



## 저작자표시-비영리-변경금지 2.0 대한민국

이용자는 아래의 조건을 따르는 경우에 한하여 자유롭게

- 이 저작물을 복제, 배포, 전송, 전시, 공연 및 방송할 수 있습니다.

다음과 같은 조건을 따라야 합니다:



저작자표시. 귀하는 원저작자를 표시하여야 합니다.



비영리. 귀하는 이 저작물을 영리 목적으로 이용할 수 없습니다.



변경금지. 귀하는 이 저작물을 개작, 변형 또는 가공할 수 없습니다.

- 귀하는, 이 저작물의 재이용이나 배포의 경우, 이 저작물에 적용된 이용허락조건을 명확하게 나타내어야 합니다.
- 저작권자로부터 별도의 허가를 받으면 이러한 조건들은 적용되지 않습니다.

저작권법에 따른 이용자의 권리는 위의 내용에 의하여 영향을 받지 않습니다.

이것은 [이용허락규약\(Legal Code\)](#)을 이해하기 쉽게 요약한 것입니다.

[Disclaimer](#)

Master' s Thesis of Jaekyung Choi

# The Education in Economic Development: Case of Korea

교육과 경제발전: 한국의 경험을 중심으로

February 2023

Graduate School of International Studies  
Seoul National University  
International Cooperation Major

Jaekyung Choi

# The Education in Economic Development: Case of Korea

Jiyeoun Song

Submitting a master' s thesis of  
International Cooperation

February 2023

Graduate School of International Studies  
Seoul National University  
International Cooperation Major

Jaekyung Choi

Confirming the master' s thesis written by  
Jaekyung Choi  
February 2023

Chair	<u>Chong-Sup Kim</u>	(Seal)
Vice Chair	<u>Ki-Soo Eun</u>	(Seal)
Examiner	<u>Jiyeoun Song</u>	(Seal)

# Abstract

Over the past 60 years, Korea has achieved rapid economic growth that is unprecedented in the world due to the government's strong economic development policy. Along with the phenomenal growth of Korea, education, which also grew rapidly, enabled the cultivation and supply of abundant high-quality human resources, which became a driving force for economic growth in Korea, a country with relatively scarce resources. Accordingly, the author suggests the first hypothesis that education could play an important role in Korea's economic development because education also developed in an appropriate response according to the stage of economic development. At the same time, however, the second hypothesis that education's influence on economic growth has continued to decline as industrialization progresses and the economy develops is also being made. To prove these two hypotheses, this thesis analyzes the role education played in the national development process through the expansion process of education and its change in the contribution according to Korea's industrialization and economic development process from 1945 to 1995.

**Keywords:** Human Capital, Economic Development, Educational Development

**Student Number:** 2019-27801

# Table of Contents

Chapter 1. Introduction.....	1
Chapter 2. Education, human capital formation, and economic growth .....	5
Chapter 3. The expansion of education and economic development in Korea .....	10
• Stage 1: Liberation, reconstruction, and the establishment of post-war Korea (1945–1960)	
• Stage 2: Export-oriented industrialization and rapid growth (1961–1979)	
• Stage 3: Economic reconstruction and stable growth (1980– 1995)	
Chapter 4. Contribution of education to economic growth .....	46
Chapter 5. Conclusion.....	61
• Limitation and further research	
Bibliography .....	70
Abstract in Korean (국문 초록) .....	79
Appendix.....	80

# List of Tables

Table 1. Economic and educational development process.....	12
Table 2. Gross Enrollment Rate (GER) by country: Primary .....	18
Table 3. Primary education quantitative expansion.....	22
Table 4. Trends in enrollment rates by region and school level ..	25
Table 5. Quantity growth in secondary education .....	26
Table 6. Comparison of the number of institutes and students in vocational high school and general high school.....	31
Table 7. Secondary school enrollment Rate in Korea.....	33
Table 8. Gross Enrollment Rate (GER) by Country: Tertiary .....	38
Table 9. Comparison of Developmental State Human Capital Formation System and 5.31 New Education System.....	44
Table 10. Residuals between actual and estimated school enrollment rate by year and by school level.....	48
Table 11. Calculation of the contribution of education to economic growth .....	51
Table 12. Contribution of input factors to economic growth (Kim et al, 1984) .....	56
Table 13. Contribution of input factors to economic growth (Song, 1988) .....	57

## List of Figures

Figure 1. GNI per capita (constant 2015 USD) .....	14
Figure 2. Changes in the proportion of industrial structure .....	23
Figure 3. Developmental skills formation systems in Korea.....	29
Figure 4. The change in industrial structure.....	34
Figure 5. Changes in the number of students by year.....	39
Figure 6. Changes in the number of students by major.....	53
Figure 7. Percent of total number of employed to the number of graduates .....	54
Figure 8. PISA score: comparison between Korea and OECD.....	65

# Chapter 1. Introduction

The question of how human capital contributes to national economic growth has long been one of the important research topics in economic development and economic growth theory. Human capital is one of the components of economic growth along with physical capital and total factor productivity (TFP) and this thesis focuses on human capital development during Korea's economic expansion periods. Human capital is the stock of knowledge, skills, and other personal characteristics that people invest in and accumulate through education, health care, and nutrition that helps them to be productive (World Bank, 2022; OECD, 2019). Workers with higher human capital are more productive and can earn higher wages in the labor market, and human capital is not only important to workers at the individual level, but also has a significant impact on the economic, political, and social development of the nation as a whole. While there are other factors that can enhance human capital, most of the existing studies, including the human capital theory, emphasize the role of education in the improvement of human capital and economic development. Education is a direct production factor of labor and human capital, but at the same time, it is an essential factor that can induce technological development, efficiency, and institutional improvement (이영, 2010). In this context, education is a key factor in economic growth.

The classical human capital theory assumes that the productivity of workers is enhanced through the acquisition of



knowledge and skills through education, which leads to industrial development and ultimately increases both individual and national income (Barro and Lee, 2015). In this respect, education can be seen as a productive investment for human capital accumulation (Agbo, 2003). Furthermore, education increases the possibility of technology development. New technologies can be developed by well-educated researchers and various social systems on which economic growth is based are also devised and implemented by those who are educated. In addition, in order for society to remain healthy, social members need to learn to respect others and participate in social decision-making through education, and through this process, education strengthens social integration and promotes economic growth (이영, 2010).

The contribution of human capital to economic development usually emerges as a more important issue in developing countries, especially in countries that lack natural resources. This has been most evident in the fast-growing Asian economies such as the Republic of Korea (hereafter, Korea), Singapore, Hong Kong, and Taiwan, which are so-called Asian 4 Tigers (or Dragons). Despite the scarce natural resources, these countries have achieved remarkable economic growth over the last few decades thanks to high-quality human capital accumulated by education (Morris, 1996). These 4 countries are real cases of proving that even a country with scarce natural resources can leap to advanced countries by cultivating and utilizing high-quality human resources through strategic investment in education.

Among them, this thesis specifically focuses on Korea because it surprised the world by growing from one of the poorest countries in the world to an advanced country in just 70 years, experiencing long colonial rule, war, and lack of resources. In particular, the case of Korea sheds light on the salient role of human capital in economic growth. For more than 30 years from 1966 to 1990, Korea's economic growth effect through an increase in labor input has been much higher than that of other middle-income developing countries. In terms of contribution to economic growth by factors during the same period, the contribution of labor input was 42.2% of the total growth of Korea, which is higher than Taiwan's 39.6%, Singapore's 31.6% and Hong Kong's 27.4% (박내희, 2001). Many scholars have cited human capital as the major driving force for Korea's rapid growth, which was a labor-rich country while other resources were absolutely poor.

As mentioned earlier, human capital can be developed through the acquisition of knowledge and skills. Since the past, Korea has been one of the countries well-known for its high educational fervor. After the Korean War, the large number of human resources was transformed into high-quality labor through education, which enabled Korea's early economic development based on labor-intensive light industry. In addition, as industrialization progressed, in-depth education was implemented to cultivate workers who met industrial demand, and these educated personnel became the main players in Korea's rapid growth. However, this thesis argues that as the economy developed and the industrial structure advanced, the

influence of education on economic growth in Korea continued to decrease.

Therefore, this study aims to examine the relationship between human capital formation and economic growth through education from the perspective of human capital theory, focusing on the case of Korea. The hypotheses of this thesis are as follows:

- 1) Education was able to play a significant role in economic development in Korea because it has developed appropriately responding to the stage of economic development.
- 2) As the economy developed and the industrial structure advanced, the influence of education on economic growth in Korea continued to decrease.

In order of discussion, Chapter 2 examines the relationship between human capital, education, and economic growth, and Chapter 3 explains Korea's industrialization strategy, economic development process, and the corresponding expansion of education. Subsequently, based on the findings of existing studies, the hypotheses are proved by explaining whether education has actually been developed appropriately in response to economic growth and the extent to which education contributed to economic growth are explained in Chapter 4. Lastly, Chapter 5 discusses how Korea's education should be transformed to make a more visible contribution to the national economic development in the future, along with the overall summary of this thesis.

## Chapter 2. Education, human capital formation, and economic growth

Human capital is physically embedded in its owner so it cannot be separated from its owner because they do not have its physical form. On this account, if the human faces risks such as dying or crippling due to an unexpected accident, his/her human will also disappear or suffer losses. Therefore, human capital is much more vulnerable and the payback period from investment is longer than that of physical capital. Also, depending on the individual's competence, there is a possibility that the effect will not be profitable even with a lot of investment, and on the contrary, the effect may increase exponentially. Thus, it can be said that investment in human capital has a greater risk than investment in real capital. However, since all countries, regardless of their economic status, have people, and human capital is the most fundamental factor in contributing to economic development, it is needed to invest in human capital regardless of whether the risk is high or small, but the strategy and method are needed to be properly considered.

Education is the most representative of various activities for human capital formation. The accumulation of human capital through education leads to an increase in individual income. In addition, this is not limited to the individual level but also applies at the social and national levels. From a macroeconomic point of view, the

accumulation of human capital enhances labor productivity, facilitates technological advancements, increases capital returns, and makes growth more sustainable, which in turn contributes to poverty eradication. From a microeconomic perspective, education builds the likelihood of being utilized in the labor market and further improves earnings capacity. (Son, 2010) Therefore, it can be said that the level of education of members of a society or country defines the degree of economic development of that society or country. This chapter illustrates the main paths through which education affects economic growth and then examines the relationship between education, human capital formation, and economic growth.

Among the paths that education affects economic growth, the most representative way is the improvement of labor productivity through the improvement of workers' proficiency, efficiency, and knowledge (김경근, 1996; 이영, 2010). In addition, education improves information processing ability and promotes participation in the division of labor and economic activities to increase worker mobility and income. In other words, as the level of education increases, it is possible to quickly evaluate new information, and the possibility of migration or division of labor may increase depending on efficiency (Kim, 1996). Also, the improvement of the level of education tends to promote participation in economic activities by increasing expected wages and expanding employment opportunities. As the economy developed and the industrial structure changed, a higher level of human capital is required. According to Inkeles and

Smith (1974), education also contributes to the formation of a consciousness structure essential for modernization, increases adaptability to changes in the economic environment, and removes social and institutional factors that hinder economic growth. In other words, countries with a high level of education have low economic vulnerability and a high probability of being developed. Historically, only a few countries have recorded sustained growth over a very long period of time. If economic growth is possible only by the growth of land or physical capital, the increase in income will inevitably be put on hold due to the law of diminishing returns. However, many advanced countries, including the US, Japan, and European countries, have been able to achieve sustained economic growth over the past 100 years or more, and Denison (1962, 1985) argues that the reason for it is that the countries invested heavily in the education and training of their own labor force.

Denison (1985) estimated that about 25% of the economic growth rate achieved by the US between 1929 and 1982 was due to an increase in labor productivity through education. In addition, many economists rate the remarkable economic growth achieved by Asian countries, including the Asian Tiger, over the past few decades as a dramatic example of the importance of human capital. Most of these countries had poor resources and had difficulty overcoming discriminatory economic policies from the West, but thanks to an educated, trained, and hard-working workforce, rapid economic growth was achieved (김경근, 1996; Hall and Jones, 1999; 김영화, 2015). Similarly, Lucas (1988) explained that the most

important factor making the gap in economic growth rates between countries is the difference in human capital formation, and that learning-by-doing plays a key role in human capital accumulation, especially during the rapid economic growth period.

What I want to explain above is the fact that education contributes positively to economic growth. And among them, there can be no disagreement that education is the most important path that has contributed to economic growth, especially the change in the quality of workers caused by the formation and accumulation of human capital. In general, the level of human resources is represented by the average years of schooling in the country, which is commonly used as a proxy variable<sup>1</sup> for human capital (통계청, 2021; 김시원, 2021; Barro and Lee, 1996, 2001, 2010, and 2013; Cohen and Soto, 2007). It was a widely shared notion that the more years of schooling (or more educated), the higher the level of human capital. Education fosters intelligent and productive human beings by allowing them to acquire knowledge and skills and by increasing their adaptability (Hall and Jones, 1999). In other words, education contributes to economic development by enhancing productivity through improving the quality of the labor force.

The growth of human capital is both a condition and a result of economic growth. This increases the marginal productivity of real

---

<sup>1</sup> There are other various proxy measures of human capital that have been proposed in the empirical literature other than years of schooling, such as literacy rates (Azariadis and Drazen, 1990), school enrollment rates (Barro 1991, Mankiw et al. 1992), and test scores (Hanushek and Kimko, 2000; Hanushek and Woessmann, 2009)

capital, and this accumulated real capital directly or indirectly increases the total output. Likewise, the growth of real capital increases the marginal productivity of human capital, and it increases the demand for skilled labor, which has a high level of human capital, than unskilled labor. (Mincer, 1984; 김경근, 1996) A lot of scholars have various views on which should precede human capital or economic growth, but neither can be said to be wrong or correct. The most accurate explanation for the reality would be that investment in human capital enables continuous economic growth, and economic growth promotes the accumulation of human capital, that is, the growth of human capital is a condition and result of economic growth. Accordingly, the next chapter covers the process of economic development in Korea, which is known that education played a decisive role in the process of economic growth, and the stage of development of Korean education, which has expanded correspondingly.



## Chapter 3. The expansion of education and economic development in Korea

The Korea Development Institute (KDI) divided the Korean economy from 1945 to 1995 into three stages as follows and analyzed the situation and policy response of the Korean economy at each stage (이종재, 2009). In addition, the World Bank sets the period from the mid-1990s as a transition period to the knowledge economy of Korea (World Bank, 2000).

- Economic collapse and recovery: 1945–1960
- Export-oriented rapid growth: 1961–1979
- Economic restructuring and stable growth: 1980–1995

The development stage of Korean education responds well to the era classification of the development stage of the Korean economy suggested by the KDI and the World Bank. As shown in the table below (Table 1), the period from 1945 to 1960 (stage 1) was a period of establishment of foundation and postwar reconstruction of education to restore destroyed educational facilities and complete elementary compulsory education, and the period from 1961 to 1979 (stage 2) was a period of quantitative growth that was achieved by the rapid expansion of secondary education. Furthermore, the period from 1980 to 1995 (stage 3) was a period of qualitative enhancement in which new approaches and institutional developments were attempted for quality development as quantitative approaches reached its limitations.

Each stage of educational development is distinguished from other stages in its goal, major interests, and policies. However, since 1996, it has been collectively referred to as a knowledge-based society, while having a little difference in the degree of technological advancement for about 26 years, and since most of the previous administrations' educational reforms have taken place in the direction of inheriting the 5.31 educational reform announced in 1995, the author judged that it is difficult to distinguish the end of the phase. In addition, since there has been no remarkable economic growth in Korea since the 1997 economic crisis, it was judged that it is right to set the period only until 1995. Accordingly, this chapter explains the stage of development of Korean education from 1945 to 1995 in the context of economic growth.

[Table 1] Economic and educational development process

Year	E	E
1960	• Post _ economy •	• education • e •
1979	• state _ led driven policy • 5- • -	• capital formation system • training •
1995	• influence and technology high • state _ led tech industries • 5- • -	• system • system •
2000 -	• development - added industries • Fostering high _ value _ •	• capital formation system • establishment of innovation • her education directed human • an -

Source: 이계우·민유주아나(2010); 최상덕(2010); 이종재·조난심(2009)

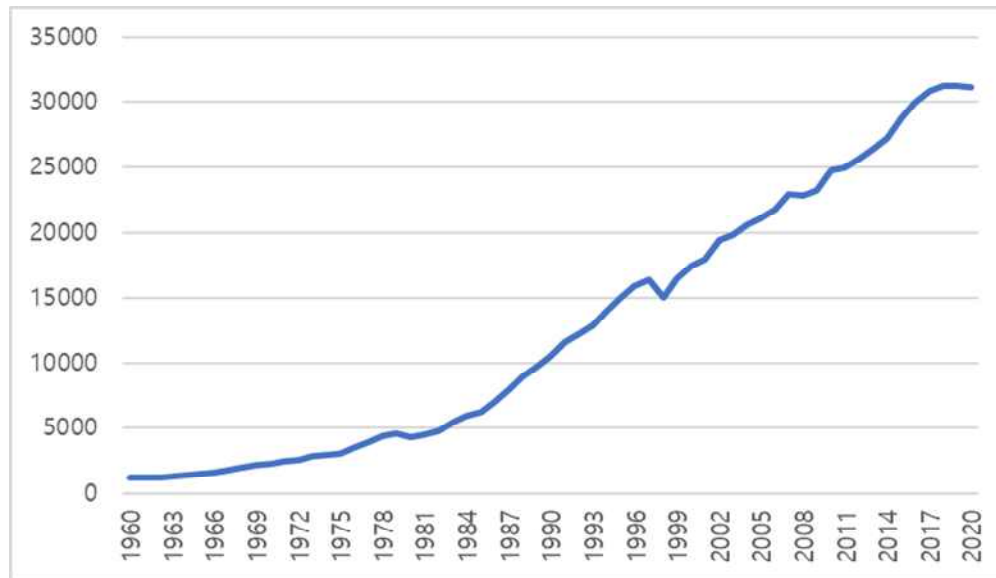
## Stage 1: Liberation, reconstruction, and the establishment of post-war Korea (1945–1960)

Over the past half-century, the Korean economy has achieved remarkable growth and development that is unprecedented in world history, and global Korea's rapid economic growth has been the focus of global attention (Kim, 2015; Kim, 2012). According to the statistics of the World Bank (1993), Korea achieved the fastest economic growth among 197 countries from the mid-1960s to the mid-1990s when industrialization was actively promoted. Gross national income (GNI) per capita<sup>2</sup> showed a growth rate of 6.17% in the 1960s, 7.42% in the 70s, 8.51% in the 80s, and 4.59% in the 90s, and the compound annual growth rate (CAGR) of real GNI during the period that the 5-year economic development plan was implemented was 7.70% which showed the highest growth rate in the world. (See Figure 1)

---

<sup>2</sup> Both GDP and GNI are indicators to measure country's economy, but it differs in what they measure. While GDP is the most popular indicator measuring economy's size and growth rate, GNI considers nonmonetary factors such as life expectancy, mortality rate, school enrollment and incomes from both in-and out-side of the country (World Bank, n.d.)

[Figure 1] GNI per capita (constant 2015 USD)



Source: World Bank

Korea was liberated from Japanese colonial rule in 1945, but Korean War soon made the country in ruins and devastated the economy, leaving most people in a miserable state. After the ceasefire in 1953, Korea was able to achieve some level of stability in the people's livelihood at the end of the 1950s by restoring production facilities destroyed in the war and focusing on the production of daily necessities with the help of the United Nations, led by the United States. Between 1953 and 1960, aid provided by the UN and US amounted to \$1.87 billion, and income from aid funds accounted for 74.2% of Korea's average gross income. On average, this accounted for 8.2% of GNP during this period. However, due to the high population growth rate and low economic growth rate, the standard of living of the people did not improve significantly. For

example, the gross national income (GNI) per capita in 1961 was only \$82 while the GNI per capita in 1953 was \$67, which was only a \$15 increase (World Bank, 2022). Not only that, the nation's economy could not be operated without foreign aid, but from the late 1950s, a decrease in foreign aid and continuous political instability worsened the economy, which implies that Korea was truly one of the poorest countries in the world, difficult to sustain its country without foreign aid.

The only thing that Korea, which had no natural resources or infrastructures, had a lot of was the number of human capital. However, since the use of Hangeul (Korean alphabet) was prohibited as part of the assimilation policy during the Japanese colonial period, the majority of Koreans at that time were illiterate and the illiteracy rate of those who are over 12 years old immediately after liberation was about 78%, and the enrollment rate in primary school was only 64% in 1945 (이종재, 2009). In other words, only the physical number of the population was large, but their value and quality as workers were not sufficient enough. Under these circumstances, the first independent government, founded in 1948, established a constitutional system that recognizes the basic rights of the people such as freedom, equality, property, and education, and regarding education rights, the nationwide illiteracy eradication movement and introduction of free primary education. As Hicks (1980) proved that countries with higher literacy rates at the time of economic development achieved faster growth and developed countries such as UK and US also had high

literacy rates before the industrial revolution in his research, Korea has also strengthened its economic development stance through the implementation of illiteracy eradication movement and compulsory primary education.

The illiteracy eradication movement emerged as a national policy task after the liberation. By 1948, the Korean government led a national illiteracy eradication movement, such as enrolling more than 1 million adults in civic schools<sup>3</sup> for teaching text reading and basic education and implementing the Five-Year anti-illiteracy Program (1954–1958). This Five-Year program aimed to reorganize the education system so that school-age children can receive compulsory education and to prepare complementary policies for people who do not receive such benefits. (Kim, 2015; Kim 2012) As a result of this program, the illiteracy rate of Koreans aged 12+, which reached 78% at the time of liberation, fell to 41.3% in 1948 and 4.1% in 1958 (남애리, n.d.)<sup>4</sup>.

Along with the enlightenment of the people through a crusade against illiteracy, Korea placed compulsory elementary education as the primary task of education. Compulsory education refers to a period of education that the government institutionally designated to

---

<sup>3</sup> An educational institution that accepted people who have exceeded school age without attending elementary school and taught basic knowledge necessary for people's lives. (신윤철, 1995)

<sup>4</sup> The reliability of the suggested illiteracy rate is controversial as the survey methods and procedures differ depending on statistical institutions. According to data provided by the National Statistical Office, the national illiteracy rate in 1955 in Korea was 22.3%, while the estimation by MOE was 12.5%. The illiteracy rate in 1959 reported by the Central Research Institute (김중서, 1961) was 22.1%, while the statistics bureau of the Ministry of Interior reported 13.7%.

attend school at a certain age and has been widely implemented around the world according to the idea of equal opportunity in education under Article 26 of the Universal Declaration of Human Rights (UDHR) by the UN. The state recognized the rights of all citizens to receive a certain education according to their abilities without discrimination in social and economic status and establishes schools to protect their rights and provide equal education opportunities. The essence of compulsory education is to guarantee the right to education, and it has great meaning that it can promote social development and eventually can enhance national power. Although it was difficult to establish and implement educational policies since about 85% of school facilities were destroyed due to the 1950 Korean War, the Korean government restored the destroyed educational facilities and focused on achieving full enrollment in primary school.

After the war, Six-Year Compulsory (Primary) education Completion Plan was established in 1954 and 80% of the education budget was allocated to compulsory education expenses to achieve the goal of universalizing compulsory primary education (남애리, n.d.). By the end of the plan, the primary school enrollment rate exceeded the target (94%) and reached almost the full enrollment level. Such an increase in the primary school enrollment rate is unprecedented in the world, and it is more clearly revealed in a global comparison of the enrollment rate of primary education. According to UNESCO' s data, the primary school enrollment rate in Korea in 1960 was 96%, far exceeding the world average



(62.1%), and which is higher than that of developing countries such as South America and even advanced countries (Table 2). Korea's primary education has not only achieved full enrollment for a long time, but the higher school enrollment rate of primary school graduates has already exceeded 99% since the mid-1980s. Although Korea's economic development started about a century later than major advanced countries, it can be seen that the enrollment rate has risen to a level that is second to none other than that of other countries.

[Table 2] Gross Enrollment Rate (GER)<sup>5</sup> by country: Primary

(Unit: %)

	1960	1970	1980	1990	2000	2010
Korea	96.0	104.0	110.0	108.0	100.6	101.7
North America	79.0	99.3	99.2	103.4	101.4	99.3
South America	58.8	72.5	103.5	106.9	—	—
Europe	90.0	95.4	102.8	103.2	102.5	102.7
Developed Countries	90.8	92.8	101.2	102.4	103.1	104.2
World	62.1	68.1	96.0	99.2	98.8	102.7

Source: Author's compile based on 김영화 (2015)

Note: 2000 and 2010 data were calculated by the author based on UNESCO's data. The value of North America is the average of the US and Canada, and the values of EU member countries and OECD member countries were used for the values of Europe and Developed Countries in 2000 and 2010, respectively.

---

<sup>5</sup> Net enrollment ratio (NER) is the share of children of official school age who are enrolled in school to the population of the corresponding official school age, while the gross enrollment ratio (GER) is the share of children of any age that are enrolled in a specific level of education. Therefore, GER can exceed 100% because of early or late entry and/or grade repetition.

In Korea, the beginning of compulsory education allowed the entire nation to acquire basic knowledge, which naturally led to a decrease in the illiteracy rate. Also, the generalization of primary education not only socialized students by providing opportunities to receive primary education to as many students as possible but also contributed greatly to providing quality and abundant labor later by forming a demand for secondary education. As can be seen from many studies arguing that the return on educational investment is higher when investing in low-level school education in the case of developing countries, it can be evaluated that the early universalization of primary education in Korea was a very efficient and effective policy implementation.

## **Stage 2: Export-oriented industrialization and rapid growth (1961–1979)**

The rapid universalization of primary education in the 1950s allowed the abundant supply of labor force necessary for labor-intensive industrialization in the 1960s. Therefore, Korea implemented an export-oriented high-growth strategy centered on labor-intensive light industry based on its abundant population and labor force, and as this strategy was successfully implemented, Korea was quickly able to achieve industrialization. Korea's economic development was carried out in earnest under the state leadership when the military government came into power. In 1961, Korea was suffering from all the difficulties that most developing countries confront such as being resource-poor, low-income, and

low-savings and investment (김적교, 2012; Whang, 1988). In addition, the rapid growth in the population at a rate of about 3 percent a year because of the baby boom and unemployment further complicated the domestic economy. While state affairs and the national economy were in turmoil as such, the military staged a coup and quickly took over the government.

Ironically, however, the Korean economy entered a new phase with this as a turning point. The military government came to power with the 5.16 military coup and established Five-Year Economic Development Plan (hereafter, Five-Year Plan) with a revolutionary pledge to 'poverty eradication' and implemented the government-led economic development strategy. Since Park believed that poverty could be eradicated only through high economic growth which can only be achieved through industrialization, he tried to actively promote the industrialization policy. (김적교, 2012) For the purpose of national economic development, the Park Chung-hee government promoted economic development plans, based on the modernization theory that industrialization through the active introduction of foreign capital results in a self-reliance economy and modernization (Kim, 2010; Denney, 2015). The Five-Year Plan encouraged the introduction of foreign capital under strong government leadership and attempted industrial growth by increasing investment and exports (Whang, 1988).

Stage 2, which lasted about 20 years from 1961 to 1979, was a period of rapid growth of the Korean economy, and the 1<sup>st</sup> to 4<sup>th</sup> Five-Year Plans<sup>6</sup> were established and promoted, resulting in high economic growth in a relatively short period of time. Socially, it was a time when the high population growth rate and city population concentration phenomenon and increase in social demand for education occurred. At this time, Korean education focused on improving the conditions of secondary education, which became poor due to the quantitative expansion of primary education. Primary education, which had an enrollment rate of less than 60% immediately after liberation in 1945, reached full enrollment by the end of the 1950s already. The number of primary school institutions and teachers increased significantly due to the surge in the number of students. The table below (Table 3) illustrates the quantitative expansion of Korea's primary education from 1965 to 2020, with the number of students and institutions reaching its peak in 1971 and 1986, respectively, and then showing a downward trend, while the case of the number of teachers continues to increase, about twice as much as 1965 in 2020.

---

<sup>6</sup> Park Chung-hee's Five-Year Plans began in 1962 and proceeded seven times until 1993. The goal was different for each plan. The year when the 7<sup>th</sup> plan officially ended was 1996, but it was abolished in 1993 when President Kim Young-sam took office, and 5-Year New Economy Plan appeared instead.

[Table 3] Primary education quantitative expansion

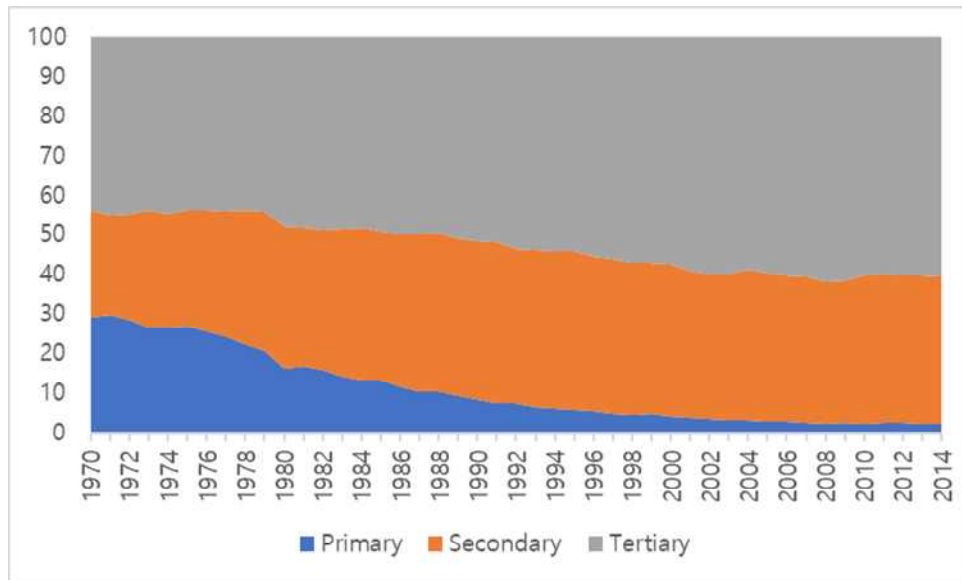
	# Institute	# Student	# Teacher	Higher school entry rate (%)
1965	5,125	4,941,345	79,164	54.3
1970	5,961	5,749,301	101,095	66.1
1980	6,487	5,658,002	119,064	95.8
1990	6,335	4,868,520	136,800	99.8
2000	5,267	4,019,991	140,000	99.9

Source: KEDI 「Statistical Yearbook of education」

The expansion and rapid generalization of primary education allowed the abundant supply of high-quality simple labor required for labor-intensive industrialization in the 1960s (Kim, 1997). Also, during the 2<sup>nd</sup> Five-Year Plan period (1967–1971), the government emphasized the modernization of the industrial structure, which may imply reducing the proportion of agriculture, forestry, and fisheries, while increasing the proportion of mining and manufacturing industries. To this end, the government reduced the proportion of agriculture, forestry, and fisheries industries while increasing the proportion of mining and manufacturing industries. With the advancement of industry structure, the Korean government wanted to promote science and technology for the advancement of industrial structure and productivity improvement, and to lay the foundation for supplying the demand for science and technology that will surge with economic and social development with its own capabilities. In particular, the importance of developing human

capital that embodies science and technology were emphasized.

[Figure 2] Changes in the proportion of industrial structure



Source: Bank of Korea

With the increase in primary school enrollment rate in the 1950s and the promotion of industrialization according to the Five-Year Plan, the demand for secondary education began to increase. in 1960, Korea's enrollment rate in primary school was 96%, which reached the level of full enrollment, but the enrollment rate in secondary and higher education was only 27% and 4.7%, respectively. Compared to the world's average enrollment rate (primary 62.1%, secondary 40%, tertiary 8.0%), Korea's primary education enrollment rate was higher than any other region in the world and more than twice of developing countries (46.8%), but secondary and tertiary education enrollment rate was only slightly

higher than the average in developing countries (secondary 21.6%, tertiary 3.6%). (Kim, 1997) The enrollment rate of secondary and tertiary surpassed the world average in 1975 and 1980, respectively. And in this background, there was an economic development plan for rapid growth and the establishment of a systematic human capital formation system at the national level to efficiently provide the necessary manpower. The government cooperatively responded to economic development by establishing new vocational high schools or reorganizing the curriculum, and gradually expanded educational opportunities starting from middle schools to high schools and to universities to meet the demand for manpower in the industry.

[Table 4] Trends in enrollment rates by region and by school level

Unit: %

		1960	1970	1980	1990
Korea	Pri	96	104	110	108
	Sec	27	41	76	87
	Ter	4.7	7.5	15.8	39.2
North America	Pri	79.0	99.3	99.2	103.4
	Sec	73.2	95.5	89.0	94.3
	Ter	29.7	45.4	54.2	77.3
South America	Pri	58.5	72.5	103.5	106.9
	Sec	36.2	49.5	44.7	52.3
	Ter	6.3	13.1	13.5	17.1
Europe	Pri	90.0	95.4	102.8	103.2
	Sec	62.4	74.2	85.7	92.4
	Ter	12.5	20.6	22.0	28.6
Developing Countries	Pri	46.8	57.8	94.8	98.5
	Sec	21.6	31.7	31.3	41.9
	Ter	3.6	7.2	4.0	6.9
World	Pri	62.1	68.1	96.0	99.2
	Sec	40.0	48.5	45.3	50.2
	Ter	8.0	14.3	11.0	12.7

Source: Author's compile based on 김영화 (2015)

Note: 2000 and 2010 data were calculated by the author based on UNESCO' s data. The value of North America is the average of the US and Canada, and the values of EU member countries and OECD member countries were used for the values of Europe and Developed Countries in 2000 and 2010, respectively.



[Table 5] Quantity growth in secondary education

	# Institute		# Student		# Teacher		Higher school entry rate (%)	
	Mid	High	Mid	High	Mid	High	Mid	High
1965	1,208	701	751,341	426,531	19,067	14,108	69.1	32.3
1970	1,608	889	1,318,808	590,382	31,207	19,854	70.1	26.9
1980	2,100	1,353	2,471,997	1,696,792	54,858	50,948	84.5	27.2
1990	2,474	1,683	2,275,751	2,283,806	89,719	92,683	95.7	33.2
2000	2,731	1,957	1,860,539	2,071,468	92,589	104,351	99.6	68.0

Source: KEDI 「Statistical Yearbook of education」

As industrialization for economic modernization was promoted in earnest since the 1960s, a bold economic development plan was established under the state leadership, and accordingly, an industrial manpower supplement plan was established. According to this plan, the supply and demand plan through training and education was executed by the relevant ministry. In the early 1960s, the quantitative expansion of school education began in earnest as the demand for light and manufacturing industry increased, and in the 1970s, the number of industrial high schools and vocational training institutions increased as the demand for industrial manpower increased due to the vitalization of the heavy and chemical industry. In addition, to strengthen vocational education and training, the specialization of industrial high schools, the vitalization of

industrial-educational cooperation, and financial support for industrial high schools were expanded. Since compressed industrialization based on the mass production system was promoted, the state-led standardized education system that could immediately respond to the rapidly expanding educational demand could be effective until this time.

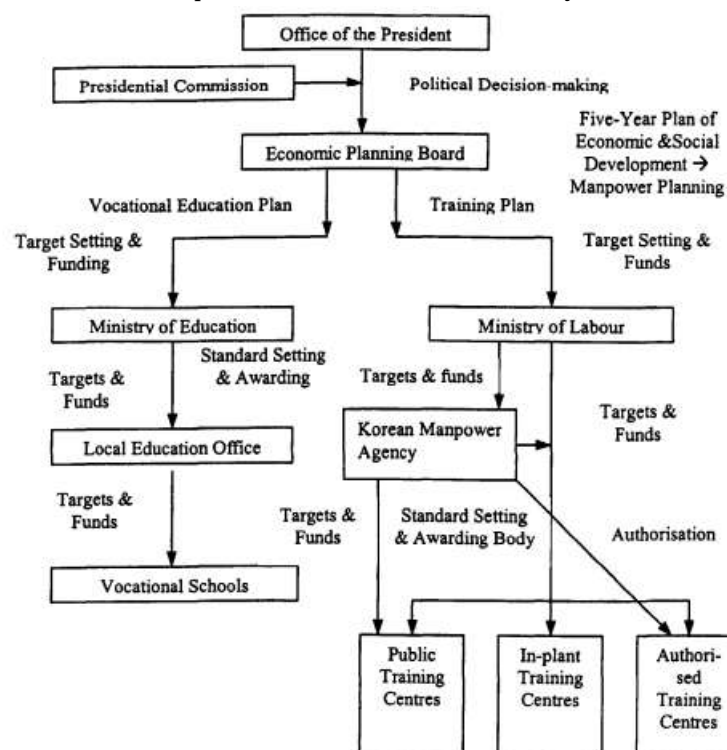
As industrialization for economic modernization began in the 1960s, Korea attempted to respond directly to the needs of the industry and labor market by seeking ways to cultivate appropriate human capital under Manpower Planning by establishing a developmental state human capital formation system <sup>7</sup> (김영화·박인중, 1990) and Figure 3 illustrates Korea's developmental state human capital formation system. As can be seen from this figure, the 5-Year Plan was established under the leadership of the Economic Planning Board, and Manpower Planning was established to achieve it. Manpower Planning was to prepare a manpower recruitment plan by calculating the manpower demand according to the industrial development prospect. To this end, Economic Planning Board expanded the supply of manpower from technical high schools aiming to expand the supply of skilled labor to the labor market, expanded the quota to high-tech industrial departments in tertiary education institutions as a solution to technical professionals' shortage problems, and made efforts to

---

<sup>7</sup> A developmental state is defined as a country that focuses on economic modernization with the highest priority on national formation or reconstruction, and main trait is strong government control in the process of industrialization. (Choi, 2003)

solve the structural labor shortage problems in manufacturing industries and SMEs. Accordingly, the manpower training policy was assigned to both Ministry of Education (MoE) and the Ministry of Labor (MoL). The MoE was in charge of the supply and demand plan for education-related workers including teachers and played a role in regulating the supply of industrial manpower by controlling the quota of vocational high schools and universities, which are the sources of higher manpower. Although MoL was more closely related to the supply and demand plan for all workers, they were mainly in charge of planning and training for the supply of production workers through the public vocational training institute. In other words, Economic Planning Board supported MoE and MoL in accordance with the human capital development goal, thereby linking and adjusting economic development and the expansion of educational training.

[Figure 3] Developmental skills formation systems in Korea



Source: Choi (2003)

In particular, with the implementation of the 5-Year Plan in 1962, the importance of secondary education became more prominent, and the government began to emphasize vocational education for national economic development in earnest. At that time, vocational education played a role in stably nurturing and supplying excellent technical personnel in accordance with the economic development plan, as well as making it possible to meet the ever-increasing demand for high school education. First of all, with the enforcement of the vocational education promotion policy in 1963, the Industrial Education Promotion Act was enacted to reinforce technical education and established a five-year vocational school (3 years of high school + 2 years of college education). In

addition, the five-year plan for promoting science and technology education (1967–1971) was promoted according to the 2<sup>nd</sup> 5-Year Plan, expanded engineering departments to meet industry demand, and expanded support for experimental and practical expenses by compiling and publishing textbooks for vocational training. The 1970s was a period when support for vocational high schools was greatly strengthened, and the government implemented vocational and technical education policies in accordance with economic growth policies and reorganized the educational programs of vocational high schools to meet the demands of the industry. In particular, with the declaration of heavy and chemical industrialization in 1973, the expansion of technical high schools and the specialization policies of engineering was mainly promoted to supply industrial technical manpower according to the Economic Planning Board's long-term economic outlook (1972–1981). As a result, the proportion of vocational education and science education-related expenditure among the total expenditure budget of the MoE increased by about 6.5 times from 0.8% in 1965 to 5.1% in 1978.

As shown in the table below (Table 6), the number of vocational high schools increased rapidly in quantity around 1970. In particular, it expanded greatly in the late 1970s, and the proportion of vocational high school students among the total number of high school students increased from 40% in 1965 to 45% in 1980. Vocational high schools did not expand as much as general high schools, but for 15 years from 1965 to 1980, the number of

institutes and students increased from 312 and 172,436 to 605 and 764,187 respectively. In addition, the government expanded the establishment of public vocational training institutions in addition to regular vocational high schools and skilled workers could be supplied in a short period of time through the government's implementation of legal measures, such as Special Measures for Vocational Training (1974), Basic Vocational Training Act (1976), to strengthen in-house vocational training. During the 3rd plan, 310,000 people were trained and 495,000 people were trained during the 4th plan, reaching a peak, but then the training performance gradually decreased. The vocational high school fostering policy of the 1970s seems to have contributed to the industrialization centered on the heavy and chemical industry by satisfying the demand for skilled workers along with the strengthening of vocational training by the MoE.

[Table 6] Comparison of the number of institutes and students  
in vocational high school and general high school

	# Institutes			# Students		
	Vocational	General	Ratio	Vocational	General	Ratio
1965	312	389	45:55	172,436	254,095	40:60
1970	481	408	54:46	275,015	315,367	47:53
1975	479	673	42:58	474,868	648,149	42:58
1980	605	748	45:55	764,187	932,605	45:55
1985	635	967	40:60	885,962	1,266,840	41:59
1990	587	1,096	35:65	810,651	1,473,155	35:65
2000	764	1,193	39:61	746,986	1,324,482	36:64

Source: KEDI 「Statistical Yearbook of education」 & Choi (2010)

In addition to the expansion of secondary education, including the expansion of strategic vocational and technical education, in connection with the economic development plan, the enrollment rate of secondary education institutions has soared due to various educational policies such as the abolition of middle school entrance exam (1968), mandate middle school as compulsory education (1985) and the high school equalization policy enforcement (1973)<sup>8</sup>. In 1960, Korea's secondary education enrollment rate was far below the world average of 40.0%, which was lower than that of South America, but due to the government's efforts, it gradually exceeded the world average from 1974 and has risen sharply to nearly double the world average (see Table 4). As the number of middle school students increased significantly due to the abolition of the middle school entrance and the mandate of middle school compulsory education, the higher school enrollment rate of middle school graduates and high school enrollment rate continued to increase. And 'high school equalization policy' announced in 1973 once again triggered the expansion of secondary education. It resulted in the expansion of the number of high school students, and the high school enrollment rate, which remained at 20.3% in 1970,

---

<sup>8</sup> Although the enrollment rate in primary education is high, there are not enough number of middle school and high schools to accommodate all of those who graduated elementary school, so students were selected through the entrance examination for each school. In this situation, new educational problems have emerged that elementary and middle schools providing exam-oriented education to enter the higher school and household spending on private education for children surged. To solve this problem, the government introduced the middle school non-test admission system in 1968 and the high school standardization policy in 1973.

surged to 48.7% in 1980. Even after that, the high school enrollment rate continued to rise, recorded at 64.2% in 1985 and 79.4% in 1990, and due to the continuous expansion of middle and high school educational opportunities, Korean society entered the stage of universalization of secondary education.

[Table 7] Secondary school enrollment Rate in Korea

(Unit: %)

	Middle School	High School
1966	41.4	26.4
1970	51.2	28.1
1975	71.9	41.0
1980	95.1	63.5
1985	100.1	79.5
1990	98.2	88.0
1995	101.6	91.8

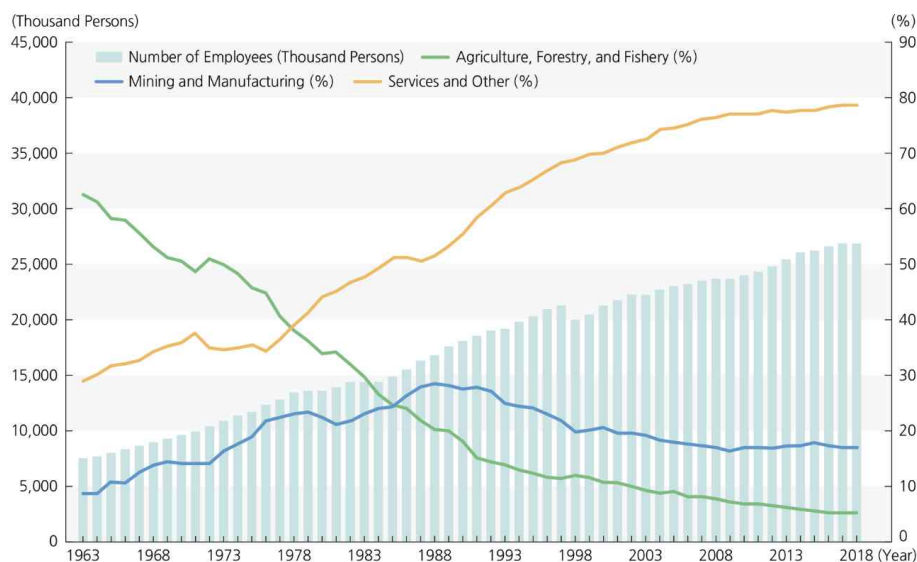
Source: KEDI 「Statistical Yearbook of education」 & Kim (2015)

Note: include both middle school and high school

As a result of the successful implementation of three 5-Year plans, significant progress was made in strengthening the industrial structure and implementing fundamental changes in the nation's development strategies through policy innovations and institutional reforms. Indeed, the economic performance of the expansion of the secondary industry during this period was remarkable. The nation's GNI grew on average at an annual rate of 7.8% from 1962 to 1979, and the rapid economic growth has brought remarkable change in the nation's industrial structure. (Figure 4).



[Figure 4] The change in industrial structure



Source: The National Atlas of Korea (2019)

### Stage 3: Economic reconstruction and stable growth (1980–1995)

This period was the time when stable economic growth and structural adjustment were pursued, and political democratization was achieved by accepting democratic demands after the military regime of the early 1980s (이종재·김왕준. 2009). In the late 1970s, there were worldwide economic stagflation and recession after experiencing two oil shocks, and internally, President Park Chung-hee's 18 years of iron fist rule ended with his assassination, but soon after martial law was declared and new military forces took power, which led to democratization movements centered on students. At that time, Korea was in a very chaotic situation both in and outside the country. Thus, Korea recorded its first negative

growth rate in 1980 since 1960<sup>9</sup>. Despite the negative growth, the government changed the name of the 5-Year Economic Development Plan, which has been inherited since the previous administration, to the 5-Year Economic and *Social* Development Plan, showing their willingness to consider public welfare as well as national economic development. It suggests that the government is not only focusing on growth-oriented economic development but also paying attention to the overall problems of society derived from the process of promoting economic development. As a result, the government's intervention in the public's basic needs such as education, housing, and health has become more active.

In order to promote public welfare, cooperative labor-management relations policies were established and welfare policies including the minimum wage system were introduced to enhance the welfare of workers. In external circumstances, the world became united due to the collapse of the Soviet Union and trade significantly excelled with the development of transportation and communication between countries. In other words, the 1990s was the time when the era of globalization has come. Korea, which was a rather closed country where overseas travel was liberated only in 1989, began accepting globalization, starting with the declaration of globalization in 1994, and became the second Asian member to join the OECD in 1996 (최상덕, 2010; Jung, 2010).

---

<sup>9</sup> However, since Korea has already achieved remarkable growth for 45 years since liberation to such an extent that its nominal GDP ranked 17th in the world in 1990, so it was not at the level of experiencing poverty as before.

As soon as Chun Doo-hwan came into power, he tried to achieve growth through the improvement of the overall economy rather than the expansion of government intervention. Also, the government tried to develop an industrial structure and reorganize the economy centering on industries in which Korea has a comparative advantage. To this end, the government planned the development of the machinery and electronics industries, which are capital and resource-saving and technology- and function-intensive industries. (최상덕, 2010; 김영화, 1997) At that time, by investing heavily in technology-intensive industries in response to protectionism and rising wages, the government intended to foster high-level scientists and engineers and promote technological innovation and new technology development.

In the 1980s, as the proportion of technology-intensive industries increased and the industrial structure was advanced, the role of higher education became more important. Thus, the quantitative expansion of education, especially in higher education, continued during this period. Until the 1970s, the government focused mainly on the promotion of primary and secondary education. Secondary education expanded as primary school graduates began to pour out after primary education reached almost full enrollment, and higher education expanded as secondary education graduates began pouring out with the expansion of secondary education. The wide-range expansion of secondary education opportunities, which was largely achieved during the Park Chung-hee administration in the 1970s, drove the demand for

higher education in 1980.

From shortly after the liberation to the 1950s, higher education expanded in accordance with the government's laissez-faire policy for higher education, but the scale of the expansion was not very large since the absolute population eligible to attend school was small. In the 1960s, the expansion of higher education was suppressed by the military government's strong quota control policy<sup>10</sup>, and even in the 1970s, there was only partial expansion such as training technical manpower necessary for industrial manpower demand, but the trend of restraining expansion continued. For this reason, Korea's higher education enrollment rate was not that high compared to other countries until the early 1970s. Higher education began to expand in Korea in the late 1970s, and by 1980, with the liberation of universities such as the implementation of the graduation quota system<sup>11</sup> and the increase in the number of admissions, higher education rapidly expanded, exceeding the world average. In the 1990s, as mitigation of controls over the university quota and an increase in demand for highly skilled manpower, higher education continued to expand, and the number of students increased significantly.

---

<sup>10</sup> The reason why the government implemented a strong quota control policy in the 1960s was that the number of college graduates increased significantly due to quantitative expansion of education, resulting social problems such as mass production of highly educated jobless because there was not enough economic foundation to accept huge supply of human capital.

<sup>11</sup> The graduation quota system is a system that recruits new students by adding 30% of the graduation quota but adjusts the number of students who can graduate only at the graduation to alleviate overheated private tutoring and excessive competition for entrance exams.

[Table 8] Gross Enrollment Rate (GER) by Country: Tertiary

(Unit: %)

	1960	1970	1980	1990	2000	2010
Korea	4.7	7.5	15.8	39.2	76.7	102.8
North America	29.7	45.4	54.2	77.3	65.9*	73.5
South America	6.3	13.1	13.5	17.1	—	—
Europe	12.5	20.6	22.0	28.6	49.5	65.0
Developed Countries	15.1	26.4	29.4	39.9	49.9	66.1
World	8.0	14.3	11.0	12.7	19.1	29.4

Source: Author's compile based on 김영화 (2015)

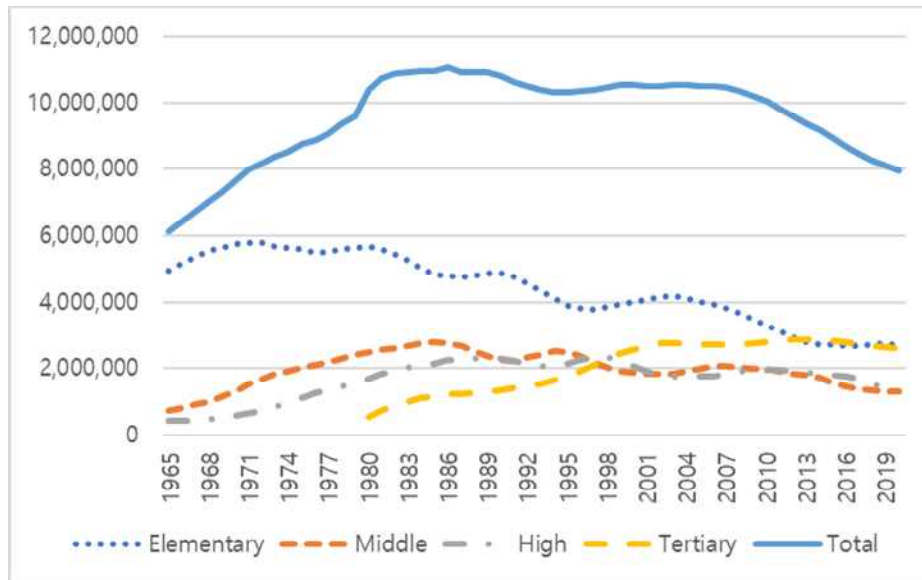
Note: 2000 and 2010 data were calculated by the author based on UNESCO' s data. The value of North America is the average of the US and Canada, and the values of EU member countries and OECD member countries were used for the values of Europe and Developed Countries in 2000 and 2010, respectively.

\* The impact of a sharp decrease in Canada' s GER since 1998

From the 1980s to the early 1990s was the expansion period of higher education, and both social and economic demand for higher education increased significantly due to the continued expansion of school education and fostering of high-tech industries. As the Korean economy grew, household budgets greatly improved, which aroused the desire of parents to send their children to college or universities, thereby the demand for college continued to rise. In terms of the number of students, primary schools peaked in 1971, middle schools in 1985, and high schools in 1989, and higher education started to increase rapidly from 1980. (See Figure 5) What can be interpreted from this is that the expansion of educational opportunities in Korea was gradually promoted one by

one in the order of primary, secondary, and tertiary education.

[Figure 5] Changes in the number of students by year



Source: KEDI 「Statistical Yearbook of education」

The increase in demand for technical manpower due to the advancement of the industrial structure increased the demand for college graduates. Since 1970, the Korean government has selectively expanded the quota for tertiary education by field of study to respond to the demand for high-quality manpower required for continuous industrialization. In order to support economic growth, engineering, business and economics, and foreign language departments were increased in consideration of major industries by the industrial development process. According to the statistics from the Ministry of Education, the average annual growth rates of the number of students in engineering and foreign language

departments were 14.4% and 14.9%, respectively, which was higher than the average growth rate of 12.4% for all majors during the same period. In addition, the graduation quota system, which was implemented in 1981 as part of the 7.30 Education Reform measures for education innovation, increased the number of enrolled university students by 33% year-on-year. However, the number of students in engineering, which had been growing at the fastest pace in time for the industrialization stage, showed the slowest increase, and the number of students in the humanities department, which expanded at the slowest rate during the previous period, expanded the fastest.

The demand for not only 4 years universities but also vocational colleges increased according to the increase in demand for industrial manpower. From the late 1980s, as the labor market demand for college graduates, an institution that produces mid-level technical manpower, increased, the employment rate of college graduates improved significantly since the 1990s. The employment rate of college, which was only 57.2% in 1985, rose sharply to 71.8% in 1990 and continued to maintain the employment rate in the 7–80% range until the late 2000s. The employment rate of college graduates has exceeded that of university graduates since 1985, improving the social awareness of college, and the number of students wishing to enter college has steadily increased. As the economic and social demand for college increased, the government changed the policy direction from college maintenance to fostering and announced measures to supply and demand

industrial manpower. In this measure, the government planned to increase financial support and expand the supply of mid-level technical manpower by establishing and expanding the industrial engineering department, which showed high employment rates, to increase the quota of college. With such strategic support from the government, colleges, which were in a state of stagnation in the 1980s, were greatly expanded in the 1990s. In sum, Korea's higher education not only met the rapidly increasing demand for high-tech manpower but also contributed greatly to industrialization centered on the heavy and chemical industry as a source of the R&D labor force.

In fact, it is known that during the period of stage 3, most Korean managers and engineers received a relatively high level of education compared to other countries (Amsden, 1989). The proportion of those who completed higher education in professional technical works reached 70.7% in 1980 and 72.5% in 1985, and the proportion of those who completed higher education among administrative managers reached 60.6% in 1980 and 57.6% in 1985 (김운태, 1991). As such, higher education, which began to expand in the late 1970s, responded to the government-led industrialization strategy by supplying managers and engineers in abundance. However, as people's knowledge level increased, educated elites took the lead in protesting against the military regime and demanding democratization, and education reform measures and education reinforcement policies returned as a double-edge sword to the Chun government.



As a result of the fierce democratization movement in the 1980s, a new civilian government was launched. The new government established the New Economy 5-Year Plan (hereafter, New Economy Plan) with the aim of revitalizing the stagnant economy and building a new economic system with the participation and creativity of all citizens by 1997 (배영목, 2008). Accordingly, the 7<sup>th</sup> 5-Year Plan, which was being implemented by the previous administration, was replaced with the New Economy Plan of the new government. While the 5-Year Economic Development Plans which were market-complementary plans that continued up to the 7<sup>th</sup> round was comprehensive programs for economic growth, the New Economy Plan aimed at reforming the market economic order brought by the economic development plan under the goal of bringing the Korean economy into the advanced economies of the developed world.

Previous governments have constantly tried to reform education. However, only educational reforms announced in 7.30 and 5.31 are the only dates that are remembered. Both of these reformations were developed during stage 3, and the 5.31 reform has penetrated the Korean education development process so far. The 7.30 education reform announced by the new military government in 1980 was aimed at banning tutoring, abolishing the higher school entrance exam, and the graduation quota system and the 5.31 education reform was a comprehensive reform set prepared by the Kim Young-sam administration in 1995, laying the foundation for school liberalization, establishing an educational law

system, and introducing the concepts of lifelong learning (안병영·하연섭, 2015). The table below (Table 12) compares the ‘Developmental State Human Capital Formation System’ and the ‘5.31 New Education System’. The centralized education supply system based on the state-led economic development policy that led to the rapid development of the Korean economy during the unprecedented period of growth greatly contributed to the quantitative growth of education. However, there were limitations in satisfying the diverse and high-quality educational demands required in the rapidly changing era. Therefore, educational reform was requested to establish an innovation-directed human capital formation system that could meet various educational demands and enhance the competitiveness of education. Accordingly, measures such as inducing the transition from supplier-centered to demander-centered education and emphasizing the autonomy and responsibility of each university were suggested.

[Table 9] Comparison of Developmental State Human Capital Formation System and 5.31 New Education System

	Developmental State Human Capital Formation System	5.31 New Education System
Characteristics of educational system	State-led, supplier-oriented	Emphasize the role of the market, demander-oriented
Relations with the economy	Direct linkage by establishing Manpower Planning based on the economic development plan	Market and private-led autonomous manpower supply and demand orientation
Educational administrative system	Central government	Decentralization/autonomy of education
Educational values	Socialization, moral and social discipline	Diversification, autonomy, and accountability
Educational policy objectives	Quantitative expansion in line with the growing demand for education	Quality excellence and competitiveness enhancement

Source: Author's compile based on 최상덕 (2010)

While the education policies before the civilian government were promoted to foster the human capital required in the industrialization process, later education reforms were promoted to nurture human capital that could play a more leading role in the global economy and knowledge-based society. The New Education Policy devised and promoted educational reform plans for autonomy, diversification, and specialization for higher education, which had been uniformly controlled by the government in the establishment of institutes, student selection, school curriculum, financial

management, etc. In addition, as globalization and the transition to a knowledge-based economy accelerated, it became important to establish a human capital formation system to foster students into talents with more creative capabilities. Accordingly, the government renamed the ‘Ministry of Education’ to the ‘Ministry of Education and Human Resources Development’ and prioritized the reform of higher education to greatly increase financial support and strengthen evaluation so that universities’ research capabilities can gain international competitiveness. Also, other educational policies such as research support, strengthening industry-university cooperation, and educational informatization were promoted.

As it became more difficult to accurately predict industrial demand due to the advent of a knowledge-based economy and the industrial structure became more complex, the vocational education reform plan emphasized the transition to a demander-oriented education and training system instead of a supply-oriented education and training system based on quantitative manpower supply and demand policy. In addition, it was proposed that vocational higher education institutions play a leading role rather than vocational high schools in vocational education. Moreover, in order to promote lifelong learning, the government promoted support for adults’ learning, implemented the academic credit bank system to support students to get a degree or certificate, recognized the in-house university, and expanded lifelong education offered by higher education institutions (Lee, 2009).

## Chapter 4. Contribution of education to economic growth

This chapter proves the hypotheses of this thesis through the contents of the previous chapter and existing studies.

*Hypothesis 1: Education was able to play a significant role in economic development in Korea because it has developed appropriately responding to the stage of economic development.*

The education expansion process in Korea showed a pattern corresponding to changes in Korea's industrialization strategy, so it was possible to appropriately supply the type of manpower required for each industrialization period. In order to promote labor-intensive industrialization in the early stages of economic growth, high-quality and abundant labor was required. In the case of Korea, the nationwide promotion of the adult literacy movement immediately after the liberation greatly lowered the illiteracy rate, and the early realization of primary education through mandatory elementary education despite the difficult situation immediately after the war provided the foundation for industrialization. The increase in the number of elementary education graduates improved the level of Korean human capital, enabling Korea's early economic development centered on labor-intensive industries. In the early stages of industrialization, the expansion of secondary and tertiary

education was relatively abandoned in Korea compared to other developing countries, however, as the level of basic education required according to the level of economic development increased, middle and high school education was gradually generalized. In the 1970s, the expansion of secondary education and the strengthening of vocational education (or training) contributed to the smooth supply of skilled manpower necessary for industrialization centered on capital-intensive heavy and chemical industries. The abundant supply of university graduates due to the expansion of higher education after the 1980s contributed to the production of manpower and knowledge required for technology-intensive industrialization. The contents related to this were described in detail in the previous chapter (Chapter 3).

As can be seen from the explanation above, Korean education has continued to develop in the direction of fostering appropriate human capital to lead economic development. In other words, prior investment in education improved the level of human capital, leading to economic growth through it in the case of Korea. According to Lee (2010) <sup>12</sup>, the prior investment in primary education from 1960 to 1980 had the effect of promoting annual economic growth of about 0.2%p, and prior investment in secondary education from the mid-1970s to 2000s had the effect of promoting annual economic growth of about 0.45%p, which also support the author's claim

---

<sup>12</sup> Lee (2010) conducted regression analysis of the education investment to the per capita income by using school enrollment rate and calculate the residual by comparing its estimated value with actual value and interpreted it as an indicator of investment in education.

quantitatively. He examined the degree of investment in education through changes in the enrollment rate at each level of education from 1960 to 2000. He attempted to measure investment in education through the residual of school enrollment rates which cannot be explained by (log of) GDP per capita and if the actual enrolment rate is higher than the predicted value, it means that more investment has been made in education, which can be interpreted as the successful educational policies had been implemented.

[Table 10] Residuals between actual and estimated school enrollment rate by year and by school level

(Unit: %)

Year	Primary			Secondary			Tertiary		
	Act	Est	Res	Act	Est	Res	Act	Est	Res
1960	97	84	12.4	—	23	—	—	—14	—
1970*	103	93	10.5	42	44	—2.7	—	1	—
1975	106	96	10.1	53	51	1.9	—	7	—
1980	109	99	10.5	72	60	12.5	—	14	—
1985	100	102	—1.8	89	69	20.1	—	21	—
1990**	103	104	—0.5	91	79	12.2	38	31	7.6
1995***	98	106	—7.3	98	88	10.2	66	39.1	27.0
2000	101	107	—6.4	97	94	2.9	78	42	36.1

Source: 이영 (2010) & KEDI

Note: values are rounded off to the nearest tenth

\* value of 1971, \*\* value of Tertiary is as of 1991, \*\*\* value of Tertiary is as of 1998

The results of the comparison between the actual and estimated value of education investment are summarized above in Table 10. In the case of the primary school, the actual value is about 10%p higher than that of the estimated value from 1960 to the early 1980s. This is expected to be due to the implementation of compulsory primary education in 1959. Through the enforcement of compulsory primary education from 1954 to 1959, Korea has already reached full enrollment in primary education even before the 1960s and it can be interpreted as a sufficient amount of investment in primary education was already made by 1959, and it became the basis for the light industry-oriented economic growth that began in 1960s. In the case of secondary education, since the mid-1970s, the actual enrollment rate has increased faster than the estimated value, and until the 1990s, the actual value was higher at the 10-20%p range compared to the estimated value. This investment in secondary education seems to have played a major role in the development of the heavy industry-oriented economy.

In the case of tertiary education, the data have been available only since 1990, but it has already been observed that the actual enrollment rate is higher than the predicted rate since 1990. The gap between these actual values and estimated values increased from less than 10%p in 1990 to 30%p in the mid-1990s and even exceeded 40%p since 2000. The trend of a high enrollment rate in tertiary education is due to an increase in educational demand or education fervor because of an increase in income and a significant increase in university supply since the 1980s. In addition, 7.30 and



5.31, the two educational reforms exploded the university enrollment rate to 60% in the late 1990s and to 80% in the 2000s. This resulted in the universalization of higher education in a short period of time, and with the increase in the number of people who completed higher education, Korea entered a knowledge-based economy from the mid- to late 1990s.

From Lee's study, it was observed that Korea made a prior investment in primary education in the 1950s, in secondary education in the 1970s, and in higher education in the 1990s. In addition, combining the contents of the previous chapter, the expansion of prior investment in primary, secondary, and higher education had a positive effect on promoting economic growth in the stage of Korean industrialization, which led to labor-intensive, capital-intensive, and knowledge-intensive industries, respectively. This can be considered as the result of showing that appropriate reformation and implementation of education policies in accordance with the national economic development plan allow strategic educational development and this led to successful economic development.

In addition, a study by Kwak and Kim (2007) found that education contributed about 3.03% to Korea's economic growth from 1975 to 2003. They measured the contribution rate of education to the improvement of labor productivity of employees, and the contribution rate of labor productivity per employee to the GDP growth.

[Table 11] Calculation of the contribution of education to  
economic growth (1975–2003)

(Unit: %)

1. Contribution of education to labor productivity	
Labor productivity of employee in the national income (A)	30.52
Changes in labor productivity based on education (B)	0.21
Contribution rate (A/B x 100)	0.06
2. Contribution of labor productivity to GDP growth	
Contribution of education to labor productivity per employee (C)	0.06
GDP CAGR (D)	6.93
Contribution rate (C/D x 100)	0.92
3. Contribution of education to GDP growth	
Labor productivity of employee in the national income (A)	30.52
GDP CAGR (D)	6.93
Contribution rate (A/B x 100)	4.40
4. Contribution of education to economic growth	
Changes in labor productivity based on education (B)	0.21
GDP CAGR (D)	6.93
Contribution rate (B/D x 100)	3.03

Source: 박소희·김호범 (2007)

As a result of the measurement, it was found that there was an improvement in labor productivity through education, and the contribution rate to GDP growth due to this improvement in labor productivity also increased. They also measured the extent to which the quality improvement of the labor force through education

contributed to Korea's economic growth and found that Korea's education contribution to economic growth was 3.03%, which means that it contributed nearly half (about 43.72%) of the total economic growth rate of 6.93% (100%)<sup>13</sup>. Although the study of Kwak and Kim covered 8 years more than the period covered in this thesis, what can be known from this is that education during this period had a great influence on Korea's economic growth. Through these results, it can be proved quantitatively that education played an important role in Korea's economic development.

There is another evidence which shows that the government has strategically invested in education for economic development. According to statistics from the Ministry of Education, the number of students in each department from 1965 to 1995, the majors that showed the most extreme increase in number of students were linguistics<sup>14</sup>, social science<sup>15</sup>, natural science, and engineering, and the rest has shown gradual increase only. Recently, however, the number of students in almost all departments are similar. Thus, the author interpreted the remarkable expansion of some majors during the rapid growth period as the government's strategy to selectively strengthen a few majors such as engineering, business, economics,

---

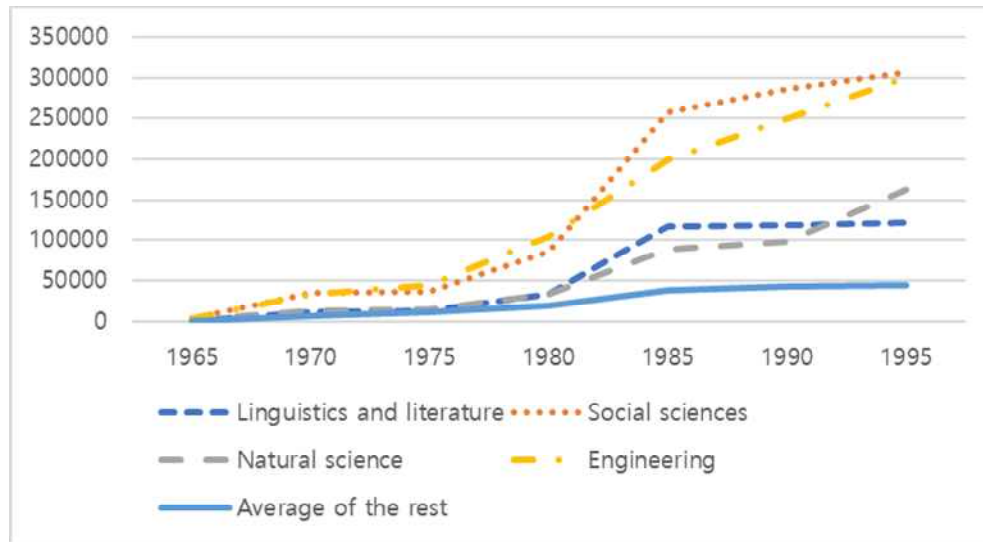
<sup>13</sup> When the total GDP growth rate of 6.93% is set to 100%, 3.03% accounts for 43.72% of that 100%.

<sup>14</sup> Linguistics and literature include majors like English, German, Chinese, and is expected to be expanded to further understand foreign cultures and languages in line with the globalization process.

<sup>15</sup> Social science includes majors like Economics, Political Diplomacy, Trade, Tourism, and Public Administration, and is expected to be expanded to secure national welfare and well-being and Korea's position on the international stage.

and foreign languages for the advancement of the economy.

[Figure 6] Changes in the number of students by major



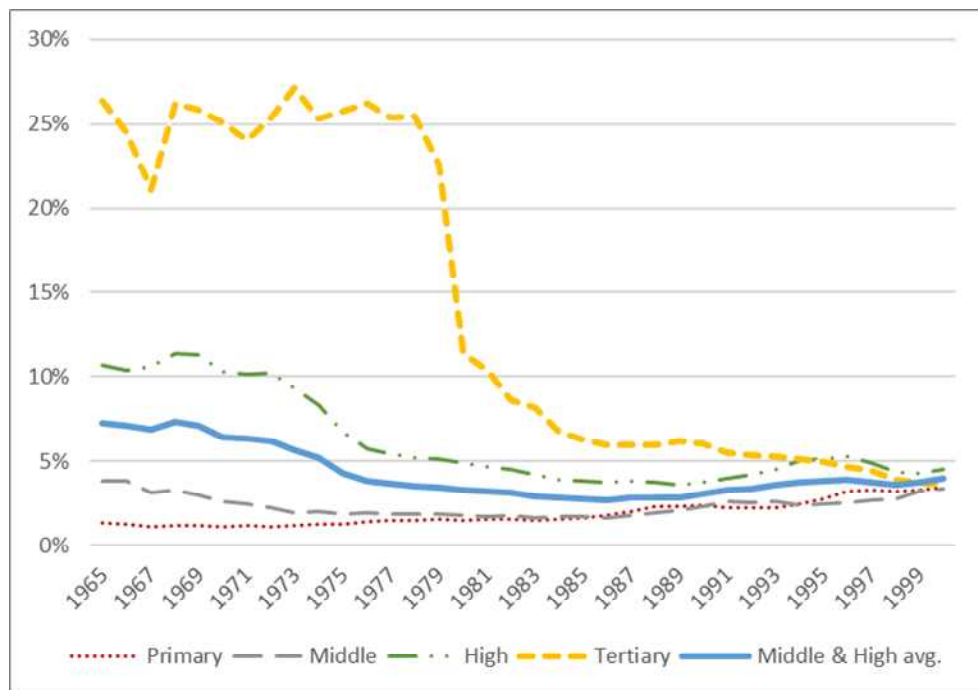
Source: Ministry of Education & KEDI

The first hypothesis, which argues that education has contributed greatly to Korea's rapid economic growth by responding and developing according to the stage of industrialization, has been proved by synthesizing the contents explained so far, but the author also argues that the contribution of education to economic growth has continued to decrease as the economy has advanced over time. Accordingly, a second hypothesis is presented based on this belief.

*Hypothesis 2: As the economy developed and the industrial structure advanced, the influence of education on economic growth in Korea continued to decrease.*

The second hypothesis is about that the influence of education decreased as the economy developed. The reason for raising this hypothesis is that the employment rate was very low compared to the huge number of college graduates. If education continues to develop according to economic development and industrial demand, there is no reason for employment to be low. However, according to Figure 7, which illustrates the percent of the total number of employed to the number of graduates of each education level, the most noticeable thing here is the sudden decline of tertiary institute graduates' employment rate from the late 1970s.

[Figure 7] Percent of total number of employed to the number of graduates



Source: Ministry of Education & KEDI

Since the primary, middle, and high school enrollment rates reached almost 100% due to the universalization policy, the ratio of the number of employed to the graduates from each level of education is bound to decrease. As the first hypothesis demonstrated, Korea's education continued to develop at the stage of economic development, and thus provided the labor market with suitable manpower for industrial demand, so the employment rate of primary school graduates in the 60s and that of secondary school graduates in the 70–80s greatly increased. Then, tertiary education should also show the increasing trend in employment rate as the demand for higher education graduates greatly increased for the development of technology-intensive industry and knowledge-based economic system. But this graph above shows that the employment rate of college graduates continues to decrease despite the expansion of higher education in Korea.

Going back to proving the second hypothesis, the author regarded that it is necessary to answer to the extent to which education contributed to economic growth in Korea. There are many studies that measure the contribution of capital, labor, and education to economic development, but among many studies by 김영봉 외 (1984) and Song (1988). According to 김영봉 외 (1984), the contribution of input factors such as capital, labor, and education to GNP growth between 1960 and 1974 was 31.8%, 23.5%, and 7.8%, respectively. When calculated by dividing the period into 1960–1966, 1966–1970, and 1970–1974, the contribution of education to economic growth fell to 30% of 1960–1966 in 1970–1974, while

the contribution of capital nearly doubled during the same period. This finding suggests that the contribution of education was more prominent in the early stage of economic development.

[Table 12] Contribution of input factors to economic growth

(Kim et al, 1984)

(Unit: %)

	1960–1966	1966–1970	1970–1974	1960–1974
GNP growth rate	7.25 (100.0)	10.78 (100.0)	10.14 (100.0)	9.07 (100.0)
Capital	1.50 (20.7)	4.17 (38.7)	3.71 (36.6)	2.88 (31.8)
Labor	1.27 (17.5)	3.76 (34.9)	1.84 (18.1)	2.13 (23.5)
Education	1.03 (14.2)	0.49 (4.5)	0.44 (4.3)	0.71 (7.8)
Etc.	3.45 (47.6)	2.36 (21.9)	4.15 (40.9)	3.35 (36.9)

Source: 김영봉 외 (1984)

Note: The figure in () is the contribution rate of the input factor to the GNP growth rate assuming GNP is 100

By using the same method, Song (1988) presented the results of a study that estimated the degree to which each input factor contributed to Korea's economic growth from 1955 to 1979. According to the study, Korea's GNP grew 7.62% annually during a period, and the contributions of capital, labor, and education<sup>16</sup> were 53.2%, 15.5%, and 3.5%, respectively. In addition, by dividing the period into 1955–1959, 1959–1969, and 1969–1979, the

<sup>16</sup> Song (1988) did not use the term 'education' but expressed it as a 'change in the quality of labor'. However, it was collectively referred to as education since it was a term used in the same sense as 'education' in the study of Kim (1984).

contribution of education to growth was significantly high at 15.9% in 1955–1959, but it showed a decreasing trend over time and education contributed only 1.6% of GNP growth during 1969–1979.

[Table 13] Contribution of input factors to economic growth  
(Song, 1988)

(Unit: %)

	1955–1959	1959–1969	1969–1979	1955–1979
GNP growth rate	4.46 (100.0)	6.33 (100.0)	10.27 (100.0)	7.62 (100.0)
Capital	0.94 (21.1)	2.88 (45.5)	6.56 (63.9)	4.05 (53.2)
Labor	0.69 (15.5)	1.12 (17.7)	1.43 (13.9)	1.18 (15.5)
Education	0.71 (15.9)	0.21 (3.3)	0.16 (1.6)	0.27 (3.5)
Etc.	2.12 (47.5)	2.12 (33.5)	2.12 (20.6)	2.12 (27.8)

Source: Song (1988)

Note: The figure in () is the contribution rate of the input factor to the GNP growth rate assuming GNP is 100

Contrary to what people generally believe, the above-mentioned research results show that education has not contributed much to the process of economic growth in Korea. Considering the results of Kim et al (1984) and Song (1988), although the time period covered by are different, one thing what is clear is that the contribution of education to economic growth exploded in the 1960s and then continued to decline. Psacharopoulos (1984) found that the degree to which education contributed to economic growth in



countries around the world ranges from 0.8 to 25%<sup>17</sup> of the total growth rate. However, according to Kwak and Kim (2007), Kim et al. (1984), and Song (1988), the contribution of education for about 50 years from 1955 to 2003 was found to have only a range of 3.03–7.8% of the total economic growth rate. It can be understood that the degree to which education contributed to economic growth in Korea is both absolutely and relatively not large.

The low contribution of tertiary education to economic growth in the 1990s can be cited as evidence supporting the author's 2<sup>nd</sup> hypothesis that the influence of education has decreased in the process of economic growth. Since the Korean economy had labor-intensive characteristics in the past, human capital development policies focused mainly on fostering a large number of low-cost and low-level industrial manpower by injecting standardized knowledge. Accordingly, in the economic growth process of the 1960s–1970s, the contribution rate of primary education was the largest to economic growth, as is commonly observed in underdeveloped or developing countries (장창원, 2007). According to World Bank (1993), the contribution of primary education to economic growth in Korea at the time was estimated to be 67% and that of secondary education was 19%. Later, as capital-intensive heavy and chemical industry-oriented industrialization began, secondary education, especially vocational education, was strengthened to focus on fostering technical manpower. The 1970–80s was the period when

---

<sup>17</sup> North America average: 20%, Europe average: 6.5%, Latin America average: 5.1%, Asia average: 11.1%, Africa average: 17.2%

secondary education was expanded the most, and at the same time, compressed economic growth was progressed. During this period, the contribution rate to economic growth by the level of education was estimated to be 36.2% for primary, 65.4% for secondary, and 4.73% for tertiary education, and what can be interpreted here is that secondary education contributed the most to economic growth.

Then, in the process of knowledge-based industrialization that followed in the 1990s, the importance of tertiary education, which enables the cultivation of the ability to produce new knowledge and the rapid application of this knowledge to human activities, should be further enhanced as shown in the previous development process. If so, the contribution rate of tertiary education should be higher than that of primary and secondary education, but according to 장창원 (2007), since the 1980s, primary education has contributed 6.6% to economic growth, 87% to secondary education, and -52.9% to tertiary education. In other words, tertiary education shows a negative contribution rate at a time when it should be the greatest under the assumption that the influence of education continues to be high in the process of economic development, and its influence is showing a retreat. Through the explanation above, the author's second hypothesis, that the influence of education in the early economic growth process was great but the contribution of education gradually decreased according to the industrialization process, was proved.

Even if the contribution of education to economic growth has decreased, however, it cannot be denied that education is the most

essential activity in forming human capital and that Korea has grown based on this. In this regard, Lee and Kim (1995) conducted research on how much education contributed to the formation of human capital in the Korean economic growth process from 1963 to 1993. According to the study, labor quality increased by 0.78% annually from 1963 to 1993, and among the major factors<sup>18</sup> affecting the quality improvement of labor used by Lee and Kim, the contribution of education to labor quality was 1.17% per year. This means that the contribution rate of education to the quality of labor is about 150%<sup>19</sup>. When dividing the period, the annual average contribution rate of education to improving the labor quality during 1963–1970 is 1.52%, 1970–1980 is 0.95%, and 1980–1993 is 1.15%. It illustrates that education has been leading the accumulation of human capital in Korea for the past 30 years.

---

<sup>18</sup> Gender, education level, industry, occupational status

<sup>19</sup>  $(1.17 \div 0.78) \times 100$

## Chapter 5. Conclusion

Over the past 60 years, the Korean economy has been on the path of rapid growth along with the government's strong intervention. The result of it was the Miracle of the Han River which is the unprecedented rapid economic growth in the world. There are many factors for that growth, but above all, it cannot be denied that Korea has relied on quantitative growth due to the input of capital and labor. Korea originally relied heavily on labor through education as a driving force of early economic development in a state where there were few existing resources and accumulated human capital was very poor as well. Korea has achieved remarkable economic growth by implementing sequential education expansion in accordance with economic development. Korea's education policy has greatly contributed to economic development by supplying the necessary manpower corresponding to the stage of economic development.

In this belief, the author suggested the first hypothesis: "Education was able to play a significant role in economic development in Korea because it has developed appropriately responding to the stage of economic development". To prove this first hypothesis, Chapter 3 explains the development process of education according to the Korean economic development process, and Chapter 4 explains the results of previous studies that statistically analyzed the contribution of education to economic growth.

Although these successful education development cases have been recognized by the world and serve as a guide for late developing countries, Korean education has constantly faced the demands to improve its quality for human capital development. Accordingly, the author suggested the second hypothesis: “As the economy developed and the industrial structure advanced, the influence of education on economic growth in Korea continued to decrease”. To prove this, Chapter 4 analyzed several existing studies showing that the higher the economic level, the lower the degree of contribution of education.

For the phenomenon that the degree to which education contributes to improving the quality of labor has decreased in the process of economic growth in Korea as time goes on, the author believes that it's because the speed of education development has not kept up with that of economic development. Korea has all the problems that Dore (1976) pointed out as the problems of education in developing countries. Dore evaluated that school education in developing countries is often not effective in cultivating the abilities and attitudes that can help economic development compared to developed countries. While school education in developed countries focuses on students' self-development, which fosters students' desire for achievement, and curiosity, school education in developing countries, especially secondary and higher education, tends to be test-driven, so it is easy to cultivate simple cognitive skills such as memorization, but it's not very successful in developing higher skills such as creativity and problem-solving.

At a time when the pace of technological progress was not so rapid, that is, when the Korean economy could secure a comparative advantage in the labor-intensive industry, educational methods that require simple cognitive skills such as memorization could have contributed to economic development. However, as the industrial structure is advanced and moves toward the technology-intensive industry, the need for high-quality labor becomes desperate. Nevertheless, it cannot be expected to be able to foster these high-quality laborers through the education system that focuses only on quantitative growth, just like in the past labor-intensive industrial development period.

In the case of Korea, since the beginning of expansion and development of education is closely related to the time of economic growth, there is a widespread perception that school education determines people's professional qualifications and that entering top universities represents their socioeconomic status. Under this ideology, Korean students have been receiving developing-country-style education that encourages competition by memorizing the contents without properly grasping the meaning as a training to get good grades since elementary school (윤건영, 1996; 김경근, 1996). It may be natural that the quality of education decreases in these educational conditions.

It may not be that Korea did not want to improve the quality of education. As has been argued throughout this thesis, Korea has achieved tremendous growth at a rate that surprises the world, and to sustain it, education has also continued to develop and strengthen

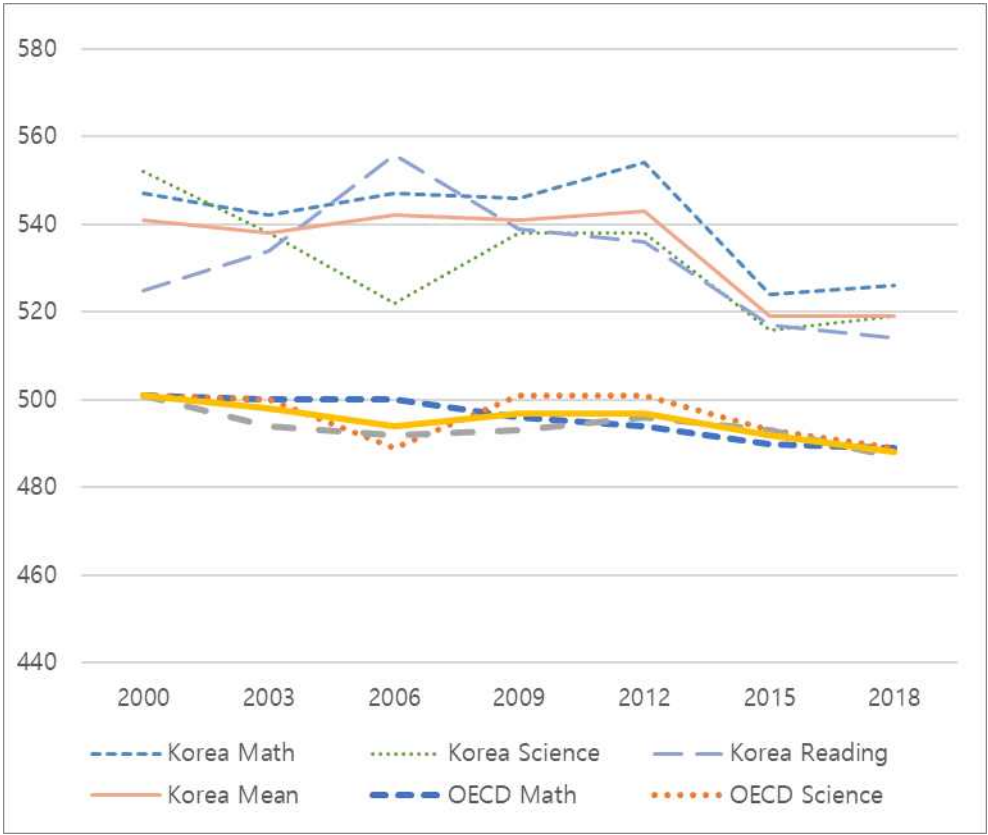
human capital. However, since the 1997 financial crisis, Korean education seems to have failed to improve its quality and remained in quantitative expansion. When Korea was at the peak of economic development with accomplishing per capita income of USD 10,000 and exceeding exports of \$100 billion in 1995 and joining the OECD in 1996, education development should have been supported for further and greater growth, but it seems that education was not able to be cared due to the sudden economic crisis in 1997.

Since Korea already had a fairly high enrollment rate, education would not have been a priority for the government. And while the economy gradually recovered and stabilized, another financial crisis that occurred in 2008 did not let Korea reform education and Korea seems to have missed the timing for educational development again. Korea, which is losing its competitiveness as having well-educated high-quality human capital due to the advancement of industrial structure and the pursuit of latecomers, should strive to strengthen its national competitiveness by trying to restructure its education as Korea had accelerated economic growth by improving human capital through education during the high growth period in the 1960s and 1980s.

In the case of Korea, which has failed to improve the quality of education due to the economic crisis after rapid growth, and has remained only in quantitative expansion, improved human resource development strategies are essential for future economic growth. In this regard, the revision of the secondary and higher education system that only encourages competition and the improvement of

educational policies will serve as a driving force for the Korean economy to escape from the low growth trend. Moreover, it will be necessary to establish a long-term national economic development plan so that it can be approached strategically. National development now should be linked with economic vitality and innovation, and for this, it is important to cultivate human resources tailored to the demand of major industries for economic development as in the past.

[Figure 8] PISA score: comparison between Korea and OECD



Source: OECD



Korea's academic performance is clearly recognized worldwide, and this can be seen from the results of international student academic achievement evaluation. PISA<sup>20</sup>, which is organized by OECD, is the most commonly used evaluation element when talking about the quality of education, and the results (see Figure 8) show that Korea has continued to exceed the OECD average since PISA was first implemented in 2000. This means that the quality of Korean education is not bad. And compared to the past, the condition and infrastructure of education have improved significantly in terms of factors that can lead to human capital improvement and economic development.

Therefore, it is necessary to devise a way to make good use of Korea's good educational conditions and high academic achievement for the revival of past growth and to make a leap forward into advanced countries. For this, it will also be necessary to improve the perception of students who think only of enrolling in higher schools, specifically entering good universities, as their life goal. Moreover, it will be necessary to establish a long-term national economic development plan so that it can be approached strategically, and both the ruling and opposition parties will be needed to cooperate and ensure that policies that have been

---

<sup>20</sup> The Program for International Student Assessment (PISA) is a representative indicator which is used to evaluate the quality of education in each country measures the ability of 15-year-old students. Many studies have shown that the results of these international test scores are a good indicator of students' future productivity in the labor market, and that average test scores are highly correlated with each country's economic growth rate.

implemented since the previous administration continue even if the regime change. In other words, it should be remembered that further development is difficult only with changes in the software that takes place without changing hardware.

### **Limitations and further research**

There are 2 significant limitations in this research. The first limitation is that this thesis cites existing studies since the writer is not able to conduct statistical calculations. Thus, the credibility issue would be a critical limitation of this paper. There are many studies that statistically analyze the contribution of education to economic development. However, since the studies were conducted with different data from different sources through different calculation methods, the figures vary widely. Therefore, among the numerous existing studies I found, only a small number of studies that were expected to use similar methods and data were cited.

In addition, the findings of these studies were used as evidence to support the author's claim that the contribution of education to economic growth was reduced, but since almost all existing studies use 'years of schooling' as a surrogate or proxy indicator of education, it is natural that the contribution rate of education decreases as the time approaches to recent. The number of years of schooling has continued to increase due to the education expansion policy, and the current number of years of schooling in Korea is about 12 years, an increase of about 3.4 times compared to 3.5 years in 1960. This 12-year period is a combination of six

years of elementary school, three years of middle school, and three years of high school, which means that almost all population aged 15 or older has completed all levels of education except for university education. And no country in the world makes college education compulsory. As education and the economy stabilize, it is very difficult to add +1 years of schooling. Therefore, its contribution to economic growth becomes inevitably low since Korea already had a high proportion of secondary education graduates in the 80–90s by implementing policies to expand and strengthen secondary education. In addition, as Korea entered a low-growth trend after the 1990s, the overall economic growth rate declined, and the figure would have been further lowered.

The second limitation is that it is difficult to measure education quality. As it was mentioned above, the PISA score is used as a representative index for evaluating the quality of education, but since PISA measures the academic achievement of 15-year-old students as it was also explained in footnote 20, it can be said that it means the quality of secondary education. However, the stage of education that I wanted to address in this paper at the end was higher education. Therefore, just because the PISA score is high does not mean that the quality of education is good. Although IMD's World Talent Ranking and WEF's Global Competitiveness Ranking may can be used as indicators to measure the quality of higher education, it was not included in the content because detailed information for each evaluation criteria is not publicly revealed and the time when the evaluation was first conducted did not coincide

with the time of Korea's rapid economic development period, which this thesis was intended to focus on, so it was judged that it would interfere with the direction of the thesis.

If further research is conducted by supplementing these limitations, the author will have to learn statistical methodology to calculate the impact of education on economic growth. By doing so, further study will be able to provide more numerical evidence to improve the credibility of the paper. Last but not least, it would be interesting to conduct research focusing more on the social aspect of how education policies should respond to the decline in the educational population and the total population due to the trend of the aging population and the low birth rate.

## Bibliography

- 곽소희, & 김호범. (2007). 노동력 공급 감소와 질적 향상이 경제성장에 미치는 효과 (The Decrease in Labor Supply and the Effect of the Qualitative Improvement of Labor Force on the Economic Growth). *산업경제연구*, 20(1), 73-95. 한국산업경제학회.
- 김경근. (1996). 한국교육의 경제성장에 대한 기여 및 과제 (The Contribution of Education to Economic Growth in Korea and the Tasks ahead). *한국교육학연구(구 안암교육학연구)*, 2(1), 45-68.
- 김시원. (2021). 경제개발에서 인적자본의 역할: 우리나라 지역자료를 이용한 실증분석 (The Role of Human Capital in Economic Development: An Empirical Evaluation Using Regional Data of Korea). *International Area Studies Review*, 25(3), 27-47.  
<https://doi.org/10.21212/iasr.25.3.2>
- 김영봉, McGinn, N., 김신복, 김기영, & Snodgrass, D. (1984). *한국의 교육과 경제발전 (1945~75) : 한국경제의 근대화과정연구 (Education and Development in Korea)*. 한국개발연구원.
- 김영화. (1997). 한국의 교육과 국가 발전 (1945~1995). *교육재정경제연구*, 6(1), 31-63. 한국교육개발원.
- \_\_\_\_\_. (2015). *한국 산업화 시기의 교육과 경제성장(개정판)(양장본 HardCover)* (2nd ed.). 교육과학사.

- 김영화, & 박인중. (1990). *한국경제 및 노동시장 구조변화에 대한 학교교육체제의 대응 : 한국산업화과정을 중심으로*. 한국교육개발원.  
<https://www.kedi.re.kr/khome/main/research/selectPubForm.do?plNum0=2799>
- 김운태. (1991). *한국 산업화 과정에서의 인력 수급의 실태 및 평가*. 한국교육개발원.
- 김적교. (2012). *한국의 경제발전 (Korean Economic Development)*. 박영사.
- 김중서. (1961). 『문맹자 조사』. 중앙교육연구소.
- 남애리. (n.d.). *아는 것이 힘이다 - 문맹퇴치운동*. 행정안전부 국가기록원.  
<https://theme.archives.go.kr/next/koreaOfRecord/illiteracy.do>
- 박내희. (2001). 우리 나라 인력 개발의 문제와 개선 방향. *대학교육*, 111, 20-27. KoreaScience.
- 배영목. (2008). *1970년대 재정정책*. 행정안전부 국가기록원.  
<https://www.archives.go.kr/next/search/listSubjectDescription.do?id=008534&subjectTypeId=01&pageFlag=C&sitePage=1-2-2>
- 신윤철. (1995). *공민학교(公民學校) - 한국민족문화대백과사전*.  
<http://encykorea.aks.ac.kr/Contents/Item/E0004299>
- 안병영, & 하연섭. (2015). *5.31 교육개혁 그리고 20년*. 다산출판사.

- 윤건영. (1996). *한국교육재정의 현황과 개혁방향*. 한국개발연구원.
- 이계우, & 민유주아나. (2010). 한국의 교육부문 원조정책의 방향: 수원  
경험에 비추어서. *국제지역연구*, 19(1), 1-46. 서울대학교  
국제학연구소.
- 이영. (2010). 한국의 경제성장을 위한 교육의 역할과 향후 과제 (Role  
of Education in Korean Economic Growth and Future  
Challenges). *경제연구*, 31(2), 1-30. 한양대학교 경제연구소.
- 이종재, & 김왕준. (2009). *한국교육 60년 - 성취와 과제* (pp. 37-57).  
한국교육과정평가원. 2 장. 교육기회의 확대와 양적 성장.
- 이종재, & 조난심. (2009). *한국교육 60년 - 성취와 과제* (pp. 86-  
110). 한국교육과정평가원. 4 장. 교수학습과정의 개선: 교육과정,  
교과서, 교육평가.
- 이종화, & 김선빈. (1995). 한국의 인적자본 추계 (1963-1993).  
*국제경제연구*, 1(2), 33-64. 한국국제경제학회.
- 장창원. (2007). 한국의 교육별 경제성장과 기여율 추정. *Issue Paper*,  
2. 한국직업능력개발원.
- 최상덕. (2010). *한국의 경제발전과 인적자본형성정책의 국제적 시사점*.  
한국교육개발원.
- Agbo, S. (2005). *Contemporary issues in education* (Vol. 22, pp.  
49-69). Brill. "Myths and realities of higher education as a  
vehicle for nation building in developing countries: The  
culture of the university and the new African diaspora"

- Amsden, A. H. (1989). *Asia's next giant : South Korea and late industrialization*. Oxford University Press.
- Azariadis, C., & Drazen, A. (1990). Threshold Externalities in Economic Development. *The Quarterly Journal of Economics*, 105(2), 501. <https://doi.org/10.2307/2937797>
- Barro, R. J. (1991). Economic Growth in a Cross Section of Countries. *The Quarterly Journal of Economics*, 106(2), 407. <https://doi.org/10.2307/2937943>
- Barro, R., & Lee, J. (1996). International Measures of Schooling Years and Schooling Quality. *The American Economic Review*, 86(2), 218–223.
- \_\_\_\_\_. (2010). A New Data Set of Educational Attainment in the World, 1950–2010. *SSRN Electronic Journal*. National Bureau of Economic Research (NBER). <https://doi.org/10.3386/w15902>
- \_\_\_\_\_. (2015). *Education matters : global schooling gains from the 19th to the 21st century*. Oxford University Press.
- \_\_\_\_\_. (2001). International data on educational attainment: updates and implications. *Oxford Economic Papers*, 53(3), 541–563. <https://doi.org/10.1093/oep/53.3.541>



- \_\_\_\_\_. (2013). A new data set of educational attainment in the world, 1950–2010. *Journal of Development Economics*, 104, 184–198.  
<https://doi.org/10.1016/j.jdeveco.2012.10.001>
- Choi, S.–D. (2004). *Changing skills formation and lifelong learning in South Korea* [Doctoral thesis].  
<http://ethos.bl.uk/OrderDetails.do?uin=uk.bl.ethos.411596>
- Cohen, D., & Soto, M. (2007). Growth and human capital: good data, good results. *Journal of Economic Growth*, 12(1), 51–76.  
<https://doi.org/10.1007/s10887-007-9011-5>
- Denison, E. F. (1985). *Trends in American Economic Growth, 1929–1982*. Brookings Institution.
- Denison, E. F., & Beckerman, W. (1962). The Sources of Economic Growth in the United States and the Alternatives Before Us. *The Economic Journal*, 72, 935.  
<https://doi.org/10.2307/2228363>
- Denney, S. (2015). *Modernization Theory and Uncritical Histories: A Review of South Korea’ s Rise*. Thediplomat.com.  
<https://thediplomat.com/2015/02/modernization-theory-and-uncritical-histories-a-review-of-south-koreas-rise/>

- Dore, R. P. (1976). Human capital theory, the diversity of societies and the problem of quality in education. *Higher Education*, 5(1), 79–102. <https://doi.org/10.1007/bf01677208>
- Hall, R. E., & Jones, C. I. (1999). Why do Some Countries Produce So Much More Output Per Worker than Others? *The Quarterly Journal of Economics*, 114(1), 83–116. <https://doi.org/10.1162/0033553995555954>
- Hanushek, E. A., & Kimko, D. D. (2000). Schooling, Labor–Force Quality, and the Growth of Nations. *American Economic Review*, 90(5), 1184–1208. <https://doi.org/10.1257/aer.90.5.1184>
- Hanushek, E. A., & Woessmann, L. (2009). Schooling, Cognitive Skills, and the Latin American Growth Puzzle. *SSRN Electronic Journal*. National Bureau of Economic Research (NBER). <https://doi.org/10.3386/w15066>
- Hicks, N. (1980). Economic growth and human resources. *Staff Working Paper, SWP408*. World Bank. <http://documents.worldbank.org/curated/en/178991468739490287/Economic-growth-and-human-resources>
- Inkeles, A., & Smith, D. H. (1974). *Becoming Modern: Individual Change in Six Developing Countries*. Harvard University Press.

- Jeong, I. sook. (n.d.). *Educational Effects on Economic Growth in the Republic of Korea, 1955–1985* [Master’ s thesis].
- Kim, E. M. (2010). *Lessons from the “Seoul Alternative” of Development and Development Cooperation: Republic of Korea’ s experience from Recipient to Donor of Aid*. The Development Studies Association (DSA).
- Kim, S. (2010). Globalisation and Individuals: The Political Economy of South Korea’ s Educational Expansion. *Journal of Contemporary Asia*, 40(2), 309–328.  
<https://doi.org/10.1080/00472331003600515>
- Lucas, R. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, 22(1).
- Mankiw, N. G., Romer, D., & Weil, D. N. (1992). A Contribution to the Empirics of Economic Growth. *The Quarterly Journal of Economics*, 107(2), 407–437.  
<https://doi.org/10.2307/2118477>
- Mincer, J. (1984). Human capital and economic growth. *Economics of Education Review*, 3(3), 195–205.  
[https://doi.org/10.1016/0272-7757\(84\)90032-3](https://doi.org/10.1016/0272-7757(84)90032-3)
- Morris, P. (1996). Asia’ s Four Little Tigers: A comparison of the role of education in their development. *Comparative*

*Education*, 32(1), 95–110.

<https://doi.org/10.1080/03050069628948>

OECD. *Productivity, human capital and educational policies*. (n.d.).

<https://www.oecd.org/economy/human-capital/>

Psacharopoulos, G. (1984). The contribution of education to

economic growth : international comparisons. *International*

*Productivity Comparisons and the Causes of the Slowdown*.

Song, W. S. (1988). The Change in Quality of the Labor Force and

Its Effect on the Economic Growth of Korea. *한국인구학회지*,

11, 159–184.

Son, H.-H. (2010). *ADB Economics Working Paper Series*. Asian

Development Bank.

*The Human Capital Project*. (2022, October). World Bank.

[https://www.worldbank.org/en/publication/human-](https://www.worldbank.org/en/publication/human-capital/brief/the-human-capital-project-frequently-asked-questions#HCP2)

[capital/brief/the-human-capital-project-frequently-](https://www.worldbank.org/en/publication/human-capital/brief/the-human-capital-project-frequently-asked-questions#HCP2)

[asked-questions#HCP2](https://www.worldbank.org/en/publication/human-capital/brief/the-human-capital-project-frequently-asked-questions#HCP2)

Whang, I.-J. (1988). An Overview of Economic Development in

Korea, 1945–1987. *Strategies for Industrial Development*,

43–59.

World Bank. (1993). *The East Asian Miracle*. The World Bank.

\_\_\_\_\_. (2000). *Korea – Transition to a knowledge-based*

*economy*.

<http://documents.worldbank.org/curated/en/486421468774277849/Korea-Transition-to-a-knowledge-based-economy>  
\_\_\_\_\_. (n.d.). Retrieved 2022, from  
<https://datahelpdesk.worldbank.org/knowledgebase/articles/378831-why-use-gni-per-capita-to-classify-economies-into>  
\_\_\_\_\_. (n.d.). *Why use GNI per capita to classify economies into income groupings?* Retrieved 2022, from  
<https://datahelpdesk.worldbank.org/knowledgebase/articles/378831-why-use-gni-per-capita-to-classify-economies-into>

#### [Data references]

교육부. 각 연도별. 교육통계연보. 한국교육개발원.

국토교통부. (2019). 대한민국 국가지도집.

[http://nationalatlas.ngii.go.kr/pages/page\\_1809.php](http://nationalatlas.ngii.go.kr/pages/page_1809.php)

한국은행. (2022). 국민계정 (산업구조). <https://ecos.bok.or.kr>

통계청. (2021). 국가지표체계. <https://www.index.go.kr/unify/idx-info.do?idxCd=4204&clasCd=7>

## 국문 초록

지난 60여년간 한국은 정부의 강력한 경제개발정책으로 세계적으로 유례를 찾아보기 어려울 만큼 급속한 경제 성장을 이룩하였다. 경이적인 한국의 성장과 더불어 역시 유례없이 빠르게 성장하였던 교육은 양질의 풍부한 인적자원 양성 및 공급을 가능하게 했고, 이는 상대적으로 자원이 부족한 한국에 있어서 경제 발전을 가능케 했다. 이에 저자는 교육이 우리나라 경제발전에 중요한 역할을 할 수 있었던 것은 교육 또한 경제발전 단계에 따라 적절히 대응하며 발전했기 때문이라는 첫번째 가설을 제시한다. 하지만 동시에 경제성장에 대한 교육의 영향력은 산업화가 진행되고 경제가 발전할수록 지속적으로 감소해왔다는 두번째 가설 또한 제시한다. 이 두 가설을 증명하기 위해 본 논문은 1945년부터 1995년까지 한국의 산업화 및 경제발전 과정에 따른 교육의 확대 과정과 기여율 추세변화를 통해 교육이 국가 발전 과정에서 수행한 역할을 실증적 자료에 입각하여 분석하고자 했다.

**Keyword :** 인적자본, 경제개발/발전, 교육개발/발전

**Student Number :** 2019-27801

## Appendix

### Appendix 1. Quantity expansion of education in Korea

	Year	#Institution	#Student (*1,000)	#Teacher (*1,000)	GER (%)
Primary	1945	2,834	1,366	19.7	—
	1950	3,942	2,658	47.2	—
	1960	4,496	3,623	61.6	99.6
	1970	5,961	5,749	101.1	100.7
	1980	6,479	5,658	119.1	102.9
	1990	6,335	4,869	136.8	100.7
	1994	5,900	4,099	139.1	100.5
Secondary (middle/high)	1945	66/—	81/—	1/—	—/—
	1950	395/262	381/—	9/2	—/—
	1960	1,053/640	529/273	13/10	33.8/19.3
	1970	1,608/889	1,319/590	31/20	51.2/28.1
	1980	2,103/1,353	2,472/1,697	55/51	95.1/63.5
	1990	2,474/1,683	2276/2,284	90/93	98.7/86.9
	1994	2,645/1,784	2509/2,061	100/98	99.0/88.7
Tertiary (Except college and graduate school)	1945	19	8	—	—
	1950	—	—	—	—
	1960	52	91	3	4.7
	1970	87	159	8	7.2
	1980	96	413	15	11.4
	1990	108	1056	34	28.9
	1994	142	1151	42	33.9

Source: KEDI 「Statistical Yearbook of education」 & NSO

「Korea's Footprints in Statistics (통계로 본 한국의 발자취)」