

Export Development, Product Life Cycle and LDCs: The Case of Korea

Jeffrey S. Arpan
and
D. S. Kim*

I. Introduction

Few would disagree that international trade is a dynamic phenomenon. Its dynamics have been theorized and empirically studied by a considerable number of economists and international business researchers, from an equally wide number of viewpoints.¹ While considerable disagreement remains among these experts as to the cost/benefits of trade in terms of economic development, there does appear to be a growing consensus that "outward looking" strategies (export development) may have a wider applicability and success potential for LDCs than "inward looking strategies" (e.g., import substitution). The success of Japan, Taiwan, Hong Kong, and more recently, Korea, are classic examples. Related to the theory and strategy of export development is the theory of international product life cycles (PLC) as developed by Vernon (1966) and Wells (1972). The international dynamics of PLC are reasonably straightforward: the locus of production of a given product shifts internationally from its country of inception (historically, mostly from the U.S.) to other developed countries (again, historically mainly the EEC) and ultimately to LDCs, as the product grows through its life cycle from its new, innovative stage to its

* Institute of International Business, Georgia State University.

¹ See, among others, Myrdal (1965), Prebisch (1959, 1964), Nurkse (1961), Haberler (1959), Viner (1963), and Mcier (1963).

mature stage, respectively. Central to this shift of production is the decreasing importance of technology (as the related product or process technology becomes widely available) and the increasing importance of labor cost which becomes the most important variable cost.

The trade implications of PLC for a developed country have been well theorized and tested — while initially enjoying earnings from the new product, as its production shifts outside the country there will be an increasing shift toward importation of the good once exported, and conceivably a total reversal of the initial trade pattern. Thus for the U.S. it must continually develop new products for export if it seeks to maintain a balance in its manufactured trade. The dynamics of PLC for an LDC, however, are more vague, and far less attention and study have been devoted to them. The only clear implication to this date has been that LDCs will have a comparative advantage in the manufacture and export of mature stage products. If they choose to implement such a strategy, they can reduce their dependence on agricultural and raw material products exports and, conceivably, improve export earnings and stability. But the established dynamic of PLC essentially stop at this point, with little said about what may or will happen subsequently. It is to this point we now turn.

PLC Dynamics for an LDC

From a theory standpoint, it can be argued that a successful concentration by an LDC on the manufacture and export of mature products is likely to be a short-lived phenomenon. As the related economic development occurs, factor input prices should eventually and successfully increase due to shortages in raw materials or rising labor costs, for example. In the case of the latter, the low labor costs may rise to such an extent that they erode the comparative advantage initially enjoyed by the LDC in question. At that point, the LDC may itself be forced to increasingly import from an even lesser developed country the very product it once exported. The recent trade history of Japan can serve as a good example of these dynamics. Once a major net exporter of many mature products, Japan's surging wage costs and export related currency appreciations have caused Japan to become a net importer of many of these same mature products, such as textiles.

The implication of these dynamics now becomes clearer. An LDC concentrating on mature product exports faces the prospect

of losing its comparative advantage to other lesser developed countries, and with it, its economic growth prospects, *unless* it takes affirmative action in one or a combination of ways. More specifically, it can seek to prolong its comparative advantage in mature product exports or shift to products further "backward" in the product life cycle (a concept which will be elaborated on further in this article).

To prolong its comparative advantage in mature products a country could (1) choose to keep factor input prices from rising; (2) implement productivity increases which at least offset increases in factor prices; or (3) subsidize directly or indirectly the manufacturer/exporter. Since labor is the most important yet indigenous factor, strategy # 1 would imply an ever increasing supply of low-cost labor or wage controls. The former is more politically acceptable than the latter, but not without considerable long term implications (e.g., India). The latter has its obvious short term political repercussions. Strategy # 2, attempting to increase productivity, is a viable strategy at least until diminishing returns set in. Admittedly, there are also technology related problems in an LDC in its attempt to accomplish this. The third alternative of subsidization also has its costs and limits, both internally (how long it can pay these subsidies) and externally (how long other countries with whom it trades will allow them).

A better strategy, we suggest, is for the LDC to plan systematically to develop the manufacture and export of less mature products, i.e. products further back on the product life cycle (or if you prefer, products in the growth stage of their PLC). These growth stage products, due to their greater degree of differentiation and hence less elastic price demand, should permit the LDC to better pass on the higher product prices caused by higher input prices. In so doing, they can continue their export growth via diversification of products and markets, continue to export mature products to a wide number of developed countries and begin to increasingly export growth products to LDCs and, conceivably, to some moderately more developed countries.

This diversification backward on the PLC is not without its costs and problems, however. Such products require higher degrees of marketing and technological expertise, which initially may be beyond the capabilities of domestic LDC manufacturers. It is in these areas that foreign direct investors may well play an important catalytic role. Again, Japan can serve as an historical, successful example. Judicious use of foreign investment on terms

favorable to Japan (in terms of obtaining significant transfer of foreign technology and marketing/manufacturing skills) was an important and integral part of Japan's export growth and economic development.² And while FDI is certainly not without its costs to the host country, as many researchers have observed, it is certainly not without its benefits, particularly in terms of more rapid catalytic effects.

In sum, economic development based on export orientation, and more specifically PLC theory, has some interesting theoretical and real implications for an LDC which we considered to be in need of empirical study. As an initial empirical inquiry, we offer the specific case of Korea's export development from 1962 to 1975.

II. Research Design

In an LDC such as Korea where the structure of exports has undergone a rapid change, it is of importance to identify the pattern of relative comparative advantage³ among export commodities between Korea's Three Economic Planning periods and to indicate the direction of the changes. Among many changes in export performance, it is important to observe any "new" export groups in the total export picture in terms of growth potential, and to identify "declining" export groups in terms of their international competitiveness. All these changes in terms of their direction and nature are relevant to the formulation of public policy for LDCs in general and for Korea specifically.

The study is based on the results of a government survey of the export base of Korea for the 1962-1975 period. The definition of the export performance used in this study is rather arbitrary,⁴ but the research method focuses on three major areas in three specific time periods (1962-66; 1967-71; and 1972-75) as follows:

- (A) Product Concentration of Exports
- (B) Geographic Market Concentration of Exports
- (C) Product Concentration of Exports by Geographic Area

The research method was designed to facilitate the empirical investigation of export performance in Korea and to test three

² See Tsurumi (1976).

³ Information on relative export and import performance may be used as an indicator of comparative advantage, since these reflect revealed comparative advantage, or the extent of success (or failure) in exporting and importing different commodities. See Balassa (1967).

⁴ For a good analysis of the many connotations of this term "export performance", see Torre (1972).

specific hypotheses:

- H₁ There have been no changes in the nature of exports from Korea (1962-1975) in terms of PLC classification.
- H₂ There have been no changes in the nature of exports from Korea (1962-1975) in terms of market destination.
- H₃ There have been no changes in the product groups exported to specific geographic markets from Korea (1962-1975).

In addition, this study focused to a lesser extent on the role foreign direct investment may have played in the evolving pattern of Korea's exports during the same period. Specifically, the analysis focused on the nationality and industrial concentration of FDI, and their impact, if any, on Korea's export patterns.

Measurement of Export Concentration/Diversification

The export products of any small country cover a broad range of commodities. In this study, three digit level Standard International Trade Classification (SITC) served as the basis for product categorization. It was also necessary, however, to aggregate somewhat the export data by product category in order to analyze the changing patterns of export performance over a certain period of time. Four broad groups of commodities by SITC classification were considered appropriate⁵ to identify and measure the changes in export concentration, and all products were classified into the following four broad categories:

A Group: *(Agricultural Products and Related Raw Materials):*

Under this group, SITC 0 (Food and Live Animals Chiefly for Food); 1 (Beverage and Tobacco); 2 (Crude Materials, Inedible, except Fuels -- excluding 251, Pulp and Waste Paper, 267, Other Man-made Fibres for Spinning, 27, Crude Fertilizers and Crude Minerals, and 28, Metalliferous Ores); SITC 4 (Animal and Vegetable Oils, Fats and Waxes); and sub-group 941.0 (Animals, live) come into this grouping.

⁵ These groups were chosen to facilitate comparisons with other studies which utilized the same four product groupings. See Helleiner (1975) and Jojima (1967).

N Group: (*Natural Resource Intensive Products, excluding Agricultural Products*):

This group includes SITC 3 (Mineral Fuels, Lubricants and Related Materials) and Division 27 (Crude Fertilizers and Crude Minerals) and 28 (Metalliferous Ores).

L Group: (*Labor Intensive Manufactured Goods*):

This group includes SITC 6 (Manufactured Goods classified chiefly by Material -- excluding 67, Iron and Steel, 68 Nonferrous Metals, 661, Lime, Cement and 664, Glass in the Mass, Waste Glass); SITC 8 (Miscellaneous Manufactured Articles) and 267 (Other man-made fibres for spinning); 541 (Medical and Pharmaceutical Products); and 723 (Civil engineering Equipments).

K Group: (*Capital Intensive -- Heavy -- Manufactured Goods*):

This group includes SITC 5 (Chemicals and Related Products -- excluding 541, Vitamins); SITC 7 (Machinery and Transport Equipment excluding 723); 67 (Iron and Steel); 68 (Non-ferrous Metals); 251 (Pulp and Waste Paper); 267 (Other Man-made Fibres for Spinning); 661 (Lime, Cement); and 664 (Glass in the Mass, Waste Glass).

To measure concentration, export commodity groups were arranged in descending order of magnitude according to their relative percentage of total exports. This made it possible to determine quickly and easily the total change of any number of export commodity groups within a certain time period.

To analyze the changing patterns of export performance and examine Korea's comparative advantage of exports, the changing patterns of Korea's exports were classified and ranked in term of:

STX = a strong advantage group in export
(rank: 1-24),

MDX = a medium advantage group in export
(rank: 25-10),

WKX = a weak advantage group in export
(rank 51-70).⁶

6 A ranking of export performance from 1 to 70 is a hypothetical example to facilitate

Empirical evidence suggests that the export performance of a nation can be considered as a proxy variable to comparative advantage that a nation possesses.⁷

With the above definition, the industries which produced commodities that remained in the STX group through the three planning periods were called (a) *Established Export (ESE)*;" (b) the industries which moved from STX to MDX or MDX to WKX were called "*Established but Declining Export (EDE)*;" (c) those industries from WKX to MDX or MDX to STX were called "*Rapidly Developing Export (RDE)*;" and (d) those industries which produced commodities that remained in WKX were called "*Marginal Export (MGE)*."

If Korea successfully accomplished a strategy of export diversification "backward" along the PLC, a continuous shift should be evident in export product mix, away from concentrations in Groups A and N and toward product Groups L (initially) and K (eventually) respectively. The A and N Groups should have moved sequentially toward categories "medium advantage" (MDX) and "weak advantage" (WKX) groups in export, and eventually have become "marginal export" (MGE), while L and K Groups should have moved toward "medium advantage" or "strong advantage" groups in exports (MDX or STX), and have become "Rapidly Developing (RDE) or Established Export (ESE)." Such a shift would refute hypothesis one and would indicate that Korea was diversifying its export base away from primary products (A and N product groups) to light manufactures and toward manufactures of higher capital-intensive goods (those earlier on their PLC).

In addition, a change should have occurred in the number and mix of countries receiving these exports: (1) a shift toward more countries, (2) changes in relative ranks among countries, and (3) changes in specific product flows to specific countries.

The shift toward market diversification would be consistent with a plan to spread risks and reduce cyclical fluctuations by being less dependent on, and affected by, events in a small number of major trading-partner countries. The changes in the destination of product groups (A, N, L, and K) by countries are related to the PLC dynamics for LDCs of exporting more capital-intensive pro-

that all exports at three digit SITC are divided into three categories of STX, MDX and WDX. Ranking is assigned according to the size of export value in U.S. dollars and as a result, rank 1 refers to the highest export performance.

⁷ See Balassa (1967).

ducts to lesser developed countries and more mature products to the developed countries. Patterns in these three areas were used to test H_2 and H_3 .

The refuting of all three hypotheses would tend to support the conclusion that Korea's export development strategy based on export development and diversification was working during the period on which this study had focused.

III. Korea's Export Development and Performance

The Korean economy experienced a rapid increase in economic growth and industrial development after full scale economic development plans became operational. In real terms economic growth rate averaged 8.3 percent during the First Five-Year Plan period (1962-1966), 11.4 percent during the Second Five-Year Plan (1967-1971), and 8.6 percent during the Third Five-Year Plan period (1972-1976). As a result, the Gross National Product (GNP) increased from \$2.5 billion in 1961 to \$8.0 billion in 1971, and to \$18.7 billion in 1975, representing a cumulative growth of 7.5 times during the fifteen-year period.

Per capita income also rose in real terms from \$87 in 1962 to \$275 in 1971 to \$532 in 1975. Rapid growth in the manufacturing industry was a major force and provided impetus for many structural changes in the economy: the share of mining and manufacturing to the total GNP rose from 16.5 percent to 22.2 percent to 28.0 percent between 1962, 1971 and 1975 respectively.

Korea's economic growth in general during the three plan periods was attributable to expansion in industrial production, a phenomenal increase in exports, and foreign direct investments (see Table 1).

A combination of scarce natural resources and a small domestic market made Korea a trade-dependent economy with an ever-increasing foreign sector. The importance of export growth as an expansionary factor to the economy was evident from the growth in the ratio of exports to GNP, from 2.4 percent in 1960 to 28.3 percent in 1975. Moreover, as Table 2 indicates, this dependency on the foreign sector increased in the past decade, whether measured in terms of exports or in terms of total trade.

In general, the growth of exports during the 1965-75 period was accompanied by changing patterns in the composition of exports, markets, and number of export-oriented industries. There

was a noticeable shift in the composition of exports, away from primary products toward manufactured products, which is generally recognized as a symbolic indication of diversification around the export base in the economy. This shift toward manufacturing was significant for Korea on its own, and also in terms of its relative performance when compared to other LDCs (see Table 3).

Analysis of the pattern of export markets and products provides a barometer of changing patterns of Korean exports during the period under review. Data on the number of export commodities and markets show the increasing number of export items, from 250 in the First Plan period, to 714 in the Second Plan period, to 1860 in the Third Plan period; and in terms of markets, from 51 countries in the First Plan period, to 88 countries in the Second Plan period, to 120 countries in the Third Plan period (see Table 4).

Data on the commodity composition of Korea's exports during the three planning periods also show an interesting change in the industrial structure and diversification of exports in Korea (see Table 5).

During the First Planning period, the *relative* share of the primary exports in the total exports of Korea declined from 79.3 percent in 1962 to 38.2 percent in 1966, despite an annual average rate of increase of 25.1 percent during the same period. The major export items in 1962 were represented by such products as fish, raw silk, tungsten, iron ore, laver, and agar-agar. Light manufactured exports rose from 16.3 percent of total exports in 1962 to 57.7 percent in 1966 with a record-breaking annual average growth rate of 115.6 percent during the same period. These major export items were clothing, footwear, fabrics, plywood, and veneer board. Thus, data on the commodity composition of Korea's exports during the First Plan period showed a shift in the industrial structure with increasing importance of light manufactures.

During the Second Planning period, the share of the primary product exports in the total exports further declined from 32.7 percent in 1967 to 13.7 percent in 1971 in spite of an average annual growth rate of 15.1 percent. The major export items in the primary category remained basically the same: fish, raw silk, seaweeds, laver, rice and ginseng. However, manufactured exports (L and K Group products inclusively) rose from 67.3 percent in 1967 to 86.3 percent in 1971 with an annual average growth rate of 51.4 percent during the same period. The major export items were

numerous and varied, but L group manufactures such as clothing, fabrics, textiles, wigs and shoes dominated the total exports, accounting for more than 67 percent of the total manufactured exports.

During the Third Planning period, Korea's export development continued to be led by the increase in manufactured goods in both volume and variety. Of total exports, 15.3 percent were heavy manufactures and chemicals (K Group products), and 66.7 percent were light manufactures (L Group products). On the other hand, the share of primary product exports remained relatively insignificant, accounting for only 18 percent of the total exports of 1975.

Summarizing the entire fourteen-year period, the major shifts were a decrease in the percentage of total exports for A and N Groups (from 79.3 percent to 18.0 percent) and increase in the L Group (from 16.3 percent to 66.7 percent) and the K Group (from 4.4 percent to 15.3 percent). Based on these findings, Hypothesis one was rejected.

The Market Concentration of Korea's Export

The market destination of Korea's exports also underwent considerable changes during the three planning periods (see Table 6). In the process of market diversification, Korea increased its export customers from approximately 33 countries in 1962 to more than 125 countries in 1975. Of these countries, the United States and Japan were, and still remain, the major export markets, absorbing together about 66.8 percent of the annual amount of Korea's exports during the 1962-75 period. This implies that market diversification was done mainly in terms of extending the number of countries without reducing the "dependence" on the two big countries.

During the First Planning period, Japan's share was 31.0 percent; the United States' 30.6 percent, Hong Kong's about 8.0 percent and West Germany's 1.5 percent. During the Second Planning period, Japan's share dropped to 24.5 percent and Hong Kong's to 3.8 percent, but the United States' increased to 48.5 percent and West Germany's to 2.5 percent. During the Third Planning period, while Japan's share rose again to 30.0 percent and the United States' share dropped to 35.6 percent, Europe's share soared to 18.6 percent and the neighboring Asian countries' share rose to about 10.0 percent. Summing up the entire fourteen-

year period, Japan's share of total Korean exports decline from 50.8 percent to 37.9 percent, while the United States' share increased from 41.2 percent to 45.1 percent, and "other" countries' share increased more than two-fold, from 8.0 percent to 17.7 percent (see Table 7).

Thus the market destination of Korea's export in the 1962-75 period suggests that selective "intensive" as well as "extensive" marketing efforts were in part responsible for maintaining a high rate of export growth. Based on these findings, Hypothesis two was rejected.

Product Concentration by Markets

There were also measurable changes in the types and percentage of products imported from Korea by its major trading partners during the 1962-1975 (see Table 8). Japan during the First Planning period imported mainly A Group products (78.7%) but by the Third Planning period, was mainly importing L Group products (79.7%) and hardly any A Group products (2.6%). Its percentage of K Group imports also increased from 2.6 percent during the First Planning period to 14.8 percent during the Third Planning period.

"Other" countries, notably Hong Kong, Taiwan, West Germany, Vietnam, Singapore, Iran and Indonesia, showed similar changes: decreasing imports of once-dominant A Group products (from 43.8%) in the First Planning period to no import at all in the Third Planning period) and increasing imports of L Group products (from 16.2% to 35.3%), and especially K Group products (31.3% to 58.8%). The United States, however, showed little changes in its import pattern with L Group products dominating throughout the entire planning period (from 97.6% to 94.2%) but with the emergence of K Group imports during the Third Planning period (4.0%). Based on these findings, Hypothesis three was also rejected.

IV. The Role of Foreign Investment

Table 9 shows the aggregate profile of FDI in Korea during the three planning periods studied.

As of the end of 1975, Japan led all other countries in the value of Korean investments on a cumulative basis (\$616.2 million,

66.5%) followed by the United States (\$161.9 million, 17.4%), and other countries (\$148.4 million, 16.1%), as shown in Table 10.

As of the end of 1975, approximately 80.0 percent of FDI had been made in manufacturing industries; 18.8 percent was in social over-head investments such as electricity, banking, transportation, communication and tourist facilities; and 1.2 percent was in agricultural industry, fishery and mining (see Table 11).

This table shows that during the 1962-75 period, the pattern of FDI in Korea gradually changed: a shift occurred from labor-intensive industries to capital-intensive industries. Table 12 provides more detail on the specific industries receiving FDI.

The contribution of foreign-invested firms to export expansion was also significant. The value of exports increased but also the relative share of foreign-invested firms' exports to total Korean exports greatly increased, as evidenced in Table 13. Exports by foreign firms as a percentage of total exports rose from 1.0 percent in 1966 to 26.5 percent in 1974.

Moreover, a comparison of the average export performance between the foreign-invested firms and the Korean firms in 1974 indicated that the average performance of foreign-invested firms exceeded that of Korean firms by 7 times as shown in Table 13A.

The breakdown of the exports made by foreign firms during the three periods also revealed some interesting patterns (see Table 14).

Among the four groups of products exported by foreign firms, L group products dominated export performance in terms of value and relative share of total exports. The K group exports showed a rapid increase, and its relative share of the total foreign-firms' exports reached almost 20.0 percent in 1974. However, A group and N group exports exhibited very low visibility, accounting for less than 3.0 percent of the total exports by the foreign-invested firms.

Relationship of FDI with Exports

Although FDI and exports have a complex economic relationship, Figure 1 of this study reveals an interesting pattern of export composition and FDI during Korea's three economic planning periods. The percentage share of each product group in total exports and FDI is represented by the length of the blocked areas in each diagram. Exports are shown on the right and FDI on the left

of each verticle axis.

The relationship of FDI with exports for the 1962-75 period can be summed up as follows (for further explanation see Figure 1):

(1) There was a continuous supply of FDI, the general nature of which was shifting away from agricultural and natural resource industries and toward labor-intensive and capital-intensive industries. This shift was accompanied by not only an increase in total Korean exports but also a shift from primary exports to labor-intensive and capital-intensive manufactured exports.

(2) While the mature-stage manufactured exports continued to grow, the continuous growth of FDI seemed to have helped to diversify standardized products to more differentiated products and have contributed to the inception of growing exports in K group.

V. Conclusions Based on Testing of Hypotheses

As discussed in an earlier section the rejection of all three hypotheses would imply that Korea's economic development strategy based largely on export growth and diversification (by market and product types) was working. The data presented and the testing of hypotheses to this point support this conclusion. Total exports grew substantially both in terms of absolute amount and as a percentage of GNP. They also diversified considerably in terms of product types and market destination. Furthermore, it can be argued that this growth and diversification had positive economic effects on the Korean domestic economy via backward linkages to domestic, non-exporting firms which supplied goods and/or services to the exporting firms.

The hypotheses also sought to test certain international product life cycle considerations, notably whether or not there were changes in the types of products being exported, changes in the relative share of product groups exported, and the changes in the destination of certain product groups being exported. The concept of "riding the PLC backward", which was suggested as an economic development strategy for LDCs in general, and specifically for Korea, implied that there should be a shift away from primary products toward manufactured products, and then, to manufactured products of a less standardized, more capital-intensive higher technology nature. The data and the hypotheses tested showed that such changes in fact occur in Korean exports

during the period studied. Thus it can be concluded that Korea was having some success in "Riding the PLC backward."

In addition, there was a role played by FDI during this period which was related to the growth and change in Korean exports. In terms of PLC theory, FDI is not assumed a necessary condition or factor for the exportation of mature stage products, although it can serve a facilitating role. To move "backward" on the PLC, however, may require FDI due to the greater capital, technology, and management/marketing skills required. Reviewing the data, FDI in Korea (1) increased throughout the period, (2) shifted away from the primary product sections (Agricultural and Natural resources) to manufactured sectors, and also, within the manufacturing sector, (3) shifted from labor-intensive industries to capital-intensive industries. These shifts paralleled the shifts in the export sector. In addition, the percentage share of total Korean exports accounted for by foreign direct investors in Korea rose from 1.0 percent to 26.5 percent during the period. Thus the data on FDI suggests that FDI in Korea had a favorable impact on Korea's export development in these respects, and may have well speeded up the entire process.

No conclusions are made from this study regarding the relative success and/or cost of an economic growth strategy based on export development. To do so would require that Korea did not also pursue an import-substitution strategy, and/or an estimate would have to be made of what Korea's economic growth would have been if it had not pursued export development. The former was not in fact the case, and the latter was beyond the scope of this study. However we can conclude that the strategy of export development was successfully achieved with some considerable effects (although not quantitatively measured) on Korean economic growth.

Table 1
SELECTED MAJOR ECONOMIC INDICATORS

Year	Economic Growth Rate*(96)	Per Capita Income*(\$)	Total Exports (in million \$)	Industrial Production (1970 = 100)	Value of FDI (in million \$)
1962	3.1	87	54.8	28.1	2.2
1963	8.8	98	86.8	31.7	5.6
1964	8.6	102	119.1	34.3	0.3
1965	6.1	106	175.1	36.8	20.9
1966	12.4	126	250.3	45.1	1.5
1967	7.8	143	320.2	57.1	13.9
1968	12.6	168	455.4	74.8	25.4
1969	15.0	208	622.5	89.7	40.5
1970	7.9	242	835.2	100.0	93.2
1971	9.2	275	1,067.6	115.4	138.9
1972	7.0	304	1,624.1	132.2	150.0
1973	16.9	376	3,225.0	176.4	225.6
1974	8.6	481	4,460.4	225.0	167.0
1975	7.4	532	5,081.0	267.8	42.0

Source: *Economic Statistics Yearbook 1976* (Seoul, Korea: The Bank of Korea, 1976), pp. 2-5.

* Note: All are in real terms.

Table 2
DEGREE OF FOREIGN TRADE DEPENDENCY

Year	Exports of Goods & Services as a percentage of GNP	Total Trade in Goods & Services as a percentage of GNP
1960	2.4	12.8
1965	5.2	15.0
1970	14.7	39.5
1975	28.3	55.5

Source: *Economic Statistic Yearbook*, (Seoul, Korea: 1976) pp. 65, 70, 75.

Table 3
EXPORTS OF SELECTED LDCs: 1950-1969

	Primary Goods		Manufactures		All Commodities		Exports of Mft. as a Percentage of Total Exports in 69
	1950-60	1960-69	1950-60	1960-69	1950-60	1960-69	
	Argentina	0.1	3.6	-7.6	17.3	-0.5	
Brazil	-0.9	4.2	15.6	19.1	-0.6	5.1	9
Chile	5.3	8.4	11.1	10.7	5.6	8.5	6
Mexico	4.0	5.5	12.2	19.9	5.0	7.2	25
Malaya	1.9	0.6	29.0	12.7	2.0	1.2	10
Pakistan	-7.5	2.5	35.0	14.5	-2.3	6.3	51
Philippines	5.4	6.0	4.7	25.0	5.4	6.8	10
Taiwan	-1.2	16.4	30.5	34.0	3.6	24.0	67
Korea	-3.5	21.0	0.2	69.0	-2.8	38.9	76
Average of Above	0.4	7.6	14.5	24.7	1.7	11.4	29

Source: Bela Balassa, "Trade Policies in Developing Countries," in *American Economic Review: Papers and Proceedings*, (May 1971), Table 1, p. 180.

Table 4
THE NUMBER OF EXPORT ITEMS AND MARKETS

Period	Average Number of Export Items	Average Number of Countries
First Plan (1962-66)	250	51
Second Plan (1967-71)	714	88
Third Plan (1972-75)	1,860	120

Source: The Ministry of Commerce and Industry, Seoul, Korea, 1976.

Table 5
STRUCTURE OF KOREA'S EXPORTS
BY COMMODITY CONCENTRATION AND BY ANNUAL GROWTH RATE

Commodity ^a Groupings	Commodity Composition 1962-1966 (Period I)		Annual Growth Rate		Commodity Composition 1967-1971 (Period II)		Annual Growth Rate		Commodity Composition 1972-1975 (Period III)		Annual Growth Rate	
A & N Groups	79.3	38.2	25.1	32.7	13.7	15.1	15.9	18.0	50.2			
L-Group	16.3	57.7	115.6	62.0	75.7	40.3	71.2	66.7	47.6			
K-Group	4.4	4.1	56.1	5.3	10.6	62.4	12.9	15.3	72.6			
Total.....	100.0	100.0	100.0	100.0	100.0	100.0			

Note: a) Exports of A & N Groups (Primary Products) are defined as SITC 0, 1, 2, 3, and 4 plus unwrought metals in SITC, 6, and L Group (Light manufactures) are defined as SITC 6 and 8 minus unwrought metals in SITC 6, and K Group (Heavy manufactures and Chemicals) are defined as SITC 5 and 7. See the details, Bela Balassa, *The Structure of Protection in Developing Countries* (Baltimore: The Johns Hopkins University Press, 1971).

Source: *Economic Statistics Yearbooks* (1962-1975), Seoul: The Bank of Korea.

Table 6
EXPORTS BY MARKET CONCENTRATION (1962-1975)

Year	Total	(In million of U.S. dollars)										
		U.S.A. (%)	Japan (%)	Germany (%)	Hong Kong (%)	Others (%)	(%)					
1962	54.8	100.0	12.0	22.8	23.5	43.8	0.2	0.5	4.7	8.5	13.4	24.4
1963	86.8	86.8	24.3	27.9	24.8	28.6	1.3	1.5	9.1	10.5	27.3	31.5
1964	119.1	119.1	35.1	29.4	38.2	32.3	1.1	0.9	11.6	9.7	33.1	27.7
1965	175.1	175.1	61.7	35.3	44.0	25.1	3.2	1.8	10.8	6.2	55.4	31.6
1966	250.3	250.3	95.8	37.1	66.3	26.4	7.0	2.7	9.5	3.0	79.7	30.8
1967	320.2	320.2	137.4	42.9	84.7	26.4	5.2	1.6	15.2	4.7	77.7	24.4
1968	455.4	455.4	237.0	52.0	99.7	21.8	9.6	2.2	15.7	3.4	93.4	20.6
1969	622.5	622.5	315.7	50.8	133.3	21.4	16.4	2.6	24.4	3.9	132.7	21.3
1970	835.2	835.2	395.2	47.3	234.3	28.0	27.3	3.2	27.6	3.5	150.8	18.0
1971	1,067.6	1,067.6	531.8	49.8	262.0	24.6	31.4	3.0	41.4	3.8	201.0	18.8
1972	1,624.1	1,624.1	759.0	46.7	407.1	25.0	51.2	3.3	72.9	4.4	133.9	20.6
1973	3,225.0	3,225.0	1,021.2	31.8	1,241.5	38.4	120.3	3.8	117.7	3.6	724.3	22.4
1974	4,460.4	4,460.4	1,482.2	33.2	1,380.2	30.9	241.8	5.4	151.2	3.4	1,205.0	27.1
1975	5,081.0	5,081.0	1,536.3	30.2	1,292.9	25.5	312.2	6.2	182.0	3.6	1,757.6	34.5

Source: *The Economic Statistics Yearbooks (1962-1975)*, Seoul: The Bank of Korea.

Table 7
EXPORT DESTINATION BY PRODUCT GROUPS
(1962-1975)

	U.S.A.			JAPAN			OTHER COUNTRIES ^b		
	(I) ^a	(II)	(III)	(I)	(II)	(III)	(I)	(II)	(III)
A-Group	1.0 WKX	0.7 WKX	0.6 WKX	40.0 STX	18.0 WKX	1.0 WKX	3.5 WKX	3.0 WKX	—
N-Group	—	—	—	1.0 WKX	1.0 WKX	1.1 WKX	0.7 WKX	—	1.0 WKX
L-Group	40.2 STX	40.9 STX	42.5 STX	8.5 MDX	28.0 MDX	30.2 STX	1.3 WKX	1.0 WKX	6.0 WKX
K-Group	—	—	2.0 WKX	1.3 WKX	3.0 WKX	5.6 WKX	2.5 WKX	4.4 WKX	10.0 MDX
Total	41.2	41.6	45.1	50.8	50.0	37.9	8.0	8.4	17.0

Note:

a) (I) = (1962-1966), (II) = (1967-1971), and (III) = (1972-1975).

b) Other countries denote Hong Kong and Taiwan in the First Planning Period,

West Germany and Vietnam in the Second Planning Period, and Singapore, Iran, and Indonesia in the Third Planning Period.

Source: *Economic Statistics Yearbooks* (1962-1975), Seoul: The Bank of Korea.

Table 8
THE DESTINATION OF PRODUCT GROUPS BY COUNTRY

Product Groups	U.S.A.			JAPAN			OTHER COUNTRIES		
	(I)	(II)	(III)	(I)	(II)	(III)	(I)	(II)	(III)
A-Group	2.4	1.7	1.4	78.7	36.0	2.6	43.8	35.7	—
N-Group	—	—	—	2.0	2.0	2.9	8.8	—	5.9
L-Group	97.6	98.3	94.2	16.7	56.0	79.7	16.2	11.9	35.3
K-Group	—	—	4.4	2.6	6.0	14.8	31.2	52.4	58.8
TOTAL (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.00	100.0

Note: (I) = The First Planning Period,
 (II) = The Second Planning Period, and
 (III) = The Third Planning Period, respectively.

Table 9
NATIONALITY PROFILE OF FDI

Country	1962-1966		1967-1971		1971-1975		(%)		
	No. of Project	Value (%)	No. of Projects	Value	No. of Projects	Value			
U.S.A.	22	30.0	98.4	120	106.9	34.3	44	25.0	4.3
Japan	—	—	—	285	184.2	59.0	385	432.0	73.8
Panama	1	0.3	0.9	2	6.9	2.2	4	16.1	2.7
West Germany	1	0.2	0.7	2	2.0	0.8	8	3.3	0.6
Hong Kong	—	—	—	2	1.7	0.5	8	3.5	0.7
Netherlands	—	—	—	1	6.2	2.0	3	51.3	8.8
Others ^a	—	—	—	5	4.0	1.2	18	53.4	9.1
Total	24	30.5	100.0	417	311.9	100.0	470	584.6	100.0

Note:

a) Others denote the United Kingdom, Canada, Switzerland and France. (%) refers to percentage of the value invested.

Source: Bureau of Statistics, Economic Planning Board, Seoul, Korea, 1976.

Table 10
SOURCES OF FOREIGN DIRECT INVESTMENT
(1962-1975)

(Unit: In million U.S. dollars)

Country	Number of Projects	Amount	Percentage
Japan	742	\$616.2	66.5
United States	114	161.9	17.4
Netherlands	4	57.5	6.2
Panama	7	23.2	2.5
West Germany	11	5.5	0.6
Hong Kong	10	5.2	0.6
Others	23	57.4	6.2
Total	911	\$927.0	100.0

Source: Statistics Bureau, Economic Planning Board, Seoul, Korea, 1976.

Table 11
THE DISTRIBUTION OF FDI BY PRODUCT GROUPS

	As of 1966		As of 1971		As of 1975	
	No.	%	No.	%	No.	%
A Group	(3)	9.1	(21)	1.8	(53)	1.2
N Group	(2)	4.3	(5)	0.4	(11)	0.0
K Group	(5)	23.6	(146)	41.0	(295)	43.9
L Group	(11)	38.1	(253)	44.0	(478)	36.1
Social Overhead	(3)	24.9	(16)	12.8	(74)	18.8
Total	(24)	100.0	(441)	100.0	(911)	100.0

Source: Bureau of Statistics, Economic Planning Board, Seoul, Korea, (1962-75). For further details, see Table 12.

Table 12
THE DISTRIBUTION OF FDI BY INDUSTRY AND NUMBER OF FIRMS

	NUMBER OF FIRMS			FOREIGN DIRECT INVESTMENT (In Million U.S. Dollars)			PERCENTAGE DISTRIBUTION OF FDI		
	1966	1971	1975	1966	1971	1975	1966	1971	1975
A-Group									
Agriculture and Fishery	3	21	53	2.8	5.7	11.6	9.1	1.8	1.2
N-Group									
Mining	2	5	11	1.3	1.0	2.0	4.3	0.4	0.0
K-Group									
Fertilizers	2	2	2	4.0	20.5	21.3	13.1	5.9	2.3
Chemicals	3	53	94	3.2	24.3	183.9	10.5	7.1	19.8
Petroleum		4	7		33.0	80.9		9.7	8.8
Transport Equipment		14	18		42.5	43.5		12.6	4.7
Steel and Metals		24	62		13.4	33.5		3.9	3.6
Machinery and Parts		49	112		10.7	43.6		3.1	4.7
L-Group									
Food Processing	1	12	14	0.5	6.5	4.6	1.6	2.0	0.4
Textiles and Garments	5	45	104	7.1	56.0	188.2	23.4	16.4	20.3
Wood Products	2	4	11	1.4	2.8	2.2	4.6	0.8	0.2
Ceramics		20	30		15.9	17.5		4.6	1.9
Electronics & Electrical Equipment		79	187		54.4	97.5		15.8	10.5
Pharmaceuticals	3	8	11	2.6	3.9	5.4	8.5	1.1	0.6
Others		85	121		11.1	19.9		3.0	2.2
Social Overhead	3	16	74	7.6	40.7	171.4	24.9	11.8	18.8
TOTAL	24	441	911	30.5	342.4	927.0	100.0	100.0	100.0

Source: Bureau of Statistics, Economic Planning Board, Seoul, Korea (1962-1975).

Table 13
EXPORTS BY FOREIGN-INVESTED FIRMS
(In millions of U.S. dollars)

	1966	1971	1974
Total Exports (A)	250.3	1,067.6	4,460.4
Foreign-firms Exports (B)	2.7	191.1	1,184.6
B/A (%)	1.0	17.8	26.5

Source: Bureau of Statistics, Economic Planning Board, Seoul, Korea, 1976.

Table 13A
AVERAGE EXPORT PERFORMANCE

	Export Proceeds*	Number of Establishments	Average Export Performance*
Korean Firms	4,460.4	24,215**	0.184
Foreign Firms in Korea	1,184.6	911***	1.300

Remarks: * The unit is in millions of U.S. dollars.

** The total number of establishments was listed in the *Economic Statistics Yearbook*, The Bank of Korea, Seoul, Korea, June 10, 1976.

*** The total number of establishments were listed in *Guide to Investment in Korea*, Economic Planning Board, Seoul, Korea, 1976.

Table 14
FOREIGN FIRMS' EXPORT BY PRODUCT GROUPS
(In absolute and percentage terms)

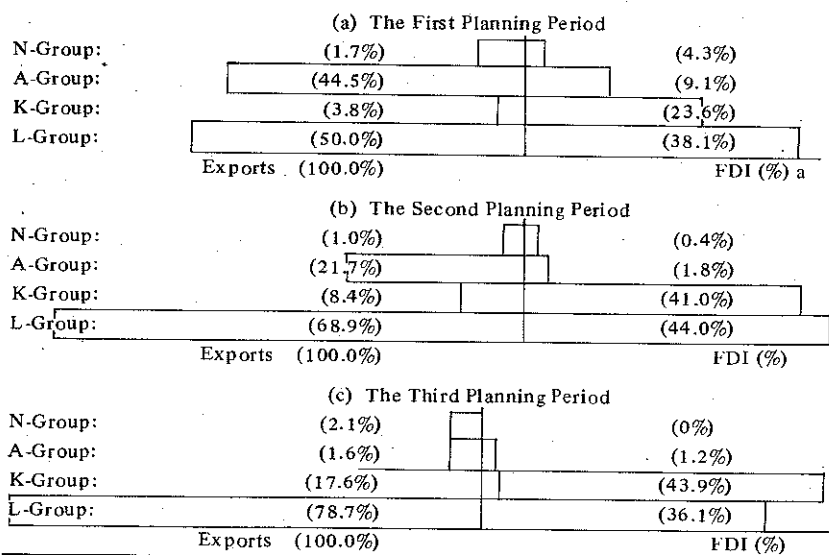
Product Grouping	Value of total exports by foreign firms:			Percentage within total Foreign Exports:		
	1966	1971	1974	1966	1971	1974
A-Group	1.7	3.0	5.1	63.0	1.5	0.4
N-Group	—	1.5	27.7	—	0.7	2.3
K-Group	—	68.5	222.9	—	35.8	18.8
L-Group	1.0	118.1	928.9	37.0	62.0	78.5
Total	2.7	191.1	1,184.6	100.0	100.0	100.0

Note: The amount is in million U.S. dollars.

Source: Bureau of Statistics, Economic Planning Board, Seoul, Korea (1962-1974).

Figure 1

THE RELATIONSHIP OF FDI WITH EXPORTS



Note:

- a) The Social Overhead of 24.9% in the First Planning Period, 12.8% of the Second Planning Period, and 18.8% of the Third Planning period were not added in the chart.

References

- Balassa, Bela, *Studies in Trade Liberalization, Problems and Prospects for the Industrial Countries*, Baltimore: The Johns Hopkins Press 1967.
- Haberler, Gottfried, "International Trade and Economic Development," Fiftieth Anniversary Commemorative Lectures," Cario: National Bank of Egypt, 1959.
- Helleiner, G. K., "Manufactured Exports from Less Developed Countries and Industrial Adjustment in Canada," *Adjustment for Trade, Studies on Industrial Adjustment Problems and Policies*, Paris: Organization for Economic Cooperation and Development, 1975.
- Jojima, Kiyoshi, "Trade Arrangements Among Industrial Countries: Effects on Japan," ed., Bela Balssa, *Studies in Trade Liberalization, Problems and Prospects for Industrial Countries*, Baltimore: The Johns Hopkins Press, 1967.
- Meier, Gerald M., *International Trade and Development*, New York: Harper and Row, 1963.
- Myrdal, Gunnar, *An International Economy*, New York: Harper and Brothers, 1965.
- Nurkse, Ragnar, *Patterns of Trade and Development*, "Wicksell Lectures." April 1959, New York: Oxford University Press, 1961.
- Prebisch, Raul, "Commercial Policy in the Underdeveloped Countries," *American Economic Review*, Supplement XLIX, May, 1959.
- Prebisch, Raul, *Towards a New Trade Policy for Development*, UNCTAD, E/CONF, 46/3, 1964.
- Torre, Jose de la, "Marketing Factors in Manufactured Export from Developing Countries," *The Product Life Cycle and International Trade*, Boston: Harvard University Press, 1972.
- Tsurumi, Yoshi, *The Japanese are Coming*, Cambridge: Ballinger Publishing Company, 1976.

Vernon, Raymond, "International Investment and International Trade in the Product Life Cycle," *The Quarterly Journal of Economic*, May 1966.

Viner, Jacob, *International Trade and Economic Development*, New York, Harper and Row Publishers, 1963.

Wells, Louis T. Jr. "International Trade: The Product Life Cycle Approach," *The Product Life Cycle and International Trade*, ed. Louis T. Wells, Jr. Boston: Harvard University Press, 1972.

