

The Industrialization of the South Korean Economy

- Background, Process, and Challenges

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C O N T E N T S

PART 1 Pre-Industrial Age of South Korea

1. Colonial modernization

1.1 Japanese annexation of Korean Peninsula in 1910

1.2 Economic growth under Japanese initiative

1.3 A colonial modernization

1.3.1 Koreans controlled no more than 10% of capital

1.3.2 Korean skilled workers accounted for only about 20%

1.3.3 Change of industry structure was substantial but never sufficient enough for an industrialized economy under colonial modernization

2. Post colonial period (1945–1950) and Korean War (1950–1953)

2.1 Liberation, territorial division, and economic crisis

2.2 Social unrest and emergency relief aid

2.3 Impact of Japanese withdrawal

2.4 Independence and Korean War

2.5 Privatization of confiscated property and land formerly held by Japanese

2.5.1 Actions of the US and USSR military governments

2.5.2 Land reform

2.5.3 Privatization of confiscated property

3. Post Korean War reconstruction

3.1 The US aid

3.2 Post war industrial development and reconstruction

3.3 Import substituting industrialization and corruption

3.4 The situation of foreign exchanges and the structure of exchange Rates

3.5 Financial sector – Banks and curb markets

3.6 Summary

PART 2 Early Stage of Industrialization

4. The economic development of a less developed economy
 - 4.1 Learning from developed countries
 - 4.2 Importance of entrepreneurial talent
 - 4.3 Market and economic development
 - 4.4 To attain entrepreneurial capability – to foster or to host?

5. The 1960s – Beginning of industrialization in earnest
 - 5.1 The Park Chung Hee government
 - 5.2 Domestic capital and credit rationing
 - 5.3 Foreign loan and sovereign debt guarantee
 - 5.4 Construction of infrastructures
 - 5.5 The five year economic development plans
 - 5.6 The ROK–Japan Basic Relation Treaty and Vietnam War
 - 5.7 Trade policy – Export promotion and Import control
 - 5.3.1 Foreign exchange problem and export promotion
 - 5.3.2 Quantitative and qualitative changes of the Korean export
 - 5.3.3 Subsidies to export
 - 5.3.4 Export drive policy
 - 5.3.5 Import control
 - 5.8 From import substitution to the export-led growth
 - 5.9 Performance of a decade 1962–1972

6. Stages for export-led growth – economics and technology
 - 6.1 Modern technology of manufacturing from the perspective of economic development
 - 6.2 Accommodating modern manufacturing in the developing economies
 - 6.3 Export of simple labor-intensive goods – The Stage One
 - 6.4 Expansion of export base to materials and equipments – The Stage Two
 - 6.5 How to make use of market in economic development

- 7.1 Toward the heavy and chemical industries in 1970's
 - 7.1 The nature of heavy and chemical industries

- 7.2 Promotion of the heavy and chemical industries
- 7.3 Mobilization of capital for HCI promotion

PART 1 Pre-Industrial Age of South Korea

1. Colonial modernization

1.1 Japanese annexation of the Korean Peninsula in 1910

The economy of the *Hermit Kingdom*, Korea, had been absolutely feudalistic and agrarian up until the end of the 19th century. The latter half of that century observed the culmination of imperialist activities of the Western industrial powers all over the globe. North East Asia was no exception from the turbulence. Here, the major victim was China, and the Western imperialist powers were busy in their race to divide and occupy the huge but helpless Chinese Empire at their own wills.

While they were fully engaged in China operation, Japan capitalized this break to become the only lucky country in the region, managing to industrialize herself successfully through aggressive reforms and extensive learning from the West. Although Japan was a late comer in the race toward imperialism, she did not waste any time in joining the colonization activities, and demonstrated her power through annexation of the Korean Peninsula by force in 1910, after victories in two consecutive wars against China and Russia, respectively. Japan had ruled the Korean Peninsula for 35 years prior to finally losing World War II and surrendering to the USA in 1945.

1.2 Economic growth under Japanese initiative

Land survey and registration (1910 -1918) was the first major task that the Japanese colonial government carried out in Korea. The survey introduced Western-style property rights to a then very much obscure land ownership, so that trades of and investments in land might be facilitated. It had also turned land into an asset eligible for collateral in modern financing.

The survey found hidden farmland as much as 80% of the originally registered land to expand, nearly double, the tax base. At the same time, however, it gave rise to a substantial change in the ownership structure of land, as many original owners failed to register on various occasions.

Some rejected the authority of the colonial government; some simply did not understand what was occurring.

Colonial government took over all lands, of which no one claimed ownership, as well as the original state land, inherited from the demised royal government. The new state land was alleged to comprise as much as 40% of the total territory of the Korean Peninsula, and was sold off at cheap prices to Japanese development companies and immigrants. Many Korean farmers lost their land, and were forced to migrate to Japan or Manchuria in later days. It certainly established Western-style property rights in the traditional society of the former hermit kingdom, but was at the same time the first major Japanese exploitation of Koreans.

Japanese imperialism during this period created a regional empire, which made an economic bloc comprised of Manchuria, Korea, Taiwan as well as Japan, and activated trade and regional division of labor within the bloc. Statistical data show that substantial increases occurred both in GDP and population in Korea during the period of those 35 years. The annual growth rates for the period of 1911–1940 are estimated at 3.7 % for GDP and at 1.33% for the population, and therefore, 2.37% for per capita GDP, respectively.¹ The population grew by about 60% during the thirty five years under colonial rule.

It was Korea's first exposure in her history to modern civilization, albeit unfortunately through the window of a Japanese colonial regime. Japan invested heavily in infrastructure, including railroads and highways, as well as production-oriented factories to initiate modern industrial activity on the Korean Peninsula. Japan also introduced modernized systems in finance and administration. Modern education, aimed at training native collaborators in the short run, was also provided to a limited number of Koreans, and was eventually expanded to the "regular training program", aimed at assimilating the whole of Korea into Japanese society in the long run.

The impressive growth of the Korean economy and population suggests a substantial improvement in survival environment during this period, as is indicated by the corresponding rise in per capita GDP. Of course, income distribution had been distorted in favor of the Japanese residents

¹ Naknyun Kim, *Hankuk-eui Kyungje-sungjang 1910-1945 (Korean Economic Growth 1910-1945)*, Seoul National University Press, 2006 (in Korean).

in Korea, and therefore, the growth rate of per capita GDP might be overrated as a figure to represent the true improvement in living of the average Korean.² The industrial activities on the Korean Peninsula during this period had been directed not by the Korean capital and manpower, but by the Japanese. There were some Korean industrialists; however, the size of their capital and the level of their technology as well as management skill were incomparable to those of the Japanese industrialists, who had proudly waged a successful industrialization of Japan by themselves.

1.3 A colonial modernization

Undeniably the Korean people experienced myriad improvements in economic life during the period of 35 years under the Japanese rule. Though it may be called *colonial modernization*, the change was certainly a distorted one. It was a kind of modernization, rendered by the external force of Japan for its own sake, and the Korean people were not sufficiently able to successfully internalize it for their own advantage. If the Korean people had initiated the task of modernization themselves for the same period of time, a different form of sea change might have taken place – probably a much healthier and more impressive one, where the Korean manpower would have commanded proper initiative.

It is not fair to deny the contributions of colonial modernization to the South Korean economic development in later stages. Nevertheless it is also dangerous to conclude that South Korea decisively fostered the potential during the colonial period for her later economic development. It may be fair to say that there was certainly an improvement in capability among the Korean people and society during that period, but it was still far short of the one that might have successfully extended and deepened the Korean industrialization to higher stages under the Korea's initiative later. It was not a lucky encounter for South Korea to meet the Japanese colonialism for acquisition of some potential for industrialization.

² For instance, the railroad workforce (male) consisted of 8,892 Japanese and 7,043 Koreans, and average monthly pay was 81 yens for Japanese and 44 yens for Korean respectively in 1931. The difference reflects both skill difference and prejudice. *Chosun-chondokbu-chuldoguk (Railroad Bureau of Governor's Office Korea), Chuldo-Tonggye-Nyunbo (Annual Report of Railroad Statistics), 1931, p.220.*

Korea then was rather forced to be exposed to the Western industrialism through a window of the Japanese imperialism. The poor kingdom was destined anyway to collide with the Western culture, if not through Japan, during the period from the late 19th to early 20th century. The performance of colonial industrialization was not so sufficient enough at all that the Koreans needed further training and education of a different type, and demanded a stronger leadership to initiate and drive Korea's genuine industrialization in earnest.

1.3.1 Koreans controlled no more than 10% of capital

Let us check the distorted feature of Korea's colonial modernization under Japanese rule. First, the modernization was led not by Korean capital but by Japanese. A quick examination of quantitative data shows that the Koreans' share of total business capital on the Korean Peninsula was only 5.6% in the year 1938, and the same figure applies for the manufacturing industry too.³ The ratio is 10.6% in 1939, but only 4.2% in 1942, according to another source.⁴ It may be fair to say that the portion under the Korean control did not exceed 10% of the modernized sector of the whole economy.

1.3.2 Korean skilled workers accounted for only about 20%

In a similar fashion, the Korean workforce neither took part in leading the colonial modernization nor successfully acquired the capability to independently utilize and operate the facilities, which the Japanese workforce was to leave behind after their post-war withdrawal from Korea. From the beginning, there existed a huge gap between industrialized Japan and traditional Korea in the quality of manpower, and this gap remained more or less intact throughout the entire colonial period.

Undoubtedly there was ethnic prejudice against Koreans in education and training. But, at the same time, many Koreans did not welcome, or

³ *Hankuk Jabonjui-ui Hyunsang-gwa Kwaje* (The fact and challenge of Korean capitalism), Korea Chamber of Commerce, 1990, pp.154. (in Korean).

⁴ Lee Hun-Chang, *ibid*, p.320.

were at very best merely reluctant to receive, the modern education that was provided by their imperialist regime. In principle, the opportunity of education was open to all individuals – regardless of ethnic background. In practice, however, there was discrimination. For instance, there were two different kinds of public schools: the one for Japanese, and the other for Koreans, throughout the most of the colonial period.

Indices are not very impressive for the education of Koreans. Koreans' school attendance rate was only 14.5% for elementary education in 1930. This ratio rose significantly to as high as 33.8% in 1940, but still remained very low. The same figure rose to a remarkable 97.5% in 1960 after independence, simply to confirm how passive the colonial government had been towards the education of Koreans. The illiteracy rate in 1945, i.e., at the end of the Japanese occupation, was reportedly as high as 78%.⁵

Nonetheless, the portion of Korean skilled workers tended to increase, beginning in the late 1930s, due to improved education of Korean workers and an increased military draft of Japanese workers, which meant greater opportunities for Koreans.⁶ Despite both of these changes, the number of Korean skilled workers was still very low, and accounted for only 18.1% of the manufacturing industry in 1942.⁷ It becomes 25.4%, still very low, when the sectors of construction, mining, transportation and office work are taken into account.

The same source shows that there were nearly 800 thousand employed (non-farm) Korean workers, and that the portion of Japanese workers, both skilled and unskilled, of total employment was only 7.3%. Koreans accounted for 94% of unskilled workers, and some of them worked as assistants to Japanese operators in various skilled jobs, which means that the core of the Korean economy was entirely unable to function without Japanese skilled manpower.

1.3.3 Change of industry structure under colonial modernization was substantial but never sufficient enough to be an industrial economy

⁵ Lee, Hun-Chang, *ibid.*, p.457 (in Korean)

⁶ Military draft on Koreans was imposed only in 1940s.

⁷ The Report of Korean Labor Skill Statistics 1942, *Chosun-chong-dok-bu*.

The industry structure of the Korean economy went through a substantial change under colonial modernization. Modern sectors, such as the manufacturing industry, had expanded while the traditional agricultural sector had shrunken. The change between 1912 and 1939 is summarized in Table 1.

The structure of 1939 remained unaltered until 1960. It certainly demonstrates a transition away from a traditional economy toward a modern one, though one far from being sufficiently modern. The status of Korea in 1939 is typically agrarian, and by no means close to the features of an industrialized modern economy. In many respects, there remained much work to be done for the Korean economy to achieve genuine industrialization.

Table 1 The Change of Industry Structure 1912-1939

	Agriculture, Forestry, and Fishery	Mining and Manufacturing	Electricity, Gas and Construction	Services
1912	68.1	4.9	1.9	25.1
1939	41.1	18.6	9.1	31.3

Source: Naknyun Kim, *op. cit.*, p.294

It is not easy to quantify the degree of modernization achieved under colonial rule. Nonetheless the explanations in preceding sections imply that Koreans were accountable for only about 20% – at most 25% – of the modernized sector of the Korean economy at that time. Similarly, this feature, as is shown in Table 1, is by no means close to a picture of an “industrialized economy.”

To summarize, the Korean economy went through a substantial structural change toward an industrialized economy through colonial modernization, and the Korean people, though subject to prejudice and exploitation on many occasions, achieved some improvement in living

environment as is undeniably demonstrated by a rapid rise in population. Despite this, the main body of the Korean economy remained a still traditional agrarian economy, with some modernized sectors only at the very primitive stage. Although the secondary industry had grown up substantially from 4.9% (1912) to 18.6% (1939), the primary industry still dominated 41.1% of the entire economy. Elementary school attendance rate was only 33.8% in 1940, and the national illiteracy rate was as high as 78% in 1945.

This means that the colonial modernization of Korea was carried out under the dominant initiative of Japan, and that the role and contribution of the Korean collaborators was substantially limited. The Koreans lacked the human capital to fill the vacuum, which the skilled Japanese workers left behind when they fled from the Korean Peninsula to Japan in August 1945. The Korean economy was deserted into a helpless turmoil after the end of the World War II.

2. Post colonial period (1945–1950) and the Korean War (1950–1953)

2.1 Liberation, territorial division, and economic crisis

The Korean Peninsula was doomed to be divided into two Koreas at the Potsdam Conference in July 1945, where the big three, the USA, the UK and the USSR, reached an agreement. The same agreement arranged for the US military to be in charge of governing South Korea for the time being, and for the USSR North Korea.⁸ Most industrial facilities, except for some textile manufacturing, had been concentrated predominantly in North Korea. In particular, the sole chemical fertilizer plant and the 90% of electricity generative capacity were located in the North. The territorial division had steadily deterred all inter-Korean economic trade, and subsequent political developments delivered the final blow. When North Korea disconnected power transmission lines and refused to supply fertilizer, the South Korean economy was destined to begin a desperate descent.

Furthermore, the massive influx of more than 2 million Koreans from abroad – returning refugees from exile and new refugees from North Korea – exacerbated shortages in both food and housing, as well as generated a huge surplus in labor supply. The agricultural sector, which was still the biggest sector of the South Korean economy at the time, was exposed to an unstable supply of fertilizers. Also, the end of war effectively dismantled the framework for regional division of labor within the former Japanese economic bloc, and the distribution channels for both inputs and outputs were wholly disrupted. The meager base of modern industry in South Korea became virtually degenerate without proper supplies of electricity and input materials.

Finally, there was hyperinflation. The Japanese colonial government had started to increase money supply in order to meet war time emergency

⁸ Allegedly, the USA initially intended to occupy the entire peninsula, but later changed its mind and proposed the idea of division at latitude 38⁰ and the USSR agreed toward the very end of the war. The Russian forces advanced so fast to Korea, while the US forces were still trapped so far away in Okinawa that the U.S. feared that the Russians might take over the entire peninsula before they could arrive. See Thomas W. Calloway, “Nation Building in Korea”, unpublished research report, Air War College, 1995.

needs before the end of war, and this increase was inherited by the US military government, as Americans were not able to collect any significant amount of tax revenue from South Korea's defunct economy. The hyperinflation naturally followed the unrestricted increase of money supply in an economy where collapsed production was not able to meet exploding demand. Seoul's wholesale price index rose by 16 times during the five-month period between July and December 1945, and showed another rise by 18 times for the period covering the next 4 years until the end of 1949.

2.2 Social unrest and emergency relief aid

Massive unemployment and hyperinflation always give rise to a set of conditions sufficient for social unrest. The communist leaders made use of the situation to maneuver a general strike in September 1946, which was followed by a series of uprisings all over the country. Americans reacted by suppressing the unrest to restore social order on one hand, and providing massive amounts of emergency relief aid on the other.

It was the US relief aid that saved South Korea from mass starvation. Americans provided South Korea with as much as US\$409 million aid through GARIOA (Government Aid and Relief in Occupied Areas), and about US\$25 million in loans for the period from September 1945 until December 1948.⁹ The nature of relief from GAORIA is evident in its composition; 39.2% was for foodstuffs, 10.2% for clothing, and the rest for other urgent needs. This money enabled the US military government to provide South Korea with food, clothing, fertilizer, and electricity from generation ships anchored in the harbor.

Emergency relief had certainly generated positive (although very short-lived) effects. Effectively, no portion of the aid aimed at facilitating industrial construction during this period, since Americans were not well-prepared for their involvement in South Korea. In hindsight, they may have seen no hope then in the future of the South Korean economy. Nonetheless, the amount of total aid was huge – up to around US\$140 million per year. This was nearly one half of non-military annual aid (US\$284 million) that war-torn South Korea was to receive later between

⁹ Survey Bureau Report 1955, *Korea Bank of Industry*, pp.546-549.

1954 and 1958 for reconstruction of its post-war economy. Evidently, Americans did not want to be dragged any further into endless relief aid, and hurried to take their hands off from South Korea, and eventually they retreated from the peninsula in May 1949.

2.3 Impact of Japanese withdrawal

The inability of the Korean workforce to independently operate the modern facilities that had been built during the colonial period, was largely confirmed as soon as the Japanese began to retreat from Korea after the World War II. The liberation of Korea in August 1945 meant the total withdrawal of the Japanese military forces and civilian manpower from Korea, abandoning the Korean economy to function without leadership.

During the period from June 1944 to November 1946, the number of manufacturing enterprises was reduced by 43.7%, resulting in an astonishing employment reduction by 59.4% in South Korea. It was much worse for mining and transportation industries, where the reduction was by 90%, respectively, in both the number of firms and employed workers.¹⁰ Of course, many Japanese workers returned to Japan, and this number is included in the employment reduction figures. However, the portion of Japanese workers was a mere 7.3% of total employment in 1942, and thus the figure to which we refer for job loss is not too much of an exaggeration. The figure for the number of failed businesses includes many firms owned previously by Japanese, and properly reflects the number of job losses since every Japanese-owned firm had employed many Korean workers. The collapse may reflect, among other factors, the fundamental incapability of Koreans to take over initiative for economic operation in the absence of Japanese leadership.

This disaster may be blamed on many factors, such as the failure of material supplies and of output sales due to the collapse of the regional trading system, the territorial division of the Korean Peninsula, poor manpower, or the socio-political unrest after liberation. Although the agricultural South had been exclusively dependent on the industrial North for electricity and fertilizer, the territorial division of 1945 suppressed,

¹⁰ *Hankuk Jabonjui-ui Hyunsang-gwa Kwaje*, 1990, *ibid.*,p.166.

and eventually cut off, these supplies. A survey in 1948 reported that the unavailability of input materials was the major cause for the shut-down of factories at the time.¹¹

But it was the withdrawal of the Japanese workforce, who had been in charge of the core role to operate the modern sector, that hit the Korean economy the worst. If Koreans had been as capable as the departing Japanese, then they would have been able to overcome adversity – however difficult it may have been – exactly as the Japanese did back in their own war-torn country. About one half of 5,538 firms, previously Japanese owned, succumbed to bankruptcy in 1948.¹² Much of capital stocks, which were the only remaining colonial heritage, had been wasted due to improper operation and incomplete maintenance by unskilled Korean workers. It was the modernized sector – among others – that was most fatally struck by liberation.

While the US aid provided fertilizers that would help the South Korean agriculture, it could not do anything to help the devastated manufacturing sector. The South Korean economy nonetheless survived the collapse of its modern sector without any mass starvation, owing to emergency aid from the U.S., but also partly to the fact that the economy was still essentially agrarian and that the collapsed modern sector was not a significant portion of the South Korean economy.

2.4 Independence and the Korean War

The unification effort ended in vain to the disappointment of the Korean people, and the official governments of The Republic of Korea (South) and The Democratic People's Republic of Korea (North) stepped in separately in August and September of 1948, respectively. The US forces retreated from South Korea in May 1949. The new South Korean government was not allowed much time to do anything as the Korean War broke out within less than two years after sovereignty was established. Land reform and privatization of confiscated property were two important policy measures which the new government started. These will be discussed in next section.

¹¹ See Lee, Hun Chang, *op cit.*, p.367.

¹² Lee, Hun Chang, the same page.

North Korea invaded the South on June 25, 1950, exploiting the obscure stance of the United States, which appeared to have given up South Korea from its global defense strategy. This devastating war had lasted for 3 years until an armistice was finally reached in July 1953. The war had claimed more than a million lives and had destroyed nearly half of infrastructure and industrial facilities on the peninsula.

This destruction resulted in a substantial loss of physical inheritance from the colonial period. At the same time, it called forth a massive influx of post-war US aid for reconstruction. As is indicated in the <BOX> of the section 3.1 below, the US reconstruction aid was able to restore South Korea's production capacity only to the level Korea had achieved in 1941. As a result, the South Korean economy had to change its basic platform from pre-war Japanese to post-war American.

2.5 Privatization of confiscated property and land formerly held by the Japanese

2.5.1 Actions of the US and USSR military governments

Both the US and USSR military governments were supposed to govern South and North Korea, respectively, only during the interim period between liberation and the official inauguration of a (unified) Korean government. Thus only the smooth transition of the Korean economy, was supposed to be their due roles, rather than its rehabilitation and/or modernization. But both the Americans and the Russians committed bluntly very serious acts with regard to the future of Korea - the imposition of capitalism on the South and of communism on the North without any regard to the will of the Korean people.

Each side encouraged their supporters and discriminated against opponents in their jurisdiction respectively. The Russians, however, were harsher than the Americans in the sense that they purged away all the opponents while the Americans tolerated opposition officially at least. Their contradictory intentions were virtually a firm denial of the unified Korea, and their nature was clearly revealed in their handling of the confiscated land and property that was formerly owned by the Japanese.

The Russians led the race by confiscating all property and land of the

Japanese *and* their alleged collaborators, distributing this land freely to the peasants in as early as 1946, while subsequently nationalizing all of the remaining property including industrial facilities. They condemned practically all Korean industrialists and landlords as betrayers who collaborated with the Japanese imperialism, and thus all the industrial facilities and land were subject to confiscation by government. The foundation was thus laid for establishing a Communist planned economy in North Korea.¹³

On the other hand, the Americans opted for confiscating only the property and land which were owned by the Japanese, and selling this land to its tenant farmers. It was not really a genuine land reform, since the feudalistic land ownership remained intact except for the demised Japanese ownership. Initially, they attempted an economy-wide land reform by setting a certain limit of land wealth per person, and planning to purchase all excessive land to sell it to landless peasants.

However, fierce resistance from land lords and their supporters stranded this attempt, and the task of land reform had to be handed over to the forthcoming official government of Korea. The Americans also managed to privatize some non-land industrial property. Although the privatized quantity was insignificant, namely only 0.5% in value, the privatization of confiscated land and property delivered a very clear message that the future South Korea would follow the path of a private ownership economy. In this way, the two Koreas began to launch their futures into opposite directions, forced by foreign initiatives, well before the inauguration of their official governments.

2.5.2 Land reform

South Korea took over from the Americans the task of land reform and privatization of confiscated property. The Constitution reflected the national concern on land reform to stipulate its implementation, and the National Assembly passed the related legislation in June 1949. The limit of holding cropland was set at 3 ha per landlord, and the government purchased all excess land holdings and sold them to tenant farmers at a

¹³ North Korea seized all land from peasants and established collective farms in the late 1950s.

price as much as 1.5 times annual yield. The payments were made in kind on an installment basis over 5 years. The price was not bad for peasants in comparison with the market price of land at the time, which was 3 times annual yield. The landlords were paid by securities which claimed the payment in kind from tenant farmers.

After the reform, land was no longer an attractive asset for investment, and the related funds began to flow out of countryside into urban sector. Some landlords sold these securities to spend their revenue from land reform compensation for buying industrial facilities when the government started to privatize confiscated Japanese property – thereby, converting agricultural capital into industrial. This effect, however, was in fact minimized, since war time hyperinflation had drastically reduced the real value of land lords' revenue from the sales of land securities.

Landlords, in general, used to resist industrialization policies which set grain price low in order to support low wages in the manufacturing sector. The land reform effectively dismantled the society of landlords, which often exercises strong political influence in developing countries to obstruct industrialization effort of the government. Consequently, Korea incidentally eliminated a major obstacle for an industrialization program based on low wages. Although the land reform had not been completed in time and was still in progress during the war, it also appeased peasant hostility and improved social cohesion in South Korea so successfully as to emasculate North Korean agitation attempts during the Korean War.

2.5.3 Privatization of confiscated property

Just as land reform had been opposed by a group of landlords, so had the idea of privatization of non-land property also received objections from those who preferred public ownerships. Eventually, privatization was decided upon only those commercial enterprises, excluding the banks and the public utilities – electricity, communication, railroad, and etc. – which were to permanently remain in the public sector.

Privatization was as much a favor to industrialists who purchased the assets as the land reform had been to peasants who acquired land. The government set the selling price at a level much lower than market value,

and also allowed payment on an installment basis. A buyer must pay initially at least 20% of the total value, and the remainder was to be paid over 10 years with annual interest rate 7%. The galloping war time hyperinflation further magnified this favor. Naturally, heated competition among buyers developed rent-seeking and generated a spate of corruption scandals. The military junta in 1961 investigated 75 cases of illicit fortune making, and discovered that 35 cases concerned the privatization of confiscated property.

At the time of confiscation, the Americans nominated an *official manager* to each factory – usually the highest ranking Korean worker of that factory, or a technocrat who served in the US military government. A highest ranking Korean in a Japanese-run factory was naturally not anti-Japanese, and similarly a Korean technocrat was not likely anti-American if he worked for the US military government. Although this appointment looks normal in view of common sense, critiques complained that the US military government nominated official managers mainly by pro-Japanese and pro-American personnel only. This kind of criticisms was raised by the group who preferred a labor-managed system which allows the workers to take over the factories formerly owned by Japanese.

A study analyzed the composition of 723 buyers in the early stages of privatization to find out that 378 buyers were the official managers of this kind and that 203 buyers were industrialists who had been running other business at the time or since colonial days.¹⁴ So, close to 80% of buyers were either industrialists or the official managers. Since most of the industrialists then and since before were most likely neither anti-Japanese nor anti-American, the privatization handed most of the industrial assets of South Korea, to the eyes of critiques, over to the hands of pro-Japanese and pro-American capitalists! The new industrial core was expected to emerge from this group, as they came to command the confiscated assets, which were the major industrial base of South Korea at the time. Unfortunately, however, many of those assets were subject to destruction during the war.

Nonetheless, privatized production facilities became an important

¹⁴ Kiwon Kim, *Economic structure under US military government*, Purunsan, 1990 (in Korean), table 81,

stepping stone for Korean industrial activities in the 1950s. A study shows that 40 out of 89 large enterprises, employing more than 300 workers by the end of the 1950s, began from the factories acquired through the privatization of confiscated property.¹⁵ The best example is found in the cotton spinning and weaving industry.

¹⁵ Jewook Kong, *Formation of Korean capitalists in 1950s*, unpublished Ph.D. dissertation submitted to the department of sociology, Seoul National University, 1992.

3. Post Korean War reconstruction

3.1 The US aid

Three years of devastating war ended in 1953 with the signing of an armistice, but had already demolished the infrastructure and industrial facilities throughout the entire territory. There was no choice for South Korea other than struggling to arise from ashes. The aid from the USA played a crucial role in the effort of post-war reconstruction. Americans provided South Korea with US\$2.088 billion of non-military aid for the period between 1954 and 1961, in addition to a larger amount of military aid. Table 2 shows the annual amount of non-military aid provided during that time period.

Table 2. The US non-military aid during 1954-1960
(in millions of US dollars)

Year	Total	AID etc.	PL480
1954	153.925	153.925	-
1955	236.707	236.707	-
1956	326.705	293.750	32.955
1957	382.892	337.370	45.522
1958	321.272	273.376	47.896
1959	222.204	210.768	11.436
1960	245.393	225.480	19.913
1961	199.245	154.319	44.926
Total	2,088.343	1,885.695	202.648

Source : Wonchul Oh

The amount of average annual aid was almost approximately 10% of the South Korean annual GNP in those days. All the aid was in the form of

donations, with no obligation of repayment. This aid covered from relief goods to construction materials and from electricity to machinery, as well as raw materials, etc. The revenue from sales of aid equipment and material was the main source of the South Korean government's budget, as tax revenue during and after the war was by no means sufficient for a government facing the burdensome task of reconstructing her war-torn economy.

The main component of aid during the war and immediately after the ceasefire was emergency relief goods such as readily consumable foodstuffs and clothing. But the pattern of emergency relief soon changed into a form of industrial assistance, providing machinery and raw material from which the Koreans might produce by themselves the necessary foodstuffs and clothing.

The aid under the title PL480 (Public Law 480),¹⁶ averaging about 12% of annual aid, consisted of agricultural products such as wheat, cotton, and crude sugar syrup. This aid started two years after the armistice and gave rise to the expansion of industrial activities such as flour milling, cotton spinning and weaving, and sugar refining. It worked to help Koreans rebuild their economy through industrial activities which led them to produce by themselves what they needed most to make living. This light industry eventually became a major component of the South Korean industry in the 1950s.

However, the agricultural product aid substantially eliminated the domestic production of wheat and cotton. Critics suspected the deliberate intention of the USA, masked under the goodwill of aid, to transform Korea into a permanent market for American agricultural products. They argued that the aid lowered prices of related agricultural products to discourage the Korean production, and thereby the US products would eventually make inroads into Korea's agricultural market later. Some thought that this aid would eventually become a stumbling block against economic development by hurting the Korean agriculture, which was by far the largest sector of the Korean agrarian economy. In hindsight, however, the later industrialization of Korea undeniably benefited from

¹⁶ In early 1950s, the US government aimed to support generous farm prices by purchasing to create a stockpile of agricultural products in its hands. Public Law 480 designated this stockpile for use as food aid.

low grain prices and the decline of agriculture.

<Box> A rough estimation of the value of colonial modernization from aid statistics

Is it possible somehow to find out the cost of the colonial modernization of Korea? The US aid data of may suggest some rough measure(s) for it.

The South Korean per capita income only barely resumed its 1940 level in 1958.¹⁷ The total amount of aid for 1954-1958 was 1.42 billion dollars and this figure may be viewed as the cost of reconstruction up to the level of 1940. However, there is a more refined measure for the cost of colonial modernization in terms of 1950s US dollars.

Assuming that South Korea started its reconstruction from nothing in 1954, the volume of the US aid for reconstruction up to 1958 may be viewed as a rough measure for the value of the colonial modernization. As was stated in section 2.2, the USA provided South Korea with annual emergency relief aid of averaging US\$140 million during the era of its military government. The annual average of reconstruction aid after the Korean War amounts to US\$284 million for 1954-1958 - this includes both emergency relief aid and economic aid for economic rehabilitation, and adds up to 1.42 billion dollars in total.

It may be reasonable to regard the difference of 144 (= 284-140) million dollars as a rough measure for the annual cost needed to rebuild the South Korean industrial base. Then, one may conjecture that the post Korean War reconstruction effort up to 1958 achieved more or less as much as what the colonial modernization under Japanese initiative had achieved in South Korea. So, the amount of US\$720 million, which is obtained by multiplying 144 by 5, may represent the cost of colonial modernization in dollar terms of late 1950s.

The assumption of zero base in 1954 may cause an underestimation of this figure, since the situation of 1954, however miserable it was, could be far better than that of 1910 in the sense that the entire population had been exposed to the modern industrialized civilization to substantial extent. Some may also criticize that the size of relief aid is unduly

¹⁷ See Lee Hun-Chang, *ibid.*, p.372

inflated.

There are, however, three possibilities for overestimation, too. First, there is a distributional bias in the estimation of 1940 per capita income making the official figure higher than the actual Korean share, since the official figure includes the higher incomes of Japanese residents. Second, there was a definite increase in population between 1940 and 1958, which is not reflected in this measure, since the present measure looks at only per capita income. Third and most important, this estimation does not reflect the fact that Koreans were the major actors in 1958, whereas the Japanese were in 1940, and therefore, it does include the cost of upgrading the Korean manpower which is missing in colonial modernization. Considering all of these possibilities, one may comfortably conjecture that the value of South Korea's colonial modernization is *at most* US\$720 million in 1950s terms.

3.2 Post war industrial development and reconstruction

Post war reconstruction aimed at infrastructure rehabilitation and industrial development. The government took responsibility of rebuilding infrastructure and allocated a sizable budget for it. The Korean government selected **fertilizer**, **cement**, and **plate glass** (among others) as the items most needed for reconstruction of the economy. Fertilizer was an absolute necessity for an agrarian economy like Korea, and both cement and plate glass are basic materials for construction. South Korea made extensive use of US aid for building and operating plants to produce these targeted items.

Korea is endowed with plenty of limestone, and needed only a facility to process this into cement. The circumstances were similar for plate glass. The government attained the necessary technology, facilities and equipment through aid and built many cement factories and a plate glass plant. They produced sufficient outputs to successfully meet the soaring demand from construction sites.

The fertilizer plant, however, encountered a different fate. Fertilizer production technology generates typical economies of scale, so that unit production cost declines as one produces more output from a larger facility. The problem was that Korean domestic demand for fertilizer was

of an insufficient quantity to minimize unit cost, i.e., short of the minimum efficiency scale. Since the Korean government was not confident to export the surplus fertilizer, it chose to build a smaller size plant so that its output might just meet domestic demand. It provided farmers with fertilizer during the 1950s, but at a price higher than international level. Eventually, it was replaced by more efficient factories later.

In this manner, the post-war Korean industry started with these three basic industries and the **light manufacturing industries** processing materials provided by the US aid, as mentioned in the previous section. All industries aimed just at producing domestically what was to be imported otherwise. The beginning of the Korean industrialization was just *import substitution* without any attempts to export manufactured goods.

The Korean industry during the 1950s was structurally quite vulnerable because of its heavy reliance upon the US aid. In particular, the light manufacturing industry acquired its input materials exclusively through the US aid. Practically, there was no alternative route for them to attain input materials other than through the US aid. Nonetheless, the termination of aid was imminent at the end of the 1950s and the Korean industry was not prepared at all for this forthcoming disruption.

The aid, huge as it was, had not been able to meet every demand from the task of reconstructing the war-torn Korean economy. The Korean government put the highest priority on the promotion of education along with the industrial development among others, and allocated a substantial portion of the resources, made available by the aid, to education. Also the government introduced a system of compulsory primary education in 1949, raising the elementary school attendance rate as high as 97.5% in 1960. Improved education in the 1950s had pushed up the quality baseline of the Korean labor force to a sufficient level, and successfully facilitated the Korean industrialization that followed.

3.3 Import substituting industrialization and corruption

Import substituting industrialization brought forth proper protection and subsidization for domestic industrial activities in newly developing industries. The standard means of raising tariffs and imposing

quantitative restrictions on import were widely used to keep competing foreign goods out of domestic market. The foreign exchange control was the most effective means of restricting imports among others. The government authorized each use of scarce foreign exchanges, and no import would be made possible if foreign exchanges were not allocated for it.

The gross fixed investment each year had been only 10% of GNP, constrained by low saving and a controlled increase in money supply in the face of post-war inflation. The annual growth rate was 4% on average, and the growth had been driven mainly by the growth of the manufacturing sector. Post-war industrial development, though quite vulnerable because of its heavy dependence upon the US aid, was driving overall growth of the Korean economy.

Some firms developed special relationship with the government, and attained a variety of favors: privatization of confiscated assets at favored low prices, sales of imported raw materials at favored cheap price, and favored credit rationing at lower interest rates. Usually these favors were not handed out freely and claimed some kick-backs in practice. This kind of corruption was rampant in late 1950s. A business enterprise could be prosperous without any innovative progress in productivity, if it attained a reliable, good connection with powerful bureaucrats or politicians.

3.4 The situation of foreign exchanges and the structure of exchange rates

A developing economy needs modern machinery and equipment in order to initiate modern industrial activities. Machinery and equipment must be imported from advanced countries, since no developing economy can produce them by itself. Foreign exchanges are needed partly for this purpose in any model of economic development. A lucky country with an abundance of resource endowments may export its resources to earn a sufficient amount of foreign exchanges in order to pay for import of machinery and equipment. That kind of luck played no part in resource-poor Korea.

In 1960 Korea exported 32.83 million dollars in goods and imported

343.53 million dollars, resulting in a 310.07 million dollar trade deficit – nearly ten times as large as the volume of export. A trade deficit of similar size more or less prevailed throughout the entire post-war period. These deficits were covered mainly by the economic aid. Imports included machinery and raw materials provided as the US aid of donation type, and the lion's share of 245 million dollars of this aid in 1960 represented this portion of imports.

The deficit still exceeded this figure of the aid by a big margin, since South Korea needed more foreign products than were provided by the aid. This margin was covered by the foreign exchange reserves held by the government. The Korean government made use of a very peculiar means to regularly acquire foreign exchanges other than through export. It lent Korean currency to US troops in Korea for their local spending, and the Americans paid back in US dollars. This sum amounted to 62.6 million dollars in 1960, which is nearly twice as much as exports in the same year.

In order to maximize the amount of repayment, the Korean government maintained the official exchange rate as low as possible by overvaluing Korean currency. This overvaluation helped industrialists reduce the cost of imported equipment and material. However, at the same time, it hurt exporters. The government introduced another exchange rate, called the export exchange rate, which was set more or less equal to the market rate in order to encourage exports. There was a third exchange rate, called “the cotton rate”, which was applied to sales of cotton provided by aid. It was set a little bit higher than the official rate but much lower than the export rate, in order to subsidize the industry. This multiple exchange rate system lasted until early in 1960s.

South Korea adopted multiple exchange rate system in order to maximize its foreign exchange revenue, which just covered about 30% of its imports, the remaining 70% of which was paid for by the US aid in 1960. In short the South Korean economy was not viable at all without the US aid. When the US government notified Korea at the end of the 1950s that economic aid of donation type would soon be over, South Korea was not yet ready to develop an alternative stable means of acquiring foreign exchanges.

3.5 Financial sector – Banks and curb markets

The Bank of Korea is the central bank, and it had existed since the days of Japanese ruling. There were also several nationwide commercial banks at the time of inauguration of independent government. All the commercial banks, with the exception of the Choheung Bank, had been in the hands of the Japanese, and their shares were confiscated by the US military government and later inherited to the new Korean government. Thus there were one central bank, several nationalized commercial banks, and a private commercial bank at the time of the Korean War.

The banking sector was so poor that it could by no means afford to finance the grand projects of post-war reconstruction. The Korean government, disappointed by poor performances of commercial banks, established the Korea Development Bank (KDB) and the Korea Agricultural Bank (KAB) in order to facilitate financing the most urgent investment projects of industry (KDB) and agriculture (KAB) soon after the ceasefire. Agriculture was the largest industry and post-war reconstruction was the most important imperative at that time.

While demand for loans formed long queues, both KDB and KAB were not able to mobilize voluntary savings from the impoverished economy. Their financial resources were mainly attained not from the savings of the general public but from both the Korean government and Bank of Korea in the form of loans. The government loan came from the sales revenue of US aid materials, and the loan from central bank was simply a form of monetary expansion. The Korean government managed both banks to select most urgent needs for loans and confined their lending only to those uses at favorably low interest rate. So it was the beginning of the government-led credit rationing.

The commercial banks had to rely upon deposits, miserably small as it was, which paled in comparison of the resources of KDB and KAB. The Korean government privatized all the commercial banks in 1957, hoping for a better performance. This effort, however, was not successful at all. Although commercial banks accounted for 45% of total lending in 1955, this share declined rapidly to 29% in 1960, reserving the remaining 71% for KDB and KAB.¹⁸

¹⁸ Yung Chul Park, The development of financial institutions and the role of govern

Financial regulation set ceilings on the interest rates at the level that often drove the real interest rate negative whenever inflation accelerated. The low interest rates invited everlasting excess demand for bank loans, and therefore, credit rationing even to the privatized commercial banks. As a screening device, the banking sector used to require a basic set of formal qualifications such as collaterals on provision of loans to prospective customers.

Most of post-war small businesses were not able to meet these conditions, no matter how urgent their needs for loans were. They were willing to pay interests at much higher rates, only if they could get the loan. This demand naturally attracted corresponding supply from the unregulated curb market, which diverted private savings away from banks of low interest rates. Although there are no official data for the unregulated money market, one study estimated its outstanding assets and liabilities as 56-63% of total domestic credit at the end of 1964.¹⁹ Most frequently quoted interest rates in unorganized money market was 48-60% per annum, when the highest bank rates on time deposits and loans were only 15% and 16%, respectively.²⁰

A stock exchange was also established in 1956, only to be plagued by speculation and price manipulation. It acted only as a market for government bonds and failed to function as a stock market until mid-1960s.

3.6 Summary

Huge amounts of US economic aid directed the post Korean War reconstruction of infrastructure and industry. Industrial activities started from production of three basic items: fertilizer, cement, and plate glass, and also from light manufacturing industries, which processed agricultural products of the US aid, such as wheat, cotton, and crude

ment in credit allocation, Chapter 3 in L.-J. Cho and Y.H. Kim, eds., *Economic Development in the Republic of Korea – A Policy Perspective*, University of Hawaii Press, 1991.

¹⁹ John G. Gurley, Hugh T. Patrick, and Edward S. Shaw, *The Financial Structure of Korea*, United States Operations Mission/Korea, 1965.

²⁰ Kwang Suk Kim, The interest-rate reform of 1965 and domestic saving, Chapter 6 of L.-J. Cho and Y.H. Kim eds., *ibid.*

sugar syrup. Despite the upside of the aid, however, a significant damage was rendered to the South Korean agriculture, the PL480 aid depriving the Korean farmers of the market by lowering the prices of agricultural products. Every piece of South Korea's industries depended heavily upon the foreign aid for a steady supply of equipment and input materials, except for limestone.

Compulsory primary education was adopted as early as 1949, and the aid also supported this promotion of education. Illiteracy rate was substantially reduced, and the young generation was ready to work as most productive workers in later days.

Industrial development followed the track of import substituting industrialization under various means of protection and subsidies. Subsidies comprised many kinds of favors such as low cotton price, low interest rates and favored exchange rates, which intended to encourage industrial activities. As subsidies, however, were misguided by cronyism and corruption, their performance was far behind the desire of the general public.

The US economic aid and military spending filled most of Korea's need for foreign exchanges. The Korean government adopted a multiple exchange rate system in order to maximize the foreign exchange earnings, only to find out that the result was far short of outperforming the aid. Imminent reduction of the economic aid at the end of the 1950s pushed the Korean economy to develop an alternative means of acquiring foreign exchanges.

Savings were so low that banking sector was not able to properly finance the post-war reconstruction and industrialization out of voluntary saving. The government and the central bank had to extend loans to banking sector in order to make up for the deficient savings. Low interest rate was also inevitable to encourage fragile industries, and it called forth credit rationing. Those who could not attain bank credits had to rely upon unorganized curb market on extremely high interest rates to get their business projects financed.

Korea was still a poor agrarian economy in the early 1960s, with an underperforming industrial sector, with rampant society-wide corruption, with miserably low savings and distorted financial sector, without any reliable means of earning foreign exchanges independently in the face of

fading economic aid. Business sector was lacking modern entrepreneurial talents, and the entrepreneurial incentive was quite distorted toward rent-seeking rather than enhancing productivity. Its only redeeming quality was a well-educated young workforce.

PART 2 Early Stage of Industrialization

4. The economic development of a less developed economy

4.1 Learning from developed countries

There can be many definitions as for economic development of less developed economies, and several definitions are indeed competing with each other in the literature of development economics under differing focuses ranging from quantitative growth to qualitative improvement. Nonetheless there seems to be a consensus in classifying the economies of real world into two groups – developed and developing ones, in that, for instance, nobody classifies the USA as a developing economy or the sub-Saharan countries as developed ones.

A developed economy used to demonstrate high productivity, efficiency as well as convenience of social systems, and enviably high living standard, which the overall performance of its economic activities duly brings forth. The feature of a developing economy is just the contrary; low productivity, inefficient and unreliable social systems, and rampant poverty. And this comes exactly from the inferior capability of its manpower and its poorly organized economic activities.

Theoretically speaking, any undeveloped economy may duplicate the same performance of a developed economy if the former can carry out the same economic activities as the latter has been doing. This duplication, however, requires advanced technology, huge size of capital stock, well-trained manpower, highly complicated institution, and operational know-how, each of which is far beyond the reach of a developing economy.

Nonetheless, it may be practically most effective for a developing economy to imitate a developed economy in order to get closer to advanced way of production and higher incomes, namely to achieve economic development. A typical process of this imitation may be characterized by importing technology, accumulating capital, training manpower, building institution, and learning know-how from developed

economies. In fact, learning from developed economies is always a good means for economic development of any developing economy, as are witnessed in several successful cases. Of course there may be a completely different new model of economic development that by no means resembles any of the so far prevailing ones. Every successful development effort in practice, however, falls into the type of learning from developed economies.

Usually there is no formal course of education for this learning, and it is not freely provided either. Learning opportunities for developing economies are mostly there in many kinds of actual economic transactions with developed countries, and developing economies must expand these kinds of transactions first of all, and be alert to find out right opportunities by themselves next. They must import machinery, equipment and technology, often semi-finished materials together, from developed economies to initiate their own modernized production activities. They may receive orders to produce some goods and, together with them, get some associated technical assistance from their counterparts in advanced economies, including the training of their manpower.

Whether this strategy may realize the desired development performance or not depends upon how right each developing economy is doing in this kind of learning. Of course there is no proven recipe for economic development which guarantees successful development. Nonetheless it seems clear that a development strategy is not likely to succeed without such trials, as long as it is not pursuing after a unique development model without a precedent.

<BOX> The thesis of R. Prebisch and *CEPAL* economists

In 1950s an economic thought emerged among a number of Latin American economists that warns developing economies to stay away from economic cooperation with advanced economies. The Economic Commission for Latin America, the Spanish abbreviation is *CEPAL*, of the United Nations, disclosed a report that advises import substitution strategy over export promoting one as a more effective development strategy for developing economies.

Raul Prebisch, the leader of the *CEPAL* economists, classified the world economy into two regions; the Center and the Periphery, and presented a thesis as follows. The Center represents the group of advanced countries who had gone through successful industrialization, and the Periphery the rest of the world. He analyzed the trade pattern between the two regions and noted that the Periphery exports agricultural products and natural resources while the Center exports manufactured products. He also noted that the trade price had been consistently rising for manufactured goods while staying stagnant or the same at best for agricultural products and natural resources. He concluded that the current mode of interregional trade had been simply siphoning economic surplus of the Periphery to the Center.

Based on this analysis, he warned that the Periphery economies will never have chances to accumulate sufficient amount of capital out of their own economic surplus, which is absolutely necessary for them to undertake their own industrialization, if the current mode of siphoning surplus by interregional trade would prevail on as it had been. He advised the Periphery countries to cut off or minimize the trade with the Center so that they may accumulate their own capitals, needed for their own successful industrialization.

The recommended form of industrialization was for the Periphery to produce by themselves the manufactured goods, which were currently being imported from the Center, in order to stop siphoning of surplus. It boiled down to recommendation of import substituting industrialization over export promoting one, and many Latin American economies had actually adopted his recommendation. The result turned out to be quite devastating as we all know. They fell into long struggles with repeated economic crises.

Prebisch's idea for the Periphery to disconnect its economic transaction with the Center reduces to eliminating the most important learning opportunities for the Periphery countries. And it brought forth miserable inefficiency in attempted but never successful effort of industrialization in most Latin American countries.

4.2 Importance of entrepreneurial talent

What distinguishes a poor country from a rich one? A most conspicuous difference, although maybe not the only one, is the fact that a rich country carries many internationally famous companies while poor countries do not. The worldwide famous companies such as Microsoft, GE, Siemens, Philips, Ford, Toyota, Sony, Volkswagen, Alstom, Rolex, Nokia, IBM, Nestlee, and etc. are all based in advanced countries without a single exception. Nowadays Samsung Electronics and Hyundai Heavy Industry of South Korea also acquired worldly fame, and this change is closely related with the successful industrialization of the South Korean economy.

Then why does 'having good companies or not' matter so much to wealth and poverty of a country? An individual must work very hard if he aims at material affluence and economically more comfortable living. The same is true for a country attempting economic development; its people must work very hard. There is, however, a caveat: the work that an individual or a group of people is undertaking must be productive and rewarding.

It is very simple; the more people work the harder and earn the more, the better are the economic lives in the country. And it is a good company that provides people with good and stable jobs to work on with stable rewards, and people must work on these good jobs as only the good jobs lead human labor toward productive uses.

In modern division of labor every individual worker's effort becomes productive only when the work fulfills what the whole system of complicate social division of labor needs. The system requires my work only when my work benefits somebody, and my work will get paid for by that somebody. When nobody benefits from my work, then nobody will pay me for my effort. So it is important for workers to select out right works, before undertaking them, which somebody in the economy is willing to pay for.

It is the role of business enterprises that finds out what kind of work the market demands, and employs workers to carry it out. A good company selects right works and leads its employees to productive works, while a bad company selects works which nobody is willing to pay for, and thus lead the effort of its employees to just nothing. Therefore the workforce, however diligent they may be individually, cannot engage in productive

works unless they are hired by good companies. It is no wonder that only the advanced countries keep worldly famous companies.

Poor countries are usually said to be poor because they have neither accumulated capital nor acquired the advanced technology. A more important factor, however, is the lack of entrepreneurial talent which is capable enough to establish and run good companies. Superb entrepreneurial talent will successfully induce necessary capital and technology by itself. If the lack of capital and advanced technology is the crucial bottleneck against economic development, and if a developing economy wants to get rid of it, then the simplest solution is to host a sufficient amount of capable entrepreneurial talent to her territory. If a superb entrepreneurial talent begins to run its business in a country, then capital and technology are to come to this country voluntarily from somewhere.

<BOX> Directing and directed labor – Schumpeter, Marx and Aesop

Economist Joseph Schumpeter is well-known for his theory of innovation. He said that innovation is the driving force of any economy and the capitalist economy will be stalemate without any progress, if it is not supported by consecutive innovations. According to him, it is the entrepreneurial talent that undertakes the endless innovations and drives forward the capitalist economy. If all the entrepreneurs are incompetent of, or their incentives are distorted away from innovation, the capitalist economy by no means will survive. Schumpeterian view of economic development is a natural extension of this idea of innovation.

Schumpeter started his analysis of economic development with the traditional view that human labor is essential for any economic activity to produce value. He differentiated, however, the *directing labor* from the *directed labor*. The directing labor is the human effort that decides what and how to produce, and the directed labor is the physical activity that carries out the tasks which the directing labor has decided to undertake. He wrote

…it is advisable for us to examine the other factor, labor, more closely.

Passing over the differences between productive and unproductive labor… we

must comment on two other distinctions... . These are distinctions between directing and directed labor and between independent and wage labor. ... While the executing labor is simply on a par with the uses of land ... , the directing labor is clearly in a governing position in contrast to both the executing labor and the uses of land. It forms, as it were, a third productive factor. ... the directing labor has something creative in that it sets itself its own ends. ... If, therefore, an independent individual produces on his own account and also does executing work, then he splits, so to say, into two individuals, namely a director and a worker in the ordinary sense.²¹

Schumpeterian directing labor has evolved into nothing other than the entrepreneurial role as is explained above, as industrialization developed the pattern of human work into a more complicated form of the social division of labor.

The labor theory of value of Marxist economics asserts that the value of a commodity is determined by the amount of labor put into that commodity. Marx wrote, after a lengthy description as for how value-for-value exchange leaves nothing as the surplus value for capitalists,

The capitalist paid to the labourer ... : he gave him value for value. Our friend, up to this time so purse-proud, suddenly assumes the modest demeanour of his own workman, and exclaims: "Have I myself not worked? Have I not performed the labour of superintendence and of overlooking spinner? And does not this labour, too, create value?" His overlooker and his manager try to hide their smiles.²²

Marx explicitly denied the productiveness of *superintendence*, which is exactly the directing labor in Schumpeterian sense. But a given amount of labor produces value only when it is led by a good directing labor, and yields nothing if led by a bad one, according to Schumpeter. Marx viewed the directing labor as nonproductive, while Schumpeter saw the key role of directing labor in producing value.

Marx(1818–1883) must undoubtedly have observed the massive failures

²¹ Joseph A. Schumpeter, *The Theory of Economic Development*, translated by Redvers Opie, Oxford University Press (New York), 1961. pp.19–20.

²² Karl Marx, *Capital – A Critique of Political Economy*, The Modern Library (New York), 1906. p.215.

in business amidst of chaotic expansion of industrial activities in the turbulent stage of industrial revolution. Nonetheless he viewed them not as the outcomes of individual managerial failures but as the result of overproduction, which was the collective failures caused by competition among greedy capitalists. Schumpeter(1883-1950), who was born in the year of Marx's death and lived the period of the Great Depression, viewed the similar massive failures, which most Marxists viewed as the fatal collective failures of capitalism, as the individual ones due to poor directing labor.²³

Now *Ant and Grasshopper* is the world-widely well-known Aesop's fable. It intends to teach people to work very hard for one's own good sake. What the *Ant* had collected were food and firewood for her own use, and therefore, she would become all the wealthier as she works the harder. Everyone produces for his own consumption in an autarkic economy, and the one who has produced more will always enjoy more consumption like Aesop's *Ant*.

But things are different in modern market economy; everyone produces not to consume directly by her/himself but to sell to others. People must produce what is in the need of others. If one produces what nobody needs, then he cannot earn any income no matter how hard he has worked. Aesop's *Ant* will also be in deep trouble in modern market economy, despite her hard labor, if she collects only the stuffs which nobody is willing to buy.

The role of directing labor, which used to be implicit in autarkic society where everyone knows very clearly what he needs, becomes very important in market economy where one does not in general know for sure what others need. Marxian perception of productive work seems to be still in the capture of the notions in preindustrial autarkic age, while Schumpeterian orientation has successfully escaped from that capture to fit to the setting of the modern market economy.

4.3 Market and economic development

The key feature of modern production is the division of labor, which is

²³ Schumpeter wrote *The Theory of Economic Development* in 1926, and its English version in 1934.

well-known to improve the productivity of human labor to an amazing extent. Every division of labor, however, will function properly only when all the specialized tasks are well-coordinated either by managerial superintendence if the division of labor is undertaken within a firm, or the market mechanism if the social division of labor is what matters. Human societies have been improving their frames of division of labor on and on since the ancient times, and in a sense the history of economic development is nothing but the process of upgrading, refining and empowering those frames.

Individuals are free, not forced, to choose what to do under the market coordination, given the signals generated by the market. Selfish individuals may seek for self interest by cheating, free-riding, and/or preying on others unless property and contract rights are properly protected. Market operates on the basic legal foundation of property and contract rights and their enforcements. If this institution and its enforcements are sound and secure, then individuals are led to gain benefits only from voluntary trading and cooperation, which render gains to all the traders and the players simultaneously.

Each household decides what to consume and each firm what to produce. Market signals are a common reference for all individual decision-makers, and at the same time individual decisions are fed back for the market to generate new signals. These signals lead households to choose what to consume and entrepreneurs to choose their respective tasks of what to produce in the social division of labor. Market will successfully coordinate the social division of labor if it generates right signals and the economic agents, in particular firms, make right decisions, and not otherwise.

The decisions on what to produce are made by firms, and more accurately by the entrepreneurs. The capable entrepreneurs are able to read right information from the given market signals, and thus make right decisions on production, which are again fed back to market signals. Sound and secure protection of property and contract rights is a prerequisite for right individual decisions and right market signals. The performance of market depends upon the qualities of entrepreneurs and market institutions.

The well-organized division of labor in advanced economies is firmly

supported not only by superior entrepreneurial talents but also by elaborate market institution and advanced technology to generate their economic affluence. On the other hand crude and poor division of labor, both in entrepreneurs' quality and market institution, of a developing economy fails to maximally utilize its potential and is not able to save its people from miserable poverty. Since the market is the central mechanism to coordinate social division of labor, along with the entrepreneurial capability, it shares the core responsibility for the economic performance of each country.

A successful economic development which aims at a more productive division of labor must, therefore, transform the poor and inefficient market, among others, of developing economy into an efficient one, and improve entrepreneurial capability. What developing economies need is the package of development policies that will elevate its immature market and poor entrepreneurial quality to a higher degree.

It is, however, a common belief in mainstream economics that market allocates resources efficiently and it will strike back whenever any state intervention unduly impedes the working of market mechanism. This belief, culminated in the tightly organized form of Washington Consensus, is often in conflict with development policies in practice, which adopt a wide range of state interventions. The Consensus in fact suggests the macroeconomic stability and the withdrawal of government from the market in the form of deregulation, liberalization and privatization, without any instruction on how to secure the sound operation of the market.

Governments of developing economies are not so good as those of advanced economies at protecting the property and contract rights, and thus at maintaining the sound operation of their markets. They may have opted for public enterprises in certain sectors simply because they were not capable to protect those rights properly otherwise. Regulation is distorting the market on one hand, but it may be at the same time complimenting insufficient protection of those rights on the other.

If the government simply withdraws from the market in a developing economy without any alternative measures for protection of property and contract rights, then the other side of liberalization is very likely to be less or no protection of those rights. Then the selfish individuals will

create more damages by intruding upon others' rights than the benefits which deregulation may render.

The main stream economics assumes an economy where the property and contract rights are well protected just as in the advanced economies, and demands only the withdrawal of market distorting intervention of government. This assumption does not fit to the situation of developing economies where the property and contract rights are poorly protected. It is not surprising to have the reports that a number of developing economies which followed the instruction of the Washington Consensus ran into trouble rather than impressive performance in economic development.²⁴

Since the quality of market, and the frame of division of labor, depends upon the level of the economic development of each economy, the behaviors of entrepreneurs and the market signals are often very much unreliable in less developed economies. A developing economy is stagnant under the present form of market coordination simply because the market sends signal that induces individual decisions to bring forth a stagnant economy. If a developing economy leaves everything to the market mechanism as it is, then it may not achieve any development performance.

The investment in export manufacturing industry, for instance, was by no means profitable according to the market signals of the Korean economy in early 1960s. And it was the extensive intervention of the Korean government in the market to generate the signal that had eventually attracted the investment to initiate the export-led growth. Were it not for that intervention, there had not been any Korean Miracle. Developing economies need extraordinary measures to address their drawbacks in immature market and poor entrepreneurial talent. Here we will refer to the entrepreneurial issue first, and the market issue will be addressed later.

4.4 To attain entrepreneurial capability – to foster or to host?

It usually takes an extraordinarily long time for good companies to emerge in poor countries, since their environments are by no means

²⁴ For instance see Dani Rodrik

business-friendly. Therefore a developing economy deficient in entrepreneurial talent may try strategically to foster indigenous entrepreneurs or to invite foreign talent, i.e., multinational corporations or both in order to provide her people with better jobs. A wide range of favors and subsidies are offered to encourage business activities of enterprises, both domestic and foreign, with differing focuses depending upon whether the scheme aims at fostering or hosting.

There are many obstacles for a developing economy to overcome when it intends to foster indigenous firms. A candidate entrepreneur must establish and run the business on his own in order to demonstrate his promising potential, and it is ordinarily the market that selects the successful ones. But this procedure of market not only takes a long time but also reaps only just few in most developing economies.

The two fundamental resources for business operation, capital and modern technology, are usually in the hands of foreigners, who usually are not interested in incurring any cost to scout for promising business talents in developing economies. Therefore the government must assume certain roles in selection of promising domestic candidates to foster. To begin with, however, it is not easy for the state to select right candidates to support without any prior information. But the government, despite all these difficulties, has to make selection anyhow, if it is to foster indigenous entrepreneurs.

Thus screening right candidates to support, even without any sufficient data as for their potential, is the primary task for the government. Naturally many selected candidates will turn out to be unqualified after they start their ventures under state subsidies, and such firms must properly be weeded out. So the next task is to define clearly the goal for the selected candidates to pursue after in the stage of actual provision of subsidies, and to monitor rigorously whether they abide by the goal. The subsidies will be provided over time only to those who have shown satisfactory performance up to the goal. In the end each survivor must be able to attain capital and cutting-edge technology for his venture and to market the outputs on his own, and grow up to an efficient and competitive company.

One may expect that rent-seeking behavior will be rampant, since every firm competes for limited amount of state subsidies. If rent-seeking

dominates over the screening process, then no economy may successfully foster indigenous firms. The government must be able to contain corruptions and related scandals to a minimum extent in order to succeed in fostering indigenous entrepreneurs.

A scheme to host multinational corporations (MNCs) tries to provide the prospective investors with business environments and conditions superior to those of other competing countries, such as more favorable infrastructures, tax breaks, qualified manpower, reliable policies, and comfortable living environment. In general multinational corporations invest in developing economies to build up manufacturing bases aiming at either local market or global one or both. They bring their own capital, technology, and even take charge of marketing, but provide the host countries with jobs by employing local workforce.

As multinational corporations pursue only after their own profit, the composition of their investments may not fully satisfy the grand design of industrialization for each developing economy. Nonetheless, the employed local manpower may learn how to carry out the activities of modern manufacturing, and sometimes the multinational corporations encourage the local employees to establish their own modern factories to produce the parts and components which the MNCs need by extending loans and technological assistances. Multinational corporations not only provide the host country with jobs but also render assistance in this way to foster indigenous entrepreneurship.

<BOX> The Singaporean economic development

The Singaporean economic development is a leading example among models of hosting multinational corporations. Singapore had been a base harbor for *entrepot trade* under the British colonial regime making use of Malaysia as its hinterland. After the independence in 1960s Singapore ran into a serious difficulty in carrying out the traditional role of intermediating the entrepot trade since both Indonesia and the hinterland Malaysia intended to bypass Singapore. The cornered Singapore was pushed to explore a new outlet and started her own industrialization by inviting extensively the foreigners' direct investment (FDI). Highly efficient office of the Economic Development Board (EDB) was in charge

of channeling foreign investment into Singapore as the one-stop government institution.

The Singaporean government aligned its legislations and institutions to the global standard, constructed most efficient infrastructures, trained manpower up to the needs of the foreign investors, and provided investors with comfortable living conditions. At the same time the EDB contacted prospective investors, negotiated on the terms of FDI in details including tax breaks and acted as the ultimate resort of authority to implement the negotiated terms. A small city state Singapore, unlike other developing economies receiving foreign investments, was not worried about protection of domestic market and industry, since no investment, either foreign or domestic, would be viable if it aimed only to serve the tiny domestic market.

Local industry rose along two different lines. The first was initiated by the supervision and assistance of the foreign investors. The foreign investors selected trustworthy local employees and proposed and encouraged them to start manufacturing enterprises which would produce parts and components for the foreign investors. The multinational corporations provided them with various assistances ranging from financial loans, technological consulting and purchasing all of the products. This group of indigenous firms had set their positions toward multinational corporations as not competing but co-operating with them, which are to be contrasted with the South Korean *chaebols* that had to compete vigorously with the MNCs from the beginning.

If there were only this kind of indigenous firms, then all the jobs of the Singaporeans would have been, directly or indirectly, in the hands of foreign investors. The foreign driven jobs would not only be insufficient in numbers to employ all the Singaporean workers but also insecure as uncontrolled retreat of a multinational corporation would unexpectedly give rise to soaring unemployment. Furthermore the multinational corporations and the associated indigenous firms are producing not to serve Singaporeans directly but to export to global market. Some firms must produce what Singaporeans need but could not be imported.

The second line was motivated to address the Singaporean needs which were not taken care of by the activities of the foreign investors and the associated firms. The Singaporean government has established a number

of firms, which are called the *government-linked companies* (GLCs), to fill the gap which had not been properly attended on by MNCs. As GLCs grew up, their activities have been expanded to cover a wider range of businesses and now some of them are actively investing abroad.

The Singaporean government has implemented an extensive scholarship program to support promising young talents for their advanced studies in management and engineering at many world class universities abroad. This manpower returned home after completing their academic program and some of them took charge of running the GLCs. The Singaporean entrepreneurs had been fostered under the two different sponsorships: the one is the self-training within the business sector under the assistance of multinational corporations, and the other is the academic training at foreign universities under the scholarships provided by the government.

5. The beginning of industrialization in 1960s – Policies on capital

5.1 The Park Chung Hee government

The fraud in the presidential election 1960 called forth a spate of nationwide protests from the people, which finally overthrew the corrupt government. This event is called the April Revolution. New civilian government stepped in, but wide spread socio-political turmoil followed thereafter, until military junta led by the Major General Park Chung Hee disrupted the government in May 1961.

The military government started to initiate a full-scale industrialization and the performance was rather ramshackle, as the move was neither well-prepared nor well-organized. In the beginning, the new military government tried to follow the traditional import substituting frame of industrialization, but the performance was miserable since they were not able at all to raise a sufficient amount of fund to invest for industrialization. Also the dwindling economic aid from the U.S.A., which reflected the strong request of the U.S. government for quick transition to the civilian rule, had squeezed the Korean economy into a serious foreign exchange crisis, and the level of reserve balance fell below 100 million dollars in 1963.

The US government did actually begin to cut down their donation type aid as from the early 1960s, despite that South Korea was still struggling without any stable means to earn foreign exchanges. South Korea needed either foreign loan or foreigners' direct investment (FDI) or both very badly in order not only to fill up the gap caused by both the reduction of aid and inability to export but also to invest for ambitious industrialization on an unprecedentedly large scale. No foreign capitalist, however, was willing to make any investment to the Korean economy whose post war prospect was quite bleak under hostile confrontation still going on against North Korea in less than ten years after the ceasefire of a most devastating war since World War II.

Although the military leaders tried several measures, including currency reform, in order to mobilize domestic savings into investment, all the

efforts ended in vain simply because there had not been enough saving in the South Korean economy then. The domestic savings rate lingered around miserable 2.4% in 1962 for instance. Furthermore, what was needed was not only just savings but also foreign exchanges since Korea had to import most of machineries and materials in order to undertake modern industrial activities. South Korea, however, had nothing to export to earn foreign exchanges: the natural resource endowment was minimal and the agriculture barely fed its own population. The government realized that it had to build up confidence in the minds of foreign investors as for the safety of their investment before it might succeed in hosting some from abroad.

5.2 Induction of foreign loans instead of foreign direct investments

Massive induction of foreign capital was an absolute imperative for industrialization of the South Korean economy. There are two possible modes for developing economies to invite foreign capital in general; the Koreans could have either borrowed from abroad or invited foreigners to invest directly in South Korea. Now that the Koreans were, due to the bitter experience of colonialism, not emotionally ready to accept the idea of shop-operation setting Koreans to work under the direction of foreign, in particular the Japanese, owner or manager in Korean territory, the foreign direct investments (FDIs) were not a fit strategy for South Korea.

Considering this nation-wide sensation, the South Korean government decided to induce foreign loans instead of FDIs. This decision was logically fraught with the idea of the export-led growth as it will necessarily call forth the obligation of repayment in foreign exchanges, though nobody had explicitly acknowledged it then. Therefore the foreign loan, still uncomfortable as it was, became a natural choice for the Korean government to make use of rather than the FDIs.

If a developing economy wants to borrow from abroad, then it must be able to assure the lenders of debt servicing in due schedule without any disruption. The borrowing country must be able to generate income of sufficient amounts for repayment in the form of foreign exchanges. Resource-poor Korea had no alternatives eventually other than encouraging manufacturing industry to develop itself into a successful

export industry.

Foreign capitalists, however, had no confidence at all in the future of the South Korean economy. No Korean enterprise was able to draw any commercial loans from abroad on their own credit. Even the Korean government was able to draw only a minimum amount of official loans of aid type. South Korea confronted a very difficult task of how to convince foreign investors of bright prospect for their investment, either loan or direct investment, in South Korea.

5.3 Domestic capital and credit rationing

Industrialization of a developing economy requires investment in modern industrial facility, and investment needs financing. Substantial amount of investment fund must come from abroad, as most developing economies are so poor that the meager size of the domestic capital may not satisfy the huge need of fund for development investment. The government of a developing economy must, nonetheless, mobilize the domestic capital to its maximal extent on one hand, while it also induces foreign capital on the other.

High interest rate will encourage mobilization of domestic capital on one hand, but discourage investment on the other. An economy needs high interest rate in order to mobilize capital from general public and low interest rate to encourage entrepreneurs to expand investment. A developing economy faces a fundamental contradiction in interest rate policy as it needs capital to finance investment.

The interest rate had been maintained at low level in 1950s in order both to stimulate investment and to subsidize industrialists, and so domestic saving had been discouraged at the same time, creating everlasting shortage in credit market. The Korean government raised interest rate for deposit from 10% to 15% in 1961, and again to 26.4% in 1965, to encourage saving after a sequence of abortive attempts to mobilize domestic capital. As the margin of the raise had been substantial, so the bank deposit rose high and the banking sector expanded its role in providing capital.

Domestic saving, however, was subject to an intrinsic ceiling of low income typical for poor country, and the effect of high interest rate

policy was not to be expected to go beyond this limit, no matter how large the margin was. Voluntary saving of the general public could not meet the ever increasing demand for fund. The gap used to be (partially) filled up with banks' borrowing from the Bank of Korea, the central bank of the Republic, resulting in increase of money supply and subsequent high rate of inflation, which is called the *development inflation*. The consumer price index had been rising at the annual rate 16.7% in 1963 and this rate maintained two-digit level until 1981 except for the year 1973.

This inflation reduced the purchasing power of the general public and the increased portion of money supply were lent out to strategic industries so that they might buy up goods for the purpose of their investment, and this amount was exactly as much as the general public's loss of purchasing power. In other words, the development inflation forced the general public to 'save' as much as the loss of purchasing power to finance investment expenditure, and therefore this saving is called the *forced saving*. Thus the shortage of voluntary saving had been covered by forced saving from the development inflation, i.e., the inflation was the cost of forced saving.

Since inflation had to be controlled below certain level in order to support the low wages of urban workers, the government could not extend the forced saving as much as the need for development investment demanded, and therefore, the chronic shortage of fund was inevitable. If money market works normally, then the interest rate will surge in face of this shortage to discourage investment. The lending interest rate, however, is desired to be kept sufficiently low enough to encourage investment.

If low lending rate is to be maintained, then excess demand for bank credit must prevail. Market mechanism was not to function where excess demand for fund must be left unsatisfied, and market clearing must give way to credit rationing. The South Korean government took over the management of all the commercial banks by an emergency decree in 1961, and started government-directed financing, which lasted until 1990s.

The policy of high interest rate for deposit succeeded in mobilizing domestic capital, and enabled the government to finance strategic

projects for economic development. The projects, however, would not be profitable, if they had to pay interest for the capital at rates higher than deposit rate which was already set high enough. In order to encourage investment into those strategic projects, the South Korean government arranged the banks to extend loans at preferential interest rate that was lower than the market rate of interest.

This kind of bank credit was called the *policy loan*, and it accounted for more than the half of the total bank credit in most years during the period 1962–1985. The Table 3 shows the annual trend of the policy loan for 1963–71. It shows a sharp increase of the policy loan from 1967, which reflects the substantial rise in bank deposit after raising the interest rate. Firms in strategic manufacturing sector were able to expand their sizes rapidly under the help of easier bank credit, and their average debt ratio rose from 118% to 394%.

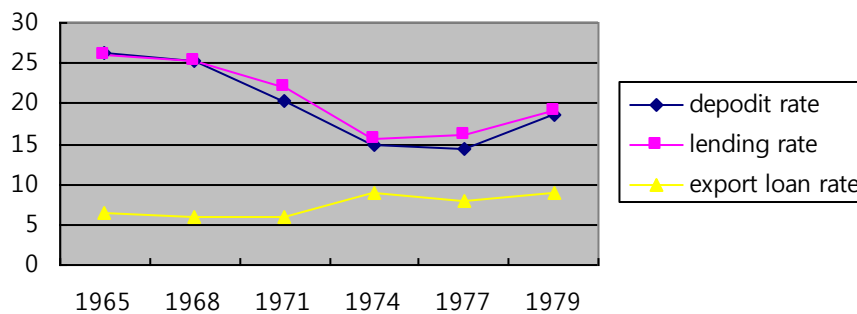
Table 3. The trend of the policy loan (1963–1971)

Year	1963	1964	1965	1966	1967	1968	1969	1970	1971
Amount Policy Loan, bil KRW	502	551	648	809	1,375	2,052	3,048	4,117	5,994
Share in Total Lending %	65.4	65.0	59.4	54.1	53.1	48.0	44.0	43.9	49.0

Source: Kim, C.W., “Industrial Development and Policy Loan,” in *Studies in Korean Development*, 8–1, 1986.

The export loan accounted for 62% of the policy loan, extended by banks during 1962–80, and its interest rate was lower than the half of the general lending rate during 1965–79. The trends of interest rates including the rate of export loan are depicted in Fig. 3.

Fig. 3 Trends of interest rates (1965–79)



Source: The Bank of Korea

5.4 Foreign capital - foreign loans and foreign direct investments

Gross domestic investment rate was 14.6% in 1964, which was twice as high as the domestic savings rate 7.3% in the same year, and the gap was covered by capital from abroad, the main portion of which was still the U.S. aid in the form of donation.²⁵ This dominance of foreign capital, while its content had transited rapidly from donation type into foreign loan as from the middle of 1960s, had prevailed since right after the armistice in 1953 until 1983 when domestic savings rate 29.6% managed to overshoot investment rate 29.4% for the first time in thirty years. In a word the industrialization of South Korea had substantially depended upon foreign capital.

South Korea had induced as much as US\$80.181.- billions of foreign capital in total during the period 1962-1992.²⁶ The share of commercial loan was 26.2%, public loan 24.2%, bank loan 21.7%, financial bonds (denominated in foreign currencies) 11.5%, foreign direct investment 9.7%, and corporate bonds in denomination of foreign currencies 6.7%. The corporate bonds had not been successfully marketed until early in 1980's.

The composition of the foreign capital for the period 1962-1972,

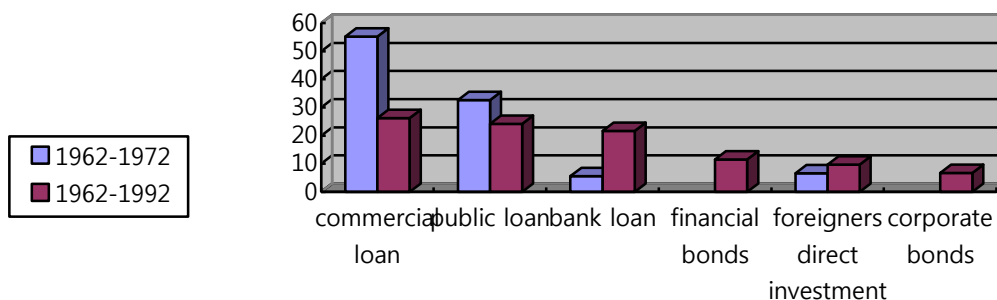
²⁵ Foreign loan began to outweigh donation as from 1968. The statistical data cited in this section are from "Korean Import of Foreign Capital; 30 Years History," Ministry of Finance • Korean Bank of Industry, 1993.

²⁶ This amount is much larger than 3 billion dollars of the total foreign aid that South Korea received for the period 1945-1961. Both figures are obtained by simple addition in current prices, but nonetheless they reveal how much of the foreign capital had been induced for Korean industrialization.

however, shows commercial loan 55.2%, public loan 32.6%, bank loan 5.6%, and foreign direct investments 6.6%, revealing heavy dependence upon commercial and public loans. Public loans were government borrowing for long term at low interest rate from development agencies abroad such as the World Bank to finance investment in the social overhead capital; electricity, railroad, highway and other infrastructure. Commercial loans were private borrowing for industrial investments in industries such as chemical, petroleum, cement, and steel. The results are summarized in Fig. 4.

Preponderance of commercial loans gave rise to public worries about heavy burden of repaying their principals and interests, as a number of firms under these loans did in fact run into financial troubles in late 1960's. The pressure eased up the tough attitude of the Korean government toward the foreign direct investment, which does not carry the burden of repayment. The government began to relax the stringent conditions on the foreign direct investment so as to encourage inducing foreign capital in the form of FDIs rather than loans. The switching from loan to FDI, however, was minimal as the relaxation measures were insignificant.

Fig. 4 Composition of Foreign Capital (%)



Source: The Korean Import of Foreign Capital; 30 years history

Foreign direct investment had not been welcomed except for the unavoidable ones such as the investments in oil refinery, chemical industry, semi-conductor industry and etc., and for those in the free trade zone. The FDIs in the free trade zone were required to export all

the outputs abroad, and other FDIs were essential for the transfer of the advanced technology. Aside from the export requirement for the free trade zone, the South Korean government used to request foreign firms to use local content and escalate its share, to transfer technology to their domestic partners, and to hand over the ownership after a fixed period of time.

These restrictions were more stringent than the standard measures of other host countries, and consequently, the share of FDIs in foreign capital had been suppressed to minimal until the middle of 1980s. Nevertheless the foreigners had invested in refinery, automobile assembly, petrochemical industry, and semiconductors to render substantial contribution for the development of these industries by allowing their Korean partners to acquire most valuable technologies from them.

5.5 Sovereign debt guarantee for foreign loan

The Korean firms were not able to borrow loans from abroad on their own in the early stage of economic development since foreign lenders had rated South Korea as non-investment. The Korean government prepared at last an unprecedented measure of sovereign debt guarantee for the selected commercial loans in 1962. In this system, each applicant firm must submit application form to the government for debt guarantee with detailed proposal of industrial project. The government office, the Economic Planning Board, examined all the proposals, selected promising ones, and let the commercial banks provide these selected projects with guarantee for repayment. This guarantee was virtually sovereign guarantee, since it was the Korean government who operated and managed all the commercial banks.

Even this drastic measure of sovereign debt guarantee was not effective in the beginning. The poor credit rating lasted until the substantial influx of capital from Japan took place later. It was, however, this sovereign debt guarantee that enabled the Korean firms to borrow from their foreign lenders, and brought forth the burdensome overextension of commercial loans in such a short period of time. Samsung Electronics was the first Korean firm, which sold its corporate bonds successfully

abroad on its own without sovereign debt guarantee in 1980's.

In later days the volume of bank loans, which represents the loans that the Korean commercial banks borrowed directly from foreign lenders, began to expand to take over partially the role of commercial loan. Foreign lenders used to impose conditions which were adversary to the Korean borrowers on their commercial loans in spite of the sovereign debt guarantee, since the domestic borrowers' credit rating was unsatisfactory. The Korean commercial banks could borrow on better terms as their credit ratings were better than the end borrowers. Thus the bank loans gradually replaced the commercial loans with unfavorable conditions. Bank loans provided with the financial resources in foreign currencies, and enabled the commercial banks to ration this fund to industrialists according to the development plan of the government. The manner of credit rationing was essentially similar to that of providing with sovereign debt guarantee for commercial loans.

As the foreign lenders extended their loans to the Korean borrowers simply because the repayments had been guaranteed by the Korean commercial banks, there was no reason for the lenders to shun away from providing commercial banks directly with bank loans. It also allowed a greater flexibility for the Korean government to select out industrial projects to finance than commercial loans which connected the foreign lenders directly with the final users of the loans. So the South Korean industrialists had made access to capital in foreign exchanges in two tracks; the one in commercial loans which connected them directly with the foreign lenders, and the other in bank loans where the South Korean commercial banks were the lenders.

5.6 Construction of infrastructures

Production cost depends very heavily upon the quality of infrastructure. Well developed infrastructure enhances efficiency of human activities, both economic and non-economic, and hence reduces the associated cost substantially. Accessibility to and availability of communication service, electricity, water and sewerage are the essential necessary conditions for the sites of industrial operations, and constitute the quality of the infrastructure. Provision of high quality infrastructure is another pillar of

development policy along with industrial policy which provides industrial activities with various subsidies.

Building infrastructure improves the productivity, and hence the value of a wide range of neighborhood for the related region. Therefore, external economy arises naturally when the owner of a piece of isolated land invests to build infrastructure such as a road which connects his land with main highways. It is usually the case that the cost of construction is far short of total benefit of the entire neighborhood of the land but outweighs private benefit of each individual land owner to discourage private investment in building infrastructure.

Infrastructure does not produce any commodity itself but provide producers with indispensable services for every production activity. This external economy will present a multitude of costs from infrastructure construction to building of industrial facility, and intimidate prospective industrialist to give up investment plans, even when individual industrial projects are profitable when the cost of infrastructure construction is appropriately shared by investors. The government had better take charge of infrastructure construction in order to activate profitable industrial investments.

The Korean government allocated a substantial amount of resources for construction of infrastructure and built highways, sites for industrial parks, harbors, and etc. Public enterprises took charges of supplying electricity and communication services, and the local governments took care of water supply and sewerage services. The monumental work of infrastructure building in 1960s, among others, was the construction of the Seoul-Busan Expressway in 1969, which is the first expressway for motor cars in South Korea.

Public loans from the development agencies such as the World Bank, which shared 32.6% of the total foreign loan induced during 1962 – 1972, provided Korea with financial resources for construction of infrastructure. The fund was also used to build electricity generation plants and expand transmission/distribution power grids. South Korea was able to get rid of rotating blackouts only in the middle of 1960s after the construction of an oil-fired generation plant in Busan.

5.7 The five year economic development plans

The Korean government had been announcing the economic development plans every five years since 1962. The last one, which is the 7th, was implemented in 1992. Each five year plan described the targets for the economic performance of forthcoming five years, and provided with general directives for the development policies to achieve these targets.

Each plan had set the target rate of the economic growth, which was outperformed in practice every five years except for the years 1977-81. The plan was different from those of socialist planning economies, and it was not rigorous but indicative. The Economic Planning Board of the Korean government which was in charge of designing the five year plans, however, exercised its mandate to allocate yearly budget across the Ministries so that their yearly policies might contribute to achieve the goals set by the five year plan. Various incentive schemes followed the directives of the five year plan in order to induce the resources to designated strategic projects.

All the development policies as explained above were designed to achieve the targets specified in the five year plans. In that sense the five year plan was rather a specification of the target than a plan to implement. It needed detailed action programs of each Ministry and coordinating scheme of the EPB to become a complete plan. In order to understand the nature of the five year plans, let us briefly look at one of them in more detail, the first five year plan covering 1962-1966.

The first five year plan listed 7 major targets,

- (1) Development of energy resources such as electricity, petroleum refinery, and coals
- (2) Improve productivity of agriculture
- (3) Building infrastructure such as railroad and harbors
- (4) Expand the production of cement, fertilizer and refinery
- (5) Maximum utilization of idle resources, raise employment and develop land
- (6) Improve the balance of payment by increasing export
- (7) Development of technology,

and set the ambitious 7.1% as the target annual growth rate. It also planned to increase investment as much as 136.9% and to restrict the increase of consumption by 18.2% during the period covered by the Plan. The share of the secondary industry in GNP was planned to rise from 18.2% in 1962 to 26.1% in 1966 and the export was planned to increase by 317.9%. Sectoral targets were also set like 29% increase in rice production, electricity generation capacity of 1 million kW, 3.2 fold increase of output in cement, and etc.

Other five year plans were similar in structure. Each five year plan set the target, the achievement of which was left to the detailed development policies. It was the duty of each office of the government that must design and implement the detailed policies in order to achieve the goal set in the five year plan.

5.8 The ROK-Japan Basic Relation Treaty and the Vietnam War

As indicated above, initially no South Korean enterprise was able to borrow by itself from abroad at all. Only the Korean government managed to induce some non-commercial development loans of aid type for specific use. The South Korean government, after failing in various attempts to mobilize capital, planned to make use of the neighboring Japan to break through the bottleneck against the inflow of foreign capital and fulfill the shortage of fund and foreign exchanges.

Both Korea and Japan had established new governments shortly after the World War II, but they had not been successful in opening up normal diplomatic relation until in the middle of 1960s. Korea had been holding on the shelf its right of claim against Japan for the atrocities and damages that the Japanese had inflicted on Koreans during the colonial period.

Two countries reached finally an agreement in 1965, and South Korea received as much as US\$800 millions – 300 million dollars for reparation payment and 500 million dollars in the form of loan. This event had not only relaxed the tough financial situation of Korea at least for some time but also opened the door for active economic cooperation between the two countries. The Korean government used this fund for various development projects including the establishment of the now successful

steel mill POSCO. It is very likely that normalization of the Korea–Japan relation and influx of substantial amount of investment fund from Japan might have more or less eased up the reluctance on the foreign investors of other countries for investing in Korea too.

Concurrently South Korea made another political decision to join the Viet Nam War. Although the USA needed international collaboration in her Viet Nam operation very badly, her rich alliances were rather negative in cooperation amid the rampant anti Viet Nam war sentiments of their peoples. And it was too heavy a burden for a poor country like South Korea to bear the huge cost of undertaking war in a foreign country.

The USA removed some of her military forces from South Korea to Viet Nam in order to strengthen the operation there, and this measure had substantially weakened the South Korean defense system. The South Korean government could not help deciding to send soldiers in tens of thousands as from 1965, when the USA offered not only to bear the entire cost of the associated expenditure but also to modernize and upgrade the armor of the South Korean defense forces.

Also many Korean companies were given chances to serve a share of market for logistics and transportation to support the war, and had earned a substantial amount of foreign exchanges from such contributions. South Korea had earned from the Viet Nam War as much as 10.6% of her total foreign exchange earnings in 1966, 19.4% in 1967, and 17.3% in 1968.

Both the Korea–Japan Treaty and the Viet Nam War were certainly not items of standard economic development policy and comprised much broader political implications, both domestically and internationally. Nonetheless it is no doubt that both events cleared off the most difficult obstacle of foreign exchange gap for the South Korean economic development.

<BOX> Confrontation between two national goals of industrialization and democratization

The April Revolution was not the solution to the problems of dictatorship and poverty in 1950s Korea, but just the beginning for the

country to head for tougher tasks of genuine democratization and industrialization. The South Korean people acquiesced to the military junta of 1961 not because they forsook democracy but simply because they were sick of lawless disorder. Of course there were, under the military regime, several peaceful demonstrations by students demanding a quick return to civilian rule. It occurred once in April 1963 and a few followed later.

The Korean people had generally accommodated military rule, and they again elected the retired General Park Chung Hee, who was the leader of the coup d'état, as the first president of the civilian government in December 1963, a close call as it was. Both goals of industrialization and democratization had not been in conflict with each other so far.

Things changed drastically in 1964 when the government, now civilian, was actively trying to normalize diplomatic relation with Japan, despite the deep-rooted hostility of its people against Japan. The South Korean people did not like the terms and, in particular, many Koreans thought the low amount of reparation payment was quite insulting. This sentiment aroused people to reject the whole idea of normalizing the Korea-Japan relation. Dissident protests were rampant and rapidly escalated into radical anti-government campaign. The government, however, was fully convinced that the country absolutely needed the economic cooperation with Japan, and repressed the protests with iron fist. This repression decisively turned the dissident leaders to regard the government as dictatorial.

The desperate need for foreign exchanges was certainly a good reason to explain why the government insisted so stubbornly then on waging out to restore the diplomatic relation with Japan. In retrospect, however, there seems to be something else, probably more important in the long run than the simple need of foreign exchanges. Industrialization of a developing economy is in a way a process of learning from the economic transactions with the advanced industrialized economies, and the case of South Korea was not an exception. It was no doubt that the neighboring Japan must be the most convenient partner for South Korea to cooperate with in order to achieve its industrialization.

Suppose that the South Korean government had complied with the people's sentiment and given up the economic cooperation with Japan.

Then Korea would have to choose the remote USA or one of the European countries as the cooperating partner, bypassing the neighboring Japan, which would have been a very stupid choice against economic sense. In fact Taiwan had already been on the track of its industrialization in close cooperation with Japan, and South Korea would have been sure to lose to Taiwan in the race of industrialization if she had rejected Japan as her partner of cooperation.

For any country the industrialization is a monumental event, which is by no means such an easy task as can be attained even though the country denies the most obvious practical efficiency. It is quite plausible to make a guess that the South Korean government was fully conscious of this rational context, and was driven to choose industrialization over democracy when the two major national goals were conflicting with each other.

Anyway supporters for each of the two national goals, industrialization and democratization, diverged away from each other since then. The group which had put higher priority to democratization began to resist against the government, and the whole package of industrialization policies became the main target for them to attack. They began to denounce the military coup of 1961 as unlawful greedy act to take power, and blamed the government for pushing industrialization in order to justify their illegal taking of power and subsequent dictatorship. To their eyes every success in industrialization was nothing but a strengthened armor for the despised dictatorship.

So they identified the on-going industrialization flatly with fortification of dictatorship, which could not stand consistent with democratization at all. On the other hand, the government regarded dissidents as reckless destructionists, who were determined to oppose for opposition's sake only. The government fortified their authoritarian regime allegedly to defend the country from the attack of the "destructionists", and the dissidents confirmed their conviction of the government being dictatorial all the more by this growing authoritarianism. The South Korean society had fallen to a helpless division into two utterly stubborn groups; the one for industrialization and the other for democratization, and neither tolerated the other. This division was not just made by a simple difference in opinions but worsened by amplified hostility afterwards.

6. Trade policy – Export promotion and Import control

6.1 Foreign exchanges problem and export promotion

It was, and still is, very difficult for a traditional agrarian economy like South Korea in 1960's to dare export of manufactured goods right away from the beginning of industrialization. In fact the Korean government had initially intended to spend some time for their producers to accumulate experiences in modern manufacturing and to stabilize the quality of their industrial products before they begin to export them. So the initial plan was essentially an import-substituting industrialization rather than export promoting one. The South Korean policy makers believed that their producers might be able to export their manufactured goods someday only after they succeeded in improving the quality of their products up to certain level.

The depletion of the foreign exchanges reserve, however, pushed the South Korean government to revise its main course of industrialization. The foreign capital policy, which was biased toward foreign loan, necessarily raised the issue of repayment of interests and principal in foreign currency. Furthermore, the one-sided decision of the USA to change the mode of aid from grant type to loans imposed an additional burden of repayment.²⁷ As there were neither natural resources nor products of primary industries in sufficient amounts for Korea to export, the economy was to be rapidly deprived of foreign reserve balances with no other stable means to earn foreign exchanges.

These circumstances forced the South Korean government to shift its industrial policy from import substituting industrialization toward export promoting one. The impending threat of depleting reserve in foreign exchanges was more urgent to address than the pessimism if the Korean manufacturers could really export their products successfully at all; the South Korean economy had to export at any rate to earn foreign exchanges for survival. Incidentally Taiwan had started to export manufactured goods in cooperation with Japan a little earlier than South

²⁷ The Kennedy government's legislation of the Foreign Assistance Act in 1961 stipulated to substitute the donation of economic aid by loan.

Korea to demonstrate quite an impressive performance, and this observation certainly encouraged the reluctant but cornered South Korean government.

As a starter of export promotion policy, Park Chung Hee government abolished the multiple foreign exchange rate system, and devalued the exchange rate from KRW130 = US\$1 to KRW255 = US\$1 in May 1964 to mobilize the grand scheme of the export-led growth.²⁸ Under this new exchange rate the hourly wage rate of a South Korean worker was determined at 10 US cents, which was just as high as half of the Taiwanese wage 20 cents. At the same time the government joined in GATT in 1967, repealed most of other ad hoc trade restrictions and subsidies including export-import link system, and maintained only a minimal extent of restrictions in order to protect infant industries and the balance of payment. This measure had clearly improved profitability of activities exporting manufactured goods without provoking any rent-seeking behaviors.

6.2 Quantitative and qualitative changes of the Korean export

The exchange rate reform alone was not sufficient enough to create a significant improvement in export performance from what was almost nothing. Scarce foreign exchanges were to be rationed among exporters so that they might use them to import materials and equipment which were needed to produce goods to export. Provision of fiscal and financial incentives was needed in order to improve the profitability of export activities. The South Korean government designed various incentive schemes, in order to promote the export, which is to be explained later.

All these export promotion policy was effective indeed to accelerate the growth of export at the impressive annual rates of 27%-47% in nominal terms. The export performance is summarized in Table 2, and it shows how rapidly the South Korean export had been expanding during 1960s. Although the volume of export was only 0.7% of the GNP in 1955, it soared up to 10.2% in 1970.

Since South Korea was a resource-poor country and its agriculture was not a well-developed export industry as already indicated, she could

²⁸ KRW implies the Korean Won, which is the currency unit of South Korea.

export only a limited amount of natural resources and agricultural products however serious was her foreign exchange situation. A rapid increase in export beyond this limit could only be made possible from other source such as manufacturing industry. Therefore the industrialization effort itself was the foundation of the remarkable performance in export. Of course industrialization does not necessarily imply expansion of export in general. In South Korea, however, rapid increase in export was impossible without industrialization, and vice versa.

Table 2: South Korea's Exports, 1955~1970²⁹

	Total Exports(\$million)	growth(%)	Exports/GNP(%)
1955	18.0	-	0.7
1956	24.6	36.9	1.0
1957	22.2	-9.7	0.6
1958	16.5	-25.9	0.6
1959	19.8	20.4	0.7
1960	32.8	65.7	1.4
1961	40.9	24.5	1.8
1962	54.8	34.1	2.0
1963	86.8	58.4	2.9
1964	119.1	37.2	3.9
1965	175.1	47.1	5.8
1966	250.3	43.0	6.6
1967	320.2	27.9	7.1
1968	455.4	42.2	8.1
1969	622.5	36.7	8.8
1970	835.2	34.2	10.2

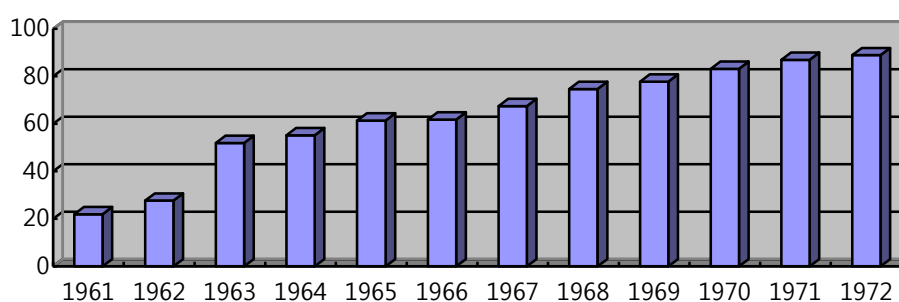
Source: Bank of Korea, on line service (Oct, 2008)

Note: The growth rates of exports are measured in current prices.

²⁹ This table is quoted from Junggho Yoo, "How Korea's Rapid Export Expansion Beg in 1960s: The Role of Foreign Exchange Rate," Working Paper 08-18, KDI School of Public Policy and Management, 2008.

The content of export naturally shifted away from the traditional structure to a modern one along with the augmentation of export volume, so that the share of manufactured goods rose from 22.0% in 1961 to 88.9% in 1972. This change reflects the process how the South Korean economy initiated the modernization of its industrial structure during the decade of 1960s. Fig. 1 summarizes this trend.

Fig. 1 Share of manufactured goods in export (%)



Source: Annual Trade Statistics,

It was one thing to set the exchange rate at a proper level but quite another for South Korea to actually produce *any modern* manufactured goods to export at profit. The Korean manufacturers could afford to produce only simple labor-intensive goods such as plywood, garments, shoes, wigs, and assembly of simple electronic equipments, and had yet to understand and accommodate the international standard even for these simple items. Incentive systems were revised to stimulate the producers to dare to undertake the production of simple labor intensive goods for export. On the other hand, import was strictly controlled in order not only to protect import substituting manufacturing industry from worldly competition but also to defend the ailing balance of payment that would be suffering from chronic deficit until 1978.

6.3 Subsidies to export

In addition to the exchange rate reforms, a package of fiscal incentive schemes was provided in order to encourage export. Income taxes on

earnings from export were reduced by 50% (1961), the exports and the intermediate inputs into exports were exempted from sales taxes (1961), the exporters were allowed the accelerated depreciation (1966), import tariffs were exempted to exporters for the import of intermediate inputs to produce export goods (1961) and to indirect exporters (1965), lenient wastage allowances for duty free import of materials were granted in proportion to export performance (1965),³⁰ and privileged approval on civil appeal in connection with export activities, and etc. On the other hand the government repealed the direct subsidies to export and the export-import link system in 1965. The system of export subsidy thus became entirely indirect one.

The *export loan* was designed to subsidize every export: any exporter was entitled to a bank loan at low interest rate, even lower than the deposit rate. For instance, it was set at 6.0% when the deposit rate was raised up to 26.4% in 1965. The amount of the loan was stipulated to be proportional to the export record, which makes the scheme a strictly performance-based one. It was set KRW200 for US\$1.- in 1965, when the exchange rate was KRW255 = US\$1.-. Exporters were practically receiving almost the entire revenue as soon as they got the L/Cs from their foreign buyers. Export loan was a type of the policy loan, which is to be explained later. The Fig. 3 in 5.4 shows the trend of interest rates for the period 1965 – 1979.

Now let us assess the total amount of subsidies awarded to the export throughout the entire stages of the South Korean economic development. One obtains the amount of subsidy per dollar export by dividing the total amount of fiscal and financial subsidies in KRW by total amount of export in US\$. The relative size of subsidy to export each year is calculated by dividing this figure by the exchange rate of that year, and the results for the period from 1962 till 1987 are given in Fig. 2.

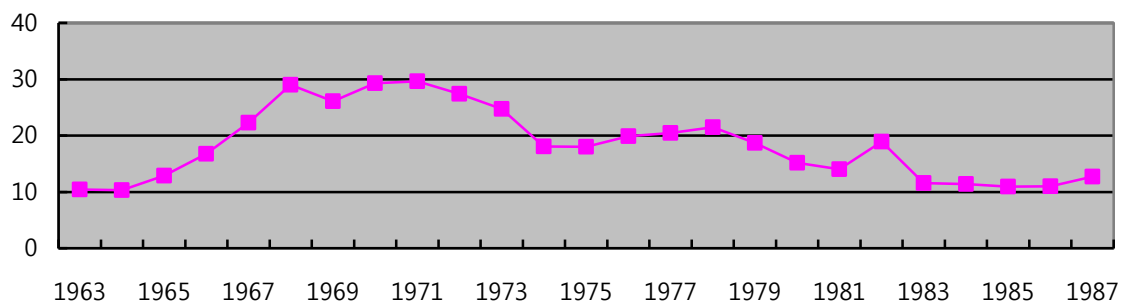
The total subsidy was the highest 29.65% in 1971 and the lowest 10.30% in 1964. High subsidies continued throughout the late 60s and the entire 70s. Export of one US dollar in 1964 would give the exporter as

³⁰ The portion of imported materials, which were left-over from production of order ed amount for export, was allowed for production of goods to sell at the domestic market. As Korean consumers were happy to pay high price for the goods produced from these left-over material, so the lenient wastage allowances used to be effective to stimulate incentives to export.

much as $281(=255 \times (1 + 0.103))$ KRWs in 1964, instead of 255 KRWs which represents the ongoing exchange rate. This means that the exchange rate for the export sector in 1964 was effectively devaluated further by 10.30%, which was exactly the amount of export subsidy in the same year.

So the export subsidy is nothing but a sector-specific devaluation of exchange rate for export. In this sense the effect of export subsidies is hardly different from that of the multiple exchange rate system which maintains higher exchange rate for export activities. One may compute the yearly effective exchange rates for export sector from the data of Fig. 2 for each year. It is to be noted that Fig. 2 underestimates the amount of export subsidies, because it does not include non-pecuniary subsidies such as raising the extent of wastage allowances.

Fig. 2 Subsidies to export(%)³¹



5.3.4 Export drive policy

In addition to all these subsidies, the Korean government led the export promotion most actively by executing export targeting system, which set the target amount of export and closely monitored subsequent performances. If exports were stagnant in some sectors, then the deterrent factors would be quickly identified and cleared off in timely manner.

³¹ The data is quoted from Hun Chang Lee(1999). See Hun Chang Lee, Economic History of Korea, Bummunsa Publishing Company, Seoul, 1999, p.444. (in Korean).

This system worked because President Park Chung Hee himself presided the Expanded Monthly Conference for Export Promotion, in which all the leading officers of economic ministries and businessmen attended, listened to the problems, developed the remedying solutions, and the president ordered directly to specific officer to implement the solutions. The president checked the details as for how these orders had been implemented, and each officer was evaluated and promoted-or-penalized precisely by how he performed in carrying out this implementation.³² In other word, the export targeting system had been driven by a most effective governance system.

The Korean government also established a public entity, the Korea Trade Promotion Corporation (KOTRA), in order to provide the small and medium sized exporters with marketing information abroad. The world market was an entirely new and strange frontier to most South Korean exporters, and they depended crucially upon the information provided from KOTRA to find new markets and buyers.

The government policy of all these export-promoting measures deserve the term “Export Drive Policy.” While the South Korean economy was not endowed with sufficient amount of any natural resource to export, it had a huge size of population as large as thirty millions. If the government could provide right incentives to train its people into productive workforce and to provide them with right jobs, then the millions of mouths to feed now would change themselves into valuable asset of skilled hands in future.

5.3.5 Import control

The other side of export-promoting trade policy was to control imports. Imports were strictly restricted except for the absolutely necessary items such as petroleum and intermediate materials for export. There are several measures to control import: simply prohibit import of listed items, or set high tariff and non-tariff barriers to targeted items. Furthermore, by maintaining a full control of foreign currencies, the Korean

³² Kwang Suk Kim and Joon-Kyung Kim, “Korean Economic Development: An Overview,” in *The Korean Economy 1945-1995; Performance and Vision for the 21st Century*, Dong-Se Cha et al eds., 1997, The Korea Development Institute Press.

government effectively approved every import by allocating foreign exchanges only to the approved ones.

A positive list of importable items was announced until 1967. This system was changed to the one announcing a negative list of items under import restriction, as Korea joined GATT in the same year. The number of items on the negative list, however, tended to increase rather than to decrease over time as the Korean economy began to undertake more and more of import-substituting industrial projects to protect in heavy and chemical industries. Although tariff rates were reduced for the items if the Korean products could compete successfully with foreign products, they were rather raised up whenever more protection seemed necessary. Import control had not been relaxed in effect until the USA, which used to be the largest export market of South Korea, demanded strongly to open the Korean market in 1980s.

The main purpose of import control was to avoid wasting the scarce foreign exchanges in importing unnecessary goods and to protect newly burgeoning infant industries from ruthless competition from abroad. The Korean government intended to protect only those infant industries that would grow up eventually as globally competitive ones. Import control, however, cannot eliminate unintended protections, since it is not possible in general to raise all the infant industries into success without a single failure. One may expect that this possibility would be effectively countered by a complex and innovative array of export promotion schemes. The unintended protection in South Korea, however, had not been fully controlled until the new age of WTO barred all the protection and forced every member country to open its market.

The nature of the trade policy in 1950s was basically aiming at import substitution, and much of it coexisted with export promotion policy newly introduced in 1960s. In general the export promotion policy makes export more profitable than sales in domestic market, while the import substitution policy makes domestic sales more profitable than export. The effects of two conflicting trade policies tend to offset each other, and it was alleged that the net effect was almost neutralized for South Korea in 1960s.³³

³³ Larry E. Westphal and Kwang Suk Kim, "Korea," in Bela Balassa eds., *Development Strategies in Semi-Industrial Economies*, The Johns Hopkins University Press, 19

This argument arises from comparison of quantitative measures on effects of two policies, and therefore, is somewhat misleading. Except the overall tariff rate, the effect of import control goes only to the items under control, while that of export promotion goes to all the items. Although the overall effects cancel numerically each other, the effects on individual items are different: the effect of import control is concentrated only to those under control, while that of export promotion is evenly distributed. Numeric cancellation of overall measures implies that both policies in fact had been effective on individual items.

<BOX> Export promotion and the explosion of export in 1960s

An interesting feature of Table 2 is the rapid increase of export during the period 1960-63, when the export promotion policy had not been fully executed yet: the annual growth rates recorded astonishing 24.5%-65.7%, each of which is by no means lower than any yearly figure for the later period. This expansion followed three consecutive devaluations of KRW which changed the exchange rate from 50:1 to 130:1 during the period 1960-61.

Some economist viewed this feature as the evidence that it was not the extensive package of export promotion policies implemented by Park Chung Hee government, but the earlier devaluation of domestic currency, which generated the explosion of the Korean export in 1960s (Yoo, 2008). During the period 1961-64, the share of manufactured goods in export rose from 22.0% to 55.2%. One may indeed be tempted to take this numerical rise as the beginning of the Korean industrialization in earnest.

The increase of manufacturing export, however, was not from newly built modern manufacturing plants but from higher utilization of idle capacity of the traditional plants. New investment was negligible in private sector and the items of the manufacturing export were quite traditional. Only plywood was the noticeable new export item at the time. One may argue that the trend of increase in export for 1961-64 could have failed to continue, unless other measures had attracted new investment into export sector to empower it. Nobody, however, knows

for sure, since there is no way to confirm it.

The Korean economy was facing a huge demand for foreign exchanges in order to finance the construction of many modern plants at the time, and the export, though began to rise rapidly, was far too small to earn sufficient amount of foreign exchanges to cover these needs. The US aid, which was to sharply decline soon, financed 70% of import in 1960, as we saw in 3.4.

It is fair to say that the South Korean economy needed, in addition to the exchange rate reform, a wide range of development policies which would invite huge amount of capital to build the infrastructure and industrial facility, and would encourage export in order to earn sufficient amount of foreign exchanges to pay for them. Foreign exchange rate reform would certainly be effective in encouraging export, but it alone would by no means be able to set the industrialization of a traditional agrarian economy in motion.

5.4

5.8 Performance of a decade 1962–1972

The South Korean economy had encountered so many problems during the first decade of industrialization as we noted so far, but achieved a rapid economic growth at an average annual rate 8%. Per capita GNP rose from 87 US dollars to 319 US dollars, and the annual export increased from 55 million dollars to 1.624 billion dollars in current prices. Also the share of manufacturing industry in GDP expanded from 14.4% to 22.2%. Every index had confirmed an earnest industrialization in progress, and ongoing industrialization created many new jobs driving down the unemployment rate from 8.1% in 1963 to 4.4% in 1970.

But there arose still a spate of new problems even after those early difficulties in inducing the foreign capital had been effectively taken care of. First, the swollen volume of foreign commercial loans had boosted the debt service ratio (DSR) from 5.2% in 1968 to 20.4% in 1971.³⁴ Mounting load of repayment prompted government to shift away from the

³⁴ The DSR is defined as

$$\text{DSR} = \text{Debt service payment}(\text{principal} + \text{interest}) / \text{Export earnings}.$$

commercial loans to foreigners' direct investment in foreign capital policy. But the attempt was unsuccessful and still the commercial loan was the dominant form of inducing foreign capital, which enabled Korea to build up modern industrial facilities.

Second, many companies which borrowed from abroad under sovereign debt guarantee had gone bust amidst the mounting volume of debts, so that the guarantor banks had to take over the burden of their repayment. Insolvency occurred mainly in heavy and chemical industry, which was aiming at import substitution of intermediate materials. The government intervened to restructure ailing companies by changing their ownership by selling off at loss or putting them under the control of the guarantor bank. There were 147 firms which had attained the commercial loans from abroad, and 121 of them were running business normally, but 26 were in serious trouble as of 1971.³⁵

That insolvency occurred mainly in import substituting sectors meant that business was tougher at home than abroad. For instance, although an import substituting firm produced material for exporters, it cannot sell its product since those exporters preferred imported material to the localized one in order to maintain the quality of their export goods. The exporters managed to export their outputs, but the import-substituting producers struggled abortively to find their market.

The overheated investment, encouraged by active development policy, eventually turned the economy into recession and shrank the domestic market further. Import substituting firms intensified the competition in the domestic market, and consequently, they ran into financial difficulties together with many small and medium-sized enterprises (SMEs) engaging in domestic supply. Although the demand for emergency fund exploded, the tightly controlled bank loans could not meet them. The market interest rate for the private financing soared up to murdering annual 46% which was much higher than official lending rate 15.5%. The entire corporate sector had to resort to money market of high interest rates and naturally ran into crisis. Considering the inflation rate 11.9% and the rate of the GDP deflator increase 17.2%, the real rate of interest for private financing was not lower than 29%.

³⁵ Ministry of Finance • Korea Bank of Industry, *op. cit.*, 1993, p.130.

The Korean government promulgated an emergency decree on August 3, 1972, that froze all the transaction of private financing in the curb market. The decree ordered the firms to report their status, the lenders to lower the monthly interest rate to as low as 1.35% which is below 1/3 of the original level, waiver the repayment for 3 years, and etc. This action is called 8·3 decree. It certainly was not a market friendly action at all, but was necessary to save many SMEs.

Many major companies were found that their owners had put their personal money into their own companies as private loans and siphoned out the companies' money into their personal pockets by means of interest payment, driving their companies to the brink of bankruptcy. Even entrepreneurs of major companies were not much confident of the prospect of the Korean industrialization, and were busy taking out cash from their own companies³⁶ as much as possible. All these firms were not at all able to get any state subsidy including bank loan any longer, and had actually disappeared indeed precisely as the owners' pessimism had anticipated.

The U.S. distributors found that the Korean manufacturers, under the export promotion policy of the Korean government, could produce simple labor-intensive goods of satisfactory quality at lower costs than their U.S. competitors, who had to pay much higher wages to the U.S. workers, and began to import the Korean products. This new demand encouraged many small and medium-sized Korean producers to produce export goods such as garments, shoes, sweaters, wigs, eyelashes and so on, and the employment of this newly born sector began to soar up rapidly.

These small actors were the major players of the Korean export sector that had burgeoned in 1960s, but they could not yet afford to act as reliable customers for the localized intermediate materials, the production of which had just started at the same time. The Korean producers managed to produce and export simple labor-intensive light manufacturing goods, but had not been quite ready to produce the intermediate materials of acceptable quality, which demanded more complicated technologies and experiences.

Another factor underlying the sluggish performance of material

³⁶ Most of the Korean companies then were not made public.

production sector might be its limited scale of plant. The Korean export then had not been generating a sufficient amount of demand for materials, and had led the scale of each import substituting plant, who could not market their outputs directly to foreign buyers at all, well below the minimum efficiency one, failing to make use of scale economies intrinsic in material industries. Import substituting firms could have offered neither stable qualities nor cheap prices for their products in spite of the cheap labor.

5.9 From import substitution to the export-led growth

The US policy of the post-Korean War aid had built an industrial base of light manufacturing in South Korea which depended exclusively upon foreign equipments and intermediate materials, provided free as part of the aid. The US aid was due to end sooner or later and the Korean economy needed alternative means of acquiring equipments and materials other than the aid in order to keep the newly built industries in operation at least. Foreign exchange earning was urgent to fill the vacancy of the US aid. South Korea, however, was neither endowed with lucrative natural resources in abundance, nor blessed with competitive agriculture, either of which might be able to provide the Korean economy with foreign exchanges through its export.

The seemingly bold adoption of the export-led growth strategy to export manufactured goods in 1960s, when many development economists such as Raul Prebisch were advocating for import-substituting industrialization, was an inevitable choice for Korea in hindsight, since the shortage of foreign exchanges was to drive the Korean economy to the brink of bankruptcy otherwise. The Korean policy makers, no matter how intimidating the idea of export-led growth was initially, arrived at the conclusion that the Korean economy must try to build up manufacturing as the export industry for survival as well as for further development. There was nothing to lose for South Korea anyway.

The Korean government, however, implemented both policies of export promotion and import substitution together at first. Most of the policy makers believed in import substitution industrialization but were forced

to choose the export promotion policy in face of precarious shortage of foreign exchanges. The foreign capital, induced during the period 1959–69, was allocated to the manufacturing industry as much as 46%, the 60% of which was spent in the heavy and chemical industry. The share of the heavy and chemical industry in manufacturing output rose from 30% in 1964 to 40% in 1970, but it remained below 30% in export until 1973. This means that the Korean government allocated more resources in developing the heavy and chemical industry, which was basically substituting import, than in the manufacturing exports. The strategy of the Korean industrialization up until 1973 was more import substituting than export promoting in that sense.

The superior performance of export promotion strategy, however, became more and more evident as time passes by, and this observation encouraged the Korean government to repeal measures for import substitution and to expand the export promoting policy instead. Export-led growth strategy had not been confined only to the development of light manufacturing industry. The Korean government extended the same strategy to the ambitious project of building heavy and chemical industry as well. Successful development of heavy and chemical industry would substitute local product for the imported materials, and hence achieve the goal of their import substitution, too.

Adoption of the export-led growth strategy for heavy and chemical industry in 1970's consummated the outward oriented nature of the Korean government policy for the export-led growth. It was more adventurous for Korea to export products of heavy and chemical industry in such an early stage of industrialization than to export light manufacturing products. The presidential office overruled the plan of technocrats of government, who were much cautious to promote the exports of only electronic and ship building industry, and decided to develop all the heavy and chemical industries as export industries..

7. Stages for export-led growth – economics and technology

7.1 Modern technology of manufacturing from the perspective of economic development

A modern manufacturing activity is carried out along a sequence of production stages, which comprises a wide range of technological difficulties and sizes in capital requirements. In general the production of core parts and components of a high value-added equipment requires highly complicated technology, the materials come from both capital- and technology-intensive production process, some processing requires dexterity of high level, and only the assembly of simple final goods is simple labor-intensive. Therefore the assembly stage fits best to start with for a developing economy to initiate industrialization, and that only when its business environment is properly aligned to fit modern industrial practices.

Technology is a most important factor underlying the foundation of modern society. The meaning is so profound that it is very difficult to define it in a short sentence, and indeed very hard to find out its formal definition in literature. One may only try to specify the nature of technology as the need that she faces prompts. The economists, for instance, define the technology as the numerical relationship between inputs and outputs.³⁷

It is utterly important for a developing economy to assimilate advanced technology throughout the entire stage of economic development. A good strategy of assimilation comes from a proper perspective on the nature of technology. It is all the more so, since the world of technology is conceptually quite bewildering.

When viewed from the perspective of economic development, the manufacturing technology may be classified into four different categories: Research and Development (R&D), Design, Production Management, and Processing and Assembly.

³⁷ The Merriam-Webster dictionary offers a definition of the term: "the practical application of knowledge especially in a particular area" and "a capability given by the practical application of knowledge".

R&D A (new) manufactured good is born at first as an outcome of R&D activities. R&D applies scientific knowledge to develop a candidate for the prospective commodity which is supposed to carry out some designated physical functions. Scientific theory gives rise to the basic principle and structure of the commodity and its function is confirmed by experiments in laboratory. Naturally R&D requires high level of advanced scientific knowledge and its manpower is composed of scientists with academic degrees of doctors and masters.

Design It is the job of design engineers that takes over this experimental commodity and specifies every detail of its structure so that it may be produced and reproduced in any factory. They consider not only the technical feasibility of production but also the economic profitability, namely the market prices of each material and component, and thus determine the structure at the cheapest cost under the given quality standard. This much is called the *product design*.

Production lines and factory outlay must be arranged according to the product design so that the actual production may be successfully implemented. Development of optimal factory outlay is the task of the *process design*. Process design splits the production activity into interrelated but specialized tasks and allocates manpower and space for each task. Efficiency of production work crucially depends upon how the tasks are split, how the manpower is allocated, and how the factory outlay interrelate activities of those tasks. A better process design saves cost better for a given quality level of the commodity under the given product design.

The manpower of design, both in product and process, need at least college education in engineering and also factory experience to a certain extent. An industrialist must possess both product and process designs in order to build a factory and operate it.

Production Management Workers are assigned and located to each task according to the process design. It is important to coordinate the performance of specialized tasks in order for the whole production process to operate without any interruptions. The production manager monitors the performance of each task and controls the speed of job in

each stage of process. The manager must understand everything of the nature of the product and the production process, i.e., both of product and process designs in his jurisdiction, and must be able to award assistance to workers in trouble.

The manpower of production management usually requires college education in engineering.

Processing and Assembly Factory workers undertake the assigned specialized tasks to process the material and to assemble the parts and components. This kind of human labor is the “labor in narrow sense” devoted directly to production of goods. Some jobs require highly skilled techniques, while others just simple labor. Workers attain skills from vocational schools, professional training centers and on the job training. They are not engineers but technicians. The education of college level is not necessary but experience and skill is more valuable for technicians.

These four categories of technology are clearly separated but are not independent of each other. If the production manager encounters the same kind of coordination problems over and over, then it is most likely that there is a fundamental flaw in the process design. If the line workers have better understanding about the entire process, then they can be more cooperative with the coordination of the production manager. Mutual communication and understanding will significantly improve the efficiency of production. The same is true as for between product designers and process designers, and between R&D scientists and the product designers.

<BOX> Technological change from preindustrial age to modern times

In the preindustrial age, things were manufactured by a single artisan working with several assistants. The artisan “designed” the product and the shop layout, and carried out all the associated physical works with the assistants. Sometimes he develops out a new good. It was the artisan that undertook all the four functions of technology as described above. The artisan was the R&D scientist, design engineer, production manager and the skilled worker at the same time.

As the division of labor in production developed itself into highly specialized pattern, so did in the technology. Artisans did have accumulated plenty of practical experiences in preindustrial age, but had never had any chance for education of scientific knowledge. Naturally R&D activities had been based on experiences rather than scientific knowledge until lately. It was not until late in 19th century that the scientific knowledge was introduced into industrial technology. This incidence had facilitated the division of labor in production technology too, since the traditional artisans were not able to make use of advanced scientific knowledge.

The science-backed R&D began to generate a great many innovations, and consequently the design and the production management needed new technological level beyond the reach of skilled artisans with only the practical experiences. Modern technology has created a new structure based on those four layers, where the science-backed upper three layers of R&D-Design-Production Management lead the experience-based lower layer of Processing & Assembly.

6.2 Accommodating modern manufacturing in the developing economies

A typical developing economy lacks capability in all the four areas of modern technology. Nonetheless the indispensable task is to build modern factories first, if the economy is to start any industrial activity at all. The manpower may not be able to understand the designs of the product and/or the process nor to manage production process, and their technicians may not be skilled enough to carry out the tasks of processing and assembly. But it is quite clear that no industrial activity is possible without factories.

Undoubtedly, a developing economy has to rely on the assistance of advanced countries both in building and operating modern factories. Indigenous workforce is desired to be organized so that they may not only carry out their role properly in current production but also acquire the related know-how from foreign experts in most efficient ways.

It is certainly easier for the manpower of developing economy to start with by building and operating the factories which produce simple products than those which require cutting edge technology. Nonetheless

even in such cases of simple products they need technological assistance from the advanced countries. Very often they have to buy the design of a product and need tutoring in order to understand it. Foreign engineering company builds the factory for them, and they have to invite production managers and technicians from abroad, too. So the most manufacturing activities start by the foreign hands in the early stage of industrialization of a developing economy.

Indigenous manpower is attached to each foreign engineer and/or technician as an assistant. These assistants are supposed to help the foreign managers and operators and, more importantly, to observe and learn from their foreign masters how they are carrying out their tasks. The indigenous assistants will eventually take over all the roles from their foreign masters, and then most of foreign workforce retreat to their home countries except some who remain as advisers.

Even these foreign advisers will eventually leave the country when the indigenous workforce absorbs most of the know-how as for the operation of factory, and in the end no foreigner will be spotted in the factory site. It is purely the indigenous workforce that operates everything of the factory without any resident foreign adviser. Now does this fact imply that the developing economy has finally attained the technological independence as far as this factory is concerned? Hardly so.

Although the Production Management and Processing-Assembly constitute the core of technology for factory operation, its full command requires still more, as much as the Design technology in addition. A fundamental problem in factory operation, if any, originates from deficiency in design, and therefore, this deficiency must be taken care of properly by a new revised design. The retreat of foreign advisors only means that the indigenous workforce has attained a sufficient level of the technology for Production Management and Processing-Assembly, so that the consulting needs have been reduced to minimum. It does not mean that indigenous workforce has attained even Design capability. Fundamental troubles from design deficiency may occur but only rarely, and the foreign advisers will visit for trouble-shooting when such problems occur.

Companies of industrialized countries are often willing to transfer

technologies in Production Management and Processing-Assembly to developing economies in order to make use of cheap labor there. But every company tries to protect their Designs and R&D products in secret. Some companies do not allow any opportunities for outsiders to observe their product designs and factory outlays. Of course they transfer a necessary minimum of design information to their partners in developing economies when they decide to invest there. But they do not want in earnest their partners to be independent in Design and R&D and rise up as their potential competitors.

Workforce in developing economies begins to learn about designs of product and process under cooperation from their partners of advanced countries at first. Their partners, however, will not reveal any design information for products other than the one under cooperation at all. In order to find out the structure of a new product, they have to take apart a multiple units of it to investigate, and try to restore a design from such experiments. This backward process from commodity to design is called *reverse engineering*. The practice of reverse engineering is known to be most effective way for the manpower of developing economies to acquire Design capability.

The next obstacle is the patent right. One may succeed in reverse engineering of a new innovation, but this does not mean that he can start its production. The patent holder A of an advanced nation is reluctant to extend the full license to a firm B of developing economy when the prospective licensee B is likely to grow up as a threatening competitor sooner or later. The firm B must recruit capable manpower in order to bypass the patent barrier and develop a third innovation by itself.

Developing country sends hundreds of students to the universities of advanced countries, and many of them choose rather to get jobs in companies there than to return to their home countries after they attained the advanced academic degrees. This phenomenon is the so called *brain-drain*. This brain-drain, however, turns into a bonanza of advanced manpower when the companies of their mother country begin head-hunting in search of the state-of-the-art technology. Most of them are over their peak years, but are very useful for developing countries. While their employers of advanced countries are not reluctant to release them, the companies of developing economy are willing to make pleasing

job offers to them. These experienced scientists and engineers will crucially contribute for companies of developing nations to attain some degree of independence in cutting-edge technology. The so called brain-drain was in fact not the drain but opportunities for extended training at the supreme level.

Also there are many retired experts in advanced countries. Developing economies often scout foreign experts in order to attain technological assistances on individual basis. This type of assistance is different from the one which is provided by the contracted partner company of advanced countries.

6.3 Export of simple labor-intensive goods – The Stage One

The Koreans were to learn the wisdom of industrial activities from the industrialized countries, and needed foreign exchanges to pay for this lesson. The fee was mainly composed of the prices for capital goods and materials, royalties for the licensed technologies, consulting fees, and etc. The resource-poor South Korea had to export industrial products from the very early stage of industrialization in order to earn foreign exchanges, needed for payment of this fee. The pressing need for foreign exchanges had set the export-led growth from an option to an imperative for South Korea to industrialize itself in cooperation with advanced economies.

But items of the Korean exports were quite limited to those of primary industry at the time, the quantities of which were not to be expanded easily. Export of manufactured goods was inevitable for expansion of export to a sufficient extent, which will empower successful execution of the export-led growth. Big buyers in global market, however, were from those industrialized countries, the U.S.A. in particular, where the industrial outputs were already in abundance. It was true that the Korean industrial products could by no means compete technologically with any of those made in U.S.A. and other advanced countries; the Koreans might be able to produce only the simple labor-intensive items at best nearly as good as those produced by workers of the advanced countries.

The distributors of the advanced countries, and ultimately their consumers, were interested only in such products since their soaring

wages pushed up prices of such goods produced at home. The Koreans made use of their low wage to offer low prices for those items with similar quality. The range of the Korean industrial activities was accordingly limited to light manufacturing in simple labor-intensive goods, such as garments, sweaters, shoes, wigs, eyelashes, plywood, and so forth.

In the Stage One of export-led growth, the Korean government straightened out institutional and regulatory distortions in favor of export, and encouraged the export manufacturing. The exporters were allowed to import machinery and materials necessary for production of export goods on duty-free terms. Many small and medium-sized exporters emerged in response to various incentive schemes including standard fiscal and financial subsidies.

Active as the Korean exporters were, they were not leading the trade. The buyers, who were the major distributors and traders of advanced countries, came over to Korea, inspected the production facilities, and sent orders with specific instructions, with which the Korean producers simply had to comply. The Korean exports were sold not on their own brand but on the brand of the foreign buyers, the original equipment manufacturers (OEM). Naturally the entrepreneurial role was quite limited for the Korean exporters, and the orders used to be so specific that it was not possible for them to choose their machinery and materials at their own will. Nonetheless the exports provided South Korea with valuable foreign exchanges and its workers with jobs.

6.4 Expansion of export base to materials and equipments – The Stage Two

A fully industrialized nation must be able to produce a wide range of manufactured goods, not just the simple labor intensive ones. In most cases where an industrialized economy imports manufactured goods from abroad, it is not because the country cannot produce them but because it is cheaper to do so. Successful industrialization is the one that must award a developing economy with capability in various manufacturing activities from simple labor-intensive to complicated technology- and capital-intensive ones covering all lines of technologies from techniques

of assembly and processing through designs to R&Ds.

As the volume of export expanded rapidly, so did the demand for the imported materials and equipments. The Korean government planned to make use of this surge in demand for localization of materials and equipments. Local manufacturers were encouraged to undertake import substituting production of these materials and equipments, and exporters were directed to use local products in production of their export goods. In a word the heavy and chemical industries were the natural next target to develop after some successes in the Stage One.

The plan, however, did not work out as intended. The production of materials and equipments required more complicated technology and larger amount of capital, and furthermore, the economies of scale prevailed there so that the minimum efficiency-scale far exceeded the total domestic demand including all the export uses. Also rigorous standard of foreign buyers insisted upon the use of foreign-made materials and equipments in order to maintain stable qualities for export goods, rather than localized ones which were still flat inferior.

A drawback in quality was not tolerated by foreign buyers, even though there were substantial advantages in prices. Local producers had to meet the quality standard at any cost, but could not enjoy the scale economy since the import-substituting plant scale was still far below the minimum efficiency-scale. Even those massive state subsidies could not make up for the losses. Unlike the remarkable success in the Stage One, many import-substituting ventures aiming at the Stage Two in 1960s ran into serious troubles as explained previously.

This failure prompted to revise the plan of building the heavy and chemical industries from import substitution of foreign materials and equipments to export promotion of their own. Koreans decided to undertake the much ambitious project of building globally competitive grand ventures in heavy and chemical industries despite their premature industrial capability in both technology and capital. These difficulties in technology and capital were expected to be outweighed by the efficiency from large production scale aiming at export beyond the limited domestic demand.

Although they encountered a number of difficulties in the process, they finally made way through all the obstacles to establish another surprising

industrial power in the end of the twentieth century. There were many turbulent ups and downs, and we will address this topic soon.

6.5 How to make use of market in economic development

The government of a developing economy usually intervenes in the market in order to facilitate its industrialization. At a glance it seems to imply that the market as it is often works against the transition toward industrialization, and the government intervention must substitute market mechanism in order to promote economic development.

We noted in Chapter 4 that the nutshell of economic development is a process of upgrading the frame for division of labor after all. It is the market that coordinates the social division of labor, and therefore, the crude market of a developing economy is partially blamed for its poor economic performance. Elaborate market of the advanced countries leads capable entrepreneurs to generate high living standard, while the inferior entrepreneurs are not capable to retreat poverty under the stumbling coordination of immature market in developing economies. It is no wonder that standard development policies of a developing economy used to restrain its market mechanism to a substantial extent.

It was also argued previously that the economic development would be in fact a process for a developing economy to learn from and emulate the advanced economies. International trade not only promotes global division of labor but also provides the developing economies with opportunities to attain these lessons. The strategy of export-led growth will, if successful, achieve economic development not only by actively participating into global division of labor but also by comprehensively learning the know-how of running industrial economies from the advanced world.

International market is practically the market of advanced economies as the lion's share of global purchasing power lies there. Thus the global market is much more elaborate than the crude domestic ones of developing economies, and the signals from the global market are to be duly respected by all the countries who adopted the strategy of export-led growth. Furthermore, the governments of developing economies are simply incapable to intervene in the global market after all. There is no

room for the government of a developing economy to substitute the state intervention for the function of global market; it can only withdraw itself from the global market by closing down its economy.

Export-led growth strategy is a development strategy aiming at actively joining in the global division of labor, and will succeed only when the developing economy retains a stable role in the global market. LDC governments must encourage their firms to follow the signals from the global market, and render assistance for their firms to grow up to effectively compete with other global firms. They had better distort the working of domestic market if such distortion helps their enterprises compete better in the global market, and not otherwise.

These interventions, however, are to be phased out in a timely manner as the quality of domestic market improves along with the performance of economic development. The strategy of export-led growth aims at fostering as many globally competitive enterprises as possible, which demonstrate impressive export performances. LDC governments cannot intervene the working of global market, and their intervention in their domestic market must aim solely at assisting their enterprises to grow up globally.

Such intervention would become unnecessary, once a sufficient number of their enterprises attain solid competitive basis in the global market, and the domestic market achieves a significant progress. All such state interventions are due to be repealed so that the domestic market may take over from the government the task of coordination for the social division of labor. A successful development policy adopts measures to replace the domestic market by proper state intervention in order to make a full use of the global market, but these measures must be repealed gradually in due time.

<BOX> The Washington Consensus

For many years the World Bank has been providing the third world countries with development loans. The developing nations in trouble with balance of payment problem have been relying upon the emergency rescue loans from the IMF. Both agencies, the World Bank and the IMF, developed a model of economic development from their experiences in

extending financial assistances to developing economies, and required the recipient countries of assistance to adopt policies suggested by the model. As the US Department of Treasury endorsed such actions, the model attained the well-known name of the Washington Consensus (John Williamson (1990)).

The recipe of the Consensus was briefly summarized as “Stabilize, privatize, and liberalize,” (Dani Rodrik(2006)) and was actively recommended to most ex-communist economies in transition, Sub-Saharan economies, Latin American nations, and some other nations hit by balance of payment problem. The performances of this recipe, however, were quite disappointing. The countries making the transition from communism to market economies are still in the middle of the unexpectedly deep and prolonged collapse in output after more than a decade of effort into the transition. The Sub-Saharan Africa underwent significant policy reforms and improvements in the political and external environments, and there was a continued foreign aid to this region. Nonetheless the countries in the region failed to take off. Also there were frequent and painful financial crises in Latin America, which were unpredicted by financial markets and economists until capital flows started to reverse very suddenly. Similar turbulences were also observed in East Asia, Russia, and Turkey.

Moreover, the rapid economic growth in China and India, which were attained independently of the Washington Consensus, brought forth an absolute reduction in the number of population in extreme poverty, while many nations who adopted the Consensus were still struggling behind. Both of China and India maintained high levels of trade protection, inactive privatization, extensive industrial policies, and loose fiscal-financial policies, each of which was exactly contrary to the prescription of the Consensus. The reform agenda of the Consensus eventually came to be denounced, at least by its critics, as an overtly ideological effort to impose “neo-liberalism” and “market fundamentalism” on developing nations.

The original Consensus summarized by Williamson proposed the following 10 measures:

1. Fiscal discipline

2. Reorientation of public expenditures
3. Tax reform
4. Financial liberalization
5. Unified and competitive exchange rates
6. Trade liberalization
7. Openness to DFI
8. Privatization
9. Deregulation
10. Secure Property Rights

and the new 10 measures were added to make the augmented Consensus in response to the criticism:

11. Corporate governance
12. Anti-corruption
13. Flexible labor markets
14. WTO agreements
15. Financial codes and standards
16. “Prudent” capital-account opening
17. Non-intermediate exchange rate regimes
18. Independent central banks/inflation targeting
19. Social safety nets
20. Targeted poverty reduction.

As for the ineffectiveness of the Consensus in practice, the World Bank Report explains “The principles of ... ‘macroeconomic stability, domestic liberalization, and openness’ have been interpreted narrowly to mean ‘minimize fiscal deficits, minimize inflation, minimize tariffs, maximize privatization, maximize liberalization of finance,’ with the assumption that the more of these changes the better, at all times and in all places—overlooking the fact that these expedients are just *some* of the ways in which these principles can be implemented.” The Report indicated a right point, since the same problem may have been caused by different contexts, and therefore, be solved by different solutions. For instance, incentives for private investment may be stimulated by improving the security of property rights in one country, but by enhancing the financial

sector in another. The attempts to copy successful policy reforms in another country often ended up in failure (Dani Rodrik(2006)).

An important aspect, however, is missing in recent discussions about the performance of the Washington Consensus. The Consensus recommended “Stabilize, privatize, and liberalize” as major theme of policies to developing economies in practice, although there are many others as in the list above. Except for the stabilization, both of privatization and liberalization demand the withdrawal of the government from the market. This withdrawal of the government will certainly eliminate the undue distortion of the market. It may not, however, be underestimated that the same withdrawal may also weaken the protection of property and contract right at the same time.

Freedom may be tolerated only when property and contract right is well protected. The governments of advanced nations have built up superior knowhow about protecting property right in free environment, while those of developing economies lack this knowhow. Developing nations establish public enterprises and regulate market severely, mainly because they do not believe in market. The other side of this disbelief, however, is the incompetence of developing nations to protect property right properly in free environment. It is this incompetence that holds back the market of developing nations to crude performance. Public enterprises and regulations are not only distorting the market but also protecting property right to some extent. Outright privatization and deregulation will introduce more freedom to market on one hand and forsake secure property right on the other. Augmented freedom accompanied by insecure property right will bring more damage than benefit, and many failures of the Washington Consensus may be the outcomes of this sort.

8. Toward the heavy and chemical industries in 1970's

8.1 The nature of heavy and chemical industries

The main body of the Korean export sector, developed in 1960's, was comprised of only simple labor-intensive light manufacturing activities, which, using the imported equipments and machinery, processed and assembled the parts and components, which were also imported from abroad, to produce cheap export goods. These industrial activities required minimum level of technology, skill and capital for developing economies to attain a relatively easy, though not very profitable, access to the global market, and rendered the unskilled Korean workforce most valuable opportunities of learning-by-doing as for how to run modern manufacturing enterprises and how to undertake international trade.

Heavy and chemical industries (HCI) produce equipments, machinery, parts and components, and materials such as steel, plastics, chemicals, and so on. The HCI products are mostly durable intermediate goods, and determine decisively the qualities of their downstream products. Technologies of HCI are relatively more complicated than those of light manufacturing industry, and the economies of scale prevail in most of HCI due to huge size of initial investment.³⁸ It is, therefore, more difficult to undertake the HCI projects than light manufacturing activities. Naturally only a limited number of countries can afford to run the HCI, and the global supply of HCI products is that much limited to make the industry profitable with higher product prices.

It is obviously not easy for developing economies to build up their own HCI. The minimum efficiency-scale (MES) easily exceeds the total domestic demand in many HCI projects for most developing economies, and therefore, they must find market abroad to sell substantial portion of

³⁸ The average cost of production declines as outputs expand under the economies of scale. This happens for industrial projects which require huge amounts of initial investments. The fixed cost is evenly spread out on each output, and it diminishes as more outputs are produced. The minimum efficiency-scale (MES) refers to the level of output where the average cost hits the lowest level. Thus any scale below MES will cost more for each output than the one at MES.

their HCI outputs in order to exploit the full benefit of scale economies. Global customers, however, are reluctant to buy durable and expensive HCI products from producers of developing economies without any established reputation.

An economy needs sufficient amount of capital, advanced technology, and most of all, internationally accepted reputation as an industrial power, in order to successfully undertake HCI ventures at profits. It is by no means an easy task in many respects for a developing nation to arise as an industrial power in HCI. There are a multitude of risks which will choke off private incentives to invest in HCI projects in most developing economies.

8.2 Promotion of the heavy and chemical industries

The Korean government extended the ambition of industrialization further by implementing HCI promotion plan after a decade of successful performance in building up light manufacturing export industry. A comprehensive overall plan was announced in January 1973 to promote 6 key industries of HCIs: steel, petrochemical, machinery (including automobile), electronic, shipbuilding and non-ferrous metal industries. Steel and non-ferrous metal industries produce basic materials; machinery, electronic, and shipbuilding industries produce intermediate and final products; and petrochemical industry produces intermediate materials and final products.

Several HCI projects, however, had already been moving well in advance of the overall promotion plan of 1973: the oil refinery was built in 1964, Pohang Iron and Steel, and Hyundai Shipyard, which are now POSCO and Hyundai Heavy Industry respectively, were also under way in early 1970s. Fertilizer factories in 1950s may also be taken into account as HCI projects.

The South Korean government had allocated more resources to import substituting HCI than to light manufacturing industry throughout 1960s, even though it was actively implementing the export-led growth policy during that period.³⁹ The attempt was not very successful after all as

³⁹ More of bank credit and foreign capital was allocated to heavy and chemical industries, although light manufacturing industries dominated heavy and chemical industri

many import-substituting HCI ventures went bankrupt. The HCI policy in 1973, however, differed from the previous one in aiming, beyond the import substituting purpose, at the export from the beginning.⁴⁰ The Korean government did not want to repeat the failure of restricting plant scale below the MES in order to meet just the meager domestic demand as in import substituting fertilizer plant in 1950s and similar ones for the HCI in 1960s. Also the deindustrialization of the USA and Japan allowed for a niche so that Korea might take over their pollution-prone HCI facilities and the market for their outputs. The carefully developed optimism for export of the HCI products encouraged Korea to build full scale HCI plants aiming at export, although the Korean leaders knew that exporting HCI products would be much more difficult than exporting light manufacturing goods.

As indicated in preceding section, it is not easy for the government of a developing economy to provide the private sector with effective incentives to invest in HCI projects. Previous failures prompted the South Korean government to design the nature of HCI policy into a version which was very much different from the one implemented to encourage the export of light manufacturing goods, where the government provided reasonable incentive schemes and then stayed one step back, leaving the final investment decisions to the investors in private sector.

Private investors, no matter how earnestly the government wished, had not been willing at all to make investments into projects of HCI, since they felt it too early for South Korea to start such ambitious projects then. Many professional economists shared the same view, too. The Korean government had to prepare packages of “excessive” incentive schemes on one hand and extraordinary measures to coerce firms into HCI projects on the other.

The Korean government selected promising private enterprises and assigned some HCI projects to them by arm-twisting along with lenient

es in value added throughout 1960s. About 60% of foreign capital, induced during 1959–1969, was put into heavy and chemical industries. See Lee Hun Chang, *A History of Korean Economy*, Bummunsa Publishing Company, Seoul, 1999, p.469 (in Korean).

⁴⁰ The petrochemical industry was planned to fulfill the domestic demand until 1980s, as the domestic textile industry generated sufficient demand for its product for the time being.

subsidy schemes. The Hyundai Construction Company, a private enterprise which had just demonstrated an impressive industrial performance in the grand project of constructing the Seoul-Busan Expressway, was cornered against its own will to undertake the large scale shipbuilding project by the President for instance.

Whenever a selected entrepreneur refused the assignment, the President, directly or indirectly, delivered a message that he would like to see the participation of the selected in the grand HCI project. No businessman in South Korea was bold enough to decline the wish of the President, as the powerful President could intervene so crucially in most economic matters. Everyone knew that he would not be able to attain any state subsidies thereafter, had he refused the President's proposal. Refusal meant the end to his business, while acceptance carried at least some positive probability of success though very low to the eyes of entrepreneurs.

The President, however, coerced into HCI projects only those entrepreneurs whose capability had been demonstrated in earlier industrial projects. Unfortunately there were not so many capable entrepreneurs for the government to coerce in the entrepreneur-poor Korea, while the HCI projects to develop were so numerous. In cases of the material industries such as steel and petrochemical, the government gave up from the outset the idea of encouraging private investment, and instead, established public enterprises to undertake the projects. The first oil refinery was built as a 50-50 joint venture between the Korean government and the Gulf Corporation, and subsequent ventures in petrochemical industry were also undertaken by public enterprises. The state-owned enterprises POSCO and Korea General Chemical Corporation had been established to start steel and petrochemical industries respectively in advance of the announcement of the HCI promotion plan. The Korean government not only "drafted" promising entrepreneurs but also established public enterprises as the core players to build the HCI.

In contrast there were several volunteers in the business of passenger car assembly since early 1960s. They started from assembling the semi-knock-down (SKD) components imported from Toyota or Ford to produce passenger cars to sell in the domestic market under foreign

brands. Although the domestic demand was far from being sufficient to support the MES of production for a comprehensive car plant, the import substitution of passenger cars was so profitable that the government had to control, rather than coercing, the entries and the annual outputs by means of control on the amount of SKD component import.

The Korean government began to force complete-knock-down (CKD) assembly in late 1960s, encouraging assemblers to expand the local content in the finished cars. In order to make use of scale economies, each assembler was allowed to have only engine and body factories under its direct control, and a single producer is assigned to specialize in production of a component, one for each. Many local products such as axles and transmission gears eventually attained acceptable quality in this manner.

The policy, however, shifted from specialization toward encouraging comprehensive car plants, which not only assembled the components but also produced many of them together, as the car industry began to export their products in the middle of 1970s. The comprehensive plants made use of the manpower fostered before by the specialized producers of components. The case of car industry shows that the Korean government was very flexible in implementing policies, consistently seeking for the economies of scale in the HCI promotion projects.

<BOX> The beginning of the Hyundai Shipyard

Mr. Joo Young CHUNG is one of several industrial heroes of South Korea who led the Korean Miracle of industrialization. As the founder of the Hyundai Group, Chung fostered the Hyundai Motor Company and the Hyundai Heavy Industry (initially Hyundai Shipyard) to the level of the world class enterprises now. He was originally running a construction company, and just began another new business of the passenger car assembly. After an impressive performance in construction of the Seoul-Busan Expressway, he was planning to concentrate in the passenger car business. One day the President Park who noted his excellent industrial talent demonstrated in the expressway project, however, called for him and suggested to start a large scale ship building project, promising a sufficient amount of subsidy.

Since he knew nothing about ship building but that it required huge amount of capital and must find market abroad which already was tightly occupied by the famous ship builders of the Europe and Japan, he was worried that the absurdly ambitious project might not only fail but also wipe out all the wealth of him and his companies. Furthermore, the world shipbuilding market began to decline and actually the recession in the sector continued until the middle of 1980s. After a careful study on feasibility of the shipyard project, he tried to explain to the President why the Korean economy in current stage of economic development might not try to start such an ambitious project of large scale ship building.

President Park's response was an order to the Minister of Economic Planning Board to look for another entrepreneur who would be willing to undertake shipbuilding project. Chung confirmed the firmness of the presidential decision, and begged for another chance by swearing to devote his everything to the ship building project. Of course the President's gesture aimed at cornering Chung to the shipyard project, and in fact delivered successfully the beginning of the Hyundai Heavy Industry which is now world's leading shipbuilder.

The Korean government provided the Hyundai Shipyard with extraordinary subsidies. Mr. Chung took just a picture of the beach area, which was the planned site of dockyard, with him in his visit to European banks to attain loan for the project. It was by no means easy to persuade banks to extend the loan, since their views on the project were not much different from Chung's original one. Chung contracted the consultants Appledore and Scott Lithgow on technology license and equipment supply to attain their official recommendation to the banks, and also succeeded in receiving orders of two oil tankers from a Greek buyer at discounted price. With these supporting documents he finally managed to create a miracle successfully that financed the construction of dockyard to validate President Park's initial confidence on Chung's entrepreneurial capability.

The Korean government was driving the construction of the first steel mill of POSCO concurrently, and large scale shipbuilding industry was necessary to generate sufficient amount of demand for steel that was to be produced by POSCO. While the government was ready to fully support

in earnest the shipbuilding project together with steel mill as a part of the grand project of big push for industrialization, the private investors, with only the partial information on the future of HCI projects, were not confident of success of the plan despite the serious support from government.

7.3 Mobilization of capital for HCI promotion

The size of required capital, both foreign and domestic, for HCI promotion plan was unprecedented as the scale of each HCI project was not to be compared with that of any light manufacturing plant. The international development agencies such as the World Bank and IMF declined the finance of both projects POSCO and Hyundai Shipyard, and the Korean government had to rely upon the foreign capital only in the form of commercial and bank loans. The HCI promotion plan massively induced the commercial and bank loans so that their total amount soared more than three-fold from 2.1 billion US dollars for the period 1966-1972 to 6.9 billion for 1973-1978.⁴¹

The domestic savings rate was lingering only about disappointing 15% in 1972, far below 25% which could afford to finance the HCI promotion plan. Therefore a special fund, called the National Investment Fund, was established in 1973 in order to further mobilize the domestic financial resources. The NIF issued security to capitalize itself, which was initially intended to be sold both to government and financial institutions. The soaring fiscal deficit and inflation, however, barred the contribution of the government to minimum from the beginning.

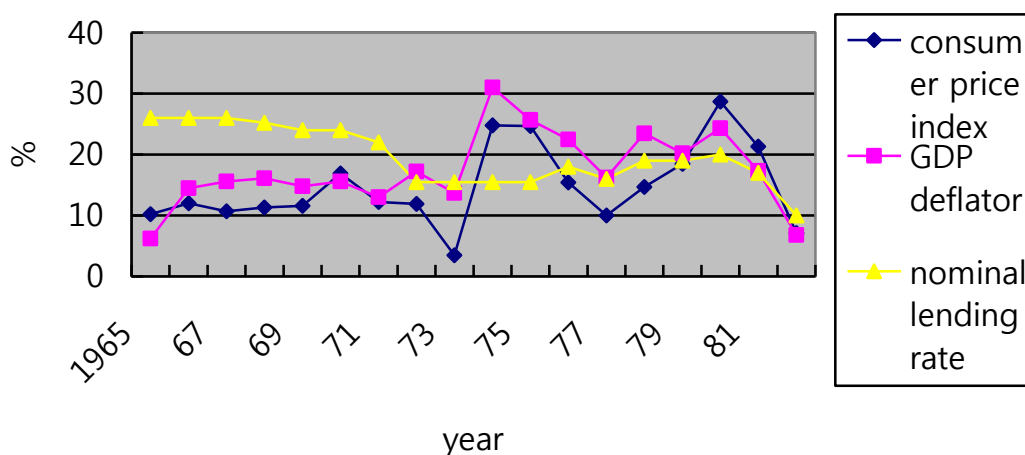
Each financial institution was required to purchase the NIF security as much as 15% of incremental portion of its savings deposit each year. The NIF loan was policy loan with privileged lending rate of interest and grew over time from 62.7 billion KRWs in 1974 to 606.7 billion KRWs in 1981 by nearly 10 times. The share of HCI loans in the entire NIF loans was 61.1% for the period 1974-1979, and 14-25% of it was lent to the foreign buyers of the South Korean HCI products.

The NIF fund, however, was not sufficient and so the HCI plan had to depend upon additional bank loans extensively. Bank loan for the HCI

⁴¹ Ministry of Finance, 1993.

accounted for more than 56% of incremental lending throughout the second half of 1970s, and was provided in the form of long term loans. Rapid rise in money supply took place between 1973 and 1981 to as much as eightfold increase in M2 in order to support the expansion of bank loan for the HCI projects. This increase generated high rates of inflation for the period 1974-1981. Inflation was spurred to the levels over annual 20% since 1974, driving down the real rates of interest into negative range. The high inflation rate continued throughout the second half of 1970s and the real interest rates were maintained negative until 1981 with respect to the GDP deflator, as is shown in Fig. 5.

Fig. 5 Inflation rates and nominal lending rates(%) for 1965-1982



7.4 Excessive subsidies to HCI

The NIF loan was a long term loan, and its average borrowing rate of interest was 5% point below the general loan rate. Lower interest rate policy was maintained throughout 1970s, keeping the real rate of interest negative persistently. This negative interest rate policy for HCI loans was certainly an excessive subsidy. After all the borrowing cost for HCI projects was 25% lower than that in other sectors.

In order to control inflation under rapidly increasing money supply, the government had fixed exchange rate from which the import substituting HCI benefitted. The Korean government also implemented Limited Tariff

Drawback System, which revived tariff on imports of intermediate inputs and machinery for export, if domestic producers began to produce the same items. In addition to this, domestic content requirements were also enforced in order to secure market for the local HCI products, and the buyers of domestic machines enjoyed higher investment tax credits. The new subsidy scheme not only intended to provide with cost advantage but also marketing assistance for the local HCI products.

When the original contractors of Hyundai Shipyard refused deliveries of completed vessels blaming the delay, the Hyundai Group established a merchant marine and took over the ships. The government arranged the crude oil delivery of the state-owned refinery to be exclusively carried by Hyundai merchant marine. The new subsidy scheme for the HCI projects was indeed an all round support, which deserved the label of excessive subsidies.

The government spending did not expand significantly in 1970s due to tight fiscal policy. Most spending, nonetheless, switched to building nine large-scale industrial parks specializing in each of the six HCIs, such as Changwon in machinery, during the period 1973-1979. The government augmented spending in education and training for more qualified engineers and technicians, too. Demand for skilled manpower was 127,000 in 1971 and was expected to increase to 750,000 in 1982. So the enrollment capacity of colleges for sciences and engineering was expanded from 26,000 in 1973 to 58,000 in 1980, that of technical high schools doubled, and of technical junior colleges more than fivefold increase. Government established vocational training centers, producing 12,000 technicians each year.

The Korean government also established and supported research institutes for science and technology, and financed 54.5% of total R&D expenditure for 1974-1979. Training manpower and the augmentation in R&D spending should not of course be classified as excessive subsidies for the HCI. The investors in the HCI, however, benefited a lot from this policy as they were able to employ high quality manpower who could handle technologically complicated tasks of the HCI projects.

The investors in the HCI imported a wide range of technologies from abroad, and had to struggle to absorb the imported technologies, which were much more complicated than those of light manufacturing. Even

those massive subsidies of pecuniary terms could not facilitate this technology absorption. It took quite a long time for the Korean investors to arrive at the level of reverse engineering, and many of them could not survive the learning process even under such heavy subsidies.

7.4 Performance and criticism

The controversial starts of the POSCO and the Hyundai Shipyard were deemed to head for good performances as time passes, contrary to initial pessimism. This observation had substantially eased the private investors' fears about the HCI investment, and soon the coercion from the government was no more needed. Now there remained only the package of excessive incentive schemes with much weakened pessimism, and it ignited scrambling rush among big businesses for a ride on the HCI bandwagon, aside from the cold calculation of the long term profitability of the concerned ventures. This investment spree in the HCI recorded as high as 75% of all the manufacturing investment during 1977-1979.

The industrial structure changed rapidly from the light manufacturing toward the HCI. The share of the HCI in value added recorded 51.4% in 1980, and 56.5% in export as of 1983. The change, however, was not to be praised just as a remarkable upgrading of industrial structure, since many of the HCI ventures were suffering from serious trouble with low rate of capacity utilization.

Persistent inflation of about 20% annual rate at last forced the government to stop expansionary policy in 1979, which reduced domestic demand for the HCI products. Incidentally the second oil crisis in the same year hit the entire world economy into recession, which shrank the Korean export of the HCI products. Rapidly expanded capacity of the Korean HCI encountered sudden decline of demand, and its capacity utilization rate plummeted drastically. It fell down, for instance, to as low as 53.1% in 1980 for the sector of fabricated metals and machinery. The oil embargo pushed up oil prices sky high and in turn raised the production cost drastically of the petrochemical industry. The Korean petrochemical products could by no means compete with those produced abroad from natural gas.

The assassination of the President Park in 1979 certainly created

economy-wide instability and uncertainty. There were, however, other reasons too for the failure of the HCI in late 1970s, which were more fundamental. The South Korean HCI products were to compete with those from the advanced industrial powers, and the global customers were not easily attracted to buy expensive and durable HCI products from inexperienced producers like South Koreans. In fact the Korean manpower could not operate the HCI undertakings as efficiently as the foreign experts in advanced countries, since they lacked not only scientific knowledge and skill but also experience needed for operating the HCI. Too much subsidy occasionally led investors to feel comfortable even without state-of-the-art technology or effort to improve productivity. Many HCI ventures could not help running into serious financial difficulties, in face of massively ebbing demand.

Export of light manufacturing products also suffered from reduced subsidy due to policy shift toward the HCI promotion plan. The Korean economy fell into the worst crisis in 1980 since the Korean War with the annual growth rate -3.7%, inflation rate 28.7% in terms of the consumer price index (39.0% in the wholesale price index), and the balance of payment deficit as large as 9% of the GDP.

Critics blamed reckless overinvestment which resulted from coordination failure of the Korean government in inducing private investments into the HCI. The sudden collapse of demand followed immediately the boom of investment in the HCI to generate a huge amount of idle capacity, which deserved such criticisms. Excess capacity would invite cutthroat competition, if it is shared by a multiple number of ventures. The Korean government began to restructure the HCI by consolidating ventures in the same line so that the entire capacity was subject to the control of a single firm.

Economic crisis lasted until the real oil prices began to drop suddenly in 1983.