South Korea: The Fight To Industrialize

To those whose image of South Korea comes from the pages of the *New York Times*, that country seems, at best, to have achieved a certain amount of economic progress by means of a sweatshop-dominated industrial system exporting shoddy textiles, footwear, and the like — all of little benefit to the living standards of the Korean people. More recently, the country has been presented as an ultra-repressive armed camp whose main export is little white envelopes to the members of the U.S. Congress.

SOUTH KOREA

For the *New York Times*, Trilateral Commission Congressman Donald Fraser (D-Minn) and their allies, the presentation of this image has been a necessary part of their campaign to undermine the regime of President Park Chung Hee and replace it with one more willing to cooperate with the geopolitical schemes of Zbigniew Brzezinski. Yet, those who see themselves as defenders of South Korea and the Park regime — such as U.S. conservative businessmen and politicians — actually agree with the image presented by the *Times*. They too attribute Korea's economic success to its alleged reliance on a low-wage labor-intensive system. They too see it as living proof of the economic potential of a country that makes its trains run on time.

The reality is quite different.

South Korea stands out as an example of the enormous potential that well-utilized advanced technology holds for Third World countries. In the past 16 years, following the 1961 military coup, Korean society has been virtually turned upside down, changing from an agriculture-based "beggar nation" totally dependent on the United States, into a "semi-industrialized" country with a clear vision toward the future. Development during this period from 1961 has been tremendous, to the point that Korea is now undergoing the shift from labor-intensive manufacturing to heavy industry that Japan underwent in the early 1960s.

The country remains thoroughly dominated by the drive to become a modern, industrialized nation, a drive that originated with and was built by the core group of sophisticated junior officers most responsible for the 1961 coup. At that time, faced with the prospect of big drops in aid from the U.S. and resulting economic degeneration and domestic turmoil, these officers determined that industrialization was Korea's only future. In large part, the Korean proponents of industrialization have looked to Japan as a model, and importing technology has been a chief goal. High growth rates of both imports and investment have been the engines behind Korea's development.

The response of the World Bank to this Korean commitment to industrialization has been to actively oppose any development of heavy industry. Time and again, the World Bank has attempted to sabotage ambitious plans for the development of heavy industry which would free the economy of its backward sectors. While it has largely failed in preventing Korean industrialization, much of the responsibility for the remaining low-wage, labor-intensive aspects of the economy lies firmly with the Bank and its entrenched allies within Korea.

As a virtually resourceless country, Korea gains technology through large-scale imports of capital goods, which are paid for by borrowing on the international money markets, and the export of manufacturing products. Unlike most Third World countries, where imports and foreign debt result in little or no increase in productivity, and therefore an increasing inability to meet repayments, Korea's foreign resources have been utilized very productively, enabling the country to maintain a high debt load as a percentage of the GNP. The plan has been to regularly increase the skill and capital content of production, a fact reflected in the emphasis changes in exports over the years: textiles in the mid-1960s; plywood in the late 1960s; electronics in the early 1970s; and now the increasing emphasis on heavy industry products.

Korea's ability to pursue these goals and resist the pressures of the World Bank has been made especially difficult because of the country's "deployment" on the "front lines of the Free World." The Bank and the IMF have gained much political leverage within the country and the most pro-development of the officers responsible for the coup, such as the founder and first director of the KCIA Kim Jong Pil, have suffered a corresponding decrease in their influence. The controversial President Park Chung Hee in large part mediates between the con-

Structure of GNP

(% of GNP at 1970 prices)

Sector	1961	1966	1971	1976
Agriculture, Forestry and Fishing	44.1	38.9	26.5	20.3
Mining and Manufacturing	12.0	15.9	24.4	36.0
Social Overhead*	6.1	9.0	12.9	13.9
Other**	37.8	36.2	36.2	29.8

* includes construction, transportation, storage, communication, electricity, etc.
** includes trade, banking, insurance and other services.

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flicting pro-World Bank "technocrat" layers and the pro-development interests within the country, often agreeing to World Bank-inspired policies regarding such things as investment and wage levels that conflict with the goals of industrialization. There is little doubt that some of the more repressive policies of the Park regime in recent years have been viewed favorably by the "technocratic" layers. Nevertheless, the vision of a modern Korea that sparked the coup and won its acceptance has endured to this day.

Many government officials reflect this vision, freely stating the hope to equal or surpass the achievements of the past during the next 15 years by building Korea into a net exporter of technology and loans to lesser developed countries — a remarkable goal for a country that, until 1961, was agriculturally based and almost totally dependent on the United States for grants to finance imports of desperately needed basic consumer goods.

The ambitiousness of Korea's development plans stem in large part from the confidence gained after many years of sustained high growth in the economy as a whole, and the manufacturing sector in particular. Since 1961, the country's GNP has averaged 10 percent annual growth, rising to over $21 billion last year. During this period, manufacturing has risen to 36 percent of GNP, and when supporting infrastructural services such as electricity, construction and transportation are added, the combined total is a full 50 percent of GNP. Simultaneously, agriculture has declined from 44 to less than 20 percent of GNP.

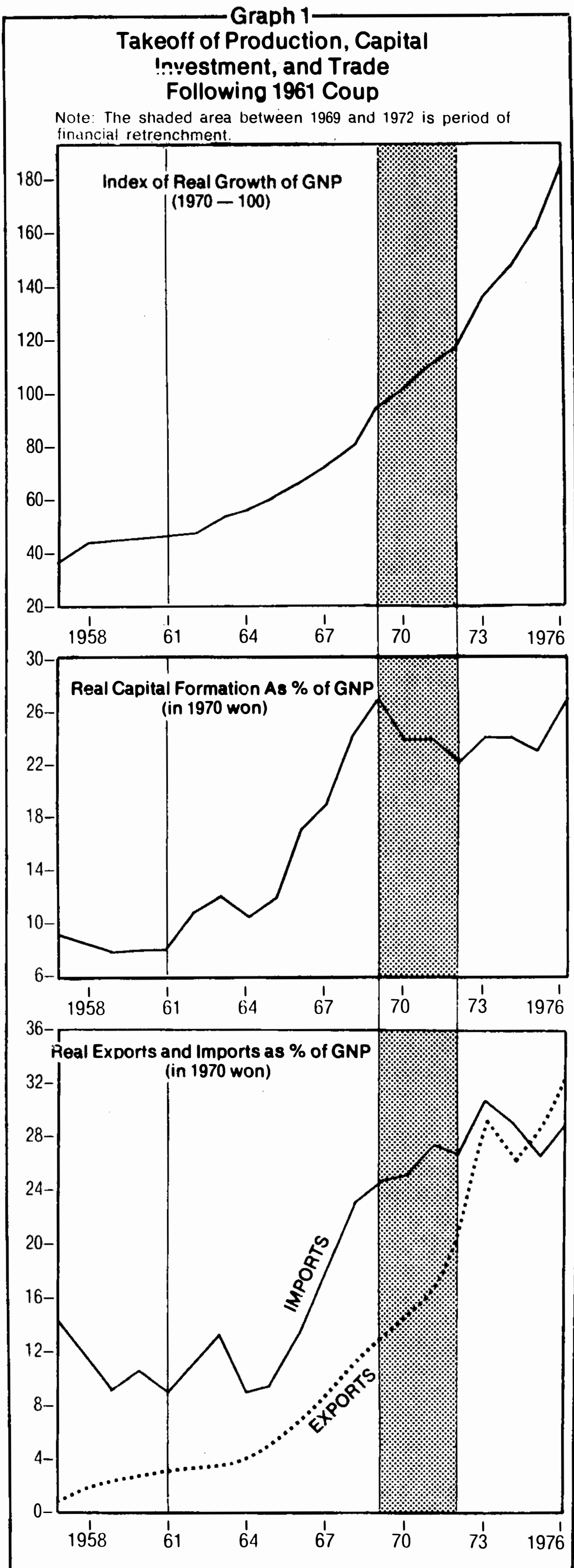
This growth has led to a boom in urban areas, which now comprise 60 percent of the population, and a doubl-

Composition of Manufacturing Output

(% of total)

Sector	1961	1966	1971	1975
Textile, Clothing Footwear	28.5	23.9	25.6	32.1
Food, Beverage Tobacco	33.8	27.6	25.0	17.0
Other Light Industry	15.4	17.9	16.0	15.3
Machinery and Equipment	7.9	10.2	9.3	14.6
Chemicals, Petroleum	7.1	11.6	15.5	12.0
Metal Products	5.8	7.0	6.1	6.7
Miscellaneous	1.5	1.9	2.5	2.5
TOTAL	100	100	100	100
Total Manufacturing Output*	393.5	789.3	2,041.7	4,290.9

* (bln, 1970 won)
Source: World Bank



ing of real consumption of the population (averaging 7 percent growth per year). Education, which was fairly high before the coup, has also expanded rapidly. More than 90 percent of the country's children continue school through their 11th birthday, and more than 32 percent of the populaiton finish high school — the latter a higher rate than England.

Last year, more than 30 percent of all manufacturing output was made up of products such as machinery, steel and petrochemicals. Thus, while Korea's industrial output and exports are still predominantly comprised of labor-intensive products such as textiles, electronics and leather goods, the country is also producing and exporting whole textile, cement, and electric power-generating plants to lesser developed countries. It is building supertankers to carry oil from the Middle East, and is becoming something of an international legend in construction and civil engineering.

The turning point in Korea's plans for heavy industry came in 1973 after the coming to power of K. Tanaka as Prime Minister of Japan. At that time, huge investment plans for Korea's heavy industry sector were drawn up with the cooperation of the pro-development Japanese Ministry for International Trade and Industry. Tanaka integrated Korea into his overall scheme for "energy independence" and "resource diplomacy" with the Arab and other oil-producing nations. Korea was to build up its petrochemical industry as part of this "resource diplomacy." The petrochemical buildup was to have been only part of a massive expansion of Korea's total heavy industry sector, including construction of shipyards, a new steel mill, metals processing centers, and more.

It is these plans that have now been reduced because of the combined "pincer" effect of the recession of 1974-75 and pressure from the World Bank. One Bank source said recently, "we didn't like the plans in the first place."

Korea's relations with the Arab countries have expanded rapidly following its participation in Tanaka's "resource diplomacy." These relations are sure to be of much value in the coming years. Korean construciton firms have already won $2.5 billion worth of construction contracts in the Middle East, and are negotiating for more. The deals are with Saudi Arabia, Bahrain, and even pro-Soviet Iraq — the latter an indicaiton of the extent to which Korea's relations with Arab countries have developed. At this time, there are some 24,000 Korean workers in the Middle East. Other deals with Arab include construction of tankers for the Kuwait national fleet, and the construction of a joint oil refinery with Iran in Korea. In an effort to diversify markets for exports, the Koreans are also sending more of their products to the Arab countries.

It is interesting to note in this context the similarities between Korea and Japan. Aside from the fact that both countries lack natural resources, Korea's private sector is dominated by a dozen or so major industrial conglomerates similar to Japan's Zaibatsu. Moreover, coordination between the government and private sector — the government has the final say — is greater than even that of Japan, leading many people to speak of "Korea, Inc."

Despite its success however, the Korean economy remains extremely fragile, highly sensitive to international price and export market changes because of the high ratio of trade to GNP. The country's cycle of high imports and investment, paid for by exports has, at least for the foreseeable future, locked Korea inalterably into the need for high growth. Any large downturn on the export markets or big increase in import prices will, like 1974-75, set off a chain reactions through the economy, jeopardizing payments on an international debt and the whole domestic credit structure.

It is not exaggerated to say that whatever direction the current infighting around the international monetary crisis leads the world economy — in favor of resumed high growth or depression collapse — the Korean economy will arrive there first.

The World Bank vs. Korean Development: The Five Year Plan

The current Fourth Five Year Plan (1977-81) is a mere skeleton of the long-term outlook for the economy drawn up in 1973. Under the combined pressures of the World Bank and the lingering effects of the recession of 1974-75 on their economy, the Koreans have reduced investment levels, especially for heavy industry, to the point that the possibility of speeding up the move away from labor-intensive light industry has been placed in doubt. While the Koreans have not abandoned this goal, they have changed the emphasis from capital-intensive to "skilled, *labor-intensive* heavy industry."

The World Bank is quite public about its role in forcing a reduction of Korea's original development plans. Last year, a Bank publication made the following "recommendations" concerning the need for reduced investment levels: "As a general principle, low priority should be given to projects which are extremely capital and energy intensive... A review along these lines will ensure that the heavy industry program does not preempt a disproportionate share of resources and squeeze the availability of funds for light industry... It is probably neither feasible nor desirable to reduce to any considerable extent the projected level of investment in light manufacture. Thus, the major burden of the adjustment will fall on the heavy and chemical industry program, which might have to be reduced by as much as 50 percent."

For their part, the South Koreans have seen little alternative but to oblige the Bank. Even with investment levels now some 20-25 percent below those planned in 1973, the country must still borrow about $2.5 billion per year for the five years to meet the new targets. If the 1973 targets were maintained, borrowing needs might have run as high as $4-5 billion per year, and it is unlikely this level could have been raised, especially with vocal opposition from the Bank.

Moreover, the plan places high priority on achieving both a trade and balance of payments surplus by 1981 by holding down import and investment levels. This is a response to the financial chaos caused in Korea by the world recession, when Korea's already hefty yearly current account deficit was bloated to $4 billion for 1974-75 and the country was forced to borrow heavily on the short

term markets. This became a useful lever for the New York and World banks to politically pressure the Koreans who have traditionally been hostile to foreign investment and debt since the 35-year Japanese occupation. It is hoped that running a payments surplus will both partially insulate the economy should events similar to 1974-75 occur again, and enable the country to pay off much of the politically "hot", short-term debt.

Thus, the current plan is a "reconciliation" of various conflicting pressures and goals. The Korean government has decided to try to work within the "guidelines" for investment set by the World Bank and still achieve the shift to heavy industry by restricting the capital intensity of the heavy industries.

Those Koreans who prefer the original plan have rationalized their concession to the IMF-World Bank by saying that the retrenchment merely means a slower rate of development than they would like. One official, in discussions with *EIR*, went so far as to make a virtue of necessity by saying that achievement of a trade balance by 1980-81 would enable Korea to avoid the "foreign domination" that might result from a longer period of trade deficits and consequent higher debt levels.

In fact, failure to pursue the original plan will not mean a slower rate of development but will lock Korea into a box in which there will be no development at all, and eventually regression. The Korean economy has reached a juncture at which it must make the transformation from light to heavy industry. If it does not make that leap, development will grind to a halt.

The reasons — which were understood by the men who drew up the 1973 plan — are quite straightforward. Prospects for continued expansion of Korea's traditional export products such as textiles, footwear and apparel are doubtful because of the combined effects of protectionism in the advanced sector and growing competition from lesser developed countries. More fundamentally, the continuously growing level of exports needed to pay for the transformation can only be met by high-technology products. Exports are already 30 percent of GNP. Any attempt to devote still greater portions of the labor force to the production of low-technology consumer goods for export would result in a dangerous narrowing of the country's industrial structure, economic bottlenecks and a lowering of the standard of living of the population. Thus, capital-intensive industry and increases in productivity are crucial if required export levels are to be achieved.

Planned Structural Changes In GNP

(% at 1975 prices)

Sector	1976	1981	Annual Growth
Agriculture, Forestry, Fishing	23.6	18.5	4.0
Mining, Manufacturing	32.7	40.9	14.2
Other Sectors	43.7	40.6	7.6

Source: World Bank

The heart of the plan will be a building up of three industries: electronics with emphasis on skill-intensive products such as semiconductors and computers; shipbuilding; and machinery products. These three industries will lead the economy, growing at an annual rate of 22 percent, and rising from 13 percent of manufacturing output to over 20 percent. This will be coupled with an emphasis on "technological innovation and improvements in efficiency," goals to be achieved through the importing of foreign technology and investment of about one percent of the GNP in basic research and development.

Overall, the plan is based on the assumption (or hope) that the world economy will grow at five percent per year during the five years. The Korean economy is projected to grow at about 9 percent a year, raising GNP in real terms from $21 to $33 billion by the end of 1981. As usual, the manufacturing sector will lead the way, growing at about 14 percent a years, and exports are expected to grow from $10 billion in 1977 to over $20 billion in 1981.

As can be seen from the present, fairly high, level of heavy industry to total manufacturing output, heavy industries have not been ignored in the past. However, the planned shift away from light industries has taken on a new, greater emphasis in the latest plan.

Investment in heavy industry will be about 65 percent of the total manufacturing investment. The most prominent of the projects planned are a huge machinery industry complex, the expansion of the country's nationalized integrated steel mill, petrochemical plants, cement plants and shipyards.

While light industry will receive only 35 percent of the total manufacturing investment, it should be noted that the textile industry will still comprise a full 25 percent of total manufacturing output, maintaining its position of Korea's single-most prominent industry.

The plan does not provide for the necessary rate of acceleration in investment levels in manufacturing and social development required for a shift toward heavy industry. Total investment for the plan will be about $35 billion, or the same 26 percent of GNP the Koreans have maintained in the past. While the $35 billion figure is a large absolute increase over previous plans, it is the *rate* of increase that is important.

The original 1973 plan provided for this needed acceleration in rates of investment, having projected investment to increase to 32 percent of GNP by 1981, and average 30 percent for the 1977-81 period. Now, besides the 20-25 percent reduction in total investment from the 1973 levels, investment for manufacturing has been reduced from 40 to 25 percent of the total, and the portion of manufacturing investment for heavy industry has been further reduced from 75 to 65 percent.

The first effect of the reductions in investment levels will be a drop in import growth rates from previous years, growth rates which provided the key engine for the country's economic growth. In the past, as imports grew 24 percent each year, the ratio of growth in imports to GNP was a full six percent, indicating the large "booster" effect of imports on economic growth. During the current plan, imports will grow by only 12 percent per year, and the ratio of growth to GNP will be only about three percent. Though the Korean economy is much more productive today and can produce some of the capi-

tal goods that previously had to be imported, such a large drop in import growth will undoubtedly cause troubles because of the loss of the "booster" effect. Vital capital goods imports are expected to grow by only 11 percent a year.

The manufacturing sector will bear the brunt of this policy. Investment in manufacture will be 25 percent of total investment, a distant second to the 36 percent spent on such areas as electric power generation (12 percent), transportation (14 percent) and communications. These necessary infrastructure investments, which were barely reduced from the levels planned in 1973, will be concentrated on the construction of the country's second nuclear power plant, continued modernization of the road system, and expansion of the port facilities. It is important to note that investments in these sectors in the past have successfully prevented the large bottlenecks that cripple so many developing countries. It would be impossible to triage continued growth in these sectors now.

Investment Plan Allocation By Sector

(% of total)

	1972-76 (actual)	1977-81 (planned)
Total Investment	**100.0**	**100.0**
Farming, Forestry & Fishery	11.8	8.4
Mining	1.2	1.6
Manufacturing	24.6	26.7
Electricity	6.8	13.0
Transportation	16.3	12.2
Communication	3.0	3.9
Science & Technology	0.9	1.1
Other Services	17.8	9.0
Social Development	17.7	20.6

Breakdown of Investment In Manufacturing

(% of total)

	1972-76 (actual)	1977-81 (planned)
Total Manufacturing	**100.0**	**100.0**
Heavy & Chemical	**60.4**	**64.3**
Iron & Steel	17.6	13.3
Nonferrous Metals	0.8	2.3
Machinery	9.9	17.6
Electronics	4.9	7.6
Chemicals	22.7	21.9
Light Industry	**39.6**	**35.7**
Textiles	23.0	20.8
Other	16.6	14.9

The remaining 25 percent for manufacturing is so low however, that Government plans state that the capital intensity for industry will not increase, despite a shift toward heavy industry. The incremental capital-output ratio (ICOR), a measure of the capital intensity for industry, will remain the same: 1.7 for manufacturing and 3.0 for the economy as a whole. Original 1973 plans called for the manufacturing ICOR to rise to at least 2.0, a significant increase. To keep the same ICOR ratio in industry despite a shift toward heavy industry is a seemingly impossible — not to mention undesireable — goal, even taking into account the fact that the industries favored in the plan, such as electronics, shipbuilding and machinery, can be made more labor intensive than other forms of heavy industry. Moreover, while heavy industry investments will increase by about 60 percent over the previous plan, heavy industry investments will actually fall towards the end of the plan from an annual $1.3 billion during 1977-79, to only $964 million per year 1980-81. A drop of this kind is diametrically opposite to the actual needs of the economy.

Finally, it is doubtful that Korea will produce enough skilled workers during the plan to run the new heavy industry, even with the large efforts made to expand technical and scientific education. The problem will lie in the lack of growth in consumption needed for skilled workers.

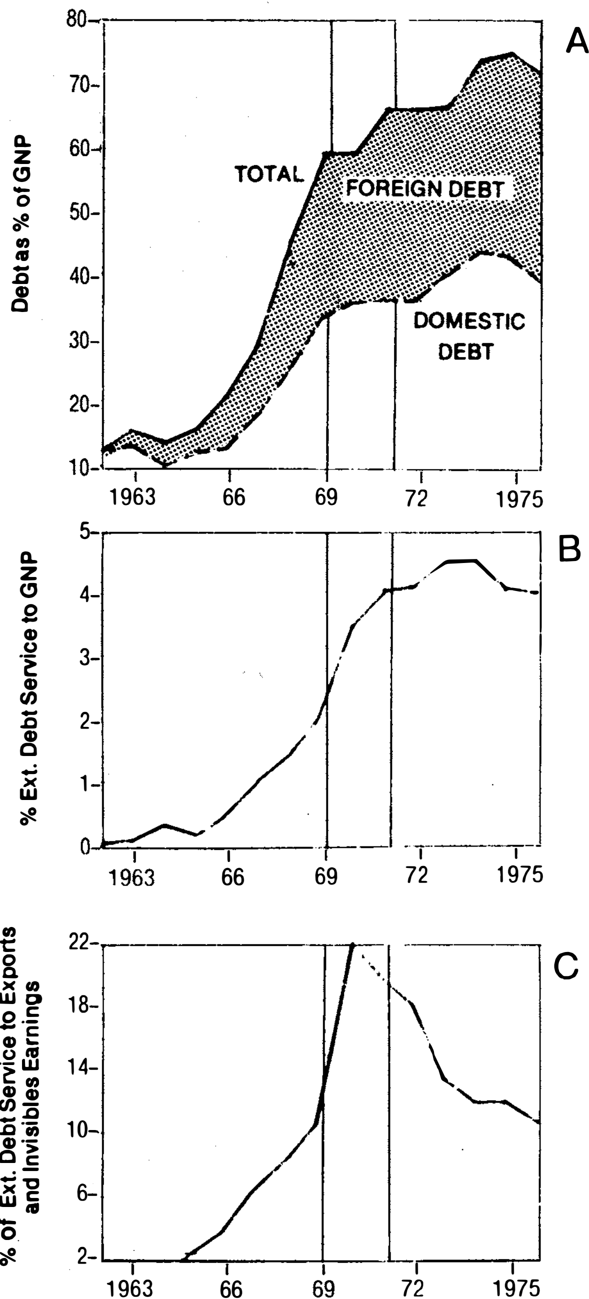
At present, wages among the various sector workers differ widely, with light industry wages averaging about $1100 per year, steel and other metals averaging $1500 per year, chemical workers about $2200, and petroleum refiners about $3300 per year. Further, the per worker income of rural workers is about half that of urban workers. One Korean government source has estimated that consumption will increase about six percent a year for the population, a rate that will likely prove insufficient to provide for upgrading of wages for the many workers planned to change sectors as well as for regular increases among the various sectors themselves. Insufficient housing will be the most glaring of the consumption problems. Despite a full 15 percent of investment going to housing construction throughout the plan, the ratio of housing units to households will increase from a low .75 to only .80.

It is likely that this shortfall in increases in consumption will lead to an increase in President Park's already regular Confucian-style appeals to the population to fulfill their "national duty" as part of the "Korean family" and to maintain an environment of austerity.

Myth And Reality: The Real Story Of Korea's Debt Problem

Despite numerous predictions of "imminent" default by South Korea on its international debt payments last year, the country managed to squeeze through the world recession intact. Fears of default were well-founded, however, as one more year of prolonged stagnation in the world economy just might have sent the country over the brink.

The 1974-75 recession drove home once again the point that the South Korean economy needs high growth, both domestically and internationally, just to survive. Even with current debt levels at $10 billion and a planned borrowing of $2.5 billion per year throughout the plan, Korea's debt is quite manageable in the context of high growth. However, with external trade already equal to 70 percent of GNP, the new world recession now emerging will unleash financial and economic chaos in Korea.



Note: area between 1969 and 1972 is period of financial retrenchment.
The reason for drop in ratio of debt service to exports after 1970 is high inflation in export prices relative to past debt.

The Koreans are well aware of the vulnerability inherent in such high rates of trade to GNP (70 percent), and are actively trying to diversify their export markets away from high dependence on the U.S. and Japan — those two countries presently take 50 percent of exports — towards especially the Arab nations and the EEC. Vulnerability fears have also made them susceptibile to the IMF arguments to seek a trade balance by 1980. But these sort of "insulation" measures have their obvious limits.

The development program launched by the regime immediately following the 1961 coup led to extremely rapid growth in both domestic and foreign debt, even in comparison to the rapidly growing GNP (see graph 2-A). This was unavoidable given the high rates of capital investment and imports that development required.

Debt service also grew quite rapidly (graph 2-B). Service on domestic debt was even more of a burden since the regime inherited a chaotic monetary system. Prior to the coup and due to decades of occupation and war, Korea lacked a modern banking system; most credit was provided by money-lenders at 30-50 percent rates of interest. In order to attract deposits, the new banking system had to raise official rates on interest to an incredible 27 percent in 1964.

The inflationary bias in the domestic credit system, combined with the unavoidable burden of foreign debt, put great strains on the financial stability of Korea and made it prone to inflation and subject to continuous devaluations of its currency, the won (from 130 per dollar at the time of the coup, to 256 by 1964 and gradually down to 484 by 1974).

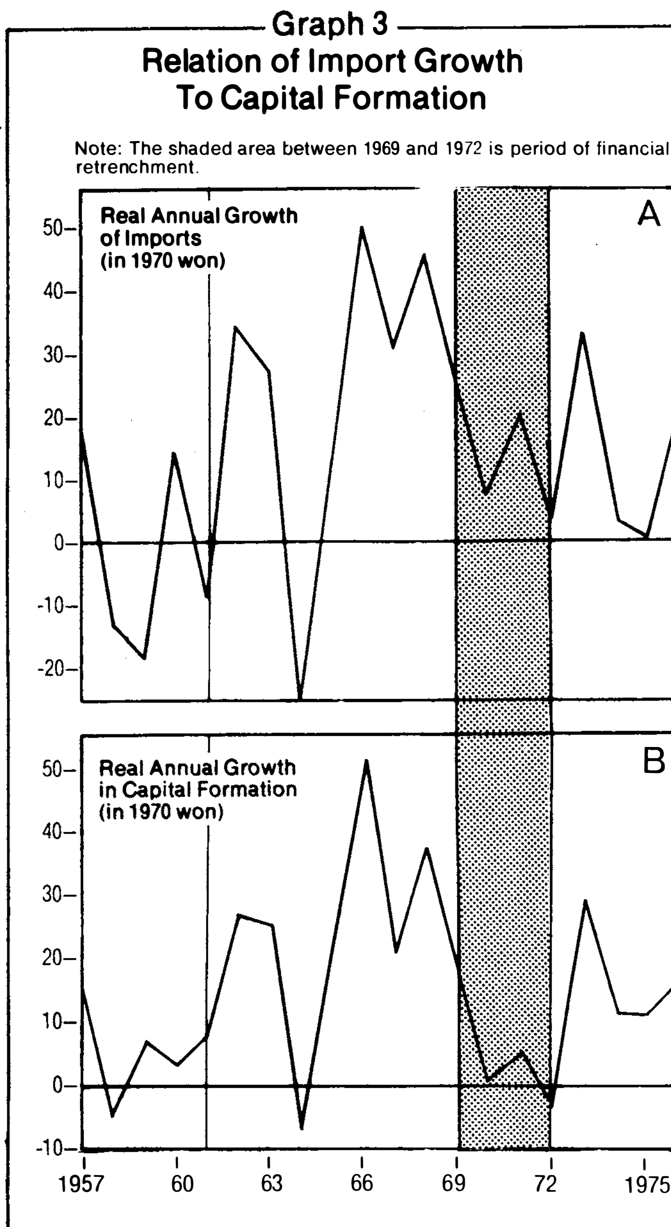
Despite the strain, the debt problem remained manageable as long as high growth prevailed. The high ratio of debt to GNP can only be managed without added inflation if the growth in productivity and in GNP is significantly above the level of debt service, particularly above the level of debt service on foreign debt. Pursuing this high-growth policy, the regime was able to bring the domestic credit system under increasing control, steadily lowering interest rates to 12 percent by 1973.

In short, the high-growth policy inevitably produced high growth in debt which produced strains whose only answer was still more high growth. The IMF-World Bank, however, took exactly the opposite approach. Scared by a 60-80 percent money supply growth rate in 1966-68 as well as the rapid growth in foreign debt, these institutions pressured the government into adopting a financial retrenchment in 1969. The financial problem that existed were very real and very serious, but the policies used to meet them were catastrophic.

The aim of the World Bank policy was to shift "temporarily" from high growth to "stability." The specific measures included a severe cut in money supply growth (almost two-thirds), severe restrictions on new foreign loans (see graph 2-A) and sharp cuts in import growth (see graph 3-A). The designers of the policy said it would only lower GNP and capital investment rates moderately. In fact, it was an all-out disaster as capital formation ground to a halt (graph 3-A), and the ratio of debt service to exports because even worse (graph 2-C). The same pattern can be seen in 1964 (graph 3), when similar policies were enforced.

In addition, the retrenchment threw the country into financial disaster when businesses unable to get loans returned to the black market money-lenders (at up to 50 percent interest rates). By 1972, the amount of loans owed to the street usurers became as large as that owed the commercial banks. In late 1972, the regime put an end to this idiocy by returning to the high-growth policy. As part of this return, the government enforced a debt moratorium — mostly on the money-lenders but also on some commercial bank debt — covering 45 percent of manufacturers' debt. Large portions of the debt not covered by the moratorium were made subject to a mandatory stretchout of repayment schedules from one year to eight years. Rates of interest were sharply reduced. (International loans were not covered by these measures.) High growth resumed.

Only the oil crisis instigated by the New York banks-dominated oil companies and the resulting recession prevented the implementation of the 1973 growth program. And even during the bottom of the recession, the Korean government refused to let the capital-formation growth rates drop to the level they had hit under the IMF regime.



Even now, outside of the problem of a new recession, Korea's debt problems remain manageable. At their height, the ratio of debt to foreign exchange earnings rose to 22 percent and have since declined. (This decline occurred only because the high rate of inflation in export prices relatively devalued fixed past debt.) If Korea obtained the full amount of foreign loans implied in its 1973 program, then this ratio would of course rise. It is undeniable that such a high rate of debt service would put financial strains — but manageable ones — on Korea's financial system. However, the alternative, which is the plan as it now stands, will end up reproducing the problems of the 1969-72 period. In fact, since January Korea has suffered a stagnation in production because of a mild application of tighter credit policies.

Only under conditions of new international recession are the debt problems unmanageable. In that case, the Korean economy becomes chaotic. But such a recession itself will only occur because the New York banks, the IMF and the World Bank apply to the world as a whole the disastrous economic policies they have applied to Korea — i.e., meeting financial strains with austerity rather than debt moratoria and industrial development.

Profile of Korean Industry

TEXTILES: Textiles will remain South Korea's single most important industry. Divided into cotton, wool, synthetic fiber and garment sections, the industry still comprises some 30 percent of total manufacturing output, 30 percent of manufacturing employment, and 35 percent of all exports last year. Moreover, the industry will receive a full 21 percent of manufacturing investment during the plan, and will remain as Korea's biggest export item with 26 percent of the total in 1981. Careful efforts are being made to upgrade the industry's plant and equipment so as to maintain its international competitiveness in the face of lesser developing countries entering the market with lower domestic wage scales. The industry will remain extremely labor intensive however, and could face difficult times ahead because of protectionism in the advanced sector.

MACHINERY: The development of a modern machinery industry "will receive highest priority," according to the plan, with the aim of providing the domestic economy with locally produced advanced machinery, as well as developing export capability. The goal of developing a defense industry played no small part in giving machinery its number one status.

The heart of the machinery buildup plan is the construction of the Changwon machinery complex, which will house over 100 plants producing general, electrical, and precision machines, as well as appliances and plant manufacturing material. A total of $2 billion will be spent on the complex, and it will account for over half the country's total machinery output by 1981. Seventy percent of the country's machinery needs will be met domestically by that time (up from the 30 percent of 1975).

The government plans to upgrade the existing machinery industry, which is scattered throughout the

country, mostly in shops of less than one hundred workers. Efforts will also be made to import advanced technology for the industry, and the government has initiated a subsidy program to companies for new product development.

A second goal is to expand the industry's ability to produce and export whole plants. Already, production of most light industry factories has been fully localized, and contracts have been signed for the export of textile, zinc refining, cement and other plants.

STEEL: The steel industry was Korea's first big effort at developing a heavy industry. Construction of the nationalized Pohang Iron and Steel Company (Posco) integrated plant began in 1969. Completed in 1973, Posco started with an annual capacity of one million tons, but subsequent expansions have brought capacity up to 2.6 million tons. A third expansion is already underway and completion in 1981 will bring the plant's capacity to 8.5 million tons. Total investment for the third expansion of the plan will be $2 billion. Plans for the construction of another integrated plant with a capacity of five million tons fell victim to the investment reductions.

Korea's total steel production capacity is about 4.5 million tons last year, making the country self-sufficient in crude steel. The Korea Integrated Special Steel Company is in the process of building a new special-steel plant, which will meet the country's entire need for specialty steel by the end of 1979. From there, Korea hopes to rapidly expand exports of steel products such pipe, wire, etc. — plans that reportedly have the Japanese quite worried.

SHIPBUILDING: Korea is already one of the world's biggest shipbuilders with an annual capacity of 2.4 million tons. Plans call for rapid expansion of capacity despite the present slump in demand for tankers. With the completion of two shipyards already under construction, capacity will expand to about 4.2 million tons by the end of 1981. The bigger of the two yards is being built at Okpo by the Korea Shipbuilding and Engineering Corp., which will have an annual capacity of 1.2 million tons. Many have argued that these plans are too ambitious, given the fact that the industry operated at only 50 percent capacity last year and the government already heaviliy subsidizes yard owners. Nevertheless, the government is determined to make this one of the country's biggest industries, and has even upgraded export targets for 1981 from $900 million to $1.2 billion.

ELECTRONICS: The electronics industry has been one of Korea's fastest growing sectors, and the government has designated it as a strategic industry. The Gumi industrial estate for electronics has been established to building up the industry, which is now overwhelmingly comprised of labor-intensive assembly of components for such products as color TVs, watches, etc. Last year, production totaled about $1.3 billion and this will be expanded to about $2.7 billion by the end of 1981. The government is emphasizing the need to increase the sophistication of the products, stressing in particular computers and semi-conductors.

CHEMICALS: As a resourceless country, Korea is heavily dependent on synthetic products, especially synthetic fibers. For this reason, the chemicals sector has tended to stress petro-chemicals, but also includes oil refining, and cement and fertilizer production. Plans call for a tripling of Korea's petro-chemical capacity by 1981, with the expansion of the existing huge complex at Ulsan and the construction of a new complex at Yosu. Petrochemical self-sufficiency should be boosted up to 90 percent by the end of the plan.

At present, there are three oil refineries in operation, and a joint venture with the Iranian Oil Company for the construction of another has been announced. A seventh fertilizer plant has just been completed, with an annual capacity of one million tons, which will add to the country's already large consumption of fertilizer and enable small amounts of export.

— Peter Ennis and Richard Katz