age population falls. This leaves factor productivity (TFP), which is the principal determinant of long-term growth, and the focus of growth policy (Celik et al 2023; Dieppe 2022).

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During the catching-up phase of Korea's development from 1982 to 1995, TFP grew by 3 percent per annum (McKinsey Global 1998) as Korea absorbed technology from abroad. Subsequently, TFP sustained high single digit rates of growth. TFP slowed to 1.7 percent per annum from 2000 to 2007, to 0.6 percent from 2011 to 2019, and was just 0.3 percent per annum between 2019 and 2022 (The Conference Board 2023). To sustain economic growth of 2–4 percent per annum, it will be necessary to reverse the downward trajectory of TFP and restore rates of increase achieved in the early 2000s.

What is total factor productivity and what are the ingredients?

Total factor productivity is the aggregation of gains from several sources. Investment in plant and equipment embodying new technologies raises productivity, as does 'learning by doing' associated with the volume of capital plowed into plant and equipment. Intangible capital augments the value added by physical capital. With manufacturing technology becoming more complex, manufacturing itself more servitized, and the share of tradable services expanding, intangible capital is assuming an ever-larger role (Chun and Nadiri 2016; Corrado et al. 2022; Hazan et al. 2021). The institutional infrastructure and policy environment determines the efficiency of resource allocation, the intensity of competition, and the scope for start-up activity, which can serve as a conduit for new ideas and technologies. Together these can add several tens of basis points to factor productivity. The skills and flexibility of the workforce are another significant factor impinging on productivity.

Technological catching up, followed by leapfrogging when the opportunities arose, enabled latecomer Korea to make rapid progress from the mid-1960s (Lee 2016, 2019). Now Korea's growth performance hinges on the germination of new ideas

and technologies that can be commercialized (Soh et al. 2023). This latter process depends upon the volume and quality of research and how resources are divided between basic research and the exploiting of existing knowledge. R&D is more likely to be fruitful when researchers collaborate internationally and actively participate in the global innovation system. Similarly, researchers benefit when they are incentivized to not just publish and patent their ideas, but also to engage with the business community so that more ideas make the transition from the laboratory to the factory floor or to an IT platform. Research jointly conducted with multinational corporations (MNCs) can complement domestic research and boost productivity directly and through spillovers.¹

Research, development, and innovation (RD&I) and policies favoring them become all the more relevant when faced with diminishing returns from other sources of growth. Let us examine five factors that can drive stronger growth performance and evaluate where Korea stands on each of them.

First is Korea's gross investment rate, which we deem to be at an appropriate level. Raising it would be difficult and the increments to productivity from additional investment are likely to be meager.

Second, Korea already has a highly educated workforce. While the mismatching of skills is an issue and deserves attention, more spending on workforce development given the existing high quality would barely register on TFP.

Third, a regulatory and contestable environment conducive to the entry and exit of firms can be a plus. However, this has been work-in-progress for decades, and the rewards have yet to tangibly materialize. Nevertheless, the government has sound reasons to continue with reforms, especially since returns will come from the harnessing of digital technologies, and much of this has traditionally been due to start-ups.

Fourth, foreign direct investment (FDI) can also raise productivity through several channels. Korea has become more receptive to FDI of late and has attracted investment from the European Union, Japan, and the United States.² But the downward slide in productivity has persisted. The government is now attempting to induce MNCs to establish research centers that enhance Korean technological capabilities. This offers promise alongside policy initiatives to raise productivity if MNCs conduct their cutting-edge research in Korea.

Fifth, given Korea's current industrial maturity, industrial deepening, restructuring, and diversifying into higher-value activities (manufacturing share of GDP is 25 percent), while desirable and feasible on the margin,³ will not necessarily move the productivity needle. Likewise, research outlay already is almost double that of the United States and China as a percent of GDP. And there is no evidence to suggest that an additional 0.25 percent of GDP could make a difference.⁴

Given these circumstances, government and businesses need to take a hard look at the content of research, how efficiently it is being conducted, and the payoff from ongoing investigations. For example, Korea is losing ground to China in products such as display technologies and facing competition on memory chips (NAND). In 2020, Korea was a world leader in 4 of 120 major technologies as against 36 in 2012 (Hwang et al. 2023). Throwing more money at research without ensuring that the money is being well spent is money wasted. Therefore, quality of research deserves the closest attention, and a high-level independent commission may be necessary to accomplish this.

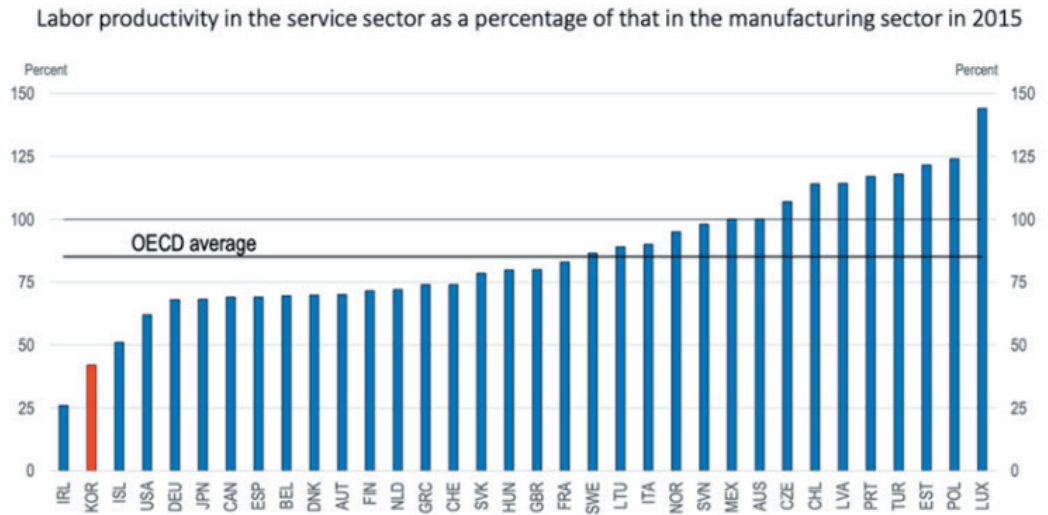
A second potential driver of productivity is artificial intelligence (AI) in its various renditions.⁵ This has considerable, largely untapped potential (EIB 2021). For example, like research, AI is an intangible capital multiplier that can magnify the output of

researchers, healthcare professionals, designers, lawyers, trainers, and many other services providers, aside from deepening factory automation and conserving energy. Korea was ranked third between 2010 and 2021 according to the number of AI patents filed; machine learning, energy management, education, and military accounted for most filings. During the same period, Korean researchers published more than 68,000 papers on topics related to AI (McFaul et al. 2023). With this wealth of research to draw upon, and in conjunction with specialized skill development, AI/digital technologies constitute some of the low-hanging fruit for Korea to harvest. Currently, the software industry accounts for just 1.5 percent of the global market and less than 3 percent of the 30,000 firms are exporters. Digitalization could bring Korean labor productivity, currently at about 70 percent of the average mature economy, closer to its peers.

Although Korea has made the transition from manufacturing to services more gradually than many other OECD economies, there is a sharp gap between productivity in services versus productivity in manufacturing (see Figure 1). In 2023, GDP per hour worked using the PPP yardstick was US\$52.4 versus US\$87.3 in Germany, US\$87.2 in the United States, and US\$74.3 in the United Kingdom (Hwang et al. 2023). The gap between Korea and its comparators has not declined over the past decade, so that action on the RD&I front may be urgent.

A third area where a big push could be productivity augmenting is the small and medium-sized enterprise (SME) sector, which in Korea accounts for the highest share of employment among the OECD members. This sector has underperformed for decades, despite a plethora of measures that have targeted access to financing, offered credit guarantees, encouraged entrepreneurship, and attempted to improve managerial, technical, and vocational skills

Figure 1: Productivity gaps between manufacturing and services

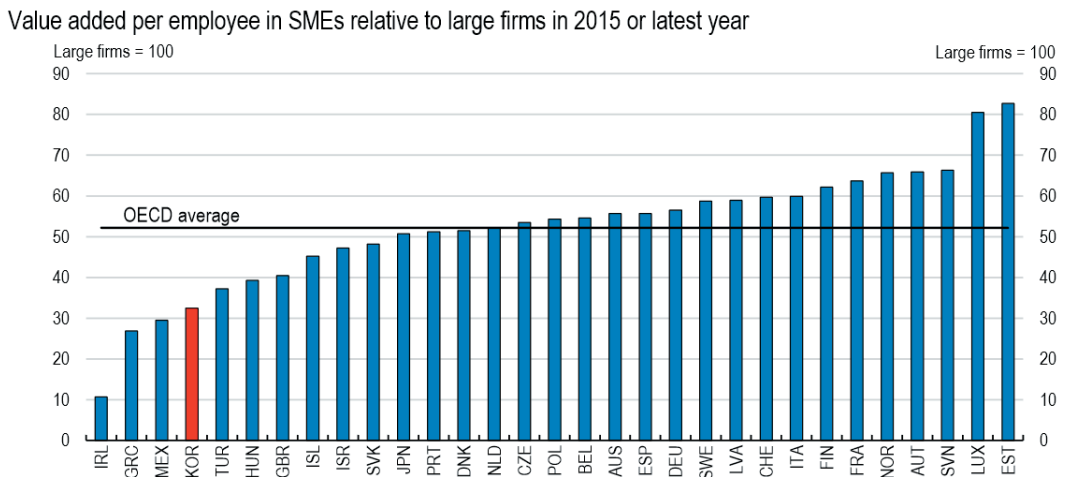


Source: OECD 2021a.
 Note: The service sector excludes financial services.

(with a total of 1,350 central and local support programs) (OECD 2021). Nevertheless, the value added by SMEs is lower than that of larger firms (McCurry 2017; Min-sik 2024; The Straits Times 2023). It is lower in all OECD members, but the gap is unusually large in Korea (see Figure 2). That SMEs do not invest much in R&D, that the majority produce low-value services, and that

competition in the sector is insufficient to weed out the underperformers, do not suffice as explanations (Lee and Jones 2023). SMEs in Korea are also stifled by being suppliers to the chaebol or being unable to grow to scale due to effective barriers to entry. Therefore, while they may engage in some technology adaptation and development, few can afford the luxury of in-house

Figure 2. Productivity gap between SMEs and large firms: Korea versus OECD members



Source: OECD Economic Survey of Korea 2018, in OECD (2022).

research. In successful innovating countries, start-ups link up with universities; however, the innovation process in Korea is mainly driven through in-house efforts led by the largest firms.

Unlocking this conundrum and incentivizing mid-sized firms with growth potential and promising start-ups should be a matter of priority. It is the shortest route to raising productivity and achieving inclusive growth in a country where relative poverty is an issue for the elderly and asset poverty and unemployment weighs on the young. Start-up activity has begun flourishing over the past decade and several unicorns such as Coupang, Naver, Celltrion, and Kakao have taken their place alongside the chaebol and their subsidiaries. More innovative start-ups would accelerate diversification and stimulate productivity, especially of services. Policies to promote high growth firms and future unicorns are examined in a companion brief (Yusuf 2022).

There is no silver bullet that can galvanize Korea's productivity and substantially increase its growth potential. RD&I could improve growth potential over the longer term (Yusuf 2022); however, as the EU, the United States, Japan, and China have discovered, R&D is not a panacea. Thus, it can be one item on the government's policy shortlist, but it must share the top spot with complementary interventions to uncork the productivity potential of Korea's SME services industry. The SME sector could be poised to serve as a growth driver because digital technologies are becoming more user friendly and are no longer beyond the reach of smaller firms.

Concluding Thoughts

Korea is in a similar predicament as other OECD member countries that are all wrestling with productivity declines, demographic challenges, and flagging growth. The difference on the negative side is that

Korea's demographic challenges are more severe, with the lowest fertility rate in the world and a future fiscal challenge of funding the costs associated with an elderly population. On the positive side, however, are the facts that Korea hosts some of the world's most technologically advanced companies, that its savings-investment balance is favorable, and its economic management strong. Nevertheless, maintaining the status quo is not a wise policy course.

In particular, we recommend a double-pronged approach. The first entails getting more "bang for the buck" with respect to R&D expenditure. This not only involves evaluating how public funds are spent, but also providing support to new digital industries and services that can become globally competitive in the same way that manufactured products have succeeded. Involved in this reset is a strengthening of competition policies and a lower reliance on public funding for established major corporations that have their own sources of funding. The goal is to restore TFP growth closer to 2 percent in the coming years.

Second, there are long overdue reforms in the labor market that require attention. This is imperative due to the decline in population and the necessity of using available sources of economic stimulus. These sources include retaining more women in the labor force and more fully utilizing the educated youth, many of whom are unemployed. A redirection of public resources to solve some of these bottlenecks would potentially yield high returns. The aim should be to restore the labor's contribution to economic growth to the mature economies average of 0.75 percent (combining the contribution of labor in 2000–19, which was 0.5 percent per annum, and labor quality, which was 0.25 percent per annum⁶) in the coming decade through greater labor force participation and hiring of technologically capable and skilled youth and women.

With these goals in mind and with the strong ability of the Korean economy to invest in new capital, there is hope of restoring the country's potential growth rate to the 2–4 percent range that is necessary to manage its future fiscal liabilities. Korea was long the paradigm for effective and

coordinated government policies and for a strong cooperative relationship between government and business for the betterment of its citizens. This strength needs to be restored if the current economic trajectory is to be bent upwards.

Endnotes

1. In 2022, Presidents Biden and Yoon agreed to build a comprehensive bilateral partnership that would expedite the development of critical technologies.

2. From US\$6 billion in 1998, FDI (both green field and through M&A) had reached US\$18 billion in 2022, much of it in advanced industries and services.

3. Planned cuts in the research budget may be reversed (Davies and Jung-a 2024).

4. The leading private companies increased R&D spending in 2023 by 9.4 percent. The 224 companies surveyed account for 70 percent of research (Kyong-ae 2024).

5. President Yoon has voiced government support of AI chip development and production through the creation of a special fund and investment in the water and power infrastructure in Yongin (Gyeonggi) the location of a future chip making cluster (Korea JoongAng Daily 2024; Krithivasan 2024).

6. The Conference Board 2023.

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