Unlike the dazzling economic growth in the 1960s, building human resources in Korea occurred after liberation and in the 1950s under very weak conditions. In general, the Korean economy is said to have started to grow in earnest in the 1960s, but we need to analyze the recovery process of the technical void immediately after liberation and in the 1950s that made the economic growth of the 1960s possible. The graduates of elementary and middle increased immediately after liberation because the U.S. Military Government reconfigured school education. The Survey of Employed Technical Manpower says that graduates in science and engineers enlarged after liberation more speedy than colonial period. During after liberation to 1950s called void period, new manpower generation emerged and it made a basis of economic growth in the 1960s.

JEL categories: I25, J24, N35, O15, O53

Keywords: manpower, human resources, new generation, colonial period, after liberation
The purpose of this paper is to shed light on the continuity and discontinuity of the colonial period into the 1960s by analyzing the establishment of human resources in the 1950s. In general, the Korean economy is said to have started to grow in earnest in the 1960s, but we cannot say that there is enough research on the recovery process of the technical void in the 1950s that made the economic growth of the 1960s possible. Hence the analysis of the actual conditions of the recovery process through the establishment of human resources is the primary task of this paper.

Unlike the dazzling economic growth in the 1960s, building human resources in Korea occurred after liberation and in the 1950s under very weak conditions. Taiwan and North Korea as the colonized and Japan as the colonizing imperial nation were in similar repetitively chaotic situations after the end of the war, but they went through different situations in building human resources. In a short period of time, Japan secured 4.2 million highly skilled resources in the form of returnees, including Japanese technicians from its colonies, which is equivalent to 12 percent of its domestic labor force, and they were streamlined mainly into the non-agricultural labor market. Taiwan filled the void in human resources left by the large number of Japanese engineers and technicians returning to their homeland through restructuring its organizations in the form of promoting technology education, hiring mainland Chinese who had experience in running companies as executives and managers, and

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1 *Joseon gisulga myeongbu* [Engineers’ Name List in Korea] is the most reliable source on the condition of colonial technicians and contains a complete list of technicians from 1939 who graduated from at least vocational school. The total number of technicians was 6,775, among whom 5,720 or 84.4 percent were Japanese (Sawai and Sun, 1930 nendai 40 nendai zenhan no chosen niokeru gijutsusha bunpu).

2 Odaka, *Hikiagesha to senso chokugo no rodoryoku*. 
promoting Taiwanese managers who had on-the-job experience as superintendents\(^3\). North Korea, on the other hand, expanded its human resources by detaining Japanese technicians to alter fuel engine to make natural fuel and by putting them in charge of technology education\(^4\).

The condition of human resources in South Korea was at a considerable disadvantage in comparison to its neighbors. South Korea was in a position to concentrate more on training engineers and technicians.

**DATA:**

**SURVEY OF EMPLOYED TECHNICAL MANPOWER**

We have little information in terms of after liberation and in the 1950s. The *Chieop gisulgye injeokjawon josa bogoseo* (Survey of Employed Technical Manpower, Economic Planning Board, Republic of Korea, 1963, hereafter the Survey of 1963) provides information for human resources in science and engineer even it was not serial survey itself. The Survey of 1963 aimed at surveying the numerical status of technical manpower resources in Korea, preparing statistical tables by industry and occupation and providing basic data necessary for formulation of the technical development policies. The Economic Planning Board already surveyed for same purpose in 1961 (*Hanguk gisulgye injeokjawon josa bogoseo*, [Technical Manpower Resources Survey of Korea]). The survey of 1963 was upgraded what the questionnaire was designed not in the individual unit form but in the multi unit form.

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\(^3\) Minato, *Kindai taiwan dennryoku sangyo: shokuminchi kogyoka to shihon shijo.*

\(^4\) Morita and Nagata, *Chosen Shusen no Kiroku.*
and the number of enumeration items was steeply increased. Therefore, we can classify supply side as like major at school and demand side as like experience and occupation.

The survey of 1963 was conducted to enumerate technical workers who are engaged in the various establishments and organizations. In the case of establishments, it was divided into two groups which are large, and medium and small establishments. In the taking of survey, 1,586 large establishments (employing 50 persons and over), and 2,106 public establishments (‘government offices’, ‘public entities’ and ‘various science and engineering schools’) were enumerated in the complete enumeration method, while 3,580 medium and small establishments (employing 5 to 49 persons) in sampling method.

The most strength of the Survey of 1963 is that it provides time series information for technical manpower is able to compare between colonial period and after liberation of 1945. But we need to recognize that the information in colonial period would be underestimated because that information gets from those who were employed in 1963.

SUPPLY:

EDUCATION AND MAJOR

The number of enrollment students at elementary school and at middle school was 2,159 thousand and 124 thousand in 1946 respectively (Figure 1). In 1962, right before high growth period, they increased into twofold of 4,089 thousand and

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5 The number of 1945 does not include the data of branch school.
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fivefold of 655 thousand in particular. This is the evidence that middle education service was not enough rather than elementary school service in colonial period. During the Korean War, 1950-1953, it affected the growth of student but it was not big impact ever we thought. The ratio of reduction was 22 percent from 1950 to 1951 but it recovered in 1954.

Figure 1

First of all, we need to focus on the growth of student in the immediate liberation even though Japanese teachers went back to their home country. The number of elementary school teachers increased from 28,338 of 1946 to 68,124 of 1962 during the number of elementary schools expanded from 3,172 of 1946 to 4,732 of 1962\(^6\). The number of middle school teachers increased from 4,899 of 1946 to 16,163 of 1962 during the number of middle school expanded from 344 of 1946 to 1,122 of 1962. The growth ratio of teacher was 240 percent at elementary school and 330 percent at middle school from 1946 to 1962.

The rapid reestablishment of educational institutions had made to give a chance to Korean people during reconstruction period from 1945 to 1962\(^7\). On September 1945, the U.S. Military Government Establishment held a meeting with the Korean leading group of education in order to reopen closed schools and substitute Japanese officials and teachers to Koreans. The U.S. Military Government Establishment also established the “Committee on Technology Education” to dispatch students to study

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\(^{6}\) Korean Educational Development Institute, *Tonggyero bon hangukgyoyuk.*

\(^{7}\) Sun, Building of Human Resources.
abroad in the U.S. and train apprentices domestically on December 1945.

The graduates of science and engineering and the graduates of agriculture and fishery dramatically increased from 1947 to 1956 (Figure 2). The major in science and engineering consists of basic science (physics, astronomy, chemistry, mathematics, topography, geology, biology, plant, animal, science), engineering (chemical, fibro engineering, civil engineering, construction engineering, electricity engineering, electron engineering, machine engineering, ship building, shipbuilding and aviation, metal engineering, atomic engineering), medical and pharmacy (medicine, physic science, dentistry, nursing), and manufacturing and mining (applied chemistry, food manufacturing, fibro, textile, dyeing, dressmaking, engineering work, civil engineering and architecture, construction, sculpture, design, electricity, electronics, correspondence, machine, weapons, knitting, navigation, engine, automobile, ceramics, watch, iron work, mining, metal, mine, metallurgy, mine and metallurgy)\(^8\). But after 1957, the graduates of agriculture and fishery decreased during the graduates of science and engineering maintained and expanded even not so much. The reconfiguring school education policy influenced science and engineering part rather than agriculture and fishery part.

\[\text{Figure 2}\]

The result of reconfiguring school education policy emerged at increasing

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8 By the way, the major in agriculture and fishery is consist of agriculture, forestry, agricultural engineering work, agricultural chemistry, agricultural biology, horticulture, stockbreeding, sericulture, silk yarn, agricultural household, agricultural manufacture, marine manufacture, fishing, multiplication, veterinarian, veterinary and stockbreeding, beacon and agriculture and industry.
graduates number of science and engineering (Figure 3). During Asia-Pacific War, the number of middle school graduates increased swiftly although it decreased in 1944. We need to give attention to increasing the number of university and college graduates as well as middle school graduates from 1946 to 1956 except 1951. We can also recognize that the Korean War did not affect so much the growth of science and engineering graduates. But after 1957, the number of graduates at university and college enlarged continually during the number of graduates at middle school declined. The basic science, engineering, and medical and pharmacy led the growth of higher education graduates. This means that the education policy in science and engineering concentrated to higher education intentionally as well as middle education after liberation and the results emerged after the last of 1950s.

Figure 3

Four main majors, which were chemistry, electricity, machine and textile, led industrialization since 1960s. Chemistry major graduates extended from 1947 to 1957 except in 1951 of a little decreasing (Figure 4). Electricity major graduates enlarged from 1948 to 1957 except in 1951. Machine major graduates boosted from 1947 to 1956 more speedy than colonial period except in 1951 which decreased into 55 percent comparing to 1950. Textile major graduates increased gradually from 1948 to 1956 even though 44 percent decreased in 1951. We recognized that the trend of four main majors’ graduates was similar to total graduates in the science and engineering even though we need to figure out why textile major graduates dramatically boosted from 1961 to 1962.
Figure 4

DEMAND:
SKILL, EXPERIENCE, AGE AND SCALE

At the *Chieop gisulgye injeokjawon josa bogoseo*, skills are classified into engineers, technicians, skilled craftsmen and semi-skilled craft. Those are explained as follows:

*Engineers*
A. Graduates of science and engineering colleges (including old system colleges) within and outside the country or those who passed “the Examination for Public Technical Senior Officials” who are now engaged in the technical field in which they were trained (or in scientific or engineering work in closely related work).
B. Holders of Public license of class A and class B in construction engineering who are engaged in the work for which they are licensed.

*Technicians*
A. Those who graduated from junior science and engineering colleges or those who finished the second year course of science and engineering in a senior college, within and outside the country, or who passed “the Examination for Public Technical Junior Officials” who are now engaged in the work in the technical field in which they were trained.
B. Graduates of technical high schools who are engaged in the work requiring high school training and have three years or more experience.
C. Holders of Public license of class C in construction engineering who are now engaged in the field in which they are licensed.

*Skilled Craftsmen*
Skilled craftsmen are those who can perform the work which can be mastered with three years or more experience in the technical field requiring six months or more experience and who can supervise other workers with lower skills. Skilled
craftsmen must have a thorough knowledge of the production process involved and ability to exercise considerable independent judgment. Usually a high degree of dexterity is required, and sometimes the craftsmen must have the responsibility for valuable products and equipment.

*Semi-skilled Craftsmen*

Semi-skilled craftsmen are those who can perform, under the supervision of skilled craftsmen, the work that can be mastered and performed with experience of one to three years, in the technical field requiring six months or more experience.

In 1963, by experience, public establishment employed 9,112 engineers that were 56.2 percent of 16,201 total engineers. Large scale establishment and medium and small scale establishment employed 3,679 engineers of 22.7 percent and 3,410 engineers of 21.1 percent respectively. Also, public establishment employed 7,227 technicians that were 51.4 percent of 14,171 total technicians. Large scale establishment and medium and small scale establishment employed 3,154 technicians of 22.3 percent and 3,790 technicians of 26.3 percent in particular. By the way, public establishment employed 18,235 craftsmen that were only 10.1 percent of 180,931 total craftsmen. Large scale establishment and medium and small scale establishment employed 72,323 craftsmen of 40.0 percent and 90,373 craftsmen of 49.9 percent respectively. Almost 80 percent engineers and technicians were employed at public establishment and large scale establishment.

Public establishment employed 7,534 engineers after liberation that was 82.7 percent of 9,112 total engineers. Large scale establishment employed 2,904 since liberation that was 78.9 percent of 3,679 total engineers during medium and small establishment employed a half of 3,410 total engineers after liberation (Figure 5). This trend is similar to the trend by age group (Figure 6). Approximately, 70 percent
of technicians were employed since liberation at Public establishment and large scale establishment during a half of technicians were employed after liberation at medium and small scale establishment. In case of craftsmen, above of 85 percent was employed after liberation at all establishments.

A ratio of engineers, who were employed after liberation, at electricity, machinery and chemical occupations was higher than technicians who were employed after liberation (Figure 7). Almost 90 percent of technicians for chemical and textile were employed after 1947. Electricity technicians of 70 percent were employed after 1947, but machinery technicians of 40 percent were employed before 1948. This was originated from machinery major graduates enlarged during Asia-Pacific War (Figure 4). Even though that ratio was higher than other occupations, machinery engineers, who were employed after 1947, were 74.2 percent because the number of machinery major graduates increased after liberation rather than Asia-Pacific War period.

The total number of engineer, technician and craftsmen, who worked at electrical, machinery, chemical and textile industries, was 91,000 while the total number of engineer, technician and craftsmen, who has electricity, machinery, chemical and
textile occupations, was 122,272. The electricity occupation engineers and technicians were 1,229 and 2,500 while the engineers who worked at electrical and machinery industries were 143 and 220 respectively. This says the fact that engineers, technicians and craftsmen, who have occupations of electricity and machinery which use for general purpose, worked at various industries. We can verify this fact at Figure 8 that a ratio of engineers and technicians who were employed after liberation and worked at chemical and textile industries, was higher than at electrical and machinery industries.

Figure 8

CONCLUDING REMARKS

Korea’s economy immediately after liberation repeatedly went through chaos. But human resources, which was most important to reconstruction in the late 1950s and the sudden development since the late 1960s, have been relatively systematically prepared through trial and error since liberation.

The U.S. Military Government Establishment reconfigured school education by means of obtaining advice from Koreans in the field of education, the result of which was the rapid expansion in the number of science and engineering students who graduated since the mid-1950s. Technology was smoothly introduced since the mid-1950s in preparation for full-scale industrialization in the 1960s because the U.S. Military Government Establishment and the Korean Government systematically improved the system of training skilled laborers and the school educational system.
after liberation.

The growth of graduates in science and engineers after liberation made a new manpower generation. Most of engineers, technicians and craftsmen, who worked at Public establishments and large scale establishment, and all of workers of medium and small scale establishment, graduated after liberation even though a half of engineers and technicians, who graduated before liberation, worked at medium and small scale establishments.
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Figure 1. Enrollment after liberation (thousand students)
Source: Tonggyero bon hangukgyoyuk ui baljachui.

Figure 2. The trend in the science and engineering graduates comparing to agriculture and fishery per major (students)
Source: Chieop gisulgye injeokjawon josa bogoseo.
Figure 3. The number of graduates in the science and engineering (students)
Source: See Figure 2.

Figure 4. The trend in the science and engineering graduates per major (students)
Source: See Figure 2.
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Figure 5. Employees by skill classification and experience at public establishments, large, and medium and small establishments (%)

Source: See Figure 2.

Figure 6. Employees by skill classification and age group at public establishments, large, and medium and small establishments (%)

Source: See Figure 2.
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Figure 7. Employees by skill classification, experience and occupation (%)
Source: See Figure 2.

Figure 8. Employees by skill classification, age group and industry (%)
Source: See Figure 2.