

**SPECIAL ISSUE**

# The great divergence on the Korean peninsula (1910–2020)

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**Abstract**

Before the 1960s, North Korea's GDP per capita was 30%–50% higher than South Korea's due to industrialisation during the 1930s. However, the governments of the two Koreas pursued different goals in the 1960s, which resulted in a reversal. The South Korean government made economic growth its ultimate goal. They did this by self-implementing, adjusting and instituting an export-oriented development strategy. On the other hand, the North Korean government tried to maximise its ability to survive by sacrificing gains from economies of scale. These differences brought about remarkable differences in economic performance. The gap between the two economies has continued to grow since the income level reversal in the 1970s.

**KEYWORDS**

great divergence, North Korea, South Korea

**JEL CLASSIFICATION**

N25; O53; P50

## INTRODUCTION

There was a great divergence in Korea in the 20th century (Figure 1 and Table 1).<sup>1</sup> At the beginning of the century, Korea was one of the poorest countries in the world.<sup>2</sup> It became a Japanese

<sup>1</sup>All GDP figures throughout this article are on a per capita basis in US dollars at 2019 prices, unless otherwise noted.

<sup>2</sup>According to the Maddison Project database, the GDP per capita of Korea at the beginning of the 20th century was about two-thirds of the global average GDP per capita (Bolt & van Zanden, 2020).

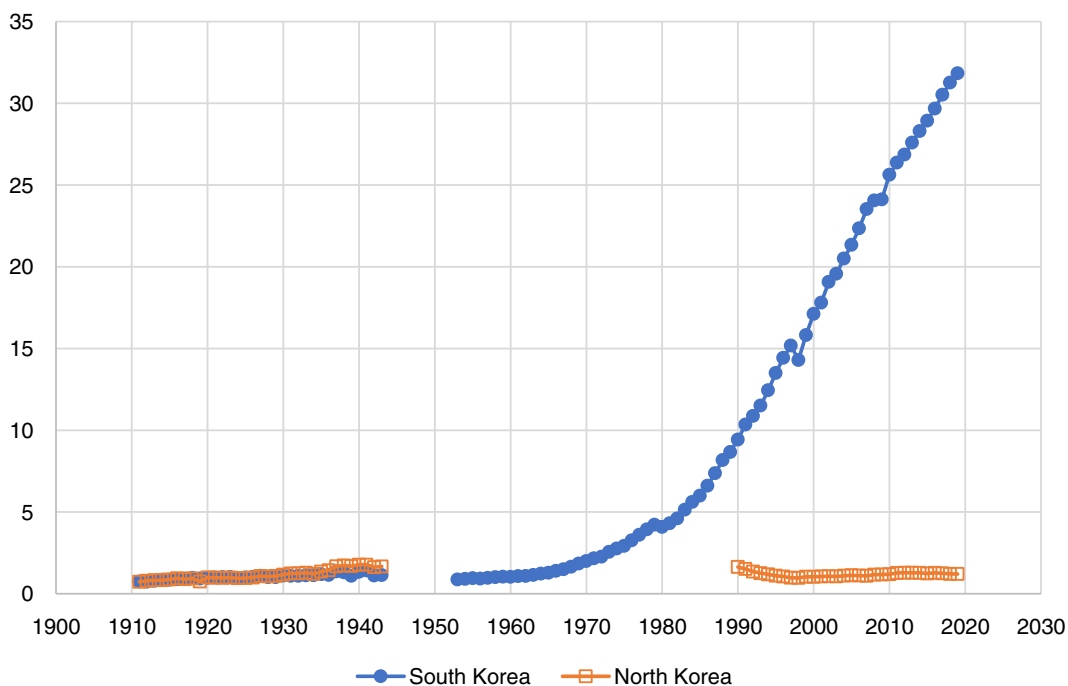


FIGURE 1 GDP per capita of the two Koreas, 1910–2019 (1000, 2019 real dollar) (Reproduced from Kim et al. (2018), Statistics Korea (2021) and Bank of Korea (2021), with permission.)

TABLE 1 GDP per capita of the two Koreas (2019 real dollar)

Year	South	North
1910	750	727
1940	1338	1778
2019	31,839	1208

Source: Reproduced from Kim et al. (2018), Statistics Korea (2021) and Bank of Korea (2021), with permission.

colony in 1910. When Korea was liberated from Japan in 1945, the income level was generally low, but the poverty level differed across regions. The disparity in poverty level was due to the accelerated industrialisation recorded in the 1930s that saw the GDP per capita of the north grow faster than the agricultural south (Kim et al., 2018).<sup>3</sup> After the establishment of two governments and the Korean War (1950–1953), the Korean peninsula was divided into South Korea (Republic of Korea [ROK]) and North Korea (Democratic People's Republic of Korea [DPRK]). Since then, the two Koreas have taken different paths. The poorer agricultural South succeeded in industrialising and achieving sustained growth, and is now widely praised

<sup>3</sup>In the following discussion, the south refers to Kyonggi, Kangwon, Chungcheong, Kyongsang and Cholla province, and the north refers to Hwanghae, Pyongan and Hamkyong province. The south and the north roughly coincide with current South Korea and North Korea.

as the 'Korean Miracle'. Its GDP per capita surpassed USD30,000 in 2017, and United Nations Conference on Trade and Development (UNCTAD) categorised it as a developed economy in June 2021.<sup>4</sup> On the contrary, the relatively wealthier North Korea remained stagnant with a GDP per capita of USD1208 in 2019, which is lower than the GDP per capita in the 1940s (Bank of Korea, 2021).<sup>5</sup>

Why did such a reversal and divergence occur? A simple, straightforward explanation is that political ideologies or institutions caused the big cross: South Korea achieved successful economic growth by adopting a capitalist market economy and export-oriented development strategies, while North Korea stagnated due to the inefficiency of the socialist economic system and autarchy (Acemoglu et al., 2005). Although persuasive, this view needs further elaboration. For example, the South Korean government intervened in resource allocation and economic activities significantly during rapid growth period, roughly from the 1960s to the 1990s. This intervention and leadership are widely regarded as the main reasons for their success (Amsden, 1989; Woo, 1991). On the other hand, as the North Korean government did not have detailed data, which is indispensable for the Soviet-type central planning, they relied on mass mobilisation, which was necessary to conceal the deficiencies in planning (Kim, 2017a, 2017b, 2017c). For this reason, Kim (2017a, p. 64) characterised the North Korean economic system as a 'plan-less planned economy'.

A review of historiography can help integrate such diverse or even seemingly contradictory explanations and provide a clearer and more coherent perspective. For this, I surveyed studies on the economic history of the two Koreas and proposed a plausible explanation for the great divergence in the Korean peninsula during the 20th century. The key argument is that the 1960s was the turning point. Due to the industrialisation of the 1930s, the northern region of Korea was better off than the southern region until the 1960s. However, the two Korean governments established after the liberation in 1945 pursued different economic policies. The South Korean government made economic growth its prime goal, rearranged the government's operations accordingly and adopted an export-led economic growth strategy. On the contrary, the North Korean government pursued a strategy designed to ensure state survival. The government reduced economic interaction with foreign countries and reorganised the country into 162 self-sufficient Kuns with between 100,000 and 200,000 people. This meant that the North Korean economy gave up gains from economies of scale, which resulted in an economic slump. Consequently, the big cross occurred around 1970 and the gap between the two countries has continued to grow since.

The article proceeds as follows. In 'The First Divergence (1910–1945)' section, I briefly review pre-modern Korea and what the south and the north were like in this period. Then I explored the colonial period (1910–1945) during which the first divergence occurred. 'The Big Cross (1945–1997)' section describes the 'big cross', that is, the reversal of the income level between South Korea and North Korea that occurred in the 1960s and explains why it happened. After briefly reviewing the current status of South Korea and North Korea in 'After the Reversal (1998–Present)' section, I conclude the article in 'Conclusion' section.

<sup>4</sup>Yonhap News Agency (2021). The GDP and related statistics after 1945 are all from the Korean Statistical Information Service. For simplicity, I will not subsequently indicate the source.

<sup>5</sup>North Korea reported Net Material Product like other socialist countries. As discussed in 'The Big Cross (1945–1997)' section scholars estimated the GDP of North Korea from 1945 to 1989 by combining Net Material Product with other information. Since 1990, Bank of Korea, the central bank of South Korea, has estimated the GDP of North Korea using various available sources. For the GDP of North Korea after 1990, I will use the estimates of Bank of Korea in the following discussion and will not subsequently indicate the source.

## THE FIRST DIVERGENCE (1910–1945)

The Korean territory has changed over time, but it was determined as the Korean peninsula early in the Chosun Dynasty (1392–1910).<sup>6</sup> There is neither reliable estimate on the income level during the Chosun Dynasty nor can the difference in living standards between the north and the south be confidently stated.<sup>7</sup> However, it is worth mentioning that the northern region was discriminated against throughout the Chosun Dynasty, which triggered rebellious resistances like the *Hong Kyong-rae* Rebellion in 1812, one of the largest uprisings during the Chosun Dynasty (Kim, 2009; Oh, 2002).

The Chosun Dynasty suppressed commercial activities domestically and limited foreign trade to a few neighbouring countries under a tribute system for almost 500 years.<sup>8</sup> Forced port opening by Japan ended this closed-door policy in 1876, making this a watershed year in Korean history. After that, foreign trade increased 20% per annum on average from 1877 to 1910, and western commodities, people, capital and knowledge flowed into Korea.

Scholars have suggested that the forced port opening essentially provided the imperial forces with unlimited opportunities to exploit the Korean people and their wealth. The exploitation devastated the Korean economy, worsened Korean living standards and ultimately resulted in annexation to Japan in 1910.<sup>9</sup> However, recent quantitative studies, by contrast, have implied a positive aggregate impact of the port opening. For instance, from the 1880s, the population started to grow (Park & Cha, 2004), the living standards measured by height improved (Kim & Park, 2021), the real price of arable land and land productivity increased (Cha & Lee, 2004) and social mobility increased (Kye & Park, 2019). These findings imply that colonisation might be more related to a political failure to utilise the gains from the port opening rather than economic decline due to exploitation.

There are reliable statistics throughout the colonial period (1910–1945), which are comparable with current information. The population grew from 15 million to 25 million, and the crude death rate declined from 34 per 1000 to 22 per 1000 (Kong et al., 1983; Kwon, 1977). The GDP per capita was USD740 dollars in 1911 and grew by 2.6% per annum (Kim et al., 2018) (Figure 2).<sup>10</sup> The growth in average adult height was consistent with the income growth (Kim & Park, 2011, 2021). As described in the Appendix, scholars have debated on the reliability of the GDP estimation and its implications, but various evidence shows that the growth was real rather than a statistical artefact.

Several factors were critical to this growth. The first is free trade. Trade, mostly with Japan, increased 20% per annum on average (Kim et al., 2018). The Koreans sold agricultural products to and purchased manufacturing goods from the Japanese. It is hard to measure how much foreign trade contributed to the growth of agricultural production and GDP. However, based on height growth from the 1880s to the 1940s, Kim and Park (2021) inferred that free trade might have contributed to this growth more than government policies or transplanted institutions by the colonial government.

<sup>6</sup>Discussions on the colonial period mainly come from Kim and Park (2008).

<sup>7</sup>Kim and Park (2012) and Rhee (2014) surveyed recent research on the economic history of the Chosun Dynasty and the colonial period.

<sup>8</sup>On the tribute system of pre-modern Korea, see Lee and Temin (2010).

<sup>9</sup>Kim and Park (2021) provide a short but comprehensive literature review of the traditional explanation for the impact of the port opening on the Korean economy.

<sup>10</sup>Cha and Kim (2012) is one of rare attempts to conduct a growth accounting analysis of the colonial era, but the estimated results are not reliable.

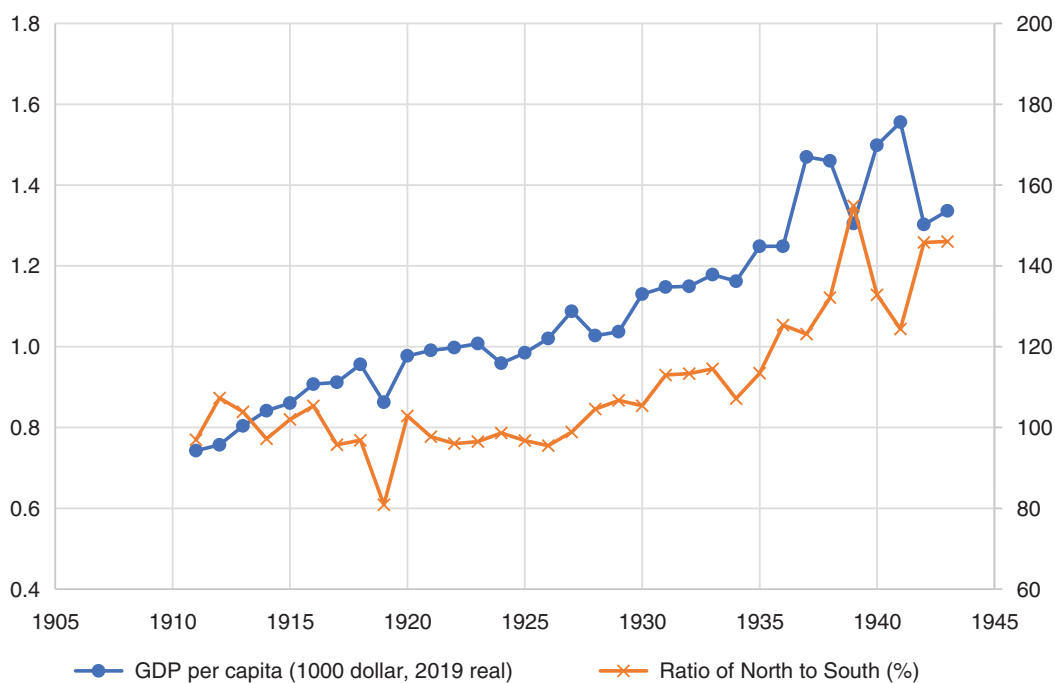


FIGURE 2 GDP per capita of colonial Korea and relative income of the North and the South (Reproduced from Kim et al. (2018), with permission.)

TABLE 2 Sectoral share and average annual growth rate, 1911–1940 (%)

	Agriculture and livestock	Manufacturing	Others	Total
Share				
1911	58.2	4.4	37.4	100.0
1940	34.9	13.7	51.4	100.0
Annual growth rate	2.5	8.5	5.2	3.9

Source: Reproduced from Kim et al. (2018), with permission.

The expansion of the manufacturing sector is interesting. Whereas colonial Korea was predominantly agricultural, and the agriculture and livestock sector grew by 2.5% per annum during the colonial period, the manufacturing sector grew by 8.5% per annum (Table 2). Consequently, the manufacturing share of the GDP increased from 4.4% in 1911 to 13.7% in 1940. Although agricultural production continued to grow, its share of the GDP shrank from 58% to 35% in the same period.

Suzuki (1942) and Suh (1978) characterised the industrialisation of Korea as the large-scale transplantation of mechanised Japanese firms between 1930 and 1945 initiated by the Japanese government. However, this view does not fully describe reality. The number of factories and

their output increased rapidly even before 1930, and this proceeded without the guide of industrial policies by the colonial government (Joo, 2003; Kim, 2003b). This expansion was not just a simple conversion of production from household to factory, but it was accompanied by productivity growth (Kim & Park, 2008).<sup>11</sup> Japanese firms led this change, but Korean entrepreneurs also invested heavily in their factories and realised substantial improvements in productivity (Kim & Park, 2008). This active growth of Korean-owned factories was achieved without either protection or support from the Japanese colonial government, but in competition or interaction with Japanese-owned factories (Arimoto & Lee, 2021; Hong, 2013; Joo, 2008; Kim & Park, 2008).

These findings raise more questions than answers. The imperialist powers of the 19th and the 20th century generally tried to use their colonies as markets for their goods and as stable sources of raw materials for their industries. Combined with the colonies' poverty, these imperialistic policies deterred manufacturing growth in most colonies (Austin, 2003; Fieldhouse, 1983). Then, why was Korea different? Further research is still needed to satisfactorily answer this question.

The industrialisation of the 1930s brought about a divergence between the north and the south. After the Japanese government introduced the Major Industry Control Act in 1931 due to the depression of the late 1920s and early 1930s, many Japanese firms built their factories in colonial Korea to avoid the rigid government controls on production and prices in Japan. More importantly, the occupation of Manchuria in 1931 and the outbreak of the Sino-Japanese War in 1937 caused the Japanese government to support the establishment of manufacturing facilities in the Korean peninsula. Since most of these factories were built in the northern region, the northern and the southern parts of the Korean peninsula relatively specialised in manufacturing and agriculture. This also caused a difference in the income level between the two regions. The standard of living in the north and the south were similar until the late 1920s (Figure 2). However, the GDP per capita of the north grew faster than that of the south from the early 1930s, rising to as high as 50% in the 1940s. This disparity can be called the first great divergence on the Korean peninsula.

Whether and by how many colonial legacies impacted, post-colonial economic growth is a controversial and emotionally sensitive issue. Scholars have investigated various channels for the effects of this legacy. First, the Japanese colonial government transplanted its legal system, government structure, educational system and other institutions to colonial Korea that could have helped generate rapid growth after the liberation (Acemoglu et al., 2005). It is plausible, but it is difficult to identify which institutions specifically contributed to economic growth, how they did, and by how much. At the same time, it is difficult to relate the colonial institutions not to a long term steady growth but to the rapid growth recorded from the 1960s that became the foundation of the current economic status of South Korea.<sup>12</sup>

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<sup>11</sup>The increase in factory production and its replacement of household production during the colonial period was a continuous process from the early 1910s. The growth rate of factory production from 1913 to 1930 was 11% per annum. This pre-1930 growth rate is lower than the 17% per annum recorded between 1931 and 1937, but it cannot be regarded as trivial growth either (Kim & Park, 2008).

<sup>12</sup>Han (2016) suggested that the political and economic leaders of the 1960s applied their experience at Manchuria in the 1930s and 1940s. Based on this, he argued that the economic development of South Korea from the 1960s is similar to Manchuria's in the 1930s and 1940s. Although interesting, it has a similar problem as the argument linking colonial institutions and rapid growth from the 1960s.

Some scholars focused on the similarity between the Japanese colonial government's role between 1937 and 1945 and the developmental government from the 1960s. They argue that the industrialisation recorded during the colonial period created the prototype for the Korean industrialisation of the 1960s, with similar characteristics like state control of the economy, a leading role for a small number of large firms called *Chaebol*, and the close relationship between the *Chaebol* and the government that was established between 1930 and 1945 (Kohli, 1994, 1997; Woo, 1991). The flaw in this argument is that it cannot explain why the governmental pattern formed during the colonial period disappeared for more than 15 years and then reappeared only from the 1960s. Without answering this question, the colonial origins of the developmental state cannot be persuasively argued.

The Japanese-owned factories and equipment left in Korea after the liberation could have contributed to the post-colonial economic growth. However, scholars generally hold a sceptical view of this possibility because the large facilities were mostly located in the northern part of the Korean peninsula and could not be used for the economic development of South Korea. Although many Japanese facilities were still available in South Korea, skilled workers indispensable to running these facilities were mostly Japanese, and they all went back to Japan after the liberation. The absence of manpower meant that most of the machines and equipment amortised and eventually became useless (Kim & Bae, 2002; Lee, 1989, 1993). These factors show that manufacturing facilities during the colonial period were not critical to post-liberation industrialisation.

In the case of human capital, there are two streams of inquiry. One explores the rise of high-quality workers trained through school education and job experience during the colonial period (Ahn, 1989, 1993). The other is the colonial origins of post-liberation economic and political leaders. In his study on Kim Seongsu and his family, Eckert (1991) claims they may have become the leading entrepreneurs of colonial Korea due to their protection by and cooperation with the Japanese colonial government. These 'offspring of the empire' became the economic and political elites after the liberation. From this, Eckert argues that Japanese rule had a strong impact on post-colonial development.

Kim and Park (2008) posit that entrepreneurial human capital in manufacturing might have had a prolonged post-liberation influence. It has something in common with the elites' view, but differs from it in two important ways. First, the elites' view emphasises the leading role of the colonial government in the rise of the colonial elites. This argument may be true for the very top-level entrepreneurs like Kim Seongsu. However, such protection did not reach the majority of ordinary entrepreneurs. Joo (2008) shows that even in the case of Kim Seongsu, competition rather than protection or subsidy by the Japanese colonial government was the major source of their success. This factor leads to the second point: the fundamental force that enhanced the ability of Korean entrepreneurs was not protection nor cooperation but competition and a struggle for survival. The colonial legacy was not a present given by Japan but a reward earned from harsh competition in the market with Japanese competitors favoured by their government.

## THE BIG CROSS (1945–1997)

After the liberation, two governments were established on the Korean peninsula, and they became South Korea and North Korea. The Korean War (1950–1953) broke out with the invasion of North Korean forces into the South, and eventually left 3 million people dead or

wounded (Park, 2014a). The war fixed the division of the Korean peninsula into two countries, which has had various long-term impacts on the Korean societies.<sup>13</sup>

As South Korea is based on a capitalist market economy and North Korea is based on a socialist planning economy, their economies have evolved very differently. However, as their income level was similar until the 1970s, they faced similar problems. Like many contemporary developing countries, the South Korean government adopted interventionist policies, which were very 'socialistic'. These factors made the two societies surprisingly similar until the 1970s. However, by the late 1980s and early 1990s, the difference in their economic status became apparent. In 1990, the GDP per capita of South Korea was USD9433, 5.8 times larger than that of North Korea. Whereas South Korea became a member of the OECD in 1996, North Korea fell into a food crisis from the mid-1990s and requested global aid for famine.

Of the various factors determining the different fates of the two countries, this article focuses on the role of government policies in the 1960s. It describes how the governments of the two countries set up economic policies, pursued them, and the consequences of those actions. This comparative approach will help catch what is crucial but hard to recognise if the two countries are studied separately.

## South Korea

When the Korean War ended in 1953, South Korea was one of the poorest countries in the world. However, it achieved rapid economic growth, recording an 8.6% average annual GDP growth from 1953 to 1997. As a result, the GDP per capita rose from USD868 in 1953 to USD15,181 in 1997.

This outstanding performance originated from successful industrialisation. The total value added by the manufacturing sector increased from USD3.6 million in 1953 to USD128 billion in 1997. This exponential growth transformed the Korean economy from an agricultural economy to an industrial economy. In 1953, the share of manufacturing and agriculture of total GDP was 7.9% and 48.6%, respectively. However, the GDP share of manufacturing grew to 27.2% in 1997, while agriculture declined to 4.9%.

Political factors are widely regarded as the impetus that created this economic success. General Park Chung-hee led a coup in May 1961, claiming he would save the people from poverty, and subsequently ruled the country for 19 years. One of the first things he did was to establish the Economic Planning Board (EPB). The EPB implemented the first Five-Year Economic Development Plan in 1962. Based on this plan, the Korean government pursued an export-led economic development strategy. As a result, total exports grew from USD18 million in 1955 to USD136 billion in 1997. This expansion of exports, rapid industrialisation and economic growth reinforced each other.

Although persuasive, this traditional view exaggerated the contribution of political factors to the beginning of rapid economic growth and overlooks three important economic factors. First, in the 1950s, South Korea suffered from large trade deficits. Imports were 10 times larger

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<sup>13</sup>Studies on the Korean War are numerous, but scholars have just begun to quantitatively evaluate the long-term effect of the Korean War on Korean societies. For example, Lee (2014a) explored the long-term impact of war-time shocks on those who were in utero during the war. Kang and Hong (2017) examined the relation between war-time experience and political orientations. Kim et al. (2017) investigated preferences of South Koreans and North Koreans using standard economics experiments on North Korean refugees in South Korea.



than export. To ameliorate the trade deficit problems, the government implemented various measures such as tariffs, export subsidies, export–import linkages, control of exchange rates and so forth (Choi, 2003). However, these measures are often incorrectly regarded as introduced by the Park Chung-hee government. Instead, government efforts to promote exports should be understood as continuity from the 1950s, rather than a new policy (Choi, 2010; Kim, 2017a).

Second, the EPB at first took an import substitution approach like other contemporary developing countries. However, they changed to an export-oriented approach by revising the first Five-Year Economic Development Plan in 1964 (Kimiya, 2008; Park, 2007). This change of direction was influenced by the unexpected growth of exports in the early 1960s, which was made possible by the increase in the production capacity through foreign aid from the United States in the mid-1950s (Kim, 2017a; Seo, 2018).<sup>14</sup>

These factors support a revisionist view that relates the 1950s and the 1960s more continuously. Of course, the revisionist view does not deny the contributions of the Park Chung-hee government to economic growth. Instead, it suggests a need to be more specific in explaining the role of the Park Chung-hee government in the rapid growth recorded. From this point of view, three streams of investigation and their findings are noteworthy.<sup>15</sup>

First are studies on how the government coordinated economic policies. From the mid-1960s to 1979, achieving economic growth through export promotion was the most important goal of the South Korean government. According to the official structure of the government, the Bureau of Trade in the Ministry of Commerce was in charge of export policies. However, neither the Head of the Bureau nor the Minister of Commerce could lead other ministers or order them easily. President Park resolved this problem by taking on the role of coordinator. He created and presided over the Monthly Export Promotion Meeting from the mid-1960s to 1979.<sup>16</sup> The president and all the major figures related to exports, both in public and private, gathered every month and received briefings on all the major trade policies and checked their performance (Kim, 2017a). President Park also presided over the Monthly Economic Trend Meeting, where the government announced and coordinated macro-economic issues such as growth, inflation and public finance. Although these two meetings did not exist within the official government structure, they were the two pillars of economic policies during the 1960s and the 1970s.

Second is research on how the government mobilised and distributed resources. Domestic savings was not enough to satisfy the demand for investment, and the problem got severe as the economy started to grow fast from the mid-1960s. Therefore, directing available resources to more productive sectors and inducing foreign loans was essential to sustaining the growth. In relation to the latter, the South Korean government established the Foreign Capital Introduction Committee, which reviewed the whole foreign loan proposals and decided whether to accept or reject them. Although incomplete, this organisation played a significant role in screening bad loans and promoting sound investments (Lee, 2018a).

Third is evaluation of the trade policy. Unlike previous studies that simply described government policies and regarded them as having worked as planned, Connolly and Yi (2015)

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<sup>14</sup>Kim and Ryu (2014) and Kim (2017b) provided the ODA series given to South Korea and evaluated its impact on economic growth.

<sup>15</sup>One caveat is that many government policies, even those listed above, did not work as originally planned and some policies had harmful effects. What I have tried to highlight in this article is the difference in policies by the two governments.

<sup>16</sup>Scholars found tape records of the meetings in the 2000s in the national archive, and published transcriptions of them (Park et al., 2014; Rhee et al., 2013).

attempts to identify the impact of trade policies that focused on tariff policies.<sup>17</sup> The South Korean government applied high tariffs to protect infant industries from imports and low tariffs on intermediate and investment goods to promote exports. Using a DSGE model, they found that 17% of South Korea's catch-up to the G7 countries in manufacturing value-added per worker could be explained by such tariff policies.

The industrialisation of South Korea was a continuous upgrade of industries to higher value-added sectors. When Korea was liberated in 1945, the manufacturing sector in southern Korea was very primitive and made worse by the Korean War. However, light industry, like the textile and electronic industries arose from the 1950s to the 1960s and led industrialisation and economic growth until the early 1980s. Intensive investment in heavy industries such as automobile, shipbuilding and chemicals began to overtake light industry from the early 1970s and became the leading manufacturing sector from the mid-1980s.

The government led this transformation. President Park Chung-hee announced the Heavy Chemical Industrialisation Plan in January 1973 that focused on six industries: steel, non-ferrous metal, machinery, shipbuilding, electronic and chemical industries. Oh (1995) and Kim (2003a) argue that President Park pursued this new industrial policy due to political considerations. According to them, as the United States changed their policy on the Korean peninsula, President Park decided to promote the heavy chemical industry to produce weapons and defend South Korea without the help of US troops. However, this explanation does not fit well with historical facts. The government made many efforts from the 1960s to upgrade its industrial structure by constructing factories for automobiles, iron and steel (Lee, 2014b, 2014c; Park, 2014b). This effort was also related to the fact that in the late 1960s, South Korea started to lose its competitiveness in the light industry due to wage raises, which policymakers tried to resolve by moving to a higher value-added industry.

Constructing factories for heavy chemical industries needs a large amount of long-term investment. Furthermore, firms need skilled workers to run factories and markets to sell their products.<sup>18</sup> Various government support and interventions were indispensable to meeting these requests. When firms receiving such support became successful, they became much larger than even the biggest firms in light industry due to their larger capital size. These firms evolved into *Chaebol* or large family-owned industrial conglomerates. However, the birth of the *Chaebol* created new problems in the South Korean economy, such as concentration of wealth, and illegitimate relationship between business and politics.

On the other hand, many firms could not make profit, and the failure of some large investments imposed a heavy burden on the Korean economy. For these reasons, scholars generally criticise the Heavy Chemical Industrialisation Policy. However, recent studies have proposed a new perspective favourable to the policy. Park (2008, 2018) suggest that the problems of the heavy chemical industry are exaggerated. Liu (2019) and Lane (2019) found that the Heavy Chemical Industrialisation Policy created significant positive impacts at the right time. This research is still inconclusive and more study is needed to fully understand and evaluate this policy.

After President Park was assassinated in 1979, another coup occurred and General Chun Doo-hwan became president (1981–1987). Paradoxically, the new authoritarian government implemented market-oriented economic policies. They announced the roadmap to open

<sup>17</sup>Previously, studies like Kim and Hong (1982) and Kim and Westphal (1976) estimated effective rate of protection to measure the level of tariff protection and their impact on industries.

<sup>18</sup>See Bae (2014) and Chung (2014a, 2014b) for the government policy concerning supply of skilled workers.

**TABLE 3** Growth accounting analysis: South Korea, 1966–1990 (%)

	<b>Output (excluding agriculture)</b>	<b>Weighted capital</b>	<b>Weighted labour</b>	<b>TFP</b>	<b>Labour share</b>
Annual growth rate	10.3	13.7	6.4	1.7	0.703

Source: Reproduced from Young (1995, p. 660), with permission.

commodity markets and capital markets. The government also enacted the Fair-Trade Act and established the Korea Fair Trade Commission in 1981. Although it happened after the democratisation of Korea in 1987, the peak of these liberalisation policies is the abolition of EPB in 1993. Since then, the South Korean government has abandoned Five-Year Economic Development Plan. After the change of constitution and presidential election in 1987, South Korea became a democracy and more market-friendly economic system.

Growth accounting analysis by Young (1995) shows that 83% of the growth from 1960 to 1990 originated from capital accumulation (Table 3).<sup>19</sup> This result is consistent with the active role that the government played in resource mobilisation and reallocation. However, we should also pay attention to the fact that the TFP growth rate is similar to that of advanced countries during the same period.<sup>20</sup> This suggests that characterising South Korean economic growth, as simply being driven by resource mobilisation might be misleading.<sup>21</sup> Such high productivity growth enabled South Korea to convert into an advanced country from the 1990s, which will be discussed in the next section.

Lastly, economic growth increased inequality. However, the market Gini coefficient was 0.3–0.4 in this period, which was far lower than other contemporary developing countries (Choo, 1979). The land reform in 1950 helped reduce the inequality in the system. Before the liberation, 50% of farmers did not own any land and 30% were landed farmers who needed to borrow land to make a living. The redistribution of land increased the assets and income of poor farmers and enhanced equity significantly. It is not clear whether land redistribution motivated farmers to work harder or increased investment in land (Hong & Kim, 2016). However, the rise in income from saving rent was used to fund education and raise human capital, contributing to long-run economic growth (Hong & Kim, 2016).<sup>22</sup> At the same time, the enhanced equity originating from land reform is regarded as the foundation of political stability from the 1960s to the 1990s, which provided the foundation for economic growth (Studwell, 2014).

## North Korea

Since its establishment, the North Korean government has operated a socialist economic system, with strong mechanisms to control production and distribution.<sup>23</sup> They executed land

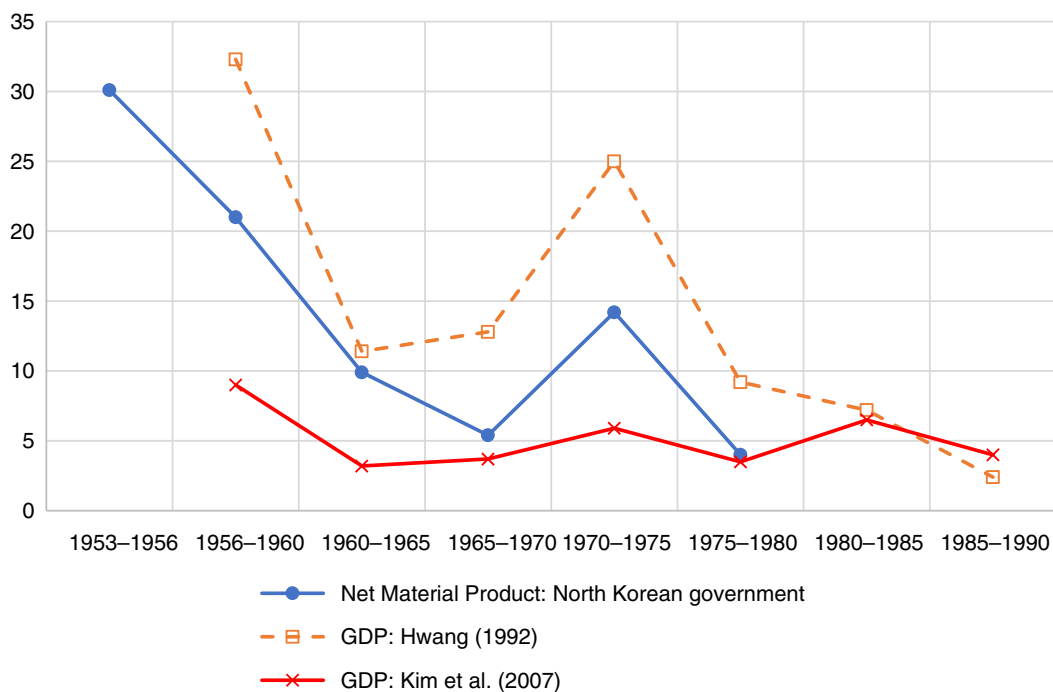
<sup>19</sup>Hsieh (1999) took the dual approach and obtained a similar result.

<sup>20</sup>Young (1995, p. 673).

<sup>21</sup>The most representative is Krugman (1994), who characterises East Asian economic growth, including South Korea's, as a result of resource mobilisation.

<sup>22</sup>Jun and Kim (2017) showed that regions with higher tenancy ratio had lower school enrolment rate in the 1930s. This is consistent with Hong and Kim's (2016) findings that land reform had a positive impact on education.

<sup>23</sup>For English readers, Kim (2017a) is a comprehensive introduction to the history and current status of the North Korean economy.



**FIGURE 3** Growth rate of Net Material Product and GDP: North Korea, 1953–1990 (%) (Reproduced from Hwang (1993) and Kim et al. (2007), with permission.)

reforms and nationalised large factories in 1946, and collectivised agriculture, commerce and manufacturing in the late 1950s (Jo, 2019; Kim, 2001a, 2001b). During the Korean War, this was combined with a system for rationing food, housing and other major products. These systems were continued even after the war was over.

Along with the construction of a socialist economic system, the North Korean government has pursued economic development. After executing short development plans to recover from the war throughout the 1950s, North Korea started its first Seven-Year Economic Development Plan in 1961. The Labour Party announced that the plan will convert North Korea into a socialist industrial state.<sup>24</sup>

North Korea published the Net Material Product following the convention of socialist economies. According to the Net Material Product, the North Korean economy grew by 7.2% in the 1960s (Figure 3). Hwang (1993) combined the Net Material Product with other sources to re-estimate GDP. His estimates suggest that the GDP growth rate was higher than the Net Material Product growth rate. Based on this result, he claimed that the GDP per capita of North Korea was higher than South Korea in the mid-1980s. However, North Korea lost its superiority to South Korea in the late 1980s due to the negative shock from the collapse of neighbouring socialist economies.

<sup>24</sup>It is frequently said that North Korea pursued economic recovery and development without getting aid from other countries while South Korea received large amount of foreign aid. This is not true. North Korea received about USD 2 billion in foreign aid mainly from China and USSR between 1945 and 1970 (Research Unit of Communist Economy, 1979, p. 377). If we compare foreign aid per capita, this is almost the same as the amount that South Korea received (Kim, 2017b).

**TABLE 4** Growth accounting analysis of North Korea, 1960–1989 (%)

	Labour productivity	Cobb–Douglas		CES	
		Capital intensity	TFP	Capital intensity	TFP
Annual growth rate	0.7	1.3	−0.6	0.7	0.0

Source: Reproduced from Kim et al. (2007), with permission.

Kim et al. (2007) proposed a revisionist view. They claimed that the growth statistics reported by North Korea contained hidden inflation, which is prevalent in socialist economies. According to their new estimates correcting this problem, the average overall GDP growth rate in the 1960s was only 3.5%. Considering population growth, this result indicates that the GDP per capita growth rate in the 1960s was only about 2.0%–2.5% and that the first Seven-Year Economic Development Plan failed to achieve its goal. Based on this new estimate, they inferred that the Korean reversal of GDP per capita occurred around 1970.

Various circumstantial evidence supports this pessimistic revisionist view. For instance, in the middle of the Seven-Year Economic Development Plan, the North Korean government announced an extension of the planning period by three more years. In 1970, although they claimed that they achieved much higher performance than they planned, later research shows that the opposite is true (Kim, 2001b).<sup>25</sup>

Several explanations for this failure in the 1960s have been proposed. Growth accounting by Kim et al. (2007) shows that the growth comes mostly from capital accumulation and with zero or negative TFP growth (Table 4). This is consistent with Kim (2001b) and Kimura (2001, 2009), who suggest that an unbalanced industrialisation strategy that puts too much emphasis on heavy industry or industrialisation focusing on the militarisation of the state might cause economic stagnation. In addition, problems innate to socialist regimes in general, such as inefficiency of planning, lack of incentives and red-tapism, also engender low productivity (Kim, 2001b; Kim et al., 2007; Yang, 2001).

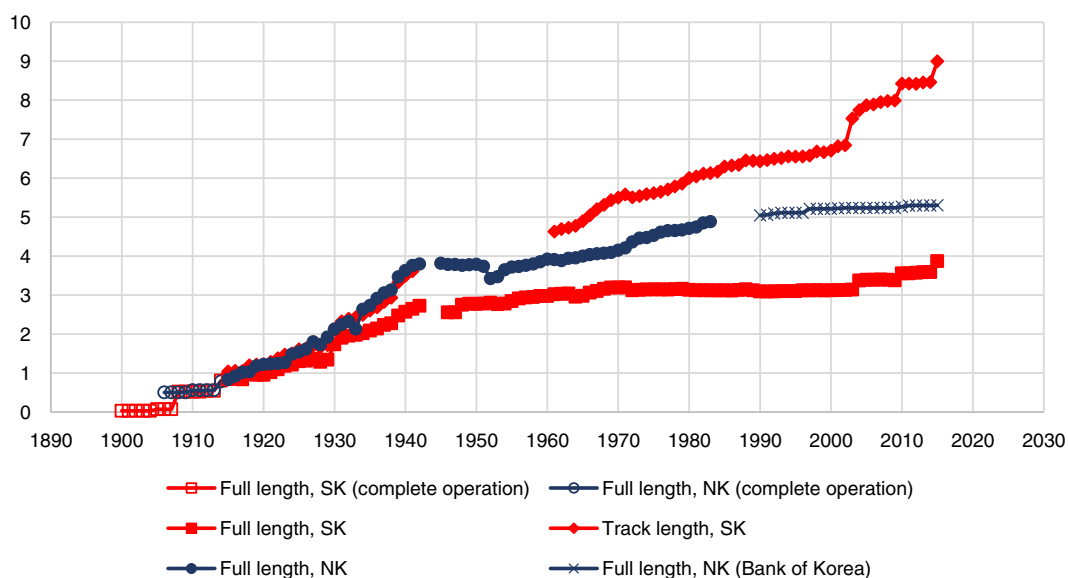
A weakness of this explanation is that they assumed the North Korean government pursued modern economic growth. The essence of modern economic growth is to create gains from economies of scale. However, the economic policies of the North Korean government were the opposite. They tried to convert the whole country into small self-sufficient units. In 1952, during the Korean War, the North Korean government reformed local administration units. They divided the whole country into 162 Kuns with 100,000–200,000 inhabitants (Choi, 1997; Kim, 1999). To ensure each Kun can produce food and basic manufacturing goods, the government built about a 1000 small factories, which came to four or five factories per Kun (Yang & Kim, 2004).<sup>26</sup>

As the North Korean government did not pursue large-scale production and distribution, they did not need to construct a transportation infrastructure.<sup>27</sup> Although North Korea made the railway its major transportation system and the road as secondary, railway construction remained at a low level from the 1950s to the 1990s (Figure 4). As investment in transportation

<sup>25</sup>North Korea stopped publishing statistics regularly like the Net Material Product from 1968 (Kim et al., 2007).

<sup>26</sup>The stated objective of this reform was diversification. Kim Il-sung said ‘if we concentrate factories in cities, it is difficult to move in emergency and they could be totally destroyed at one time. However, if we build regional industry factories all over the country, we can resolve food and clothing problems even if central factories of cities are destroyed in war time’ (Kim, 1982, p. 254).

<sup>27</sup>Kim Il-sung stated that producing at a large factory and distributing them to consumers in various places is wasteful (Kim, 1982, p. 252).



**FIGURE 4** Railway construction, South Korea and North Korea, 1900–2015 (1000 km) (Reproduced from Kim (2017c), with permission.)

infrastructure was low, they could not obtain forward and backward linkage effects for economic development (Rostow, 1960). Combined with their policy to suppress rural–urban migration, this lack of transportation service deterred the mobility of people, urbanisation and ultimately economic growth (Kim, 2017c).

Given this economic strategy, the only way to increase production was longer work hours or higher work intensity. The North Korean government tried various campaigns like *Chullima* movement, a North Korean version of the Soviet Union's *Stakhanovite* movement. However, this did not increase productivity as they hoped, ultimately ending with the failure of the first Seven-Year Economic Development Plan and subsequent development plans.

From the late 1950s, Kim Il-sung purged opponents and strengthened his rule over North Korea. In 1972, he finally declared *Juche* ideology and enacted a new constitution. Under the new constitution, he gained absolute powers and eliminated any potential opposition (Lee, 1995). At the same time, the government tried to resolve the economic stagnation by taking foreign loans and investing in industrialisation of the economy. However, this effort was unsuccessful, and the North Korean government defaulted in 1974 (Lee, 2011a; Yang, 2012).

The aggravated economic conditions ended in a food crisis in the 1990s. Due to insufficient fertilisers, weak incentives and other issues, agricultural productivity declined. In addition, land reclamations to increase cultivable land and gathering wood for heating and cooking caused serious deforestation, which, in turn, worsened soil quality and made it vulnerable to heavy rain. The shortage of production finally turned into a famine that lasted from 1994 to 2000. Between 600,000 and 1.1 million people died during this period, and many refugees crossed the border into South Korea, China and other neighbouring countries (Goodkind & West, 2001; Lee, 2005).<sup>28</sup> The famine destroyed aspects of the socialist economic system like the rationing

<sup>28</sup>From the early 1990s to 2019, the total number of refugees from North Korea to South Korea is 33,523 (Ministry of Unification, 2021).

system and forced the North Korean government to make small steps towards opening its society to the world as a condition of foreign aid.

## Summary

In 1945, when Korea was liberated from Japan, the income level was quite low. Even worse, the Korean War (1950–1953) resulted in considerable destruction of the two economies. However, the two Koreas reconstructed themselves swiftly and restored their pre-war economic level by the late 1950s.

Both countries started a race to growth by announcing economic development plans in the early 1960s. The results are striking. When the competition started, the GDP per capita of North Korea was 30%–50% higher than that of South Korea due to the industrialisation of the northern region during the colonial period. However, various evidence shows that the per capita GDP of the two Koreas reversed around 1970. Since then, South Korea has continued to grow rapidly, while North Korea has been unable to escape stagnation. In 1990, the GDP per capita of South Korea was six times North Korea's.

The difference in ideologies and government policies played a key role in the reversal and the subsequent divergence. The South Korean government prioritised economic growth and pursued this goal through export promotion. President Park Chung-hee led the whole government to concentrate on a simple and clear goal that made the South Korean government successful. North Korea, on the other hand, pursued national defence at the expense of economic growth. To make their economy self-sufficient, they minimised trade with foreign countries and tried to make each part of their country self-sufficient. Under this situation, economic growth was possible only by increasing work hours, which was not sustainable.

## AFTER THE REVERSAL (1998–PRESENT)

### South Korea

South Korea's rapid growth discontinued in 1997. The currency crisis that started in the early part of the year in Southeast Asia spread to South Korea in October. As a result, foreign capital flew out and the value of the Korean won plunged. In November, the South Korean government applied to the International Monetary Fund (IMF) for a bailout. As a condition for the bailout, the IMF requested structural reforms on firms, financial markets, labour markets and the public sector. These strict reforms made the Korean economy shrink by –5.1% in 1998, and the unemployment rate jumped from 2.6% in 1997 to 7.0% in 1998. Fortunately, South Korea fulfilled this painful mission and recovered from the negative shock quickly. In 1999, the GDP returned to the 1997 level, and the South Korean government paid back the loan in 2001.<sup>29</sup>

It is customary in South Korea to regard the foreign exchange crisis as a watershed between the high growth period and the low growth period. Furthermore, scholars usually point to low productivity as the main cause of the declining growth rate after 1997 and suggest that more efforts should be made to enhance the economy's efficiency. Such contrasts and prescriptions are relevant if we look at the South Korean economy only. However, global comparisons

<sup>29</sup>For the history of the foreign exchange crisis in 1997, see Lee (2011b, 2017), Koh et al. (2007) and Park (2017).

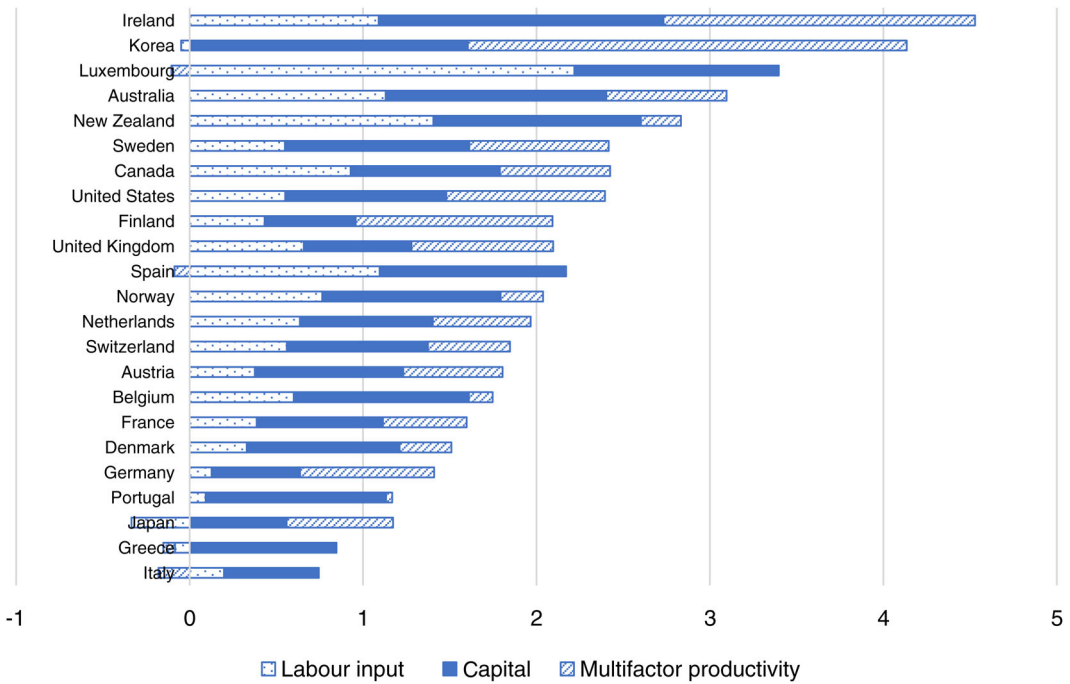


FIGURE 5 Growth of GDP and its sources: OECD countries, 1995–2017 (%) (Reproduced from OECD (2019, fig. 2.19), with permission.)

suggest that this evaluation unduly underestimates South Korea's performance after 1997. For example, the OECD (2019) shows that South Korea's GDP growth from 1995 to 2019 was 4.1%, the second-highest among OECD countries (Figure 5 and Table 5).

Condemning economy-wide inefficiency as the core problem is also inconsistent with the results of growth accounting analysis. Table 5 shows that 60.0% of growth from 1995 to 2017 originated from TFP growth. Thus, either considering TFP contribution to GDP growth or comparing TFP growth size with other countries, productivity growth accounts for a higher share of South Korea's economic growth than is the case for any other OECD country. A main source of the high productivity growth is investment in research and development.<sup>30</sup> Painful reforms during the exchange rate crisis in 1997 contributed to enhancing efficiency, too.

Will the prosperity continue? For this, the South Korean economy must resolve various challenging problems, two of which are of great concern. The first is the extremely low fertility. The fertility rate in South Korea was 0.92 in 2019, which is the lowest in the world (OECD, 2021). As shown in Figure 5 and Table 5, labour input is already a negative factor for economic growth and this problem will only get more severe. The second is the various imbalances and inequalities. The concentration of the population in the metropolitan Seoul area, polarisation of performance between a few successful big firms and many sluggish MSEs, and the growing income and asset inequality have harmful impacts on long-term

<sup>30</sup>For example, in terms of number of patents filed to World Intellectual Property Organisation, Korea is the fifth (World Intellectual Property Organization, 2021, p. 55)



**TABLE 5** Growth of GDP and its sources: South Korea and OECD countries, 1995–2017 (%)

	Annual growth rate				TFP
	GDP	Labour input	ICT capital	Non-ICT capital	
South Korea	4.21	−0.05	0.36	1.25	2.53
OECD excluding South Korea (unweighted average)	2.16	0.59	0.40	0.54	0.58

Source: Reproduced from OECD, 2019, fig. 2.19, with permission.

growth. How these problems are overcome will determine the future of the South Korean economy.

## North Korea

As mentioned, North Korea suffered from a severe economic downturn in the 1990s and came out of a great famine in 2000. However, the recovery has been slow. The GDP growth rate from 2001 to 2019 has been only 0.9% per annum.<sup>31</sup> This result is striking when compared with neighbouring pre-socialist countries with similar conditions around 1990. For example, the GDP per capita of Vietnam and Cambodia were USD1432 and USD997 in 1993, respectively (World Bank, 2021). This is similar to or lower than North Korea's USD1257 in 1990. However, the GDP per capita of Vietnam and Cambodia reached USD2715 and USD1643, respectively in 2019, surpassing North Korea's USD1208 (World Bank, 2021). This reversal and divergence among pre-socialist, less-developed countries are closely related to their attitudes towards economic openness. Whereas Vietnam and Cambodia adopted export-oriented industrialisation policies and attracted foreign investment in the 1990s, like South Korea in the 1960s, North Korea has stuck to the obsolete policy regime established in the 1950s–1960s (Kim, 2019).

Of course, this does not mean the North Korean government has not undertaken any reforms. For instance, North Korea allowed private production in agriculture. They also created several special economic zones to attract foreign investments and carried out redenomination in 2009 to stabilise prices and obtain resources for economic development (Lee, 2015, 2016). However, most of these efforts were not strong enough to stimulate the North Korean economy (Kim, 2017a; Yang, 2010).

Political and ideological constraints have created a vicious circle between politics and economy. As the gulf in economic capability between the two Koreas increases, North Korea has realised that its traditional military strategy is no longer optimal. However, instead of prioritising economic development, the North Korean government chose to strengthen its ability to defend by adopting a novel approach: investing heavily in the development of nuclear weapons and long-range missiles. As this violates international agreements, North Korea has been subject to economic sanctions by South Korea, Japan, the United States and the United

<sup>31</sup>Kim (2020) analysed satellite information and proposed that growth rate may be higher than the estimate by the Bank of Korea.

Nations, further aggravating their economic condition (Lee, 2018b). At the same time, isolation from the international community has made it more dependent on China.<sup>32</sup>

These factors have increased the gap between South Korea and North Korea in the last two to three decades. In 2019, although the population of North Korea is about 50% of South Korea's, their GDP was only 2.5% of South Korea's. The income gap is crucial but just one indicator showing how the two Koreas that were a homogenous society several decades ago have evolved differently. For instance, whereas the average height of male South Korean people grew by 14 cm from the 1960s to the 2000s, the analysis of refugees from North Korea shows that the heights of North Korean people barely increased over the same period (Pak et al., 2011).

Will the gap continue to grow or will there be a convergence? The answer depends on whether North Korea succeeds in developing its economy. Changing economic policy orientation is an indispensable precondition for North Korea to escape current difficulties and achieve economic development. Unfortunately, as the gap between the two Koreas is so large now, even if North Korea changed its ideologies or policy orientation, the convergence will take a very long time. For example, suppose that North Korea changes its policy and achieves 10% GDP per capita growth every year, and South Korea stays as it is, it will take about 20 years for the income level in North Korea to meet South Korea's. Regardless of whether North Korea catches up with South Korea or not, escape from poverty and economic development is very important for the welfare of the people living there.

## CONCLUSION

Joan Robinson, one of the founders of modern economics, wrote an article, 'Korean Miracle', in 1965 (Robinson, 1965). Here, she used the title to praise North Korea. However, at some point in time, this phrase began to describe the economic growth of South Korea. This change in usage epitomises the drastic changes on the Korean peninsula in the last several decades.

The reversal of fortune between the two Koreas occurred in the 1960s. Before the 1960s, North Korea's GDP per capita was 30%–50% higher than South Korea's due to industrialisation during the 1930s. However, the governments of the two Koreas pursued different goals in the 1960s, which resulted in a turnaround. The South Korean government made economic growth its ultimate goal. They did this by self-implementing, adjusting and instituting an export-oriented development strategy. On the other hand, the North Korean government tried to maximise its ability to survive by sacrificing gains from economies of scale. These differences brought about remarkable differences in economic performance. The gap between the two economies has continued to grow since the income level reversal in the 1970s.

As the gap between the two economies is so large now, it is virtually impossible for North Korea to fulfil economic convergence with South Korea for the next several decades. However, the experience of South Korea in the 1960s or recent performance of pre-socialist, less-developed countries shows that it is always possible for North Korea to escape from current stagnation and achieve economic development. What is needed for this change is to free themselves from ideologies and political constraints. When abandoning idea of self-sufficiency, they will become truly independent.

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<sup>32</sup>As of 2019, 77.6% of exports and 97% of imports by North Korea went to and came from China (KOTRA, 2020, p. 14).

## ACKNOWLEDGEMENTS

I am grateful to Andrew Seltzer and Jung Eun Lee for helpful comments. Of course, all remaining errors are mine.

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**How to cite this article:** Kim, D. (2021) The great divergence on the Korean peninsula (1910–2020). *Australian Economic History Review*, 1–24. Available from: <https://doi.org/10.1111/aehr.12225>

## APPENDIX: DEBATE ON THE RELIABILITY OF GDP ESTIMATES ON THE COLONIAL PERIOD

Kim et al. (2018), originally Kim (2005), report that the annual GDP per capita growth rate during the colonial period was 2.6% (Table A1). This article elicited harsh debates. Scholars who have claimed that there was GDP growth during the colonial period have been criticised for justifying Japanese colonisation. This emotional reaction has impeded evidence-based discussion. However, looking at the data and non-emotional reasonable critiques shows that the issue is

TABLE A1 Growth rate of GDP per capita, 1911–1940 (%)

	Growth rate
1911–1940	2.6
1911–1920	3.3
1921–1930	1.6
1931–1940	3.2

Source: Reproduced from Kim et al. (2018), with permission.

clear: the differences between estimates of growth are within a reasonable bound, and the debate can proceed more productively in the future.

Table A1 presents estimates of growth rates by decade, and shows that growth levels differed according to time. Whereas the growth rate in the 1910s and the 1930s were 3.3% and 3.2%, respectively, the growth rate in the 1920s was 1.6%, much lower than the other periods. Scholars generally agree that the Korean economy was stagnant in the 1920s due to the global agricultural depression. However, there is little disagreement on the high growth rate of the 1930s and early 1940s. During this period, the large amount of Japanese investment in manufacturing and other factors boosted the Korean economy.

The focus of the debate is on the reliability of estimates for the 1910s. The statistics in *The Statistical Yearbook of the Government-General of Korea*, the major source used for GDP estimation, shows unreasonably fast growth of production and arable land in the 1910s. This anomaly originated from the expansion of coverage by the colonial government in the early period of colonisation. As the government-general also recognised this problem, they reported adjusted statistics for agricultural production and arable land in 1918. Sub Park, who was in charge of agriculture for GDP estimation, used the adjusted statistics without much revision (Park, 2015). However, Huh (2005, 2011) argues that the apparent rapid growth in productivity during the 1910s was a result of distorted statistics rather than being the reality.

In the 2010s, scholars debated on the reasons behind fast agricultural productivity growth. Woo (2015) and Cha and Hwang (2015) found that the introduction of new seeds contributed significantly to productivity growth. Huh (2016) refuted these results and Cha (2017) replied. Overall, the evidence provided by proponents of productivity growth is not strong enough. However, Huh's critique did not refute them successfully. We await further evidence, but studies so far lean more towards the fact that productivity growth and ultimately high economic growth during the 1910s are real.