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SOUTH KOREA'S INDUSTRIAL ENVIRONMENT

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Section 1

HISTORY OF ECONOMIC DEVELOPMENT IN SOUTH KOREA

In the past two decades, Korea has experienced remarkable economic growth. Today, Korea is one of the outstanding newly industrialized countries (NICs). However, it was largely a war-ravaged, barren country from 1950 until the early 1960s.

How was it possible that this little country, whose land area is less than one-fourth of California, came to be better represented in world trade than China or India? What was the growth process and the development strategy? This chapter addresses those questions.

1.1 1945 to 1961

Before the end of the nineteenth century, when Western culture made its debut on the peninsula, some Western merchants described Korea as "morning calm" or "hermit." Oriental philosophy and culture such as Buddhism and Confucianism prevailed. There was little industry except agriculture. The Korean people lived primarily on such agricultural products as rice, barley, and other crops.

The Japanese occupation, lasting until the end of the second World War, prevented the westernization and industrialization of Korea and also discouraged Korean creativity for forty years. During this period, Japan made use of the peninsula by developing the south as the granary and building the heavy-chemical industry in the north.

The partition in 1945 made South Korea a crippled and malformed country. There were few machine factories, chemicals, or mines in the South. In the North were the iron ore and 90% of the country's other minerals. About 92% of all electric power capacity was in the North. The North also held the human results of the industrial tradition from the 1930s and 1940s: skilled workers and technicians and engineers.

While the people in the South enjoyed new-found freedoms, those in Pyong-yang copied the Soviet state planning mechanism, with one party ruling supreme without any debate. Then the Korean War left the South prostrate on a war-flattened, barren land.

Through the 1950s, South Korea's political leadership was unable to provide social stability and economic policy direction. Under these conditions, it was not possible to mobilize the creative energy of the people. During this decade Korea depended on grants-in-aid and concessionary public loans, mainly from the United States, which financed the importation of necessities for the overpopulated country.

As late as the early 1960s, economic conditions in South Korea were similar to those of any of today's resource-poor, low-income, developing countries. The nation, already overpopulated, was experiencing an annual population growth of nearly 3%, and

there was widespread unemployment. Per capita GNP in 1961 was a meager \$82, and the level of domestic savings almost negligible. The country had no significant exports and ran chronic balance of payments deficits. In 1961 its total exports amounted to \$43 million, or less than a quarter of its imports. The country did not yet have such developments as a skilled labor force, foreign technology, canny bureaucracy, and foreign credits, which are now mentioned as South Korea's growth factors.

Until Park Chung-Hee came to power in 1961 and the first Korean five-year plan began in 1962, reconstruction in the North was ahead of that in the South.

1.2 1962 to 1978

The Park government, established in the spring of 1961, adopted strategic economic development as a primary political goal, rather than national unification or liberal democracy, to which preceding governments had given priorities. In 1962, the government launched the first of a series of five-year economic plans, through which development strategy has been practically executed up to the present.

Initially, the emphasis of the first five-year plan (1962-1966) was on the import of necessities, and formation of fundamental overhead capital. However, the inward-looking development strategy based on import substitution could not remain the best policy because of South Korea's poor natural resource endowment and small domestic market. Therefore, about 1964, the government instituted a series of measures to promote labor-intensive manufacturing exports in which Korea had comparative advantages.

As early as 1963, the government introduced a full-scale export-import link system, under which the volume of non-aid imports was limited to the amount of export earnings, in order to promote exports while controlling imports. The government readjusted the exchange rate in 1964, and the Korean Won (w) was devalued by nearly 100%. A multiple exchange rate system was replaced by a unified exchange rate system, and the official exchange rate was devalued from 130 won to 256 won per dollar, thus eliminating a bias against the export sector.

In addition, a government export-targeting system was established to further strengthen the drive for export expansion. The Korea Trade Promotion Corporation (KOTRA) was also created in 1964 to support overseas market development.

Other export incentives provided by the government included:

- 1) Tariff exemptions on imports of raw materials for export production;
- 2) A preferential export credit;
- 3) Direct tax reduction on income earned from exports and other foreign exchange earning activities;
- 4) Elimination of chronic budgetary deficits in order to minimize price distortions stemming from inflation;
- 5) Elevation by commercial banks of interest rates on deposits from 12% to 26.4% in order to mobilize domestic savings;
- 6) Enactment of a comprehensive act to promote infusion of foreign capital, whereby the government underwrites the risk borne by the foreign investors.

In regard to import policy, as a first step toward liberalizing imports, a shift was made from a "positive list" system of import controls to a "negative list" system. The government allowed importation of major grains in large quantities, abandoning the policy of grain self-sufficiency.

For a nation with a long tradition of looking inward, Korea's adoption of outward-looking policies was regarded by many foreign and Korean economists as politically and economically risky. Many conservative economists wondered whether the outward-looking development strategy would endanger national independence. They were concerned about possible negative consequences of relying on foreign capital, which in 1962 made up 83% of total investments.

However, positive results of the export-oriented development strategy surpassed all expectations. The annual growth of exports in real terms between 1961-1971 was more than 36%. Annual growth real GNP, propelled by growth in exports, was 8.7% during the same period. This rapid economic growth was accompanied by a modest rise in prices compared to the subsequent period. The average wholesale price increase during the 1962-1971 period was 12%.

Despite the satisfying results of the outward-looking strategy in the 1960s, the Korean government began to modify its development strategy in the early 1970s.

By 1972, when the third five-year economic plan was launched, several external shocks were disturbing Korea. First, in 1971 the Nixon Administration had reduced the U.S. troop level in South Korea by one-third, requiring Korea to step up its national defense efforts, including development of heavy industry.

Second, in the same year, the Bretton Woods system began to disintegrate. This led Korea to avoid growing international protectionism by diversifying its trading partners and restructuring the composition of its commodity exports in favor of more sophisticated, high-value-added industrial goods.

Third, the quadrupling of oil prices in 1972-1974 brought further pressure on the balance of payments.

All of these changes caused the outward-looking strategy to be replaced partly by emphasizing import substitutions, especially in heavy and chemical industries and in agriculture.

The Heavy and Chemical Industry Development Plan, announced in 1973, called for an accelerated schedule to develop technologically sophisticated industries to meet defense needs and upgrade the composition of exports. The government established the National Investment Fund, which mobilized public employee pension funds and a substantial portion

of private savings at commercial banks, in order to grant low-interest loans for heavy-industry projects favored by the government. Such low interest rates caused a chronic excess demand for loans, which stimulated expansion of the domestic money supply.

On the other hand, the government adopted a grain price support program to achieve the twin objectives of improving rural income and ensuring self-sufficiency in grains. In the initial phase, the program succeeded in increasing rice yield per acre and also in reducing the urban-rural income disparity. However, it failed to serve the long-term interest of the nation, because operation of the program produced a substantial budgetary deficit that increased inflationary pressures.

Although the government shifted its emphasis to import substitution in heavy and chemical industry and in agriculture, it continued its efforts to promote exports. The most important policy thrusts in the 1970s in regard to exports involved diversifying trade regions and commodities. This contributed not only to the upgrading of exports in the 1970s but to maintaining a high growth of exports during this period. Exports jumped from \$1.6 billion in 1972 to \$12.7 billion in 1978 in terms of current U.S. dollars. The annual growth of exports between 1972 and 1978 reached about 41%, higher than that of the subsequent period (36%). The share of commodity exports to the Middle East and Europe rose respectively from 1.8% and 11.8% to 11.7% and 17.5%, while the share to the U.S. and Japan dropped by 15% and 5%, respectively. The share of heavy and chemical industrial product in total exports rose from 21.3% to 34.7% during the same period (1972-1978).

The policy shift during the 1970s produced mixed results. Annual growth of real GNP reached 10.8% between 1972 and 1978, which was higher than the growth during the subsequent period (8.7%). However, the substantial growth in GNP was accompanied by a high rate of inflation and some structural imbalances in the economy.

Between 1972 and 1978 the annual rate of inflation measured in wholesale prices was nearly 18%, as opposed to 12% between 1962 and 1971. The high inflation resulted from expansion of the money supply, budgetary deficits, wage increases, the jump in oil prices, and other factors.

The most obvious structural imbalances in the late 1970s were as follows:

- 1) Over-investment in heavy and chemical industries;
- 2) Price and competition distortions owing to government controls;
- 3) A rise in real wages that surpassed production improvements.

Even though economic development in the 1960s and 1970s was accompanied by some negative results, it was very important for the nation in various respects. The quality of life was substantially improved, and the Korean people became more self-confident and optimistic about the future. The balance of power in the Korean peninsula, which had largely favored North Korea, swung to South Korea. Although in 1962 the South began to grow more quickly than the North, not until 1969 was the North overtaken in GNP per capita. GNP per capita of the North and South was \$200 and \$208, respectively, in 1969, but during the next nine years the lead of the South increased by more than 100. The defense expenditures of the South, at 6% of GNP, exceeded that of the North, which needed to spend about 20% of its GNP to match that sum.

1.3 1979 to 1983

The high inflation in the 1970s caused a rapid rise in the prices of daily necessities, on which low-income groups spend relatively more than others, and jeopardized growth of the economy by discouraging investment in productive assets.

Therefore, in April 1979, the government announced a stabilization program. The goal was to restructure the entire economy so as to enable the nation to make full use of its potential for continued high growth.

Some major components of the program were:

- 1) Setting lower targets for the growth rate of the money supply and also proposing a fundamental reform of the banking sector, in order to control excessive liquidity;
- 2) Suspending temporarily all new projects in the heavy and chemical industries and realigning credit priorities in favor of light industries, in order to deal with over-investment in the heavy and chemical industries;
- 3) Decontrolling prices on many items and stepping up import liberalization efforts, in order to eliminate price distortions and promote competition.

Even though the price structure was largely normalized by the end of 1979, thanks to the stabilization program, the success of the policies was quite limited. There were two reasons for this.

First, the oil crisis in 1979 doubled Korea's oil import bill and its balance of payments position deteriorated. Moreover, the worldwide recession limited the growth of Korea's exports.

Second, after the assassination of President Park on October 26, 1979, the nation began to experience many political difficulties, which reached crisis proportions in the spring of 1981.

The Korean economy declined 5.2% in 1980 – the first instance of negative growth in more than 20 years. Social unrest and growing uncertainty greatly restricted total investment, and many structural imbalances resulting from earlier policies burdened the economy.

The new government inaugurated in September 1980 provided the strong leadership needed to stabilize the situation. It undertook wide-ranging institutional reform to restructure the economy. The reforms have been designed to achieve three related goals: (1) price stability; (2) continued high growth; and (3) improvements in income distribution.

The strategy that the new government has chosen to achieve these objectives is to promote competition in all sectors of the economy and liberalize its external economic policies in every direction.

In 1981 the economy of South Korea rebounded from the severe 1980 setback and returned to its high growth track, owing to the economic reforms and the recovery of the world economy. In 1981 South Korea's GNP grew by 6.2%, and the rate of inflation fell from 42% to 11%.

In 1982, real growth reached 5.6%, with another sharp drop in inflation. During the year, wholesale prices rose only 2.4%. This lowered inflation rate was due largely to a decline in commodity prices abroad and various domestic stabilization measures.

In 1983 the Korean economy grew 9.2% in real terms, and inflation continued to decline. Consumer prices increased only 2% and wholesale prices actually dropped by 0.8%.

Korea's exports in 1983 reached \$23.1 billion, an increase of 10.5% in nominal terms, thanks to the world trade expansion and the increase in Korea's export competitiveness resulting from price stability.

Moreover, Korea's current account deficit decreased from \$2.6 billion in 1982 to \$1.6 billion in 1983, largely as a result of the decline in oil prices and the export expansion.

Korea, having attained both high growth and stability, projects annual real growth of 7.5% and an annual increase in prices (in terms of GNP deflators) of 1.8% during the period 1984-1986.

To what should this great economic success of the past two decades be attributed?

First, education has been one of the most important components of the national development. For centuries the Korean people have placed a high value on education. This heritage of respect for learning, combined with the desire for economic and social betterment, has made Korea one of the most literate countries in the developing world.

Second, the government has been continuing its reform efforts to take full advantage of the potential of the Korean people. Most major decisions on Korean economic policy have been made by a small circle of political and economic elite, including the President, the Korean CIA, the Economic Planning Board, and other economic ministers. The high government officials are normally supported by the government-sponsored institutions, such as the Korea Development Institute (KDI) and the Korea Institute for Economics and Technology (KIET).

Third, this remarkable success would not have been possible without Korea's dynamic entrepreneurs, who had the energy and spirit to exploit new opportunities.

Finally, pressure from North Korea spurred the South Korean people into dynamic efforts to strengthen their nation by continuing to outdistance the Northern economy.

Section 2

THE KOREAN POLITICAL AND SOCIAL ENVIRONMENT

The development and characteristics of Korea's economy cannot be properly understood without reference to its environment. Environmental influences on the Korean economy can be discussed within four broad categories: (1) the political systems (international relations, national security, political leadership, domestic political issues, etc.); (2) social and cultural factors (cultural heritage, religion, language, customs and manners, etc.); (3) human resources (people, population, education, work ethic, unionization, etc.); and (4) natural resources (land and climate, mineral resources, energy, agriculture, forestry, fishery, etc.).

Those environmental factors are briefly described here to provide a perspective on the advantages and handicaps of the Korean economy. This information is important for foreign companies interested in maintaining cooperative relations with Korean firms through trade, joint-ventures, and other activities.

2.1 Political System

International Relations

Prior to 1882, during more than 4,000 years of isolation, Korea developed a unique culture and a distinctive way of life. After the country was opened to the Western World in 1882, it enjoyed free commercial and intellectual intercourse with other nations for a brief fifteen years. Conflicts with China, Japan, and Russia, and invasions by the forces of those countries, finally culminated in the formal annexation of Korea by Japan in 1910.

At the end of World War II, with the surrender of Japan on August 15, 1945, Korea seemed to have an opportunity for freedom and rebirth, but a wartime secret agreement divided the country into two zones above and below the 38th parallel. Soviet forces occupied the north, and American forces the South. Korea still remains one of the world's potential flash points in the cold-war confrontation.

After the Republic of Korea (South Korea) took over administrative powers from the American Military Government on August 15, 1948, the Korean people came to realize that a nation could not secure its prosperity without friendly relations with other nations. The government strengthened its ties with other nations, in particular the U.S., Japan, and other Western countries, which have played significant roles in South Korea's reconstruction and economic development during the past three decades.

In the early 1970s, the government declared that Korea would become more open to the East and reformulate its diplomatic policy to a multilateral system. This policy shift came from the Korean peoples' confidence in securing its independence, survival, and prosperity in the newly technologically united world. As a result, by 1978 South Korea had established diplomatic ties with 112 countries, including 54 that have official ties with North Korea. South Korea also strengthened its exchanges with other countries in such non-political areas as culture, sports, education, technology, and tourism. The 1988 Olympics in Seoul will be another opportunity for Korea to promote friendly relations with other nations.

National Security

Many foreigners visiting Seoul on business pose an uneasy questions: "What if another Korean War breaks out?" The distance from Seoul to North Korea's artillery across the Korean demilitarized zone is only 45 kilometers, and the North's combat jets can reach Seoul in only 90 seconds. However, visitors are assured that military balance in the Korean peninsula is maintained by a mutual defense pact between Korea and the U.S.

The Korean territorial division was just a part of the United States' global geopolitical strategy for a post-World War II international order which served originally to disarm the Japanese armed forces in Korea. The line of demarcation, the 38th parallel, was intended to be only a temporary means of fixing responsibility between the United States and the Soviet Union, after the Japanese surrender. But this artificial and temporary line unfortunately brought about the partition of Korea, as a result of the cold-war confrontation after the World War. The Korean War, a result of the territorial division, threw the whole peninsula into utter confusion and resulted in preserving the demarcation line between the North and South.

Even though South Korea's economic growth after the Korean War surpassed that of the North, and its military expenditures between 1972 and 1979 were almost twice that of the North, the security of South Korea is still substantially dependent on the United States. Nearly 40,000 U.S. troops serve with more than 600,000 Koreans. Still, North Koreans under Kim Il-sung's 40-year rule have devoted much of their resources to building up a strong military power, while South Koreans have focused on their economic development; therefore, not achieving parity with North Korea in terms of military power. The issue of military balance in the Korean peninsula has, therefore, been a major topic in the U.S.-Korean Security Consultation meeting (SCM), which has a 15-year history. The balance between North Korea and the U.S.-Korean security pact has worked to maintain peace in the peninsula.

Political Leadership

There have been five governments in South Korea since proclamation of the Republic of Korea in 1948. Rhee Sung-Man, the first president of Korea (the First Republic) had spent his 40-year exile in the United States during the Japanese occupation, leading the Korean independence movement as a member of the Korean government-in-exile. National unification and liberal democracy were adopted by Rhee's government as national political goals, but the United States disagreed with the goal of unifying the country by using the military support of the U.S.

When Rhee's 12-year dictatorship was smashed in the spring of 1960 as a result of the Students' Revolution, the new government (premier, John M. Chang) attempted to create a western-style liberal-democratic government like the one advocated in the Students' Revolution. However, the worsening economic picture and ineffectiveness of Chang's leadership prevented him from realizing the government's national goal, liberal democracy.

Park Chung Hee, who directed the military coup on May 16, 1961, and became the third president of Korea in 1963, led the Third and Fourth Republics during his 16-year ruling period (1963-1979). Park's government adopted economic development as a primary political goal. It launched a series of five-year economic plans, resulting in remarkable economic growth. Following the assassination of Park on October 26, 1979, the transformation of the Korean economy was stalled and political instability threatened economic progress.

The new government (the Fifth Republic), led by President Chun Doo Hwan, stabilized the political unrest and resumed the economic progress. The new government envisioned two primary national goals: economic advancement and political development. The Koreans have not experienced any peaceful shift of political power since the birth of the Republic of Korea. Therefore, the new constitution provides that a president elected for a seven-year term cannot be a presidential candidate for the next term. President Chan has succeeded in restructuring the Korean economy for continuous growth with stability, and has made significant progress on human rights. He has promised to become the first Korean president to step down voluntarily for political development.

Domestic Political Issues

Some Western journalists note that South Korea does not yet meet U.S. requirements for democracy. They remember that President Carter proposed to withdraw U.S. troops from South Korea as a means of forcing Park to make progress on human rights. Human rights and political development remain important issues in South Korea.

Since 1981, the government has eased its political control considerably by removing bans on more than 300 politicians. However, many opposition leaders and young students insist that government should allow a freer press as well as freer political opposition and labor movement. The Koreans know well that only through democracy can they enjoy freedom and also continue the nation's prosperity.

On the other hand, most Koreans think that U.S. requirements for democracy are not yet probable nor desirable for South Korea, given its political environment and traditions. And the Koreans already enjoy a form of democracy and freedom incomparably greater than in North Korea, East Germany, China, the Soviet Union, or many other developing countries.

Political liberalization must be supported by economic success. Improvements in the people's welfare and the quality of life will enhance possibilities of political liberalization. Koreans now worry more about the possibility of economic crisis resulting from political unrest than about problems of human rights.

2.2 Social and Cultural Factors

Cultural Heritage

Korea's long historical continuity as a nation has produced a unique social and cultural heritage. Situated at the center of a crossroad, it was only natural for Korea to influence and be influenced by the cultural currents of surrounding countries. Korea's culture was especially influenced by China. In turn, Korea sent cultural missions to Japan, thus acquainting the Japanese with Chinese culture. Only since the late 19th century has Korea been influenced by Western culture and that was accomplished largely through an intermediary, the Japanese. However, the Korean people have remained unified as a race with their own physical and cultural characteristics. Their traditions, customs, beliefs, language, and arts have followed a distinct pattern.

Customs and Manners

Though some traditions have been broken since the introduction of Christianity and other Western ideas, there are still traces of the old customs.

Koreans, as a rule, have three names: the first is the family name (surname); the second is the personal name; and the third is the generation name. The personal name (personal and generation name) is seldom used after childhood, except by a close friend. Elders are never called by their personal names, and neither are strangers. Some surnames, such as Kim, Lee, and Park, are very common in Korea, just as are surnames Smith and Jones in the U.S.

To understand human relationships in Korea, some attention must be devoted to the principles of Confucian thought. The determining factor in a Korean's life is his family. As head of the family the oldest men are greatly respected, and Koreans have great respect both for their ancestors and descendants. Many Western customs have been adopted, but there are still vestiges of the attitude that the female should be secluded, in spite of guaranteed equality under the law.

Korean housing is also fast becoming westernized. Some people sleep on beds, but most use a thick mattress and blankets spread on the floor.

One of the oldest customs concerns meals. Korean foods are cut into small pieces and served in various kinds of dishes, rice bowls, and soup bowls, for only spoons and chopsticks are used. Many foods are highly seasoned, and considerable time is required to prepare Korean foods. Aside from rice, the most popular dish is "Kimchi," a highly seasoned pickled combination of turnips, onion, celery, and other vegetables.

Religion

Many faiths and cults are embedded in Korean culture. Koreans are a religious people with a deeply rooted conviction of the presence of spiritual beings. Until the introduction of Christianity in the 19th century, Korea's religion was likened to a three-legged stool based on Shamanism, Buddhism, and Confucianism.

The general belief was in Shamanism, a form of animistic nature worship based on the veneration of spirits. This religion is still practiced by medicine men and women. Buddhism reached the peninsula from China and ran the gamut of popularity, sometimes becoming the state religion. Though Confucianism is rarely practiced formally, Confucian ethics are deeply embedded in the Korean personality and culture as a philosophy and way of life. Many Confucian concepts still flourish.

Christianity brought modern influences together with western culture. The success of the new doctrine may be attributed not only to the religious nature of the Koreans but to the fact that Christian ethics place great emphasis on love, justice, and personal freedom. Christian missionaries supplied the gifts of modern Western education and medical care to all people, irrespective of age or status. This furthered a better understanding of the West by imparting a knowledge of modern material science. There are approximately 10 million Christians in Korea, comprising a quarter of the total population. Missionaries and other Western Christians sometimes call Korea "the most Christian land in the Orient."

Language

The Korean language is one of the oldest languages in the world, for its origin can be traced to the beginning of Korea's history, more than four thousand years ago. The Chinese language has had great influence, owing to numerous Chinese migrations. Chinese characters were adopted as the literary language before the Korean phonetic alphabet "Han-kul" was developed in 1448. Both Han-kul and Chinese characters are used in writing in Korea.

In 1446, King Sejong directed a committee of Korean scholars to simplify and systematize the native language. As a result, "Han-kul," a phonetic alphabet consisting of eleven vowels and fourteen consonants, came into being on October 9, 1448. Chinese characters were given Korean pronunciations, although they retained their basic meaning. This new alphabet was much easier to learn than the Chinese characters, and was designed by King Sejong as a means to bring education to everyone.

The Korean alphabet is considered one of the most perfect in the world. Each Korean syllable cluster consists of two or three symbols of the Korean alphabet. The syntax of Korean is similar to Japanese: (1) the sentence order is always subject, object, and

verb; (2) Nouns and verbs have neither number nor person; (3) Particles are used after substantives to indicate their function. The sound of the Korean language is characteristic of Altaic languages, which are mild and soft with little accent in pronunciation.

Korean written language is simple enough to be mastered, but precise enough to indicate exact meanings. Therefore, it has been the tool that gives the Korean people access to mass education. Because a literate population is the foundation upon which democracy rests, the Korean language plays a significant role in both cultural and political development.

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2.3 Human Resources

The People

The Koreans are the descendants of a Mongoloid race. In general appearance, they are distinctly Oriental, although distinguishable from their Chinese and Japanese neighbors. From earliest times Koreans have been noted for their polite manners. Their peace-loving nature is evidenced by the added connotations to such ordinary greetings as follows: Hello, "May you come in peace"; Good bye, "May you go in peace"; Good night, "May you sleep in peace." They have never launched aggressive action against their neighbors, and when attacked they have limited their military action to defense.

They are friendly and individualistic unlike the Japanese who are a group people, like conformity, dislike anyone who behaves differently, and dislike anyone who deviates from the pattern. The Koreans are almost the opposite. Therefore, the Korean has been sometimes considered a bad group worker, or bad at cooperating with other people. However, industrial progress bears witness to the fact that the Koreans also allow themselves to be coordinated, while at the same time continually making a bid for individuality.

Population

In spite of South Korea's small land area of less than 100,000km², its population is just over 40 million, or one-third of the Japanese population. The population density reaches more than 400 persons/km². Before the Korean War, North Korea had an estimated population of 10 million, and the South an estimated 20 million. As of the middle of 1982, the South and North have populations of 39 and 18 million, respectively. During the first decade after the liberation from Japan, the population of South Korea increased at a rate of 5.58% per year, but since 1977 the rate has remained at less than 1.57% per year.

While the economically active population of South Korea increased from 8.5 million in 1964 to 15.1 million in 1983, the unemployment rate dropped from 7.7% in 1964 to 4.1%, with unemployed of 613,000 in 1983. The population was chiefly rural, but urbanization rapidly developed as a result of industrialization. In 1960, the populations of Seoul (capital and largest city) and Pusan (second largest city) were 2.5 million and 1.5 million, respectively, comprising 9.8% and 4.7% of the total population. Now the populations have reached 9.0 million and 3.5 million, accounting for percentage shares of 22.5% and 8.7%. On the other hand, until the 1950s, more than 70% of the population was employed in agriculture, especially in the cultivation of rice, which was the staple food. However, the number of persons engaged in that primary industry decreased from 4.8 mil-

lion in 1964 to 4.3 million in 1983, or less than 30% of the total employment population. Employment in mining and manufacturing increased from 0.7 million to 3.4 million, while employment in service industries increased from 2.3 to 6.8 million.

With respect to population by age, the number of persons less than 15 years old decreased from 12,684,000 (43.5% of total population) in 1960 to 12,656,000 (33.8%) in 1980, in spite of a considerable increase in total population during the same period. During the same period, the number of persons 60 years old and more increased from 1,512,000 (5.2%) to 2,267,000 (6.1%), and the middle age group (between 15 - 59 years old) increased from 14,964,000 (51.3%) to 22,484,000 (60.1%). This structural change in the population means that South Korea's labor force is expected to grow at about 3% per year while population grows at 1.5% per year during the coming ten years.

Education

Korea adopted a public system of education in the year 392. For many centuries the government had a cabinet minister of education. The reading and writing of Korean and Chinese instructions in Confucian ethics were taught in the public schools before the introduction of Western civilization. However, the opportunity of access to higher education, such as Confucian College (Sung Kyun Kwan) at Seoul and advanced public schools (Hyang Kyo) in every major district, was restricted within a limited high class (Yangban). Only graduates from that higher education available to the high class (Yangban) could take the government examinations (Kwaku) and become public servants.

As American missionaries (Methodist and Presbyterian) funded many schools in Korea in the late nineteenth century, Western education was encouraged in Korea. During the Japanese occupation, education was severely limited and only a small percentage of Korean students were able to acquire a college education. Since the liberation in 1945, a great deal has been accomplished in modern education. As a result, the estimated adult literacy of 30% before liberation was already reaching 80% by the early 1960s, and today literacy is virtually universal in the age group below fifty.

The schooling offered in Korea is organized as follows: The first through sixth year is primary school, with compulsory attendance; the seventh through ninth year is middle school; the tenth through twelfth year, high school; the thirteenth through sixteenth, college and university. Even though the schooling system is almost the same as in Japan and the U.S., there are some differences in curricular values.

Japanese students are taught the value of filial piety, loyalty, nationalism, and fealty to the Emperor, besides their native language, foreign languages, music, art, science, etc. The Japanese education system does not encourage individuality. In contrast, unique values of education in Korea concern anti-communism and national security, while independent spirit and individuality are emphasized.

Japanese and Korean students begin studying the English language in the seventh grade, and other foreign languages (including Japanese in Korea) can be taken by high school students. Because English has become the most international of languages, instruction of foreign languages in the United States is not emphasized as much as in Japan and Korea.

With respect to higher education in Korea, the capacity of college and universities rose tenfold, from 20,050 students in 1963 to 202,592 students in 1983. This resulted from increased demand for higher education and demand for equalizing regional opportunities for higher education. Thus, 35.8% of high school graduates go on to universities, which is above the level of most advanced countries.

The Korean people's respect for learning has been combined with the desire for economic and social betterment. This is based on the traditional thought that success in academic life is the measure of an individual and reflects the honoring of mutual moral obligations. Surely, the rapid growth of the Korean economy can be attributed in large part to the people's enormous zeal and investment in their children's education. Education is likely to be one of the most important factors assuring the further development of Korea.

Work Ethic

A major attraction to foreign would-be investors in Korea is Korea's well-educated, skilled, but low-priced work force, which has contributed so much to the development of the Korean economy during the past two decades. Besides the abundant labor force and high level of education, the Korean people's work ethic is an important growth factor in South Korea. The industriousness and perseverance of the Korean people at all levels stems from the following factors:

- 1) Korea's poor natural resource endowment and overpopulation have forced Koreans to work harder than workers in other countries, because without hard work they could not survive in such bad economic conditions.
- 2) The Korean people have extraordinary zeal for wealth and freedom from poverty, because they have experienced severe poverty and grief resulting from political oppression and war.

- 3) Hard work and a high respect for learning have been spurred by stiff competition for various kinds of opportunities, such as admission to schools, obtaining good jobs, promotions in any organization, good pay, etc.
- 4) Most of the younger generation, who were born after the Second World War, have experienced three years' compulsory military service. That compulsory military service in general has made them more patriotic and has enhanced their cooperative spirit. They are more willing to sacrifice their interest for the common good of their group or organization.

Unionization

Korean industry during Japanese occupation developed rapidly after 1931. By 1938, Japanese enterprises in Korea were employing one million Korean workers. However, the living standard of Korean laborers was very low, while the Japanese enjoyed a privileged status, a shorter working day, and twice the wages paid to Korean workers. This differential labor condition caused most Korean workers to join an independence movement, although the Japanese suppressed trade unionism in Korea.

After the liberation in 1945, trade unionism was volatile and confused like the political activity. Labor-management relations became aggravated by friction as prices continued to rise and labor unions assumed a more definite form. The tension was accentuated as labor organizations became instrumental in the wide struggle for political power instead of contributing to the improvement of labor conditions. However, the new democratic constitution provided the right to work, the rights of unionization, collective bargaining, and collective action. The Labor Union Law, the Labor Mediation Law, and the Labor Conditions Law were established to provide equal wages for equal work, irrespective of age or sex, an eight-hour working day, and other working conditions and measures for the welfare and security of the workers.

After the military revolution in 1961, political activities of trade unions were prohibited, while the basic rights to labor and unionism were assured as before. Since enactment of another labor law, the Act on Council of Labor-Management Cooperation, in December 1980, the council has entered a developing stage. At the end of 1982, labor-management coordination councils were established in all 4,756 firms with more than 100 full-time employees. These councils contribute to preventing complicated problems in labor-management relations, and to increasing production efficiency and solving laborers' personal problems. In addition to a labor-management cooperation system that has eased

conflicts between the two bodies, the Ministry of Labor plans and executes other programs to foster a cooperative atmosphere and to improve the labor welfare system and industrial safety.

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2.4 Natural Resources

Land and Climate

Located in Far Eastern Asia, Korea consists of a peninsula which projects southeastward from the continent of Asia and of about two hundred islands, the largest of which is Cheju. Korea is a transition area between the continental forms of Manchuria and North China and the island form of Japan. It has widely diverse landscapes and an unusual richness and variety of plant growth. Koreans call their homeland "Kumsu Kangsan," which means "beautiful landscape." More than 3,400 species and varieties and 800 genera of vascular plants are indigenous to Korea. The profuse and colorful flora include many wild and cultivated flowers. The rose of Sharon, which is the national flower of Korea, is called "Mukung Hwa" (Everlasting Flower).

The country is mountainous. Less than 22% of the land is cultivated. Another 66% of it is mountains and forest, while the remaining 12% consists of roads, rivers, and housing. Mountain ranges lie in the northern part and near the eastern coast. The southwestern area is excellent farm land and is considered the granary of Korea.

The climate of Korea is continental rather than oceanic. Cold and warm waves visit the peninsula in turn, causing extremes of cold and heat. Temperatures at all seasons are somewhat lower than at corresponding latitudes in the United States. The coldest month of the year is January and the hottest months are July and August. The average summer temperature is 75⁰F; average winter temperature is 33⁰F, occasionally dropping to zero. Short seasonal contrasts are characteristic, as shown by extremes at Seoul, where the maximum is over 100⁰F and the minimum is 10⁰F. The annual rainfall is relatively light, amounting to about forty inches. There is little precipitation except during the rainy season, which comes in July and August. Sunlight is strong and abundant. Korea is fortunate because it lies outside the track of typhoons and earthquake zones. As a whole, the climate of Korea is unsurpassed in the Orient. Favored with beautiful natural scenery and a relatively mild climate, Korea is aptly called the "Switzerland of Asia."

Mineral Resources

The Korean peninsula abounds in mineral resources such as anthracite, iron ore, tungsten concentrate, silver, kaolin, limestone, lead ore, zinc ore, etc. However, the majority of the minerals are in North Korea, while South Korea suffers from a lack of all minerals. South Korea could not avoid importing minerals to meet increasing demands caused by rapid industrialization. Even though there has been sizable investment in the Korean mining industry for exploring new ores and developing refineries, the demand for general minerals is supplied largely by imports. In 1982, total demand for minerals was

supplied largely by imports. In 1982, total demand for minerals reached the value of 1,077 billion won, of which 26% (280 billion won) was supplied by domestic products and the remaining 74% (797 billion won) was imported. To meet the increasing demand for minerals, Korea is currently participating in eight overseas resource development projects and five exploration projects. The Overseas Resources Development Promotion Act was also amended to simplify the procedures and expand support for overseas resource development.

Energy

As Korea (North and South) produces no petroleum, this important energy source is supplied only by import. Even though there were many enormous dams in Korea before Liberation (1945), 92% of all the electric power capacity was in the North. Only in the coal sector could South Korea be compared to the North, although the North had twice as much coal as the South. Still, the South was able to secure near self-sufficiency of coal.

Demand for energy in South Korea has increased sharply following successful implementation of four 5-year economic plans. Total energy consumption in 1961 reached 9,747 thousand TOE (ton of oil equivalent). That figure rose to 49,699 thousand TOE in 1983 at an average growth of 7.7% per year. In spite of no production of petroleum, petroleum consumption comprised 56.2% of total energy consumption in 1983, while coal, hydro, atomic, and firewood shared 33.2%, 1.4%, 4.5% and 4.8%, respectively. Crude oil imports amounted to U.S. \$5,550 million in 1983, which accounted for almost a quarter of the total Korean imports. Power-generating capacity increased remarkably, from 597 MW in 1964 to 13,115 MW in 1983, at an average growth of 17.7% per year. It is divided into 76.2% thermal power generation, 9.2% hydraulic and pumping generation, and 14.6% atomic generation.

Agriculture, Forestry, and Fisheries

Despite the limited area suitable to farming, the Korean people lived largely on agriculture before industrialization began in the 1960s. Forested mountain land occupies about 70% of the total area of Korea, and Korea is surrounded on three sides by seas. It is situated at the edge of one of the four major fishing regions of the world, where sea bottoms and tidal currents are especially suited to the propagation of marine life. Nevertheless, the overpopulated country was not able to improve the quality of life for people or develop its economy without industrialization in the sectors of manufacturing and mining.

The primary engine for growth during the past two decades has been the export-oriented, non-agricultural sector, while growth of the agricultural sector has lagged far behind. As a result, the percentage share of agriculture, forestry, and fisheries in aggregate

GNP has declined from 46.5% in 1964 to 14.0% in 1983, while the proportion of farming population has also fallen from 55.6% to 23.7% during the same period. The self-sufficient ratio of major food grains dropped from 72.6% in 1978 to 53.0% in 1982, owing to import liberalization in the 1980s. The supply of such products as rice, wheat, cotton, and timber depends heavily on imports. In 1983, Korea's imports of grains reached the value of \$1,175 million, which accounted for 47% for total demand.

The agricultural sector, however, has played a very important role in Korea's industrialization through provision of food supplies and low-cost labor. To improve agricultural productivity and alleviate food shortages and income differences between rural and urban households, the government has introduced such measures as price support policies, subsidy programs, Saemaul Undong (New Village Movement), farm mechanization plans, irrigation development, improvement of drainage system, etc. As a result, agricultural productivity and farm household incomes have risen remarkably, and new programs of social and cultural development and industrialization in rural areas have already begun.

Section 3

MAJOR CHARACTERISTICS OF THE KOREAN ECONOMY

3.1 Economic Policy

Basic Policy Directions

As described in Section 1 (History of Economic Development in Korea), the new government undertook wide-ranging reforms to restructure the economy and achieve continuous growth with stability. The strategy of promoting competition in all sectors of the economy and liberalizing its external economic policies in every direction was chosen to achieve such objectives as price stability, continued high growth, and improvement in the quality of life.

To promote competition, the government changed its economic policy from strict government control of economic activity to encouraging economic efficiency through the free market mechanism and private initiative. When the economy was relatively small and simple, it was possible to allocate resources efficiently through a highly centralized decision-making process. However, as the Korean economy expanded rapidly, the excessive government controls began to produce price distortions and lack of competition. In Korea today, the allocation of resources through operation of the free market is not only desirable but essential.

With respect to external liberalization, there have been policy reforms for liberalization of trade, technology transactions, and foreign investments. The import liberalization ratio rose from 75% in 1981 to 85% in 1984. The projected ratios for 1985 and 1986 are 87.7% and 91.6%, respectively. At present, only 1,111 items out of 7,915 items of CCCN (Customs Cooperation Council Nomenclature) are subject to import-restrictive measures in Korea. Furthermore, existing non-tariff protection will gradually be replaced by tariff protection, and the average tariff rate will be substantially reduced, minimizing tariff differentials among individual commodities. The current policy on the inflow of foreign technology is already very liberal; the government did away with prior approval of foreign investment except in a limited number of industries in July, 1984, in order to meet foreign capital requirements.

Role of Government

Korean economic development efforts have been carried out through a series of five-year economic plans, initiated in 1962. Planning in Korea included not only policy formation but policy implementation; the hand of government reached far down into activities of individual firms with manipulation of incentives and disincentives.

Just as Japan was accused in the 1960s and 1970s of being called "Japan, Inc.", since the 1970s Korea has also been referred to as "Korea, Inc." All major decisions on economic policy, according to the "Korea, Inc." system of government management, are made by a small circle of political and economic leaders. The formal mechanism for conflict resolution is the Economic Ministers' Meeting, which is chaired by the Deputy Prime Minister and Minister of Economic Planning. Other members include six economic ministers and the Minister of Foreign Affairs. Meetings are currently held twice a week. Strategic decisions are later ratified when the entire cabinet meets. Even though South Korea is governed by a military-technocratic complex, it is civilian technocrats who hold the reins in the economic sector.

Obviously, skillful strategists and career bureaucrats in the government are playing significant roles in economic policy formation. However, they are normally supported by relevant interest groups and specialists in the private sector. The Revised Fifth Five-year Plan (1984-1988) envisages a greater level of private-sector involvement in determining the overall direction of the economy, in the light of the new policy encouraging competition and the free market mechanism. The plan provides for establishing a private high-level forum for deliberating industrial development, which will monitor industry-related policies, including finance, taxes, and import liberalization. In general, the style of the new planning is less demonstrative and exhortative, and more indicative, than previous plans.

Monetary and Fiscal Policy

Because the allocation of resources through the free market is efficient only if there are no extensive price distortions, the need for price stability is obvious. This price stability is also essential for improvements of income distribution, the balance of payments, and the structure of debt. Korea's efforts to consolidate price stability are centered in conservative monetary policy and increased fiscal austerity.

To make greater use of the market mechanism in the mobilization of savings and allocation of investment funds, the government has already taken a major step toward abolishing policy preference loans by doing away with the interest rate differential between these and other loans. To promote autonomous management of financial institutions, the Bank Law was amended, and the government has also relinquished its majority equity shares in five major commercial banks. The monetary supply system was changed from a direct control system regulating loan ceilings to an indirect control system utilizing adjustments in the total reserve fund for payment of financial institutions to promote autonomous fund management. In addition, the financial market was opened to improve efficiency through fair competition. After the establishment of non-bank financial institu-

tions was liberalized, many non-bank institutions have been established, and non-banks' share of the domestic financial market has risen from 30.5% in 1979 to 34.2% in 1983, while banks' share fell from 50.5% in 1979 to 32.9% in 1983.

The government budget deficit has been a major factor responsible for the excess money supply and inflationary pressure. Reducing the budget deficit is essential for cementing price stability. During the past three years the government has reduced its budgetary deficit and borrowing from the central bank by freezing the level of total spending. The government plans to achieve a balanced budget in 1985, and a budget surplus of U.S. \$300 million in 1986.

In 1983 the government made a modest adjustment to the progressive tax rate structure by reducing the maximum marginal corporate and personal income tax rates from 38% and 60% to 30% and 55%, respectively. According to the revised Fifth Economic Plan (1984 - 1988), the government will maintain the tax burden ratio of 22% of GNP, or more than the 1983 ratio of 19.4%, to reflect the natural tax increase caused by economic growth. It also plans to modify the tax system to put more emphasis on fair obligations.

Trade Policy

When the government launched its external economic policy of liberalizing imports, technology transactions, and foreign investment, it also made efforts simultaneously to improve the balance of payments as a means of reducing the nation's burden of foreign debt. Even though concern about the nation's foreign debt obligation has been voiced both at home and abroad, the diversification of the Korean economy makes the country less vulnerable to a high debt level than some other high-debt countries. The debt servicing ratio is at a manageable level in Korea. Nevertheless, international financial markets have become less favorable for borrowers, and it is therefore necessary for Korea to improve the balance of payments by bringing the trade balance into surplus, controlling the level of foreign debts, and mobilizing domestic savings.

The government is encouraging exports based on intra-industry specialization rather than inter-industry specialization. This will pose fewer difficulties for Korea's trading partners, and thus Korea should face less protectionist resistance. Because market diversification and product diversification through intra-industry specialization are considered to be the best way for Korea to increase its exports with less protectionist resistance, Korea will expand joint-investment activities and strengthen technical cooperation with countries that have major raw material supplies and high technology.

In the course of 20 years' rapid development, Korea's external debt increased rapidly. Recently the situation has been aggravated by worsening external conditions, including a sharp rise in crude oil prices and sustained high international interest rates. Korea had an outstanding external debt of U.S. \$30.14 billion as of the end of 1983. In spite of the relatively large absolute volume of foreign debt, Korea's debt-service burden continued to improve thanks to improving current balances and steadily rising GNP. Moreover, Korea's access to relatively favorable conditions for foreign borrowing and its good international reputation have been maintained despite the problems in the world financial market.

Fundamental measures to reduce foreign financial debt are being promoted through a persistent increase in domestic savings and a continued improvement in the trade balance. The government makes efforts to improve the quality and variety of financial services to households. It also encourages corporations to improve their financial structures and make productive savings for investment, while it is restraining public expenditures.

Industrial Policy

The basic direction of Korea's industrial policy during the 1980s is to prepare the economy for further exposure to internal and external competition, and expedite more balanced industrial growth. The industrial incentive system that has favored so-called "strategic industries" is being realigned, so that investment resources can be allocated more efficiently in accordance with the free market mechanism. More support is and will be given to investment in technological development and manpower training, and special emphasis is and will be given to promoting small- and medium-sized industries as a means of promoting industrial balance and easing the concentration of economic power.

In April, 1981, the government implemented the Anti-Monopoly Act, the basic purpose of which is to eliminate cartel arrangements, price fixing, and other monopolistic practices. For the purpose of early establishment of a fair transactions system, the act will be strictly enforced and also expanded to cover the banking, insurance, and real estate industries. The import liberalization and reduced restrictions on direct foreign investment will impose vigorous foreign competition on domestic producers, and finally will contribute to enhancing the international competitiveness of Korean firms.

To bring about the necessary transformation of Korean agriculture in line with industrial development, the government has already acted to phase out the present high farm price-support programs for major grains. Instead, it has expanded credit facilities to

support agricultural mechanization. Further, in an attempt to augment farm household income with non-farm sources, the government is taking steps to disperse industrial activities into medium-size rural towns.

Social Welfare Policy

Many foreign scholars and international organizations such as the International Bank for Reconstruction & Development (IBRD) have noted Korea's good record in income distribution. The most important factor for the favorable outcome in income distribution in Korea was the outward-looking growth strategy itself. The expansion of labor-intensive manufacturing exports increased employment opportunities, which directly benefitted those at the lower end of the income scale.

Recently, the demand for improved social welfare is increasing with the nation's great strides in economic development. The basic direction of social development policies in Korea is to provide more jobs and to assure equal economic opportunities and upward social mobility. Therefore, much more emphasis has been and will be placed on expanding employment opportunities and promoting education, rather than providing social welfare programs that have produced adverse effects in some advanced countries. While minimizing the public financial burden, so that stabilization policies will not be threatened, the government will seek to meet basic needs for housing and health care, and also endeavor to encourage various insurance systems and reinforce other welfare services for the needy.

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3.2 Structure of the Korean Economy

Industrial Structure

With the export-oriented industrial policy shifts in the 1960s and heavily subsidized support of heavy and chemical industries in the 1970s, the changed industrial structure of Korea has produced very high economic growth over the past two decades. In 1983, Korea's GNP totaled \$70.8 billion (58,280 billion won) and per capita GNP reached \$1,875. The industrial structure of the Korean economy is illustrated in Tables 3-1 and 3-2.

	1964		1983	
	Amount (billion won)	Composition %	Amount (billion won)	Composition %
All industries	716.3	100.0	58,279.7	100.0
Agro-forestry fishery	333.0	46.5	8,166.5	14.0
Mining- manufacturing	123.3	17.2	17,175.7	29.5
Mining	12.2	1.7	524.0	0.9
Light industry	77.4	10.8	8,151.2	14.0
Heavy industry	33.7	4.7	8,500.5	14.6
Service	260.0	36.3	32,937.5	56.5

Source: Bank of Korea

The GNP share for the agro-forestry and fishery sector dropped from 46.5% in 1964 to 14.0% in 1983. The shares for the mining and manufacturing sector increased from 17.2% to 29.5%. The share for the service sector increased from 36.3% to 56.5%. On the other hand, in 1983 the employment share for the agro-forestry-fishery sector at 29.7% still remained higher than that for mining-manufacturing at 23.3%, in spite of the significant increase in mining-manufacturing's share and the sharp decrease of agro-forestry-fishery's share.

Table 3-2
Employment by Industries in Korea
1964, 1983

	1964		1983	
	Number (thousand)	Composition (%)	Number (thousand)	Composition (%)
All industries	7,799	100.0	14,515	100.0
Agro-forestry- fishery	4,825	61.9	4,314	29.7
Mining and manufacturing	690	8.8	3,383	23.3
Service	2,284	29.3	6,818	47.0

Source: Economic Planning Board

During the past two decades, manufacturing production increased at a faster rate than GNP, and thus contributed more to GNP growth than any other sectors. (See Table 3-3). The light industry sector recorded relatively high growth during the early decade (1963-1973) and showed low growth during the later. Typically, wood and wood products, including furniture, dropped from 40.7% of annual growth between 1963 and 1968 to an annual growth of 0.7% between 1978 and 1983. Conversely, the heavy and chemical industry showed much higher growth during the later decades, especially in production of iron, steel, machinery, and transportation equipment between 1973 and 1978. This was largely the result of the Heavy and Chemical Industry Development Plan launched in 1973. The performance and prospect of major industries in Korea will be covered in more detail in the following section.

Table 3-3
Production Growth in Korea's Manufacturing Sectors
1963-1983

	Average Annual Growth Rate (%)			
	1963-1968	1968-1973	1973-1978	1978-1983
GNP	9.2	9.9	10.2	4.4
Manufacturing	20.3	19.9	24.8	8.7
Food, Beverage and Tobacco	20.3	16.0	16.0	7.8
Textile, Wearing Apparel & Leather	23.2	29.8	22.2	7.2
Wood, Wood Products incl. Furniture	40.7	11.5	12.3	0.7
Paper, Paper Products Printing, Publishing	18.6	9.4	14.5	8.6
Chemicals, Petroleum Coal, Rubber and Plastic Products	25.2	17.1	19.8	7.1
Non-metallic Mineral Products	25.1	13.4	13.1	8.1
Basic Metal (Iron and Steel)	20.3	20.3	35.6	17.9
Fabricated Metal Products (Machinery and Equipment)	18.9	24.4	43.9	9.4

Source: Economic Planning Board

Structure of Foreign Trade

There have been significant changes in both the quantity and substance of Korea's foreign trade during the last 20 years. As shown in Table 3-4, exports have increased from \$86.8 million in 1963 to \$24,445.1 million in 1983, at an annual growth of 32.6%. Imports also have steadily increased from \$560.1 million to \$26,192.2 million, at a slower growth rate of 21.2% per year, resulting in an increase in the trade deficit from \$473.3 million to \$1,747.2 million.

Table 3-4
Korean Exports and Imports
1963 - 1983

Volume	Exports	Imports	(Trade Deficit)
1963	86.8	560.1	(473.3)
1968	455.4	1,462.9	(1,007.5)
1973	3,225.0	4,240.3)	(1,015.3
1978	12,710.6	14,971.9	(2,261.3)
1983	24,445.1	26,192.2	(1,747.1)
<hr/>			
Annual Growth Rate			
1963-1968	39.3%	21.2%	
1968-1973	47.9%	23.7%	
1973-1978	31.6%	28.7%	
1978-1983	14.0%	11.8%	

Unit: U.S. Dollars in Millions

Source: Office of Customs Administration. Based on customs clearance.

Korea's outward-looking development strategy emphasizing labor-intensive manufacturing exports enable the nation to experience unusual economic growth and greatly increased exports. However, it also forced the nation to import substantial amounts of capital goods and raw materials, including energy sources. Accordingly, the trade deficit still remains and has been one of the most important factors in the increase of Korea's foreign debt.

Korea's exports have become substantially diversified over the past two decades. In 1963, Korea's exports were limited to agricultural products, raw materials, and some light industrial products. However, exports of heavy industrial and chemical products reached more than half of total exports in 1983. Even though the percent share of textile exports dropped from 47.3% in 1963 to 23.9% in 1983, textiles remain the largest Korean export. Exports of transportation equipment and electronic products increased remarkably, and the contribution of such new and promising sectors as steel, machinery, electronic products, and transportation equipment will likely be more conspicuous in the future. (See Table 3-5).

Table 3-5
Korea's Exports by Commodity
1965, 1983

	1965		1983	
	Amount	Composition (%)	Amount	Composition (%)
Food and direct Consumer Goods	29.0	16.6	1,223.2	5.0
Raw Materials and Fuel	39.0	22.3	1,023.4	4.2
Light Industrial Products	86.6	49.5	9,654.6	39.5
Textile	47.3	27.0	5,838.0	23.9
Plywoods and Wood Products	18.0	10.3	224.3	0.9
Foot wear	4.2	2.4	1,231.5	5.0
Others	17.1	9.8	2,360.8	9.7
Heavy Industrial	20.5	11.6	12,543.9	51.4
Iron & Steel Products			1,748.0	7.2
	10.2	5.8		
Metal Products			1,506.7	6.2
Machinery			865.3	3.5
Electronic Products	5.5	3.1	2,442.3	10.0
Ships & Boats			3,735.0	15.3
Chemical Products	0.4	0.2	379.2	1.6
Others	4.4	2.5	1,867.4	7.6
Total Exports	175.1	100.0	24,445.1	100.0

Unit: Million U.S. Dollars

Source: Office of Customs Administration.

With respect to imports by commodity, more industrial raw materials, fuel, and capital goods are imported than are consumer goods. Table 3-6 shows the commodity composition of Korean imports in 1982. Industrial raw materials and fuel comprised 64.0% of Korea's total imports including a petroleum share of 25.2%. Consumer products had a share of 10.3%, including a grain share of 3.9%. In general, grain and crude oil imports are major categories for domestic use, while capital goods and other industrial raw materials are imported largely to be used for export production.

Table 3-6
Korea's Imports by Commodity
1982

	Amount	Composition (%)
Consumer Goods	<u>2,502</u>	<u>10.3</u>
Food	937	3.9
Durable Consumer Goods	689	2.8
Industrial Raw Materials and Fuel	<u>15,516</u>	<u>64.0</u>
Petroleum	6,103	25.2
Capital Goods	<u>6,233</u>	<u>25.7</u>
Machinery	2,351	9.7
Electronic and Electric Products	2,075	8.6
Transportation Equipment	1,277	5.3
Total Imports	<u>24,251</u>	<u>100.0</u>

Unit: U.S. Dollars in millions

Source: Office of Customs Administration

Business Structure

Korea's industrial policy in the past 20 years has tended to favor large-scale enterprises and rather than small and medium-sized enterprises in Korea. This was not the obvious intention of the government, but the various industrial incentives, coupled with expansionary macro-economic policies, led to those consequences, which are not necessarily desirable. As a result, large-scale enterprises captured 68.4% of total output, while small- and medium-sized industries shared the remaining 31.6%. In 1982, 10,968 of 1.2% of 917,321 businesses in Korea were classified as large-scale enterprises while the remaining 906,353 fell into the small- and medium-sized category.

Thus, Korea's pattern of industrial growth depends heavily on the large-scale enterprises that played a leading role in industrial development of Korea. (In this respect, Korean experience differs much from Taiwan's where medium-sized enterprises played a dominant role in the industrialization.) In 1980, the export share of small- and medium-sized industries in total exports was 32.1% in Korea, while in Taiwan it was as high as 60.4%. Note in Table 3-7 that firms exporting more than \$100 million account for 45.2% of total exports in Korea, which is in sharp contrast to Taiwan's share of 3.5%, indicating that exports are produced mainly by large firms in Korea.

Table 3-7
Distribution of Exporting Firms
by Size of Export (1979)
Korea & Taiwan

KOREA				
Export value	No. of Firms		Export Performance	
	100 and above	21	0.9	6,800
50 - 100	14	0.6	942	6.3
10 - 50	159	6.7	3,228	21.4
5 - 10	166	7.0	1,182	7.8
1 - 5	931	39.1	2,119	14.1
1 or less	1,093	45.8	784	5.2
TOTAL	2,384	100.0	15,055	100.0

TAIWAN				
Export value	No. of Firms		Export Performance	
	100 and above	4	-	568
50 - 100	14	-	1,050	6.5
10 - 50	135	0.3	4,050	25.1
5 - 10	287	0.5	2,152	13.4
1 - 5	2,333	4.4	5,070	31.5
1 or less	50,027	94.7	3,212	20.0
TOTAL	52,800	100.0	16,102	100.0

Unit: U.S. Dollars in Millions, %

Source: KOTRA (Korea Trade Promotion Corp.)

To ensure balanced industrial growth and to secure a supply of more complicated parts and components for new technology-intensive industries, the government has been promoting small- and medium-sized industries since the late 1970s, and promotion of small- and medium-sized industry will be one of the most important policies under the revised Fifth Five-year Economic Plan (1984-1988).

3.3 International Ties of the Korean Economy

Overview

Korea's outward-looking economic policy strengthened its economic ties with other nations. This not only helped the nation's economic development but permitted it to be well represented in world trade. Korea has one of the highest trade ratios in the world. The ratios of exports and imports to GNP reached 37.4% and 38.2%, respectively, in 1983. Without international transactions in commodities, labor, capital, and technology, Korea could not have experienced a remarkable economic growth during the past decades.

Looking at Korea's trade by country, the U.S. and Japan still remain the most important partners, followed by the European and other Asian countries (See Table 3-8).

Table 3-8
Korea's Trade by Country
1964, 1983

	1964					1983				
	Export		Import		Ratio	Export		Import		Rat.
	Amt.	%	Amt.	%	I/E	Amt.	%	Amt.	%	I/E
U.S.A.	35.6	29.9	202.1	50.0	5.67	8,245.4	33.7	6,274.4	24.0	0.76
Japan	38.2	32.1	110.1	27.2	2.88	3,403.6	13.9	6,238.4	23.8	1.83
Europe	15.7	13.2	39.2	9.7	2.50	3,803.3	15.6	2,739.7	10.5	0.72
Asia ^(a)	27.8	23.3	36.1	8.9	1.30	5,689.7	23.3	6,534.7	24.9	1.15
Africa	0.3	0.3	1.3	0.3	4.33	768.7	3.2	620.6	2.4	0.81
Others	1.4	1.2	15.6	3.9	11.14	2,534.4	10.3	3,784.4	14.4	1.49
Total	119.1	100.0	404.4	100.0	3.40	24,445.1	100.0	26,192.2	100.0	1.07

Unit: Million, U. S. Dollars

Note:

(a) Excluding Japan

Source: Office of Customs Administration

In spite of the significant improvement of Korea's trade balance during the past two decades, Korea has never had any overall trade surplus in the 31 years since the Korean War, and its trade deficit still remains substantial. Although Korea has built a surplus with the U.S. and European countries since the early 1980s, its trade deficit with Japan and other Asian countries exceeds the surplus.

The inflow of foreign capital to Korea between 1962 and 1983 totalled 1,704.2 million dollars. The advanced countries, including the U.S. and Japan, have played a significant role in supplying foreign capital needed by Korea. By 1974, some 31% of manufactured exports were produced by subsidiaries of foreign firms. Among the sources of foreign capital invested between 1962 and 1983, Japan topped the list with 49.5% of total foreign investment, followed by the U.S. with 27.7% (See Table 3-9). A new law, the Foreign Capital Inducement Act, eases foreign investment and the government approves foreign investments automatically in two-thirds of the 999 designated industrial sectors. As a result, foreign investment during the first half of 1984 jumped 319% from the year-earlier period, with U.S. ventures accounting for nearly half.

Table 3-9
Foreign Investment by Country
1962 - 1983

	1962-1971		1972-1983		Total (1962-1983)	
	Amount	%	Amount	%	Amount	%
U.S.A.	34.3	35.8	437.1	27.2	471.4	27.7
Japan	41.5	43.4	802.0	49.9	843.5	49.5
West Germany	2.7	2.8	23.1	1.4	25.8	1.5
Netherland	6.3	6.6	108.6	6.7	114.9	6.7
U.K.	0.2	0.2	22.3	1.4	22.5	1.3
Hong Kong	0.3	0.3	52.4	3.3	52.7	3.1
Others	10.4	10.9	163.0	10.1	173.4	10.2
Total	95.7	100.0	1,608.5	100.0	1,704.2	100.0

Unit: Million, U. S. Dollars

Source: Economic Planning Board

With regard to technical cooperation, technology imports have been encouraged with such government support as exemption of taxes on royalty payments. Between 1962 and 1982 there were 2,281 cases of foreign technology imports that generated royalty payments of more than 680.6 million dollars. Of those, 92.1% were in such manufacturing sectors as machinery, electric and electronic, textiles, and chemical industries. In the past (1962-1982), Japan dominated as the source of technology imports, supplying 56.4% for Korea. The United States supplies only 23.4% of Korea's total technology imports (See Table 3-10). As of the end of 1982, 69 foreign companies have technological ties with Korean automobile and auto-parts manufacturing companies. Of those, 42 (61%) were Japanese companies, 14 were U.K., and only 8 were U.S..

Table 3-10
Technology Imports by Country
1962 - 1982

Country	1962-1966	1967-1977	1978-1982	Total	%
U.S.	13	196	324	533	23.4
Japan	11	565	711	1,287	56.4
West Germany	4	35	68	107	4.7
U.K.	1	23	60	84	3.7
France	1	9	53	63	2.7
Other	3	59	145	207	9.1
Total	33	887	1,361	2,281	100.0

Source: Ministry of Finance

Economic Ties between the U.S. and Korea

Economic transactions between the U.S. and Korea have gone through several distinct stages during the past thirty years. From the end of World War II to the end of the 1950s, the role of the U.S. in helping Korea through these difficult days showed clearly in their trade relationship. Korea depended on American exports to Korea, which were various forms of grants-in-aid, while Korean exports to the U.S. were close to nil during that same period.

In the 1960s, the role of the U.S. changed significantly. Economic aid in its pure form was completely phased out, while the U.S. remained one of the main suppliers of technology and capital. The more important role of the U.S. for Korean economic development in this period was as a major market for Korean exports, in particular light industrial products. During this period, the balance of trade was still in favor of the U.S.

In the 1970s, Korean economic development commenced to show a significant effect on the nation's economic strength against its trade partners. In this period, there rose a certain pattern of specialization in trade between the two countries. Korean exports were concentrated in light industrial goods, while U.S. exports tended to be polarized between basic materials and grains on the one hand, and high-tech and capital-intensive products on the other. During the period 1970-1980, a rough trade equilibrium between the two countries held, while U.S. exports and Korean exports increased rapidly at an average growth of 23.7% and 27.8%, respectively.

In 1982, Korea began running a trade surplus of \$287 million with the U.S., and in 1983 the surplus reached \$2 billion dollars. It is estimated that the surplus in 1984 reached \$3 billion dollars. As a result, several categories of Korean products, including steel and color TV sets, have recently been restricted by U.S. barriers or voluntary restrictions, while Korea has begun to liberalize its import policies. After a period of very slow expansion of trade between the two countries in 1979 and 1980, both imports and exports began to surge again in 1982, following recovery of both the U.S. and Korean economies. The U.S. stands as Korea's largest partner as an importer of Korean goods, and it stands as the second largest partner after Japan as an exporter to Korea.

3.4 Technology

Overview

Undoubtedly, Korea's comparative advantage of low labor cost has been the most important factor in the nation's rapid economic growth during the past two decades. However, that economic growth has resulted in a shortage of skilled labor and a rise in real wages that has exceeded productivity improvement. Further, some countries less developed than Korea, with much lower labor cost, have increased their relative competitiveness. Therefore, Korea cannot compete well any more solely with a labor cost advantage in world markets characterized by rising protectionism.

Even though Korea's economic growth is, to some extent, attributable to its improvement of productivity through improved technology, the share of its economic growth due to technological improvements is much less than in the U.S., Japan, and Taiwan (See Table 3-11).

U.S.A. (1953-1965)	Japan (1953-1965)	Taiwan (1967-1979)	South Korea (1967-1979)
69.1%	52.3%	27.1%	20.8%

Source: The Federation of Korean Industries

In this respect, the development of technology will be an essential factor not only for enhancing Korea's competitiveness but for improving the nation's industrial structure. Obviously, Korea needs to improve its technology in several areas: basic technology, design and development, manufacturing technology, process technology, quality control, organizational skills, etc. Korean manufacturers have had a good reputation for their unusual success in technology assimilation. In manufacturing technology, Korea has nearly reached the world requirement. However, because Korea has depended heavily on imported technology rather than indigenous learning or technology development, basic technology and design skills remain the weak points of Korea's technology, let alone high technology.

Therefore, it is clear that Korea should expand simultaneously both its imports of technology and its indigenous learning capability. Technology inducement, technological development, and manpower training deserve the most important policy priority in Korea.

The government has developed various kinds of support, including large-scale tax and financial assistance, to invigorate industrial technology development. Every year the government implements national technological development projects to meet the demand for advanced technology provide and strategically essential technology for Korean firms.

Technology Development

R&D investment has continuously increased due to steady gains in technological development through the past two decades. As late as the early 1970s, total R&D investment, including government support, showed only 10 billion won or more. It amounted to 620 billion won in 1983 or 1.06% of GNP (See Table 3-12). However, it is still far behind the level of R&D investment in advanced countries (See Table 3-13). To promote economic growth through technological innovations, the government plans to increase R&D investment to 2% of GNP by 1986.

Table 3-12
R&D Investment in Korea
1970 - 1983

	R&D expenditures (billion won)	Government:Civil	Ratio to GNP (%)
1970	12.8	71:29	0.47
1974	43.3	66:34	0.59
1977	123.0	48:52	0.72
1980	246.2	52:48	0.71
1981	329.3	44:56	0.76
1982	457.7	41:59	0.95
1983	620.0	-	1.06

Source: Ministry of Science and Technology

Table 3-13
Comparison of R&D Investment
in Selected Countries
1982

	Ratio to GNP	Government: Civil
U.S.A.	2.53	46:54
Japan	2.20	24:76
West Germany	2.66	43:57
France	1.84	56:44
Korea	0.95	41:59

Source: White Paper on Science and Technology, Japan, 1983.

Looking at investment by industries, the ratio on investment expenditures to sales in the manufacturing sector was 0.65% in 1982. This is far behind the level of the U.S. (3.1%), Japan (1.9%), and West Germany (3.2%). The consumer products and primary metals sectors showed a relatively lower level, while the heavy and chemical industry sectors such as machinery, electronics, chemicals, and transportation equipment, showed a higher level (See Table 3-14).

Table 3-14
The Ratio of R&D Investments to
Sales by Industry in Korea

	1978	1979	1980	1981	1982
All industries	0.60	0.62	0.47	0.54	0.58
Manufacturing	0.72	0.33	0.50	0.67	0.65
Foods	0.52	0.25	0.36	0.30	0.33
Textiles	0.52	0.33	0.53	0.72	0.23
Paper & paper products	0.58	0.37	0.34	0.91	0.63
Chemicals	0.48	0.13	0.26	0.52	1.13
Ceramics	0.96	0.64	0.52	0.46	0.59
Primary metals	0.55	0.34	0.18	0.30	0.27
General machinery	0.89	0.55	1.23	0.97	1.21
Electric & electronic	1.32	1.52	1.90	1.73	2.44
Precision machinery	—	1.58	1.64	2.16	1.34
Transportation equipment	—	0.55	0.62	0.51	0.73

Source: Ministry of Science and Technology

Section 4

MAJOR INDUSTRIES IN SOUTH KOREA Performance and Prospect

4.1 Shipbuilding Industry

Overview

The shipbuilding industry in Korea, which was developed over a fairly short time (1973-1983), is regarded as one of the most successful in the world. According to the Maritime Reporter June, 1984, Korea has increased its share of the world order book from 2.8% in 1974 to 19% in 1983, becoming the second most important shipbuilding nation in the world, after Japan.

Because shipbuilding is a relatively low-energy-consuming and labor-intensive industry, it was considered the most suitable heavy industry for Korea's resource conditions when the government devised the Heavy and Chemical Industry Development Plan launched in 1973. However, world economic conditions and the shipbuilding market during the early 1970s were not the most favorable circumstances for Korea to enter such a technical and costly market with no prior experience. The super-tanker boom had already ended with the oil crisis of 1973, and at the same time protectionism continued accelerating in world trade. Further, Korea's low level of technology and deficiency of materials, including steel, were disadvantages. The domestic market for new vessels was too small to be included as a target by industry's planners.

Nevertheless, since 1973 many huge shipyards have been constructed in South Korea, the practices and skills needed for a progressive and expanding industry have been developed and learned in the Korean yards. Orders for new ships increased from 982,000 tons Gross Registered Tonnage (GRT) in 1973 to 4,098 millions GRT in 1983. Exports of new ships, refits, and floating structures have increased at a growth rate of more than 100% per year, with value in U.S. dollars increasing from \$2 million in 1973 to \$3,735 million in 1983.

Several factors have contributed to development of the Korean shipbuilding industry:

- 1) Low wages and skilled workers have enabled the Korean shipbuilders to build their products in less time and at lower cost than their competitors.
- 2) The use of modern technology, resulting largely from the success of technology transfer, has also contributed to productivity. Japan has been the most important partner because of the geographic and cultural proximity between the two countries. Not only imported technologies but also the hiring of skilled and experienced foreigners improved the industry's productivity.

- 3) Expansion of world demand for new ships in the late 1970s helped to increase orders to Korean shipyards. The development of controls to prevent sea pollution led ship owners to replace old vessels with new ones, and the expansion of world trade also increased demand for new ships.
- 4) Preferential credit to ship exporters make Korean shipbuilders the most favored and largest debtors of the Korea Export and Import Bank.
- 5) Contemporary development of linking industries including engine, steel, and other material industries stimulated the shipbuilding industry's development. Domestic production of steel has increased from 1.7 million tons in 1973 to 13.4 million tons in 1983.

Shipbuilding Facilities in Korea

Before the Hyundai Group, a leading Korean conglomerate, built the world's largest single shipyard at Ulsan between 1972-1974, Korea had only small yards capable of building small ships of about 100 gross tons. Korea's annual capacity was as little as 4,600 tons in 1962 and 250,000 tons in 1973.

Hyundai spent \$200 million to build the Ulsan yard, which has a capacity of two million tons. Two years later, Hyundai's closest rival, the Korea Shipbuilding and Engineering Corporation, raised its annual capacity from 200,000 tons to 1.4 million tons. Two years after that, Daewoo and Samsung entered shipbuilding. Now Korea has four large shipyards and several small yards. Total capacity is about four million gross tons. However, this figure can be misleading as it is only nominal. It refers to the tonnage that could be achieved if every shipyard built the largest possible ship in each dock. The standard known as CGRT (Compensated Gross Registered Tonnage), which is used in Japan and Europe, measures Korea's capacity as slightly over two million tons.

As the capacity of Korean shipyards increased more rapidly than production during the 1970s, the industry's financial condition was weakened by over-capacity. Therefore, in 1977, to better utilize space and dock facilities, Korean shipyards began to construct floating structures and to perform refit work. As a result, exports of such categories as refit work and floating structures in 1983 reached \$1,908 million, slightly in excess of half the industry's total export earning (\$3,735 million), and contributed to the improvement of the companies' profits.

In 1983, total sales of the nine major companies, accounting for about 99% of total shipbuilding activities, registered 202 billion won (one U.S. dollar equals about 800 won), up about 20% from a year earlier. In particular, Daewoo realized its first profits since the company began shipbuilding. Sales and profits of major shipbuilding companies for 1983 are shown in Table 4-1.

Table 4-1
Sales and Profits of
Major Shipbuilding Companies
1983

Shipbuilding Companies	Total Sales (million won)	Net Profit (million won)	Employees ^(a)	Exports (U.S. \$ thousand)
Hyundai	992,876	30,528	28,340	1,022,389
Daewoo	400,851	5,792	20,200	632,039
KSEC	230,393	2,664	4,647	151,258
Samsung	208,998	-6,846	8,549	119,087
Hyundai Mipo ^(b)	28,531	1,869	4,382	28,292
Korea Tacoma	63,338	368	1,776	59,648
Daedong	42,557	-2,500	936	34,072
Daesun	37,140	479	1,204	26,767
Donghae	17,373	1,203	643	30,508

Notes:

(a) The number of employees who have worked more than three months as of the end of 1983.

(b) Hyundai's repair yard

Source: Korea Shipbuilders' Association.

Problems and Prospects

Even though the Korean shipbuilding industry is second in the world, many problems still remain:

- 1) Korea's advantages in cheaper labor cost and earlier delivery are opposed by the countervailing disadvantages of lower levels of technology and productivity than some competitors.
- 2) Most shipbuilding-related organizations in the world agree that recovery in the world shipbuilding industry will come after 1987. The current recession in the world market is casting a shadow over the shipbuilding industry in Korea.
- 3) Korean shipbuilders have been dependent largely upon imports for many of their intermediary materials, about 90% of which have been procured from Japan. This has the effect of conferring on Japan between 28 and 38% of Korean production.
- 4) Marketing is not a strong activity within the industry. The Korean shipbuilders are short of overseas branches, specialized sales engineers, and information on potential customers and their requirements.

Those factors lead to the conclusion that the Korean shipbuilding industry probably will not grow as rapidly in future as it has in the past. However, the progressive trend in technical development is expected to continue, particularly in development of technically complex vessel construction, localization of sophisticated intermediary materials, and improvements in productivity. Diversification into other products, including high-value-added floating structures, will be continued. Thus Korea will remain one of the most important shipbuilding nations, even though the Korean shipbuilding industry will not contribute to growth of the nation's economy as much as it has in the past.

4.2 Electronics Industry

Overview

Korea imported all of its electronic products before 1959, when radios began to be assembled with imported parts for the domestic market. Thanks to expertise gained in radio production, the first exports of electronic products came in 1962, when U.S. \$4,000 worth of radios were shipped to Hong Kong. Thereafter, radio exports increased sharply, reaching U.S. \$2.9 million in 1966.

As foreign electronics firms became interested in investing in Korea because of the high profitability possible with industrious but inexpensive labor, the industry began to receive a flow of foreign capital and technology. Thanks largely to this foreign involvement, exports of electronic products quintupled from U.S. \$3.6 million in 1966 to \$19.7 million in 1968.

In the following year, the government introduced the Electronics Industry Promotion Law, explicitly recognizing the industry as a strategic export industry, and an eight-year development plan (1969-1976) was set in motion. As a result, production expanded at an annual growth rate of 48.6%, from U.S. \$138 million in 1971 to U.S. \$3,281 million in 1979. Exports also rose sharply, at an average annual rate of 46.2%, from U.S. \$89 million in 1971 to U.S. \$1,845 million in 1979.

Although government support and involvement of foreign firms were major factors in enabling the industry to move up the technological ladder and into export markets, the great expansion would not have been possible without a major increase in world demand in the seventies. That annual growth rate was about 13%.

When the economic environment deteriorated sharply at the beginning of the eighties, both at home and abroad, as a result of the oil shock and political unrest, the Korean electronics industry suffered. Domestic sales plummeted by about 20%, and export growth slowed from 35.8% in 1979 to 8.6%, resulting in a production decline of 13.1% in 1980. Economic stability restored in 1981 allowed production to rise by 32.9% and 5.7%, respectively, in 1981 and 1982, but this was below the record of the 1970s. The rise of production has been accompanied by a considerable rise in the industry's imports, due to its reliance on offshore sourcing for major parts and components. The fall in exports from U.S. \$2,195 million in 1981 to \$2,144 million in 1982, resulted in the industry's trade surplus decreasing from U.S. \$452 million in 1981 to \$165 million in 1982.

The Korean electronics industry still promised to grow faster than GNP during the next decade, however, as the world market is expected to expand at an average annual rate of 11.8% throughout the decade, and domestic demand will also be stimulated as the domestic society moves into a more industrialized and information-oriented era.

The Role of Foreign Investment and Technology in the Industry

Foreign capital and technology have contributed to South Korea's economic growth during the past two decades by working to develop many different kinds of industries. Compared to electronics, however, other industries have not been as heavily supported by foreign companies. Subsidiaries of foreign companies and joint-ventures have played an outstanding role in the industry. They provided capital and introduced technological and management know-how in its developing stages. Their policies have worked to enhance exports and employment.

The first foreign investment was made by Fairchild Camera and Instrument of the U.S. in 1966. Since then, many foreign companies have become involved in the Korean electronics industry by way of direct investment or joint-venture. As a result, in 1970 foreign companies and joint-ventures in Korea shared about 60% and 15%, respectively, of total exports of electronic products. While the share of exports attributable to foreign companies fell from 60% in 1970 to 40% in 1979, the joint-venture's share continued at 15% until 1979. In 1978 the number of workers in foreign firms and joint-ventures reached 84,546, or almost half of total employees in the industry.

Foreign electronics firms were able to secure high profits by utilizing the country's abundant supply of well educated but relatively low-cost labor. The government's efforts to attract foreign investment and induce advanced technology also produced a flow of foreign capital and technology.

As the industry has become more technology-intensive, the wages in Korea have begun to rise more rapidly. Foreign companies can no longer obtain the same level of profits as in the early stages of the industry. Therefore, the percentage share of total production by foreign companies and joint-ventures has decreased incrementally, while the volume of their production has not decreased, except for consumer products produced by foreign firms in 1982 (see Table 4-2). Foreign firms and joint-ventures have attached great weight to parts and components production, while domestic firms have tended to concentrate more on consumer products. Because the consumer products are more labor-intensive than other electronic products, production of consumer products by foreign firms is expected to be replaced steadily by domestic firms.

Table 4-2
 Electronics Production in Korea
 by Types of Firms and Products
 1980 - 1982

	1980		1981		1982	
	Million \$	%	Million \$	%	Million \$	%
Domestic Firms	1,384	48.5	2,181	57.5	2,337	58.3
Consumer Products	873	30.6	1,310	34.5	1,302	32.5
Industrial Equipment	138	4.8	259	6.8	336	8.4
Parts and Components	373	13.1	611	16.2	698	17.4
Joint-ventures	774	27.1	846	22.3	875	21.8
Consumer Products	69	2.4	48	1.3	76	1.9
Industrial Equipment	197	6.9	193	5.1	237	5.9
Parts and Components	508	17.8	605	15.9	562	14.0
Foreign Firms	694	24.3	764	20.2	793	19.8
Consumer Products	206	7.2	216	5.7	179	4.2
Industrial Equipment	29	1.0	42	1.1	65	1.6
Parts and Components	459	16.1	507	13.4	558	13.9
Total	2,852	100.0	3,791	100.0	4,006	100.0

Notes: Figures may not add exactly because of rounding.

Source: Korea Electronics Industry Association

The Korean electronics industry is today putting ever more stress on the development of technology-intensive products, and thus needs much more investment in new facilities and technology improvement. Therefore, there will be a niche large enough for foreign companies to contribute to the industry, especially by way of joint-venture and technology exports rather than direct investment.

Problems and Prospects

The electronics industry has grown remarkably during the past two decades. Although both the domestic and world economies were beset by shocks and uncertainty in the early 1980s, the recent environment is likely to be highly favorable to the industry. The industry, therefore, is expected to grow by 20 to 22% per year until 1986, and then 15 to 17% in the following five years. However, some problems that emerged during the past period of rapid growth must be solved if the industry is to realize its full potential.

First, to attain more technological development, more investment in research and development must be made. In 1979 the industry spent the equivalent of only 1.52% of total sales on such investment, which is meager compared to 7.1% in the U.S. and 3.7% in Japan in 1976. Considering the worldwide tendency towards protectionism, and fierce competitiveness in advanced electronic products, the technological gap between Korea and other advanced countries could become a severe constraint on the industry's development unless appropriate measures are taken to eliminate the gap.

Second, the industry's strong bias toward the production of consumer products needs to be changed. The further development of parts and components and industrial equipment production is essential to the industry's future, as the market for hi-tech products (such as the LSI and VLSI, computers, robots, telecommunication equipment, and office automation facilities) is likely to expand more rapidly than others.

Third, rapid rises in wage costs during the seventies have undermined price competitiveness, as newly developing countries have increasingly entered the world electronics market with the advantages of much lower labor cost.

Finally, to secure long-term competitiveness, Korean companies should place manufacturing plants in advanced nations. By doing so, Korean firms can alleviate the effects of imports restrictions against their products, acquire advanced technology more easily, and raise consumer confidence in the countries in which they invest.

4.3 Machinery Industry

Overview

The machinery industry, in a broad sense, includes metal products, transportation equipment, precision machinery, and general machinery. This section focuses largely on the general machinery industry, which manufactures the means of production for various kinds of industries.

The general machinery industry is highly affected by the equipment investment plans in all industries, which in turn are influenced by business cycles. The industry has very high linkage effects, and it is thus of prime importance in the national economy. However, accumulated know-how counts for more in the machinery industry than in other sectors, and it is very difficult to acquire and apply such technology in a short time. As a result, most developing countries have had to import the bulk of their machinery from advanced countries, which account for about 85% of world machinery exports.

In the 1960s, the machinery industry was one of the least developed in Korea. Since 1973, when the government introduced the Long-term Machinery Industry Promotion Program, some remarkable advances have been made. However, Korea's rapid industrialization had to be supported by a growing volume of machinery imports, and the industry's trade deficit expanded during the 1970s. Even though the deficit has declined since 1979 because of increased exports, the industry still remains far from being self-sufficient. In 1983, only 46.4% of domestic demand was met by home production, and the remainder was met by imports.

Improvements in the structure of the machinery industry have been made by increased investment, accumulation of technology and know-how, and the recovery of domestic and world demand. These factors also ensure that the industry will continue to play a very significant role in the nation's economy.

Supply and Demand

The Korean machinery industry has catered primarily to domestic customers, who have bought about 85% of total domestic production. Domestic demand for general machinery increased by 22.6% per year during the period of the second five-year plan 1966-1971, reaching a value of \$405 million in U.S. dollars in 1972. The rapid expansion continued during the 1970s, reaching \$4,310 million in 1979, a more than ten-fold rise since 1971. In 1980 domestic demand fell by 36%, with a negative GNP growth of 5.2%.

As economic and social stability was restored in 1981, domestic demand has increased gradually. Estimated domestic demand in 1983 stood at \$4,305 million, almost the same level as in 1979.

In regard to export demand, only simple products, requiring a low level of technology, were exported in the early stages of the industry's development. In 1971 the value of these exports was only \$12 million. From this small base, exports grew rapidly at a rate of 28.8% per year between 1973 and 1981, reaching \$450 million in 1981. Notably, exports did not decline during the world recession in the early 1980s. As a result, the proportion of exports to total domestic production has increased from 18.2% in 1971 to 25.6% in 1981 (see Table 4-3).

Table 4-3
Supply and Demand Trends
in the Korean General Machinery Industry
1966-1983

	1966	1971	1979	1980	1981	1982	1983 ^(a)
Demand	123	417	4,607	3,529	4,092	4,159	4,966
Domestic Demand (A)	119	405	4,310	3,171	3,642	3,689	4,305
Exports (B)	4	12	297	358	450	470	661
Supply	123	417	4,607	3,529	4,092	4,159	4,966
Output (C)	27	66	1,470	1,383	1,761	1,917	2,660
Imports (D)	96	351	3,137	2,146	2,331	2,242	2,306
Trade Deficit (D-B)	92	339	2,840	1,788	1,881	1,772	1,645
Export Ratio (B/C)	13.7	18.2	20.2	25.9	25.6	24.5	24.8
Import Ratio (D/A)	80.4	86.7	72.8	67.7	64.0	60.8	53.6
Self-Sufficiency Ratio (C-B/A)	19.6	13.3	27.2	32.3	36.0	39.2	46.4

Unit: U.S. Million dollars, %

Note:

(a) Estimated

Source: Korea Society for Advancement of the Machinery Industry
(KOSAMI)

On the other hand, supplies of both imported and home-made machinery have reflected demand trends. Since the middle of the 1960s, as Korea's industrialization process began to speed up, the country's machinery production has increased rapidly to meet the increasing demand. However, a lack of capital, raw materials, and technology has hindered self-sufficiency of machinery. Therefore, a great deal of imported machinery has been supplied to meet domestic demands. Even though the self-sufficiency ratio of the industry soared from 19.6% in 1966 to 46.4% in 1983, thanks to development of domestic

production, the trade deficit in the industry, which reached \$1,772 million in 1982, was equivalent to 73.9% of South Korea's total trade deficit in the same year. Nevertheless, it is likely that the trade deficit in the industry could swing to a surplus after the late 1980s.

Production Facilities

Surely, the key to improving the structure of the general machinery industry is development of production facilities. In the early 1970s the move to change the emphasis of Korea's industrial structure toward the chemical and heavy industries began, and the machinery industry was recognized as a key industry for the nation's economic development. Investment in facilities and equipment for the industry has accelerated since 1973, when the Changwon Machinery Industrial Complex began to be constructed. Besides the need to upgrade the nation's industrial structure, the policy to develop the machinery industry was aimed at meeting defense needs. Between 1973 and 1978, annual investment in the industry expended from 6.8 billion won to 175.6 billion won. There were 1,910 firms engaged in manufacturing general machinery at the end of 1981. Of these, 56 firms were operating with significant economies of scale, employing more than 200 people, and 1,774 firms had less than 100 employees.

Production facilities in the industry are fairly new. Most equipment is less than 10 years old, because of the relatively short history of the industry. But the industry's short history also means that additional technology and know-how are needed. As a result, there is a heavy reliance on imported technology for the production of sophisticated and special-process machines. Between 1962 and 1981, the industry introduced 582 new technologies from abroad and spent U.S. \$103.9 million in royalties. The industry thus accounted for nearly a third of Korea's total import of technology. The largest portion, 62%, came from Japan, while 17.5% came from the U.S., 6.5% from West Germany, and 4.6% from the U.K..

Besides know-how and imported technology, adequate research and development investment is indispensable for the industry's development. Unfortunately, however, the Korean machinery industry invested only 0.97% of its total sales revenue in R&D, compared to more than 2% in most advanced countries and 5.6% in the U.S.. Small businesses in Korea can not afford massive R&D investment, and large firms with secure sales stemming from the narrow base of the domestic market do not have any strong incentive for such investment.

Prospects

In general, strong investments in equipment since 1973 have left the industry with relatively modern facilities. If any appropriate way can be found to improve the technological base of the industry, the Korean machinery industry will be favored to take advantage of the world economic recovery. Further, domestic demand is likely to remain strong as the country continues to industrialize. This leads one to the conclusion that the industry will be the cornerstone of the nation's industrialization and economic development.

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4.4 Textile Industry

Overview

From 1917, when the Chosum Spinning Company was established to meet increasing domestic demand, the Korean Textile industry continued developing at a slow but steady pace until self-sufficiency in textiles was attained in 1956. As early as 1957 the industry began exporting surplus products. That year, exports were valued at \$1.3 million. During the 1960s, the government favored labor-intensive manufacturing exports, including the textile industry, which retained a leading position as one of the most important export-oriented industries. The percentage share of textiles in Korea's total exports gradually increased, reaching 41.4% in 1971 with a volume of more than \$400 million. However, changes in the 1970s exposed the industry to difficulties. A light-industry-oriented industrial structure began to give way to more complicated heavy and chemical industries, and the world textile trade became more restricted because of growing international protectionism.

The Korean textile industry, nevertheless, has played an important role in Korea's economic development, thanks to its comparative advantage of abundant low-cost but skilled labor. In 1982, the industry accounted for 5.4% of the nation's total value-added production, 27.4% of total exports, and 5.2% of all industrial labor. On the other hand, it shared 5.4% of world exports and was ranked the 6th largest exporter in the world. The industry's position as Korea's largest single foreign exchange earner is threatened by problems including underinvestment, worn-out facilities, declining competitiveness and lagging technology, but its significant role in the nation's economy is likely to last for a long time.

Factors Spurring Development of Korea's Textile Industry

The textile industry was the strategic industrial arena in which developing countries struggled to overtake developed countries that had long been dominant. The domestic textile industry's development was an important factor in leading Korea to its position as a newly industrialized nation. During the last two decades, at least four timely factors spurred development of South Korea's textile industry:

- 1) The structural change of the world textile market—that is, the transfer of comparative advantages in textile production to the newly industrializing countries.
- 2) The worldwide increase of textile goods consumption.

- 3) Simultaneous developments of the chemical industry in Korea, which enabled the Korean textile industry to take advantage of the worldwide surge of synthetic textile production.
- 4) The successful transfer of technology and the comparative advantage of low-cost labor.

Pertinent to the first factor is that textile production began to decline in the developed countries as early as 1919, while many underdeveloped countries, including Korea, were entering into the factory production system. For example, the percentage share of expenditures absorbed by textiles, and clothing in the U.S. was reduced from 14% in 1919 to less than 9% in 1959. Comparative advantages in the industry moved slowly in favor of such developing countries as Hong Kong, Taiwan, and South Korea. Significant growth of the industries in the NICs during the 1960s alarmed the developed countries and caused them to move to protectionism in the textiles in the early 1970s.

The worldwide increase of textile consumption from 1955 to 1975 stimulated the emergence of NICs in parallels with structural changes in the world textile market. During the two decades world fiber consumption almost doubled, from 12.5 to 26.1 million tons. Per capita fiber consumption in the U.S. and European countries increased from 14.7 kg in 1965 to 17.7 kg in 1975. The increase in textiles consumption and high purchasing power in the U.S. and European countries were of decisive importance in the growth of Korea's textile industry.

One of the most important factors that gave critical momentum to development of the Korean textile industry was the sharp rise in use of man-made fiber, especially synthetic fiber and their blends. Synthetic fibers' share of the world fiber output rose from 5% in 1960 to 29% in 1973. Because the chemical textile industry was new for both developed countries and the NICs, the latter were not significantly disadvantaged in terms of technologies. The worldwide growth of chemical textiles created an advantageous opportunity for Korea to invest in the chemical industries. Growth of synthetic fiber output in Korea, from 16 million square meters in 1962 to 541 million in 1976, was due largely to the government's policy shift into the heavy and chemical industries in the early 1970s.

Finally, the shift in the international transfer of technology was most remarkable in the textile industry. The skill requirements were so modest that the developing countries could adjust to the latest technology embodied in the machinery, which was readily available to manufacturers in the developing countries. Also, in such a highly labor-intensive industry, the relative advantage of capital intensity and technology could not offset the

developed countries' disadvantage of much higher labor costs, which amounted to a gap of as much as 600% to 700%. In 1978 the hourly wage of a blue-collar worker in Korea was 13% of that in the U.S..

Problems and Prospects

The Korean textile industry is confronted with many pending problems and also faces new challenges from such developing countries as China and other Asian and African countries. Therefore, various efforts should be made to solve problems, to bolster the industry, and to allow greater maneuverability for continuous economic growth in Korea.

Productivity bottlenecks have occurred because of use of old and worn-out equipment. The continued use of outdated equipment has caused costs to soar and product quality to deteriorate. Therefore, the government has encouraged investors to replace obsolete equipment by supporting a 30 billion won program in 1984. Expectation of economic recovery will stimulate new investment in the industry. During the period 1972-1982 the productivity of labor increased by only 4% per year in the industry, while real wages increased by 10%, resulting in erosions of companies' profits and deterioration of international competitiveness during the same period. Diversification of types of goods and quality improvement will be encouraged by promoting the use of new raw materials and increased investment in R&D in order to compensate for the deterioration of competitiveness caused by wage increases.

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4.5 Petrochemical Industry

Overview

The Korean petrochemical industry has grown very rapidly, even though the local market is relatively small and development has been hampered by the nation's lack of capital, technology, and the industry's basic raw material, oil. Early on, the government recognized that it would be necessary to build up domestic production to meet rapidly expanding demand in accordance with Korea's industrialization, which otherwise could have resulted in a massive drain on the country's foreign exchange resources. Aside from import substitution, the linkage effects were also considered, because petrochemical products are essential raw materials for numerous industries. Consequently, petrochemicals were designated as a strategic industry under the second five-year plan (1967-1972). Since then, the industry has expanded greatly as a result of the government's financial and administrative support. The industry has also played an important role as a supplier of basic industrial materials to such major export-oriented industries as synthetic-fiber fabrics, plastic fabrication, vehicles, electronic appliances, tires, and footwear. During the period 1973-1982, domestic demand for major petrochemical products rose about four-fold, at an annual growth rate of 17%, or more than GNP growth. Two large petrochemical complexes in Korea, which were built in 1973 and 1979, respectively, could meet about 80% of total domestic demand in 1980.

Production Facilities

Korea had two large petrochemical complexes. One, in operation since 1973, is the Ulsan Petrochemical Complex. It consists of a naphtha cracking ethylene plant capable of 150,000 metric tons per year, and 20 down-stream plants. The second complex, completed in 1979, is the Yecheon Petrochemical Complex, which has a naphtha cracker capable of producing 350,000 metric tons of ethylene per year, and 16 down-stream plants. While the Ulsan complex uses only naphtha as its raw material, the Yecheon naphtha cracking plant can also use light oil. The plant was designed to make possible the substitution of gas oil for naphtha in case of a shortage of the latter.

In regard to major synthetic resins, production facilities at Ulsan and Yecheon have annual capacities of 595,500 tons and 420,000 tons, respectively. Capacity for synthetic rubber production is 100,000 tons per year at a styrene-butadiene plant in the Yecheon complex. Synthetic fiber raw materials are produced at Ulsan (up to 270,000 tons annually) and at Yecheon (up to 80,000 tons annually). In addition to these, other petrochemicals and related products are produced at both complexes and elsewhere.

Until 1979 the petrochemical industry in Korea showed a relatively high ratio of capacity utilization, in line with increasing domestic demand and a buoyant world economy. The ratio decreased sharply in 1980 as overall demand declined sharply in the business recession following the second oil shock, while the Yecheon complex, completed at the end of 1979, increased production capacity. The trends of capacity utilization ratios from 1975 to 1983 are shown in Table 4-4.

Table 4-4
Trends of Capacity Utilization Ratios
in the Korean Petrochemical Industry
1975 - 1983

	1975	1976	1977	1978	1979	1980	1981	1982	1983 ^(a)
Ethylene	95	97	86	91	79	73	74	74	79
Synthetic Resins	83	99	115	118	100	68	74	87	77
Synthetic-Fiber Raw Materials	104	119	122	115	106	99	100	97	99
Synthetic Rubber	97	141	116	143	121	60	67	61	59

Unit: in percent (%)

Note:

(a) During first quarter of the year

Source: Korea Petrochemical Industry Association.

Problems and Prospects

The petrochemical industry in Korea has played an important role in the nation's economy as a supplier of basic industrial materials, and this is expected to continue in the future. However, the industry faces unfavorable changes at home and abroad. Depressed domestic demand, raw material price increases, and inflows of low-priced foreign products are exerting tremendous pressures on the industry, while many structural problems are yet to be solved. Among these are:

- 1) The rise of oil prices has increased costs, especially in the production of naphtha. Losses of competitiveness have, therefore, occurred in Korea, Japan, Taiwan, and European countries, where naphtha is the prime feed stock, compared to the natural-gas-based industries in North America.

- 2) A large price gap between domestically produced and imported petrochemicals could have led to a surge in imports. Therefore, the government controlled domestic prices to keep the gap within a set number of percentage points of import prices. As countries have dumped petrochemicals in the world market since 1980, during the world business recession, prices have dropped rapidly. This caused prices of major home-made petrochemicals to be cut by between 15 and 40% by 1982, while the cost of materials doubled. Therefore, the financial condition of the industry has deteriorated sharply.
- 3) It may be desirable for Korea to import cheap petrochemicals rather than proceed with a further expansion of facilities. However, doing so would leave the economy more dependent on external supplies and put severe pressure on the balance of payments.

In conclusion, the future of the Korean petrochemical industry depends on whether appropriate measures can be taken to raise its competitiveness and solve some structural problems.

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4.6 Automotive Industry

Historical Overview

Before Korean independence in 1945, the small domestic demand for automobiles and parts was met completely by imports from Japan. However, a large number of maintenance and repair shops in Korea were operated mostly by major Japanese automobile firms such as Toyota, Nissan and Isuzu for the purpose of supplying parts for military vehicles in Manchuria and North China. After 1945, technicians who worked in those repair shops resumed the production of parts such as piston rings and pins, gaskets, springs, bolts and nuts, and brake linings. After 1950, automobile parts production proliferated rapidly, largely due to the increasing repair and replacement demand for military vehicles as well as for civilian motor vehicles, which were mostly rebuilt from the military vehicles. Thus, the replacement demand for easily made parts could be met mostly by domestic production.

During the first five-year plan (1962-1966), plants were established to assemble semi-knockdown vehicles imported from Japan. The first Korean small car, named Corona, started production in 1963 with an annual capacity of 3,430 units and a domestic content ratio of 20%. It was made by the Shinjin Automobile Company with capital and technology imports from the Toyota Company in Japan. Kia Industrial Company, which was established in 1944 and made bikes until 1961, started producing three-wheel trucks in 1962.

To promote competition in the automobile industry and to speed up the localization program, the government encouraged other companies to enter into automobile production. Hyundai began to assemble the "Cortina" in technical cooperation with Ford in 1968, and Asia started assembling the "Fiat 124" in 1970. In 1971, Kia began to produce small four-wheel trucks. Three of the four assemblers were owned by Koreans. One, the Shinjin Company, was a joint venture with General Motors of the U.S. Shinjin set up G.M. Korea in a joint venture with General Motors in 1972, and G.M. Korea was renamed Saehan when Shinjin was taken over by the Daewoo Industrial Company in 1976. When Daewoo took over management of the Saehan Company in 1983, it was renamed the Daewoo Motor Co..

When the first oil crisis changed the pattern of demand in 1973, the Korean government developed the Long-Term Automobile Industry Promotion Plan, which aimed to develop Korean models with 100 percent domestic content. The plan called for the production of so-called "citizen cars" by three designated manufacturing firms: Hyundai, Kia, and

Seahan. These firms were requested to produce newly designed models with more than 95% domestic content and with engine capacity limited to 1.5 liters. The production of foreign models was allowed only for medium sized passenger cars with engine capacity of more than 1.5 liters.

Encouraged by the new strategy, large investments have been made in assembly companies to expand their capacity as well as in the parts and components industry. The annual assembly capacity for passenger cars reached 229,000 units by the end of 1979. Three new cars were developed and assembled out of mostly domestic parts and components—Pony by Hyundai, Brisa by Kia, and Gemini by G.M. Korea (now Daewoo). Among these, Pony was an original model developed by an Italian designer, while the others were based on old models previously produced elsewhere. The production of motor vehicles increased sharply after 1975, largely due to the explosive increase in domestic demand, which reached 204,447 units in 1979.

Economic depression caused by the second oil crisis, however, brought a sharp decline in sales in both the domestic and export markets. Automobile production in 1980 dropped to 133,084 units, only about 60% of that in 1979. After 1980 the Korean automotive industry suffered severe hardships and took radical actions to find a way out of its difficulties. On February 28, 1981, the government announced measures to restructure the automotive industry with a view to preventing over-competition and making assemblers specialize in their major products. Car production was limited to two companies: Hyundai and Seahan (now Daewoo), while production of light trucks (less than 5 tons) was specialized and mandated for Kia.

After 1981 the Korean economy began to rebound from the severe setback to its high growth track, and automobile sales in domestic and export markets increased continuously, reaching 220,425 units of total sales in 1983. It is estimated that 1984 sales reached more than 250,000 units, including exports of more than 50,000. Now the Korean auto industry is appraised as one of the most promising by the Korean government and economists, and also is regarded as a would-be major producer in the world.

Supply and Demand

There are six assemblers of motor vehicles and about 800 firms supplying automobile parts and components in Korea. Despite continuous growth since 1962, the scale of Korean motor vehicle assemblers and parts makers is much smaller than that of major motor makers of industrialized countries. Annual production capacity and output of the six motor vehicle manufacturers between 1977 and 1983 are shown in Table 4-5.

During the period 1977-1979, production increases surpassed capacity increases, resulting in a rise in the rate of capacity utilization from 42.8% to 71.9%. However, the recession in 1980 reduced that rate to 35.6% in 1980 and 36.1% in 1981. A slight recovery in production since 1982 increased the rate to 62.4% in 1983. The production capacity and output of parts firms changed in a fashion similar to that of the assemblers (See Table 4-5).

Table 4-5
Annual Production Capacity and Output
in Korean Automotive Industry
1977-1983

		1977	1979	1980	1981	1982	1983
Passenger Car	Capacity (Unit)	130,000	216,000	238,000	204,000	204,000	204,000
	Output (Unit)	42,284	112,314	55,926	66,602	94,460	121,987
	Operation ratio (%)	32.5	61.6	23.5	32.6	46.3	59.8
Truck & Bus	Capacity (Unit)	64,000	64,000	128,000	150,000	150,000	150,000
	Output (Unit)	40,716	88,968	63,713	61,276	69,024	99,032
	Operation ratio (%)	63.6	139.0	49.8	42.2	46.0	66.0
Total Vehicles	Capacity (Unit)	194,000	280,000	366,000	354,000	354,000	354,000
	Output (Unit)	83,000	201,282	119,639	127,878	163,484	221,019
	Operation ratio (%)	42.8	71.9	35.6	36.1	46.2	62.4
Parts & Components	Capacity (million won)	130,998	336,349	461,474	562,228	487,314	554,945
	Output (million won)	83,282	212,581	198,431	270,878	298,630	396,078
	Operation ratio (%)	63.6	63.2	63.0	48.2	61.3	71.4

Source: KIET, Field Survey, 1982, 1984.
Korea Auto Industries Coop. Association (KAICA),
Statistical Data, 1984.

With respect to vehicle ownership in Korea, mass motorization has not begun. At the end of 1981, there were 6.9 passenger cars and 14.8 vehicles per thousand population (including cars, trucks, and buses). Korea has a 2.1% and 4.4% as many vehicles per thousand population as the U.S. and Japan, respectively. Also, its level of automotive stock is low in comparison with other countries with similar levels of per capita income, such as Mexico, Brazil, Taiwan, and Malaysia (See Table 4-6).

Table 4-6
Stock of Automobiles per Thousand Persons
in Selected Countries
1979

Country	Stock per Thousand Persons		Commercial Vehicles Share %	Per capita GNP in U.S. dollars
	Total Vehicles	Passenger Cars		
U.S.A.	714	556	21.9	10,943
Japan	313	196	37.4	8,638
Mexico	79	56	28.7	1,749
Brazil	85	68	19.8	1,758
Taiwan	26	18	29.2	1,866
Malaysia	54	43	19.5	1,471
South Korea	14	7	51.6	1,636

Sources: 1) Japan Automobile Manufacturers Association,
Statistics of Automobiles in Major Countries, 1981.
2) Korea Auto Industries Cooperative Association.

Several reasons explain the relatively low car ownership in Korea: (1) The purchase price of a car is very high because of taxes and public imposts (See Table 4-7 and Table 4-8); (2) operating costs of a car are high because of high gasoline prices and heavy taxes and duties on gasoline (See Table 4-9 and Table 4-10); (3) Supportive factors such as road and traffic conditions, consumers' credit, used car market, etc., are not well developed; (4) Unfavorable geographic and demographic characteristics, including high density of population, limited available area, and concentration of inhabitants in big cities.

Table 4-7
Tax Burden in Purchasing a Small Passenger Car
in Selected Countries
As of April 1981

	South Korea ^(b) PONY 1200 CC DLX	Japan LANCER 1400 CC EXGL	U.K. AUSTIN MORRIS 1300 CC	Italy RITMO 1300 CC 65 CL	U.S.A. ESCORT 1600 CC
Net Prices Before Taxes (A)	4,481	3,833	6,359	5,822	5,158
Taxes (B)	1,990 ^(c)	773	1,561	1,267	235
Purchase Price (C)	6,471	4,606	7,920	7,089	5,393
(B)/(A) (%)	44.4	20.2	24.5	21.8	4.6
Tax Burden					
(B)/(C) (%)	30.8	16.8	19.7	17.9	4.4
Ratio of Purchase Price to Per capita GNP ^(a)	3.95	0.52	0.85	1.02	0.51

Notes:

- (a) Per-capita GNP is based on the period average of 1980 (for South Korea, as of 1981).
- (b) As of September, 1982.
- (c) Excluding local authority bonds.

Source: Hyundai Motor Company, survey, April, 1981.

KIET Yearbook of International Economics Statistics, 1982.

Table 4-8
Taxes and Public Imposts
on the PONY 1200 CC DLX
As of September 1982

Factory Price (A)		3,322,000 won
<u>Taxes and Public Imposts</u>		
Special consumption tax (B)	A x 10.5%	348,810
Defense tax-1 (C)	B x 30 %	104,643
Value added tax (D)	(A + B + C) x 10 %	377,545
Registration tax (E)	(A + B + C + D) x 5 %	207,650
Defense tax-2	E x 20%	41,530
Acquisition tax	(A+B+C+D) x 2%	83,060
License tax	Fixed amount	21,600
Local authority bonds	Fixed amount	325,000
Car tax	Fixed amount	292,500
Sub-total (F)		1,802,338
Ratio of total taxes and public imposts to factory price (F/A)		54.2%

Table 4-9
Composition of Gasoline Price Per Liter
As of August, 1982

	Taxes				Distri- bution Fee (D)	Consu- mer Price(E)	% (C/E)
	Factory Price (A)	Special Consumption Tax (B)	VAT	Sub-total (C)			
Value	276.67	359.67	67.27	426.94	36.39	740	57.7
Rates	-	A x 130%	(A + B + D)	-	-	-	-
							x 10%

Unit: in Won

Source: KIET

Table 4-10
Annual Operating Costs of the Passenger Car
in Selected Countries
As of March, 1981

	South Korea ^(c)	Japan	Taiwan	Malaysia	Singapore	Hong Kong
<u>Fuel Cost</u>						
Gasoline price per liter	1.02	0.77	0.75	0.44	0.45	0.50
Gasoline cost per year (A) ^(a)	2,550	1,929	1,875	1,100	1,125	1,250
<u>Taxes</u>						
Car Tax	426	56	-	-	-	-
License Tax	31	-	164	-	-	9
Road Tax	-	90	-	84	360	110
Gasoline Tax ^(b)	-	-	108	-	-	-
Sub-total (B)	457	146	272	84	360	119
Total Running Cost per Year (A + B)	3,007	2,072	2,147	1,184	1,485	1,369
Index (South Korea = 100)	100	69	71	39	49	46

Unit: in U.S. Dollars

Notes:

(a) Base: 100 km/day x 300 days x 12 km/l

(b) Annual fixed amount tax.

(c) As of June, 1982.

Source: Hyundai Motor Company, survey.

Japan Daily Automobile News Co., Yearbook of Automobiles, 1982.

Although the use of cars by Koreans in the past has been low, it is expected that in the near future Korea will make great strides in motorization. Recent trends in vehicle registrations support this predication. Between 1980 and 1983, car and vehicle registrations increased by 50%, mostly in the private sector (See Table 4-11).

Table 4-11
Vehicle Registrations in Korea
by Type and Use
1980-1983

Year	By Type				By Use	
	Cars	Trucks	Buses	Total	Private	Commercial
1980	249,102	236,164	42,463	527,729	378,019	149,710
1981	267,605	253,554	50,595	571,754	414,511	157,243
1982	305,811	274,859	66,326	646,996	479,346	167,650
1983	380,993	317,041	87,282	785,316	602,671	182,645

Source: KAICA, Statistical Data, 1984.

While the government has permitted six companies to assemble vehicles for the small domestic market, the limited market is dominated by three major motor companies, Hyundai, Daewoo, and Kia. The combined market share of the three was as high as 97% in 1981 (Hyundai 47.9%, Kia 31.2%, and Saehan 17.4%). As a result of the government's restructuring of the automotive industry in 1981, a near-monopoly by automobile type is inevitably allowed. In 1981, Hyundai took 72.9% of domestic passenger car sales, while Kia took 68.2% of domestic truck sales.

Korean automobile exports commenced in 1975 and thereafter grew steadily with the appearances of the Pony, the small passenger car developed by Hyundai in 1976. Given that the history of Korean automobile exports is very short, the export sector grew substantially to play an important role for the industry. In spite of a sharp decrease in domestic demand in 1980, automobile exports showed a relatively low decrease, increasing the ratio of exports to total sales from 11.3% in 1977 to 19.9% in 1981. Notably, exports in 1984 showed more than 50,000 units or more than 20% of total sales, largely due to the success of exporting 25,000 cars to Canada.

The most important question that must be answered for sound growth of the Korean automobile industry is how the demand can be increased enough to achieve economies of scale. It depends on whether Koreans can achieve considerable growth in automobile exports and find ways of boosting domestic demand for automobiles with the rise of income. (Refer to the book A Study of the Korean Automotive Industry, KIET, 1982).

Domestic Content

The assemblers of Korea began by assembling imported CKD (complete knock-down) parts and components. Thanks to the government policy of promoting localization of parts and the gradual upgrading of technology, they have succeeded in increasing the domestic content ratio to more than 90%. Table 4-12 shows average domestic content ratios weighted by production volumes between 1977 and 1981. In 1981, the average ratio of localization of the Korean small passenger car was the highest, 93%; that of the pickup was 90%; and the small-and medium-sized trucks and buses had levels of 86% and 82%, respectively. On the other hand, large buses and heavy trucks had respective domestic content levels of 72% and 66%. Foreign cars with more than 1.5 liter engine capacity had the lowest level of domestic content, at 61%. The Pony's domestic content reached more than 96% in 1984.

Table 4-12
Domestic Content Ratios by Vehicle Type
1977 - 1981

		1977	1979	1981	Unit: Percent change 1977-1981
Passenger Cars	Korean Models ^(a)	89.8	90.5	92.8	3.0
	Foreign Models ^(b)	60.4	60.0	61.3	0.9
Buses	Small & Medium Sized	81.2	86.6	86.4	5.2
	Large-Sized ^(c)	70.9	69.7	72.4	1.5
Trucks	Pickups	86.2	89.2	89.9	3.7
	Below 8 Tons	73.3	76.9	82.3	9.0
	Over 8 Tons	60.3	62.4	65.9	5.6

Notes:

- (a) Korean model passenger cars include Brisa, Brisa II, Gemini, Pony, etc.
 (b) Foreign model passenger cars include Fiat, Peugeot, Rekord, Cortina, Granada, etc.
 (c) Large-sized buses include rear-engine buses and highway buses.

Source: KIET, op. cit.

Factors responsible for Korea's failure to achieve 100% localization vary, depending on vehicle types and models. Small passenger cars are produced in relatively large quantities, but technical problems prevent auto makers from attaining 100% localization. The

reason for the unsatisfactory progress in the foreign models is not only that their production quantity is very low but that the Korean replacement models have not yet been developed. In 1983, when Hyundai's Cortina was replaced by Stellar, which was developed as a Korean model, the local content ratio of that car increased from 62% to 90%. Without such replacement of other models, complete localization of these cars would be very difficult. Buses and large trucks are produced in such small quantities that complete import substitutions are for the moment not economical, because full localization without economies of scale would probably lead to an increase in production cost. Complete localization depends not only on technology level and scale economies but on the localization efforts of both assemblers and parts makers.

Assembler-Supplier Relations

In general, interactions between automobile assemblers and parts suppliers in Korea are much greater in terms of product flows than in the U.S. and Japan. While parts representing about 45% and 25% of a car's purchased value are made inhouse for U.S. and Japanese manufacturers, respectively, only 12.6% were made in-house for the Korean counter parts in 1981. Moreover, the percentage share made in-house for truck and bus manufacturing in Korea was, on the average, as low as 8.0% and 3.7%, respectively. Considering about 20% offshore sourcing of auto parts and components, approximately 70% of parts and components used by Korean manufacturers are subcontracted out to domestic parts suppliers.

Despite such a close relationship in terms of parts purchasing between assemblers and parts suppliers, the subcontracting system is not well developed or conducive to development of suppliers in Korea. The links between assemblers and suppliers are very weak in terms of equity share and human-technology flow. Fewer than 10 out of about 800 parts suppliers have equity-holding relationships with assemblers in Korea, and Korean automakers have relied largely on direct market forces among suppliers.

The Japanese automotive-supplier industry is vertically organized in terms of equity share and human technology flows, with a hierarchical, multi-tier structure. In contrast to the Japanese system, Korean subcontracting is more competitive and horizontal. According to a survey conducted by the Korea Auto Industries Cooperative Association, total sales of parts and components by 773 suppliers to Korean automobile manufacturers reached 510.2 billion won (U.S. \$681.3 million) in 1982. A KIET survey based on a

sample of 99 suppliers showed that 93 out of 99 parts makers were first-tier suppliers to OEMs. The remaining six serviced only the aftermarket, without any product flows to OEMs. In contrast to Japan, there are no second-tier suppliers in Korea.

One reason for the horizontal structure of the Korean automotive-supplier industry is that parts makers in Korea had grown independently, catering to the repair and replacement market, before vehicle assembling started. Therefore, there were initially no close ties with automobile assemblers. Another reason may be the lack of capital and limited technological capacity of assemblers. Because of the small scale of vehicle production, assemblers have not been very interested in keeping close ties with parts makers, so that parts and components have been provided on a short-term competitive basis rather than a long-term contractual basis.

Conditions and terms related to subcontracting, however, are changing significantly. As the scale of automobile production has increased and is expected to grow rapidly, automobile manufacturers realize that the supplier relationship is critical to competitive success in product cost and quality. Most automobile makers, including three major companies, Hyundai, Daewoo, and Kia, are establishing their own cooperative system by reducing their sourcing partners to one or two suppliers for each part and component and increasing financial and technical support for those selected suppliers. The relations are becoming more substantial according to proactive efforts by automakers. Many companies have adopted the Japanese-style just-in-time inventory method, stable contracts, earlier product and process involvement, and a target-cost system.

On the other hand, government has undertake a series of measures to improve the subcontracting system as an effective means of promoting the parts and component industry. The Small and Medium Industry Systemization Promotion Law provides that some items designated by government should be subcontracted out to parts makers and not made in-house. Technical cooperation and joint investment in R&D is encouraged and supported by the government. In addition, payment conditions, contract terms, and other subcontract practices are supervised by the government in favor of parts makers. Thus Korean companies will likely develop more cooperative relations in terms of product flows and human-technology flows in the future.

Prospect

The Korean automotive industry underwent a very trying period during the deep recession between 1979 and 1981, and is now gearing up to become a major automotive power and significant exporter. However, the future of the Korean automobile industry is in dispute. For instance, Mr. Gerhard Pohl, an economist of the World Bank, is one of those who are optimistic about the Korean automobile industry. His opinion is grounded on these reasons: (1) excellence in technology assimilation; (2) the huge size of Korean conglomerates; (3) the low wage rate; and (4) a continued rapid growth of incomes. In contrast, other analysts point out negative factors, such as (1) domestic political issues; (2) a debt crisis; (3) increased worldwide protectionism; (4) a small domestic market; and (5) low quality and outdated technology. (For a more detailed appraisal of issues, refer to KIET, A Study of the Korean Automotive Industry, December, 1982.)

Putting positive and negative factors together, the Korean automobile industry will unquestionably play the locomotive role in Korea's economic growth in the late 1980s and following decade. Based on increasing domestic demand, the Korean automotive industry will achieve international competitiveness and hence will be able to export vehicles on a fairly large scale. Japan, dominating the world automobile exports currently, is taking steps to reorganize its industrial structure towards more knowledge-intensive industries. It is expected that the automobile industry will be transferred partly to newly industrializing countries like Korea, based on the product life cycle theory. How well will Korea succeed in the automotive industry? Time will tell.

APPENDIX : Q&A on Investment in Korean Automotive Industry

Part 1 : Basic policy and relevant laws on foreign investment

Q : What is the government's basic policy on foreign investment?

A : The government has pursued an "open door" policy for foreign investment and other external liberalization (See Section 3, 3.1 Economic Policy).

Q : What are the relevant laws and regulations governing foreign investment in Korea?

A : The primary regulations concerning foreign investment are contained in the FCIA (Foreign Capital Inducement Act, newly revised on July 1, 1984), which regulates foreign equality investment, foreign loans, and technology inducement. The FCIA further stipulates conditions and procedures for licensing, tax incentives, and repatriation of capital as well as remittance of dividends. Other laws relating to foreign investment are the Foreign Exchange Control Law, the Customs Law, the Commercial Code, the Alien Land Acquisition Law, and various tax laws.

Q : What are the main differences between the revised FCIA and the previous act?

A : Under the revised act, the Negative List System replaces the Positive List System, and an automatic approval system is adopted.

Q : What is the Negative List System?

A : Industrial categories previously open to foreign investment were listed on the Positive List. The Negative List, on the contrary, outlines only the areas prohibited to and restricted for foreign investors. Accordingly, the areas not appearing on the Negative List can be freely invested in.

Q : What is the Automatic Approval System?

A : An applicant for foreign investment can freely invest simply by reporting to the Minister of Finance if all of the following conditions are met:

- 1) The foreign investment ratio is less than 50%;
- 2) The project concerned is not in an area on the Negative List;
- 3) The amount of foreign investment is equivalent to U.S. \$1 million or less;
- 4) A foreign investor does not apply for tax exemption or reduction.

Q : What types of projects are not freely eligible for foreign investment?

A : Industrial areas in which foreign investment is prohibited or restricted are enumerated on the Negative List. Prohibited Projects means projects in which foreign invest-

ment is not allowed at all, including public projects to be carried out by the nation or public organizations. Restricted Projects means projects in which foreign investment is restricted as yet but shall be gradually allowed after certain developments in the national economic situation, including highly pollution-prone projects. In cases where an application is made for approval of a foreign investment which is listed under Restricted Projects, the Minister of Finance (MOF) may review and approve the investment after consultation with the minister concerned. The relevant minister may set certain criteria in order to make foreign investments in Restricted Projects possible. MOF may approve the investments according to such criteria (See Part 2 for the criteria related to the automotive industry). Other areas not listed as prohibited and restricted can be freely invested in.

Q : Are there any restrictions on the foreign investment ratio?

A : No. The foreign investment ratio is, in principle, determined according to the agreement between a foreign investor and his Korean partner. (Note, however, that if the ratios exceed 50%, permission must be obtained from the MOF.)

Q : What projects are eligible for tax exemption or tax reduction?

A : A tax exemption or tax reduction can be given to any of the following types of projects possessing foreign investment:

- 1) Projects which make a significant contribution to improvement of the international balance of payments;
- 2) Projects which make use of advanced technology or involve a large amount of capital;
- 3) Projects which are located in a free export zone in accordance with the Free Export Zone Establishment Law;
- 4) Any other project designated by the Enforcement Decree of FCIA as a project for which tax reduction or exemption is essential in order to induce foreign investment.

Q : Is retention of a Korean lawyer or proxy necessary?

A : There is no legal requirement for foreign investment applicants to obtain the assistance of a Korean lawyer or proxy. It is up to foreign investors.

Part 2 : Criteria for permitting foreign investment in the Korean automotive industry

Q : Are projects related to the manufacture of motor vehicles, parts, and components eligible for foreign investment?

A : Manufacture of motor vehicles is listed in prohibited projects, excepting a joint venture with an existing Korean company. Basically, projects related to auto-parts manufacturing fall under restricted projects. However, manufacture of the following parts is not restricted and can be freely invested in: trans-axles, auto transmission gears, CV joints, universal joints, gasoline carburetors, crank shafts, emission control systems, distributors for engines, steering gear boxes, brake boosters, and steering pumps. In addition, even items listed in restricted projects may be eligible for investment after being reviewed by the Ministry of Trade and Industry.

Q : What are the criteria for permitting foreign investment in those restricted automobile items?

A : Manufacture of items listed under restricted projects may be eligible for investment if the activity does not violate these laws: the Small and Medium Industry Systemization Promotion Law and the Machinery Industry promotion Law.

Q : What conditions related to foreign investment are imposed by the Small and Medium Industry Systemization Promotion Law?

A : The law permits joint ventures with existing Korean companies that manufacture products designated as systemization items by the government. If a use of proposed raw materials and introduction of a new production process do not fit in with the facilities of an existing Korean company, then a new company may be formed by foreign investors.

Q : What restrictive conditions are imposed by the machinery Industry Promotion Law?

A : According to Article 6 of the law, production of engines, transmissions, and axles in Korea is subject to completion of a prior feasibility review. Therefore, even Korean companies should complete a prior feasibility review for manufacturing of those items. Foreign applicants who plan to invest in production of those items in Korea should have a prior feasibility review completed by the Ministry of Trade and Industry.

Q : Are there any conditions on the joint venture with an existing Korean company for manufacturing motor vehicles?

A : According to Article 6 of the Machinery Industry Promotion Law, manufacturing of complete vehicles is also subject to completion of a prior feasibility review. Therefore, as in the case of major parts, foreign applicants and their Korean partner should have a prior feasibility review completed by the Ministry of Trade and Industry. (The Samsung project with Chrysler to build small cars in Korea is a good example.)

Part 3 : Further information and advice

Q : What are the procedures for approving foreign investment?

A : An applicant for foreign investment must submit to the Ministry of Finance an application in accordance with the FCIA together with related papers. Further information on conditions and procedures for approving foreign investment may be found in the Foreign Capital Inducement Act, Enforcement Decree, and Working Rules (Refer to Ministry of Finance, Foreign Capital Inducement Act, Enforcement Decree, and Working Rules, 1984, written in English).

Q : Where can an applicant obtain further information and advice on investment?

A : The Foreign Investment Promotion Division of the Ministry of Finance (MOF) processes foreign equity investment proposals and all the procedures for investment approval. However, foreign equity investment in a free export zone in Masan or Iri comes under the supervision of each zone office. Overseas, several investment promotion officers have been assigned by the MOF to render investment information services in foreign countries. They are stationed in New York and Washington D.C. in the United States. Furthermore, the MOF has initiated establishment of an "Investment Guide to Korea Information Desk" at overseas branches of Korean banking institutions and other representative offices of private agencies such as Korea Trade Centers.

Q : How can an appropriate Korean partner be found?

A : The Korea Chamber of Commerce and Industry, the Federation of Korean Industries, the Korean Trader's Association, the Korea Productivity Center, the Korea Development Bank, banking institutions, or other industry associations (such as the Korea Auto Industries Cooperative Association) can provide lists of Korean businessmen seeking foreign partners and other information on those Korean partners.

Note : Refer to following materials:

- (1) Ministry of Finance, Republic of Korea, Investment Guide to Korea, 1984.
- (2) MOF, Questions and Answers for your investment in Korea, 1984.
- (3) MOF, Foreign Capital Inducement Act, Enforcement Decree, and Working Rules, 1984.
- (4) MOF, Guidelines for Foreign Investment; Negative List Attached, July 2, 1984.

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