

**AN ECONOMIC AND POLITICAL ANALYSIS
OF
MULTINATIONAL CORPORATIONS IN KOREA**

A thesis submitted to the University of Manchester
for the degree of Ph.D.
in the Faculty of Economic and Social Studies

1994

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International Development Centre

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ABSTRACT

The economic performance of the Republic of Korea can be regarded as one of the most successful economic stories in the world. By any measure, the performance of the Korean economy during the last three decades has been outstanding. Korea's rapid economic growth has been achieved by the extensive government intervention. The government as a planner, a credit allocator, and a punisher was able to control domestic capitalists as well as foreign capital. Foreign influence such as foreign aid, loans, DFI and foreign technology from TNCs, however, on the Korean economy should not be neglected.

This study aims to find out; to what extent can Korea's performance be attributed to the development strategies and policies of the government; if the strategies and policies are important, how did Korea adopt and implement them; and what this experience shows about the way in which a developmental state can be defined. With regard to DFI and technology transfer, an attempt was made to find out situations and trends of DFI, and technology transfer and its application to production; to do comparative analysis of technical training methods and R&D activities between Korean companies and foreign-invested companies; and to what extent Korea can develop its own technology for the future.

DECLARATION

No portion of the work referred to in this thesis has been submitted in support of an application for another degree or qualification of this or any other University or other Institute of learning.

To my wife, Kye-Ok

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Chapter I

Introduction

I-i. Objective of the Study

The economic performance of the Republic of Korea (hereinafter, South Korea or Korea) can be regarded as one of the most successful economic stories in the world. By any measure, the performance of the Korean economy during the last three decades has been outstanding. It is generally believed that Korea's economic success has been achieved by Koreans themselves with the aid of the Korean government's policy direction⁽¹⁾.

Foreign influence such as foreign aid, loans, direct foreign investment, foreign technology, etc., however, on the Korean economy should not be neglected. After the tragic fratricidal Korean War, when Korea was in need of various kinds of assistance, US aid played an important role in saving the Koreans from hunger and severe shortage of commodities in the 1950s. Throughout the 1960s and 1970s, when Korea sustained a high rate of growth and exports, low domestic savings did not cover the necessary investment. Consequently, foreign capital was crucial for the industrialisation process in Korea.

During the 1980s, partly with Korean government policy of liberalisation on the one hand, and partly with a growing awareness of the weakness of the indigenous technological base, the Korean government encouraged DFI, joint-ventures and licensing agreements between Korean enterprises and multinational corporation (MNCs, or TNCs) as one of the major

channels of technology transfer.

So far, several studies have been made which mainly concern themselves with the several patterns and impact of TNCs on the Korean economy (Lee, W.Y., 1987; Kim, W.B., 1986; Sul, Y.K., 1986; Koo, B.Y., 1984; Jo, S.H., 1977). Their analyses, however, are mainly based on data which the Korean government and national and international research institutions published; their works seem to be a mere factual description. In addition, what is missing is any recognition of the importance of the political dimension of economic policy-making by the Korean government with regard to domestic capitalists and foreign investors in the industrialisation process⁽²⁾. This seems to be an essential element in any explanation of the development of the political economy of Korea.

In this respect, this study aims to find out; to what extent can Korea's performance be attributed to the development strategies and policies of the government; if the strategies and policies are important, how did Korea adopt and implement them; and what this experience shows about the way in which a developmental state can be defined, at least at the early stage of industrialisation. With regard to DFI and technology transfer in Korea, the intention of this thesis is to find out general situations and trends of DFI and technology transfer and its application to production; to do comparative analysis of technical training methods and research & development (R&D) activities between Korean companies and foreign-invested companies⁽³⁾; and to find how Korea can develop its own technology.

I-ii. The Scope of the Study and the Choice of Industry

The principal period under examination is the last three decades. That is the period since the Korean government launched its first five year ^{plan} (FFYP, or five year economic development plan, FYEP). However, a brief history of traditional Korea and pre-1960 is mentioned occasionally where it might enhance the analysis. For DFI and technology transfer, however, particularly for technology transfer, cases were chosen mainly in the post - 1980 period. Especially for an analysis of the Korean auto industry, technology transfer and technical training cases were mainly focused in the period after 1986.

For the case studies , the chemical, metal, machinery, and automotive industries were chosen for analysis. The choice of these industries was influenced by several considerations. The industries were targeted in consecutive five year development plans, they were regarded as capital intensive industries, and the role of DFI was relatively significant in each industry. Furthermore, through their own sectoral trade organisations, adequate data was relatively easy⁽⁴⁾ to obtain.

I-iii. Data Sources

The study relies on a variety of sources for its data. The main sources include: 1) Government publications from the Economic Planning Board, the Ministry of Finance, the Ministry of Trade and Industry, the Bank of Korea, official press releases and conferences reported in the various magazines and newspapers;

2) Company reports, each industry's own publications, press releases and articles written by the executives of the various foreign invested companies and by the executives of the various Korean companies; 3) publications of the views of leading journalists either in magazines or scholarly treatises; 4) articles and research undertaken by other scholars; 5) questionnaires; and 6) personal interviews with company executives, government officials and directors of various foreign chambers of commerce in Korea.

In general, however, it was found that there was a reluctance to give information. Both companies and officials (both in government and private organisations) exhibited a reluctance, firstly, to give information and, more importantly, to substantiate viewpoints with concrete data. The process of interviewing was expected to have at least two important advantages: namely it would demonstrate to the interviewee that one had sufficient knowledge of information which might have been considered by him as "confidential" and together with the personal contacts this would reduce any initial reluctance; and secondly, contradictions between the responses of the interviewee and previously obtained information would be readily apparent.

In the case of Korean government and its quangos, contact was made with a person strategically placed who had access to and influence on both persons occupying higher and lower strata positions who had intimate knowledge of the areas concerned. Once the confidence of that person had been gained, it produced a snowball effect and quite a few doors were opened that would otherwise have remained closed. With the companies, the technique

employed was essentially different in that contact was made with the public relations department of the companies' which readily complied with the requests for data that had been already published; next, where possible an appointment with the President or the Chief Executive was obtained and an interview conducted. This was usually accompanied by the provision of more material. Also appointments were made with subordinates who had more precise knowledge of the areas we are concerned with. As in the cases with the government and its quangos, the reluctance of the company officials was reduced by the author demonstrating knowledge of the available information and also that of the positions of the other companies involved. In both instances the opportunity was sought and obtained for further appointments for clarification of the data obtained from all sources.

I-iv. Methods of Investigation

The study is mainly analytical in approach and three methods of investigation have been used to collect the information/data required. They are:

1. Desk Research
2. Questionnaire Approach
3. Personal Interview Approach

The three methods were used complementarily during the study.

I-vi-1. Desk Research

A considerable amount of time was spent on desk research to obtain the necessary theoretical background and other secondary information/data for the study. Among the various secondary sources consulted, official records provided a substantial part of the concrete data used in some chapters, especially chapters, IV and VI, of the study.

Official records consulted in Korea included statements and documents of various Ministries, government funded research institutes and the Bank of Korea.

Companies documents and records were also used extensively. Most of these were obtained in the relevant Ministries and from an industry's own organisations such as the Korea Automobile Manufacturers' Associations (KAMA) and Korea Auto Industries Coop. Association (KAICA).

I-vi-2. Questionnaire Approach

A formal questionnaire was designed and sent to about 500 foreign firms and domestic enterprises in Korea. The questionnaire was designed to enhance response and extract as many objective answers as possible.

As the sample questionnaire in Appendix 1 shows, the questions are direct and not open-ended and are presented in an orderly and systematic manner so as to extract the required information in a sequential order from general to specific. However, at the end of the questionnaire we asked an open-ended

question requesting the views and comments of the respondent on the subject matter of the investigation, as well as other relevant issues not covered in the questionnaire.

We adopted the structured, formal questionnaire type for various reasons:

Firstly, apart from the fact that it is one of the best methods for collecting primary data, the approach offers the opportunity for preparing and wording the questions carefully to reduce the possibility of misunderstanding, which can lead to ambiguous answers.

Secondly, the approach offers the opportunity for pre-testing the questions to discover problems and re-structure if necessary.

Thirdly, the questionnaire approach makes a maximum control of the survey possible through the uniform questions asked of each of the respondents in the same order and manner. This was a particularly useful feature in our survey because of the different background, operations and characteristics of the companies to which we sent the questionnaires. It was necessary to collect comparable data from the diverse companies and this attribute of the questionnaire method was very helpful.

Finally, we adopted the questionnaire method because of resource constraints. It was physically and financially impossible within the time used for the fieldwork to visit all the firms in the sample to ask the same questions and collect the required information/data. The structured questionnaire approach was the best available alternative⁽⁵⁾.

I-iv-3. The Personal Interview Approach

The introduction of personal interview extended the coverage of the fieldwork considerably. The flexibility and informality of the oral interview method provided a conducive atmosphere for unrestrained discussions on various issues. More importantly, it provided the appropriate situation for a free discussion of the sensitive issues which could not be answered in the questionnaire.

Government officials and executives of some of the firms to which we sent questionnaires were interviewed. In the automotive industry we also interviewed other categories of workers such as managers, supervisors and operatives. Rigorous and in-depth interviews were conducted mainly with government officials and the management and staff of the firms in the automotive industry.

We adopted an informal and unstructured questioning method. This was discovered to be more appealing to most of the interviewees than a structured method. It easily fostered a cordial relationship which led to much freer discussion and release of information.

In the case of the executives, we were directed to the relevant managers. This sometimes restricted our freedom to interview as many executives as possible within the premises of the firms. Those interviewed in and outside the premises of the firms were very helpful and flexible; the technical personnel were most helpful. Even so, much was left out during the interviews which we collected from other reliable sources, including company documents.

I-v. Summary of Work Layout

The remaining portion of the study is divided into three main parts.

Part one is devoted to a discussion of the theoretical issue within existing literature. It is divided into two chapters. In Chapter II, we discuss some of the theoretical ideas about TNCs, and analysis of the characteristics of the TNCs. We then discuss the TNC as an important source of technology transfer in Chapter III.

Part two focuses on the political economy of Korea in the context of development and industrialisation. Chapter IV is mainly devoted to Korea's economic development, whilst in Chapter V, some political aspects of the Korean industrialisation process are examined.

Part three constitutes the core of the study. In Chapter VI, a pattern and trend of DFI and technology transfer in Korea is analysed. Chapter VII looks at the general economic environment of the Korean economy with respect to foreign investment in enterprises. Chapter VIII is devoted to the development of the Korean auto industry, and in Chapter IX, we examine the technology transfer, technical training and R&D activities of the industry.

A concluding chapter, Chapter X, presents a summary of the main findings of the study.

Notes

- (1) The Korean government played an activist role although mistakes were sometimes made (see Ch. 4 and 5)
- (2) We are not criticising them, however, since their intentions and points of view may differ from this thesis.
- (3) The term "foreign-invested company" in this thesis refers to company in which there is direct foreign investment from abroad.
- (4) See chapter 7 and 9 for more detail
- (5) The choice of the sample and the percentage of response are explained in ch.7 and 9 respectively.

Chapter II

Literature Survey: TNC

II-i. An Introduction

Increasingly, events around the world have prompted economists and political scientists to look at the Transnational Corporations (TNCs) as actors in both domestic economic change processes and in international political relations in the post-World War Two period. The rapid expansion of TNCs from the USA, Europe and Japan has been influential in the globalised economy of the world, especially in international investment, products and markets. Whilst most of TNC activities are in the advanced capitalist countries, there is, however, nowadays a great deal of attention paid to TNC activities in host developing countries. Particularly, in the case of less developed countries (LDCs), this increased attention relates to the important role such corporations tend to play in the process of economic change and development.

From the bulk of economic literature on TNCs, it can be concluded that no matter where one stands on the economic question, it is apparently clear that the TNCs in many developing countries are large enough and important enough so that changes in their operations can affect levels of income, employment, export, technology and even the national economy as a whole, whether positively or negatively.

In this chapter, an attempt is made to clarify the nature of TNCs and their expansion, the determinants of direct foreign

investment (DFI) by TNCs, and to identify some theoretical perspectives.

II-ii. The Nature of TNCs

It would not be easy to examine all TNC involvement in all countries because each TNC has its own objectives and characteristics, and their activities may differ with different countries in which they operate and even differ in relation to the business lines in which they are involved. In the bulk of literature on the TNCs, however, we can possibly draw out what we generally accept as the characteristics of TNCs. To examine their characteristics is of importance, since the background of the picture of conflict between the host countries, especially LDCs, and the TNC can be set by the characteristics of the latter. The main characteristics of TNCs are briefly described.

Firstly, TNCs are generally characterised by large size and they have strong power. Dunning (1981) argues that "in every respect, MNEs (Multinational Enterprises) are among the most powerful economic institutions yet produced by the capitalist system", and "this power is partly a consequence of size" (quoted in Colman and Nixon, 1986, pp.329). This is obvious when we compare the total amount of sales and assets in large TNCs to the Gross Domestic Product (GDP) of many developing countries (Table II-1).

Table II-1. World-wide Assets and Sales Amount of Leading TNCs Compared to GDP of Selected LDCs in 1990

(Unit: US Billion Dollar)

Company	Nationality	Industry	T.Assets	T.Sales	Country	GDP
General Motors	USA	Automobile	180.2	114	Indonesia	107.3
Ford Motor	USA	Automobile	173.7	98.5	Turkey	96.5
Royal Dutch / Shell	Neth / UK	Oil	106.3	114.3	Argentina	93.3
Exxon	USA	Oil	87.7	100.7	South Africa	90.7
IBM	USA	Computers	87.6	87.8	Thailand	80.2
British Petroleum	UK	Oil	59.3	91.4	Greece	57.9

Note : (1) Largest non-financial TNCs 1990, selected by foreign assets
 (2) Only six Third World countries had a GDP of over \$110 bn in 1990 (Brazil, China, India, Mexico, S.Korea and Iran)

Source : The Economist. 1993 March 27th - April 2nd
 World Development Report, World Bank 1992
 Calculated by Author

The leading TNCs by size, for example, had annual sales in 1990 achieving more than US 80 billion dollars while the greater majority of LDCs' GDP in the same year were far below the figure for the six giant firms' annual sales. Particularly, two giant auto-makers' world-wide total assets are even greater than their total annual sales volumes. Based on their size, the TNCs have super power in terms of information, management, marketing, technology including amount of R&D expenditure, etc., in comparison with small and less developed economies. However, the TNCs do not possess power as a nation. This renders the TNCs subject to political control when they are involved with host

LDCs governments.⁽¹⁾

Secondly, the TNC is a profit maximiser and a cost minimiser. In general, TNCs are in a monopolistic or an oligopolistic situation in host LDCs where markets are controlled by few sellers or buyers. If there are no more expected profits from being engaged in the host countries - if political and economic environments are not suitable -, the TNCs will withdraw their assets and activities; thus it can be argued that the TNCs are highly foot-loose.

Thirdly, it is generally agreed that all important decisions, including new investment, allocation of export markets, location of research and development facilities, price charged for intra-corporate transactions, etc, are taken by the parent corporation in the home economy. They are, therefore, characterised by centralisation of control, and the TNC affiliates operate under the discipline of a common global strategy and common global control.⁽²⁾

Fourthly, international firms are now also more international in origin. Until the 1970s, the USA and the U.K. have been predominant figures in DFI and international production. Entering the 1980s, the distribution of world economic power is becoming more diverse in terms of DFI and international production and trade. Especially, DFI from Japan, West Germany and Switzerland has increased rapidly.⁽³⁾ There is no generally agreed view of the expansion of DFI by these countries though it might be argued that this expansion of DFI is probably related to their strong currencies, relatively faster growth rates and massive trade surpluses. Although most of the

TNCs originated in and are owned by advanced capitalist economies,⁽⁴⁾ there is also an increasing amount of DFI by firms from the Third World and the industrialising Asian NICs such as South Korea and Taiwan (United Nations, 1991). In addition, apart from the effect or result of DFI from abroad in host economies, many LDCs government see foreign investment as a short-cut to prosperity, bringing in skills, capital and technology, employment creation, etc., to stimulate their countries' economic development. In reality, however, United Nations' publication on TNCs show that there is an uneven distribution of inflows of DFI to developing countries even within regions (UNCTC, 1989). A relatively small number of LDCs has been receiving most of the inflows of DFI.⁽⁵⁾

Finally, even though the TNCs have a great influence on host countries as well as the global economy, they do not have any political and economic responsibility to host countries. It is of importance to recognise that a state is responsible for its people and vice versa, but the TNCs are only responsible to their shareholders. From the view point of the populace in host countries, this could be a fundamental starting point of conflicts between classes.

II-iii. TNCs and their expansion

Before pointing out the expansion of the TNCs, it seems to be necessary to conceptualise what are the TNCs, since there is no universally accepted definition of the TNCs. There are great differences between broad and narrow definitions and such a

difference may produce totally different results. The broadest definition, made by United Nations, refers to "all enterprises which control assets - factories, mines, sales offices and the like - in two or more countries" (UNCTC 1978) which later defined the term "transnational corporation" as follows;

"an enterprise whether of public, private or mixed ownership, comprising entities in two or more countries, regardless of the legal form and fields of activity of these entities, which operates under a system of decision-making, permitting coherent policies and a common strategy through one or more decision-making centres, in which the entities are so linked, by ownership or otherwise, that one or more of them [may be able to] exercise a significant influence over the activities of others, and, in particular, to share knowledge, resources and responsibilities with the others (UNCTC, 1986, p.29)

In a discussion on the definition of the TNCs, the main points⁽⁶⁾ are usually the number of countries in which the TNCs operated (Harvard Business School), foreign countries in production (Hood and Young, 1979), number of centres of strategic decision-making (Cowling and Sugden, 1987) and a certain size of firm (Harvard Business School). All these perspectives may have same validity (see note (6)); however, in this chapter, we choose the definition from the UNCTC since it is mostly widely used; otherwise, it will be very difficult to establish reliable and consistent data. On the basis of the United Nations definition, the TNC involvement in the global economy has been, without any doubt, increasing rapidly in terms of the amount of DFI and the total number of TNCs. It might be observed that the present trend indicates further transnationalisation of all giant firms and DFI is likely to grow and to spread.

Between 1950 and 1969, according to Hymer (1984), DFI by US firms expanded at a rate of about 10 per cent annually which was

far higher than the economic growth rate of the USA. In 1970, about 7,000 firms were identified as TNCs by United Nations; nowadays, however, the number of TNCs has reached 35,000 (United Nations, quoted in The Economist 1993, March 27th). According to the United Nations (1989), the total world-wide outflows of DFI tripled between 1984 and 1987 (Table II-2), increasing 39 per cent in 1985, 58 percent in 1986 and 46 per cent in 1987. Average annual outflows during this period were US\$ 81 billion, a sharp increase from US\$ 41 billion in the preceding years 1981-1983. The five major home countries have increased their share in total DFI outflows from 55% in 1983 to 78% in 1987. The G-5 countries' share in total DFI outflows has been about 70% during the 1981-1987 period. More recently from 1983 to 1990, DFI grew four times faster than world output and three times faster than world trade (The Economist, 1993, March 27th).

Table II-2. Outflows of DFI from Five Major Home Countries, 1981-1987

(units: U\$ million)

Country	1981	1982	1983	1984	1985	1986	1987
France	4,583	2,844	1,700	2,134	2,227	5,339	9,080
W.Germany	3,868	2,473	3,186	4,346	4,904	9,597	9,129
Japan	4,917	4,526	3,603	5,945	6,427	14,336	19,396
United Kingdom	12,118	7,156	8,047	7,956	10,982	16,593	25,745
United States	12,704	6,286	3,509	4,798	13,823	22,494	41,897
Total Above	38,190	23,285	20,045	25,179	38,363	68,359	105,247
All Countries	54,006	32,564	36,465	41,993	58,366	92,360	134,898
Share of G-5	70.7%	71.5%	55%	60%	65.7%	74%	78%

Source : United Nations 1989, UNCTC Series A, No.11
 Calculated by Author

The reasons for the expansion of TNCs are, in economic terms, as follows. Firstly, in the 1950s and 1960s, the large size of the US corporations and their new multinational structure gave them wider horizons and a global outlook. Secondly, technological development in communications created a new awareness of the global challenge and threatened established institutions by opening up new sources of competition (Hymer, 1984). Thirdly, a high number of enterprises have been increasing the degree of intra-firm integration; for example, there is a significant growth of transactions between parent TNCs and affiliate companies; according to Jenkins (1987), about 90% of US trade was generated by TNCs (both US and non-US TNCs) in the late 1970s, and more than 80% of UK exports were accounted for

by local and foreign TNCs in the early 1980s. Fourthly, especially with regard to the dramatic increase in outflows of DFI since 1985, utilities and service industries have played a major role since they find it hard to trade across borders, so that the only way to profit from their skills and techniques abroad is to invest there.⁽⁸⁾ Fifthly, it should be noted that the sharp increase in outflows of DFI in the late 1980s was in part due to the impact of the depreciation of US dollar on the measurement of such flows. A recalculation of the investment flow data of five major investing countries (namely G-5) reveals that approximately one third of the increase in invested flows from these five countries from 1984 to 1987 is accounted for by the depreciation of the dollar (United Nation, 1989). Finally, there is a remarkable growth of DFI from some capitalist LDCs, for the purpose of escaping from tariff and non-tariff barriers and accessing resource availability, including technological information and markets.

In addition, the international political background after World War Two contributed to the expansion of TNC activities. Huntington (1973) argues that, throughout the two decades after World War Two, the power of the United States Government in world politics and its interests in developing a system of alliances with other governments against the Soviet Union,⁽⁹⁾ China and other communist countries produced the underlying political conditions which made the rise of transnationalism possible. Ironically,⁽¹⁰⁾ at present, DFI is rushing to those countries that for decades were forbidden because of their communist regimes,

other forms of state socialism, or authoritarian, isolationist governments: for example to China and other part of Asia, (notably Vietnam) and even Eastern Europe.⁽¹¹⁾

Furthermore, it is argued that another view of the expansion of DFI is a mix of economic and political factors. Bhagwati, Dinopoulos and Wong (1992) found that the acceleration in Japanese DFI in the United States in the early 1980s was due to a mix of political reasons: some partly in anticipation of the imposition of protection, and others partly for the purpose of defusing its threat. In a survey of Japanese firms undertaking foreign investment between 1980 and 1986, the Japanese Ministry of International Trade and Investment (MITI) found that the overwhelming majority of firms cited "avoiding trade friction" as their main motivation (Bhagwati, 1992). Thus, the reasons for TNC expansion can be explained both by a mix of economic and political factors.

II-iv. The Determinants of DFI

Direct foreign investment (DFI) is one of the forms of foreign investment and is distinguished from portfolio investment in that it involves ownership (in part or in whole) and management of a foreign operation. The term "portfolio" can be defined as "the collection of securities held by an investor"⁽¹²⁾. Portfolio investment involves the acquisition of foreign securities by individuals or institutions without any control over or participation in the management of the companies

concerned. In addition, with respect to DFI, a package of resources is transferred, whereas with portfolio investment the resources are transmitted independently of each other (Hood and Young, 1979). Apart from the proportion of shares, a crucial difference between DFI and portfolio investment is that DFI controls subsidiaries, but portfolio investment can only claim the income resulting from share ownership.

In general, it may be agreed that the firms operating in a country are likely to be national firms, for national firms are likely to have advantages over foreign firms.⁽¹³⁾ Hymer (1960, reprinted in 1976) argues that national firms generally have the advantage of better information about their country: its economy, its language, its law, and its politics. To foreign firms, without any doubt, the cost of acquiring this information might be considerable, but it may be a fixed cost; once incurred by establishing a foreign operation, other things being equal, it need not be incurred again.

This is a starting point for the development of the theory of DFI. Foreign firms can invest directly if expected profits are greater than the expected costs in host countries. Foreign firms should have some advantages over local firms in a host country for such investment to be profitable and viable, and the market for the sale of these advantages should be imperfect. Indeed, in a perfect world where all economic factors are mobile freely, DFI and even the TNCs would not exist. Perhaps, export^{ing} goods from a single location - in order to get the full benefit of any economies of scale - and an operation through a series of licences would be the most direct ways to capture profits from

whatever asset firms hold: an idea, a process and patents would be preferred (Mirus, 1980).

On the basis of Hymer's ideas mentioned above, Kindleberger (1969) developed a theory of DFI and argued that market imperfections were regarded as a reason for the existence of DFI. He suggests :

"For direct investment to thrive there must be some imperfection in markets for goods or factors, including among the latter technology or some interference in competition by government or by firms, which separates markets" (1969, p.13).

He classifies imperfections more explicitly into four categories: imperfections in goods markets, imperfections in factor markets including capital, technology and managerial skills, and internal and external economies of scale, and finally government limitations on output or entry. In this respect, his concept is a departure from perfect competition. This would be true in a neo-classical way,

"when all markets operate efficiently, when there are no external economies of production or marketing, when information is costless and there is no barrier to trade or competitions, when the term contestable market⁽¹⁴⁾ is satisfied, international trade and license agreements are only possible ways of international involvement" (Calvet 1 981, p.13, emphasis added).

As the amount of DFI flows and the number of TNCs grow, there have emerged numerous theories to explain the determinants of DFI and an emergence of the TNCs.⁽¹⁵⁾ However, most of the theories are based on the economic principle of an imperfect world. For example, the monopolistic advantage DFI theory of Hymer (1960) asserted that firms undertaking foreign direct investment operated in an imperfect market environment, where it was possible for multinational firms to obtain monopolistic

advantages vis a vis firms in the host countries. Caves (1971, 1974) related this theory to industrial structure and argued that firms in oligopolistic industries tend to become multinationals because they obtain intangible assets from their investments in advertising and R&D. The internalisation DFI theory (Buckley and Casson, 1976; Casson, 1986; Buckley, 1988,1990) postulated that TNCs emerge when it is more beneficial to the enterprises possessing these advantages to internalise the advantages rather than externalise them through licensing (Rugman, 1980). The eclectic DFI theory of Dunning (1977, 1981, 1988, 1989) maintained that, once a firm possesses net ownership advantages, it utilises these advantages in conjunction with some factor inputs existing in the foreign country. Although there is no universally agreed theory of DFI, it may be worth analysing the determinants of DFI within the framework of the market imperfections paradigm since the development of the theories of DFI has generally started with a hypothesis of imperfections.

II-iv-1. Market Disequilibrium Hypothesis

In a perfectly competitive market, it is assumed that prices everywhere are adjusted to bring supply and demand into equilibrium. However, because of segmentation in world markets, rates of return are not equalised internationally. This is the main point in explaining the reason for the existence of DFI. Examples of this disequilibrium may be currency overvaluation, differences in profits and in labour costs.

If the term 'overvalued currency' is defined as 'a currency

whose exchange rate is higher either than its free market level or equilibrium level which it is expected to reach in the long-run', overvaluation for example may create opportunities for profit-making by holding assets in undervalued currencies with the expectation that, once the equilibrium in the foreign exchange market is re-established, capital gains will be realised (Calvet, 1981). Moreover, there will be an incentive to locate the production of internationally traded goods in countries with undervalued currencies and to purchase income-producing assets with overvalued money.

In the same manner, DFI may be attracted toward areas where the average rates of profit are higher, and similarly, DFI may flow from high-labour-cost countries to lower-labour-cost countries in the conventional wisdom if there are no other political and social pressures. With respect to technology, firms in countries where technology is relatively advanced would find profitable opportunities abroad and would, therefore, have an incentive to invest overseas (Calvet, 1981).

In this hypothesis, DFI is seen as a result of market disequilibrium. DFI should, therefore, stop flowing when the equilibrium in the market is restored. This hypothesis, however, has some weaknesses. In the real world, it would be very difficult to find the equilibrium point, and even if the "invisible hand" works in foreign exchange and technology markets, it will be subject to long delays. Although the markets are in equilibrium, this hypothesis cannot explain why DFI still continues to flow and why DFI is concentrated in a few countries, despite the market disequilibrium in global terms.

II-iv-2. Government-Imposed Distortion

Government policies could conceivably be responsible for some of the disequilibrium hypothesis previously considered. Particularly in neo-classical economics, government policies towards international trade, fixed exchange rates, wage policies, and policies regulating the migration of labour can create unstable conditions apt to foster direct foreign investment.

Trade barriers such as tariffs and quotas and non-tariff barriers such as regulations for imported goods are often regarded as a major cause of direct investment. Other things being equal, an increase in trade barriers (or the expectation of their rise) may be a necessary incentive for firms to establish a subsidiary inside the protected market, rather than export to it (Calvet, 1981).

Differences in the level of taxes and in the regulation of remittances between countries can be causes of DFI and be a determinant of the place where to invest. Given that firms try to maximise rates of return after taxes, they will be encouraged to set up foreign operations in low-tax-rate countries and where there is no restriction on the remittance of profits.

This approach is valid within the framework of the market imperfection paradigm but does not make sense in terms of foreign licensing. When DFI is viewed as a package made up of capital, technology and other forms of knowledge, the tariff argument only indicates that the movement of goods via exports is denied or restricted (Calvet, 1981). In principle, tariffs do not prevent the licensing route nor does it necessarily follow that the

foreign firm will be interested in setting up a subsidiary in the protected market.⁽¹⁶⁾ The incentive to invest abroad not only stems from government-imposed disruptions, but also depends on other factors such as market size, sociopolitical factors, etc (Koechlin, 1992).⁽¹⁷⁾

II-iv-3. Market Structure Imperfections

Market structure imperfections usually refer to deviations from purely market-determined prices brought about by the existence of monopolistic or oligopolistic market characteristics. In this respect, a determinant of DFI can be explained by reference to the literature on industrial organisation, oligopolistic rivalry and the growth of the firm. Within these approaches, such questions as to what are the distinctive features of transnational firms and why internationally organised production has grown so rapidly can be explained in part. On industrial structure, Devine et al. (1985) comment that DFI is predominantly undertaken by firms operating in oligopolistic industries characterised by high-technology production process and/or a high degree of product differentiation. In such conditions, firms typically possess "firm-specific" knowledge, which constitutes a competitive advantage that may be realisable to its full extent only by engaging in overseas production rather than in the alternatives of licensing the knowledge to a foreign firm, or exporting. In the meanwhile, the growth of DFI and overseas production has been a dynamic process in which innovation in science and technology,

in distribution and marketing techniques and in administrative structure and organisational methods has interacted with oligopolistic market structures to bring about the increasing internationalisation of production on a world scale.⁽¹⁸⁾

Calvet (1981) identifies one of the most essential characteristics of oligopolistic industries. Maximising decisions of the firms are interdependent in the sense that each firm should speculate on the reactions of the few other firms. In this respect, Knickerbocker (1973) finds a determinant of DFI by means of the so-called "follow the leader" approach. This approach suggests that oligopolist follow each other into new foreign markets as a defensive strategy. However, this approach could not fully explain the decision to invest by the first investing firm for two reasons: first, why invest first; and secondly what are the advantages of the first investment?

As was mentioned earlier, the oligopolistic market structure and the characteristics of TNCs are the substantial sources of their advantages over indigenous firms. Furthermore, among the sources of TNC's advantages, namely their large size, and technological and marketing expertise, the feature most emphasised is that of economies of scale, because this produces an important source of market power to large firms (Hood and Young, 1979)

Vernon (1966) contributes to the oligopolistic theory of direct investment. According to Vernon's product cycle model, as the product is new, differences in the costs of production between locations are not so important for innovating firms since the price elasticity of demand for the new product might be

low.⁽¹⁹⁾ At this stage, firms tend to choose domestic production. As the product matures, product design and production tend to be standardised. Competitors may appear on the market, and long-run production with the existing technology becomes possible. At this stage, decisions of firms on the production location are affected since the differing costs of production between locations are becoming important. In the final stage of the product cycle, when the product is completely standardised, there is price competition. Decisions made by firms on the production location are directed towards the lowest cost of production. The product cycle model proposes a sequence in which the production of high-income or labour-saving new products takes place first in the United States, then in other advanced industrialised countries and finally in developing countries. The essence of the product cycle model is that it provides the relationship between the various stages of the product cycles and the decisions made by firms on the choice between exports and foreign production (investment abroad). However, this model could not contain the source of the ownership-specific advantages of DFI.⁽²⁰⁾

The other major strand is to be found in the work of Caves(1971, 1974). Caves argues that the knowledge associated with product differentiation is especially likely to give rise to direct investment overseas. The initial costs of differentiation will be incurred and covered in catering for the home market (Devine et al., 1985). However, successful firms - producing a differentiated product and able to control knowledge fundamental to the production of profitable saleable goods - are capable of utilising the knowledge (firm-specific assets) in

foreign markets with little or no additional costs. This creates an incentive to undertake horizontal investment abroad, as long as the product of the firm is protected by means of patents and copyrights, especially, if the firm-specific knowledge cannot be easily transferred to competitors. He argues further that another kind of foreign investment is the avoidance of oligopolistic uncertainty, and the erection of barriers to entry of new competitors is the reason for undertaking vertical foreign investment (Caves, 1971, p.10)

The use of the industrial organisation theory for explaining DFI is limited in some respects. It does not explain the source of TNCs' ownership-specific advantage, nor how they exploit their ownership advantages (Dunning 1981, 1988). Aliber (1970) commented critically:

"whereas DFI theories derived from industrial organisation may explain the advantages of home country firms, it does not consider the removal of entry barrier, and they cannot predict the country or industry patterns of foreign investment" (p.20, emphasis added)

The industrial organisation approaches are based on the oligopolistic market structure, but Japanese experience shows that in 1975, 42 per cent of overseas manufacturing investment were made by small- and medium-sized firms and that their products were relatively unsophisticated goods.⁽²¹⁾ Ozawa (1979) concludes :

"... the more competitive the industry (that is, the less monopolistic or oligopolistic the industry, and the less technologically sophisticated the product), the greater the need so far for Japanese industry to resort to offshore production - a phenomenon not envisioned in the monopolistic theory of direct foreign investment" (p.89)

II-iv-4. Market Imperfections

Market imperfections as an explanation of DFI are largely concerned with the production and marketing of public goods.⁽²²⁾ In this context, the public goods are those "..... which are not only characterised by their zero marginal cost, but by the fact that their value to the owner may hinge on the extent to which others also possess them" (Dunning, 1981, p.30). A good example of public good in this respect is technology. It is costly and takes time to develop. Many economists (Vaitsos, 1976; Stewart, 1978; Dunning, 1981; Marton, 1986) agree with the fact that the commercialisation of technology may make it possible to calculate the value of technology, but in practice, the estimation of the value of technology is often uncertain for a buyer before it is bought, and it needs complementary or back-up resources, namely, know-how and know-why for its efficient exploitation.

Because of the characteristics of technology, which is a public good within a firm, it provides an incentive for a firm to internalise its economic activities, therefore "justifying DFI over other alternatives of exploiting foreign markets" (Calvet, 1981, p.47). If markets for technology are difficult to organise, if the development of technology is costly and takes time, the internalisation of technology within home and subsidiary companies has great advantages for them in comparison with the cost of developing it separately by the other firms. Conversely, if the existing technology is ubiquitous as a free good in consideration of social efficiency and equity, and if the technology can be bought easily by "the supply and demand curve"

without any restriction, there will be no incentives to develop new technologies as far as the firms are concerned. In this respect, a technology holding firm can sell its technology to others, or at least can make a license agreement with those firms which require the technology. However, in reality, some firms would not want to sell their technology to others in order to avoid or to slow down the distribution of the technology to competitors. This could thus be a cause of DFI.

II-v. Theories of the TNC⁽²³⁾

It may be agreed that the theories of TNCs can be traced from the work of Coase in 1937. He first introduced the concept of internalisation with respect to a multi-plant indigenous firm within the framework of the theory of firm. His basic idea is that for certain types of transactions or activities - for example, organising production - it is inefficient and costly to undertake those transactions through the price mechanism. He states :

"A factor of production (or the owner thereof) does not have to make a series of contracts with the factors with whom he is cooperating within the firm,, if this cooperation were as a direct result of the working of the price mechanism. For this series of contracts is substituted one. ... it is important to note the character of the contract into which a factor enters that is employed within a firm. ... the operation of a market costs something and by forming an organisation and allowing some authority (an entrepreneur) to direct the resources, certain marketing costs are saved. The entrepreneur has to carry out his function at less cost, taking into account the fact that he may get factors of production at a lower price than the market transactions which he supersedes, because it is always possible to revert to the open market if he fails to do this." (Coase, 1937, pp.391-392)

To save costs, a firm would organise and carry out activities within it (internalisation) whenever transaction costs in using a normal price mechanism (market) are higher than those in using intra-firm transactions.⁽²⁴⁾

Coase's concept is incorporated into the theory of TNCs. Three major contributions in the theory of TNCs will be briefly examined: internalisation theory, appropriability theory and eclectic theory.

II-v-1. Internalisation Theory

Buckley and Casson (1976) have argued that the concept of the internalisation of a market when the external market is characterised by imperfections can embrace most of the considerations discussed earlier. In particular, they argue that the market for knowledge is very imperfect and that DFI occurs when the benefits to the firm from internalising the transfer of knowledge exceed the costs. It is argued that the advantage of the TNC is based on its facility for transferring resources internationally without exchange of ownership (Casson, 1979, p.45)

In their work in 1976, Buckley and Casson argue that the modern business sector carries out many activities other than the routine production of goods and services. All these activities, including marketing, R&D and training of labour, are interdependent and are related through the flows of intermediate products - notably in the form of knowledge and expertise. However, intermediate production markets are difficult to

organise because of their imperfections - which provide an incentive to bypass them. This creates an internal market, and the internalised markets cross national boundaries, which gives rise finally to the TNCs.

Hirsch (1976) develops this theory within the context of the firm by adding the concept of firm-specific assets such as know-how, and the costs of exercising control. His idea is that TNCs emerge when the cost of domestic production plus export rather than local marketing must be higher than the costs of overseas production plus international co-ordination; therefore, investment abroad is more profitable than exporting. In addition, the benefits arising from firm-specific assets must be greater than the costs of international co-ordination, so that the overseas subsidiaries of the TNC have a competitive advantage over indigenous firms.

II-v-2. Appropriability Theory

The appropriability theory of the TNC, as illustrated by Magee (1977) asserts that the TNC's advantage is derived from its ability to appropriate the returns from its investment in the production of new technology. It is the use of an internal market for information (technology) which allows the TNC the full appropriability of the returns.

In his hypothesis, industries in which the demand for new products is high have a high derived demand for new information. For these industries, investment should be made to create five distinct types of information for product; discovery of new



product, development of the products, development of their production functions, creation of their markets, and more importantly, appropriability of the returns on the new information.

According to Magee, many inventors and small firms make a break through that results in the creation of new products. However, research and development expenditures by large firms are primarily for the development rather than the creation of new products. This information is usually transmitted more efficiently through the internal channels than through the market, and the optimum firm sizes increase in the development stage. Large and costly investments in information are made to create the most efficient methods of production and to generate sophisticated information. The internalisation of information is a means to ensure the appropriability of the private returns in the new product development. And then, there is a decline in the production of new information. In other words, as the industry matures, the amount of information being created is minimised.

The appropriability of the returns from the investment in the production of new technology is greater when the technology is prevented from being copied by rival firms.⁽²⁵⁾ Therefore, intra-firm transactions are encouraged and the TNC emerges. The most important variables affecting appropriability are the efficiency of the legal system in preserving appropriability and the industrial structure. Magee states :

"For a given legal system, the more potentially competitive the industry, the more likely that investments by one firm in information will be copied by rival firms. A monopolist has no appropriability problem unless there are potential entrants who can enter to emulate innovations made by the monopolist."

(1977, p.327)

However, an important point should be noted. This theory as well as internalisation theory considers intra-firm transfers and the TNCs as efficient resource allocators but they are certainly not efficient resource allocators when the concept of national economy comes in, because of their monopolistic status.

II-v-3. Eclectic Theory

Dunning (1977, 1981, 1988) has introduced what he calls an eclectic theory. He argues that eclectic theory is applied to both international trade and international production. His argument starts by criticising the assumptions of the Heckscher-Ohlin theory of trade as unrealistic and inapplicable.⁽²⁶⁾

In principle, the Heckscher-Ohlin-Samuelson, and to some extent, Stolpfer, (H-O-S-S) model of internal trade assumes perfect factor and product markets, absence of factor reversals, factor immobility, zero transport costs, internationally identical production functions and production factors, constant returns to scale, and availability of product and process specification to all in terms of technology (See Hirsch, 1976). On the basis of these assumptions, the model explains that comparative advantages arise from the different relative factor endowments of the trading countries. Therefore, a country can export those commodities that are intensive in the factor in which it is most well endowed. Dunning criticises the H-O-S-S theory of trade and argues :

"the [H-O-S-S] theory of trade fails ... at which the modern paradigm of international production starts,

namely the point at which there are positive transaction costs in intermediate goods markets. The difference between the neo-technology and other modern theories of trade and those of international production is that, while the former implicitly assume that all goods are exchanged between independent buyers and sellers across national frontiers, the latter explicitly postulate that the transfer of intermediate products is undertaken within the same enterprises. In other words, without international market failure, the raison d'être for international production disappears. But once it exists, explanations of trade and production may be thought of as a part of a general paradigm based upon the international disposition of actor endowments, and the costs of alternative modalities for transacting intermediate products across national boundaries." (Dunning, 1988, pp.1-2)

According to eclectic theory, the reason for firms to engage in international investment and production is an incentive to internalise market imperfections. Without internalising advantages, other things being equal, transactions will clearly take place between independent buyers and sellers as far as the firms are concerned. In addition, within the framework of the internalisation theory, ownership-specific endowments and location-specific endowments are of importance for an explanation of the emergence of foreign investment. It is argued that "the ownership-specific endowments are internal to particular enterprises and consist of tangible and intangible resources, including technology managerial skills, etc, which enable them to achieve more market power" (Dunning, 1981, p.27). The location-specific endowments with respect to the internalisation are as follows. First, there may be particular internalising economies resulting from the friction of geographical space; second, it offers the greatest potential for internalisation since location-specific endowments are not distributed evenly between countries; thirdly, where there are differences in market

imperfections or government policies of countries, TNCs may be influenced by the extent to which they can take advantage of these imperfections by internalising their operations (Dunning, 1981, p.35).

To sum up, the scale and pattern of TNC involvement is determined by the relative importance of ownership-specific advantages, internalisation incentive advantages and location-specific advantages.

Although this theory has been criticised,⁽²⁷⁾ it seems to be a most adequate TNC theory since it contains a wide range of considerations.⁽²⁸⁾

II-v-4. Political Aspects of TNC Theory

In principle, foreign involvement may occur for two basic reasons: firstly, the firm possesses any valuable asset - including capital, technology, etc. - which it could use in other national jurisdictions; and secondly, the host country owns resources - any kinds - attractive to the foreign firm. This could be restated by saying that there are firm- and country-specific factors to account for a firm's foreign involvement. In the real world, economic and political factors are sometimes hard to define because economics and politics constantly interact. As was mentioned earlier, government policy could be a reason for DFI (government-imposed distortion, for example). Boddeyn (1988) argues that even in economic based theory of the TNC, particularly in Dunning's eclectic paradigm, there are substantially political factors included. The term "political"

is applied to : firstly, the actors belonging to the non-market environment including the state, the community (e.g., public opinion) and private-interest associations (i.e., organised pressure groups); and secondly, particular means used by firms in interacting with the non-market environment such as lobbying, public and governmental relations, alliances with other firms and associations, bribery, etc. (Boddewyn 1988, p.343)

However, theories of DFI and the TNC are generally biased to economics. Non-economic environmental factors have usually been viewed as constraints (or uncontrollables) to which firms must adapt, rather than as more or less tractable variables; these non-market factors have typically been perceived as presenting risks rather than opportunities, as in the unfavourable distinction between "market opportunities" and "political risks", as if there were not also "political opportunities"; the activities of the TNCs have been analysed in an autonomous market-economy mode relying on economic rationality instead of on broader concepts and models from the social sciences (Ibid, p.347). There is no reason why economic advantages of the TNCs cannot be extended to include political knowledge or expertise that is advantageous in dealing with the non-market environment. Such political advantages can take the forms of : first, better intelligence about political actors and opportunities; second, readier access to political opinion, and decision makers; and third, superior skills in handling and intervening with the latter through various means. These political resources are "intermediate products" (Rugman, 1981, quoted in Boddewyn, 1988) whose markets may be internalised and

exploited by the TNCs in foreign locations (Ibid, p.348).

Empirical studies carried out by Koechlin (1992) concerning the determinants of the location of USA DFI indicates that host country demand, cost and sociopolitical conditions are all important determinants. These results suggest that

"the exclusion of sociopolitical factors from a model of DFI location not only limits the model's explanatory power, it leads to a misassessment of the influence of economic factors of the TNC" (Koechlin, 1992, p.213)

II-vi. The TNCs and Theory

In the bulk of literature on TNCs, there is an intense debate over the impact of TNCs especially on the host developing countries. There is no general consensus: it has led to totally different strands of thought, each one looking at the TNC from a quite different angle. From the very extensive literature, the main areas of controversy can be brought out by organising the arguments around central points of disagreement.⁽²⁹⁾

II-vi-1. Pro-TNC

At the one extreme, the TNC has been viewed as an instrument for improving the world-wide allocation of resources, as a means of expanding international commerce and as an engine of national economic growth. This view has been composed within two schools of economic thought : one is within a capitalist framework of the neo-classicals and the other is within the anti-capitalist framework of the neo-fundamental Marxists.

As is evident earlier, most advocates of TNCs and DFI have

developed their theoretical arguments over the past few decades. However, a major common element in all of these writings is a belief that the TNCs act as efficient allocators of resources internationally in order to maximise world welfare. After the Second World War, when capital shortages were a major obstacle to development in the newly independent developing countries, DFI and, to some extent, TNCs were regarded as one of the major sources of capital. In addition, TNCs were assumed to bring technology, organisational skills and so on, as a package to the host LDCs.

According to the product cycle, as was mentioned earlier, LDCs can produce completely standardised products which were formerly produced only in advanced countries. In addition, through internalisation, highly sophisticated technology can be transferred to the host LDCs.

The TNC involvement in LDCs therefore generates significant benefits for the host countries and acts as an engine of growth for LDCs. TNCs will have an important role to play where they can provide access to developed country markets, and where they have specialised skills in the adaptation of products to the Third World environment. The growth of Third World TNCs tends to reduce hostility towards foreign TNCs, and host countries may not impose excessive restrictions on TNCs in the future.

No hindrance should be placed on foreign capital. If the TNCs are not accepted, there will be a loss of welfare as a whole. The TNCs can be seen as a "servant for the world" and as a "collaborator for the host economy" (Griffin, 1977, pp.66-67).

A positive view of TNCs is still relatively rare amongst

modern critics of capitalism who have analysed foreign investment. However, some Marxists have begun to see the TNCs from different angles, and they have argued that the impact of TNCs on the Third World is positive. The clearest exponent of such a position is represented by Warren (1973, 1980). He argues:

"It is implicit in this discussion that private foreign investment in the LDCs is economically beneficial irrespective of measures of government control. This should come as no surprise to Marxists - Lenin attempted to attract foreign investment in the early years of the Soviet republic, Vietnam is currently welcoming foreign investment, and it is an elementary principle of Marxism that under capitalism exploitation presupposes the advance of the productive forces. To the extent that political independence is real, private foreign investment must normally be regarded not as a cause of dependence but rather as means of fortification and diversification of the economies of the host countries. It thereby reduces "dependence", in the long run." (1980, p.176)

As far as the drain of surplus is concerned,

Warren argues :

"... for such a drain to retard economic development it must be an absolute drain, not simply an unequal 'transaction' that nevertheless both sides ^{are} better off than before, or better off than they would otherwise have been." (1980, pp.140-141)

Other writers such as Emmanuel (1976) argue that the technological contribution of TNCs to the LDCs should not be overlooked and the costs of imported technology are lower than the costs of developing it.

From the view point of classical Marxian (Neo-Fundamental Marxist) analysis, it is expected that the bargaining power of host governments in the Third World will continue to grow, and capitalist development in the Third World should be actively supported since it is removing many of the internal obstacles to growth, and that the TNCs will play an important role in this

process.

II-vi-2. Anti-TNC

A contrasting view of the impact of TNCs can be found in three groups ; one group focuses on market power⁽³⁰⁾, a second is mainly represented by development economists and a third group is called the neo-imperialist, in particular, dependency school.

Critiques of TNCs reject two of the fundamental assumptions of the orthodox neo-classical model of DFI, namely the assumptions of perfect competition and the identification of DFI with a single factor inflow of capital. Foreign investment is mainly undertaken by large firms operating in the most concentrated industries of the advanced capitalist economies. The DFI does not involve simply a flow of capital from one country to another but consists of the transfer of an entire package of inputs, including capital, labour, marketing techniques, production technology, machinery and so on (Vaitsos, 1974).

The major focus of attention of this approach is the market power of TNCs. This is derived from a number of oligopolistic advantages possessed by TNCs. The main sources of oligopolistic advantages enjoyed by TNCs over local firms are access to capital, control of technology because of large scale R&D, marketing through advertising and product differentiation, and privileged access to raw materials which may have been granted during colonial periods or may relate to a technological, financial or marketing advantage.

According to this view, TNCs are not efficient resource

allocators, but they reduce efficiency by making markets less perfect as a result of their oligopolistic strategies. Those who are in this category have accused TNCs of creating market concentrations which produce monopoly profits, abuses of market power, restrictive business practices, etc (Jenkins, 1987, pp23-25).

There is a need for state control of TNCs. Especially, bargaining power should be increased, and regulations to restrict transfer pricing should be strengthened in host countries. Furthermore, private local capital should be encouraged to compete with foreign capital. These measures can enable a host country to gain more from TNCs.

The opposite direction among Marxian economists from that represented by Warren and Emmanuel is identified with the so-called neo-imperialist (notably Baran) and dependency school (especially Frank). The view of TNCs which is put forward by these authors is that they constitute a major mechanism blocking development in the Third World and an important obstacle to a socialist transformation.

In analyzing the causes of TNC expansion, the emphasis of Lenin and Bukharin on the rise of monopolies is continued either by reference to the classical theories of imperialism or through the new version of the surplus capital theory (Baran and Sweezy 1966)

"Foreign investment in the Third World is seen as contributing to the blocking of development" (Amin)⁽³⁰⁾ or "the development of underdevelopment" (Frank). Some major mechanisms

link foreign capital to underdevelopment. Considerable emphasis is placed on the so-called "drain of surplus" from the underdeveloped countries through a "metropolis-satellite chain" (Frank, 1969). Therefore, surplus transfers which add to the problems of surplus absorption in the advanced capitalist countries simultaneously deprive the countries of the Third World of the necessary resources for economic progress. The TNCs are viewed as a "vast suction-pump" (Jenkins, 1987) for obtaining resources from the periphery. In the meanwhile, most LDCs are suffering from a shortage of foreign exchange because of the repatriation of surplus.

If the surplus is invested locally, a large part of the host country's industry might be owned by foreign investors. This, in turn, leads to a weakening of the local bourgeoisie. More importantly, the weakened local bourgeoisie could acquire subordinate status of a "comprador" or "dependent" bourgeoisie which is substantially incapable of playing its historical role in promoting capitalist development. Indeed, "domination is only possible when it is supported by local groups which profit from it" (Dos Santos, 1973).

The drain of surplus, the creation of monopolistic structures and the emergence of a comprador class are the main ways in which foreign capital contributes to underdevelopment. In addition, wasteful consumption from the local elite group, income inequality, lack of technological innovation are the symptoms of dependence on, to some extent, foreign capital (Sunkel, 1972)

Overall, the removal of DFI through nationalisation, and

socialist revolution and/or changing countries' internal structures are the only solutions for the breaking out from such dependency.

II-vi-3. A Middle Level Perspective

A third school of thought is expressed by those economists who recognise the conflict of interests between TNCs and host LDCs, but clearly see a way in which TNC operations can be beneficial for the host country's development process if properly controlled by a state having or improving its bargaining power. Dunning (1981, ch.13) argues that even if one choose to regard DFI from the perspective of the host country, there is the difficulty of establishing a set of goal variables which are applicable to all nation states. In order to gain more from TNCs, there is a need to specify one's assumptions as to the objectives of the home country governments.

Table II-3. Perspectives on the TNC

	Pro-TNC	Anti-TNC critics
Non-Marxist (Pro-capitalist)	Neo-classical Rugman Vernon	Global Reach (<u>Notably Development Economics</u>), Hymer Vaitsos, Helleiner
Marxist (Anti-Capitalist)	Neo-fundamentalist Warren Emmanuel	Neo-imperialist (<u>Notably Dependency School</u>) Frank, Baran, Sunkel

Source : Jenkins, 1987, p.17 (emphasis added)

The positions identified above represent extremes in the debate over TNCs, useful for bringing out major differences in theoretical approaches. However, many of the major contributions to the academic literature on TNCs do not fall readily into any one category, requiring more qualified positions towards TNCs. Those economists whom Jenkins categorised in Global Reach, and especially development economists, implicitly argue that although TNCs are harmful to host LDCs in terms of market structure, the TNC can be more or less beneficial for their development process in general, and for their industrialisation process in particular, if states can enhance prospects for this beneficial role by strengthening screening mechanisms, by greater control over the TNCs, and by improving their bargaining power (Vaitsos, 1976, Streeten, 1981, and Nixon, 1988). Therefore, it may be argued that the TNC is regarded as "a necessary evil" for them.

II-vii. Summary and Conclusion

In this chapter, we have analysed the characteristics of the TNCs and the expansion of TNC activities. Various characteristics of the TNCs and reasons for TNC expansion have been explored both in economic and political terms. Determinants of DFI and various theories of the TNC have been considered and we have found that a multi-disciplinary approach may be required for better explanations of TNC involvement. It is in the last section where we move from this examination onto a discussion of various

schools of thought and their approach to the TNCs in which we find the picture becomes more complicated. No matter where one stands, the TNCs are sufficiently large and influential that changes in their operations must inevitably affect the host economy, specially host LDCs, whether positively or negatively. Bearing this in mind, the next chapter will examine the TNCs and the host LDCs with special reference to technology transfer; the political economy of bargaining with the TNCs and the host LDCs will also be considered.

Notes

- (1) Nowadays, however TNCs are no longer considered synonymous with a loss of sovereignty by the nation-state. When Vernon (1971) wrote a book called "Sovereignty at Bay", the world was preoccupied with the threat posed to national independence by itinerant, stateless firms. The concern about sovereignty has not gone away but it has changed. It is now realised that a multinational company is merely a part of a much wider set of factors that have eroded sovereignty while integrating the world economy and even, to an extent, world politics. (Emmott, B., 1993) And also see Wriston, W(1992) Twilight of Sovereignty (The Economist, 1993, March 27th and 1993, Jan 9th)
- (2) Recent business trends of TNCs, however, show that the H.Q. of TNCs plan and organise on a global scale, and adapt themselves to local needs and wants through their affiliates in which they operate. This is an essential factor for their marketing (Harvard Business Review)
- (3) Kirkpatrick et al (1984)
- (4) During 1980-88 period, G-5 (the USA, the U.K., Japan, Germany, France) countries' DFI outflows amounted US\$ 486 bn whilst DFI inflows amounted US\$ 357 bn (Julius, D., 1991) Also, see Table II-2.
- (5) Five countries (Argentina, Bermuda, Brazil, Colombia and Mexico) in Latin America, four countries (China, Hong Kong, Malaysia and Singapore) in Asia, and eight oil exporting countries in Africa have been receiving the majority of DFI in their region.
- (6) Harvard Business School emphasises that the term TNC refers to the US firms that have to be listed in the Fortune 500 largest US corporations and have subsidiaries in six or more countries. Hood and Young argue that the TNCs have to control production in at least one foreign country, and Cowling and Sugden adopt a concept of Coase's (1937) and argue that one centre of strategic decision-making is necessary. For more details see Kirkpatrick et al (1984) and Jenkins (1987). Furthermore, there are problems in defining 'own and control' (Hertner and Jones, 1986)
- (7) UNCTC (1978) and Business Monitor (1983), quoted in Jenkins (1987)
Such industries had
- (8) before the 1980s been off-limits. Electricity, water, air travel, telecoms, banking, even insurance and others were either state monopolies in most countries or were restricted to domestically owned firms. That changed in the 1980s because of privatisation and deregulation - which is a main reason why by the late 1980s more than half the annual investment flows were heading for service business.

- (9) This refers to a period of the Cold War
- (10) In general, the communist point of view on foreign investment has been to view it as a distinctive feature of the final stage of capitalism; Lenin, for example.
- (11) The Economist (1993, March 27th), and Financial Times, 1993, June 3rd.
- (12) The Penguin Dictionary of Economics, 1984
- (13) Although it is not always true, let us suppose it to be so.
- (14) "A perfectly contestable market is one into which entry is absolutely free, and from which exit is absolutely costless" (Baumol, 1982)
- (15) Theories of DFI and TNCs generally overlap, and there are no very clear distinction between the two theories. It seems to be that DFI theories are more focused on imperfections of various factors and theories of TNCs are likely to be business-oriented. (see next section).
- (16) For further detail, see Mirus(1980); a note on the choice between licensing and direct foreign investment.
- (17) Koechlin's view will be expressed in the latter part of this chapter.
- (18) According to the Economist (1993), "in most industries, multinationals increase competition. But there are exceptions, which may require an international trustbusters' forum." In seven of the world's biggest industries, the top five companies' sales volume have been more than 50% as a percentage of worldwide industry total in 1992 (Consumer durables, Cars and trucks, Airlines, Aerospace, Electronic components, Electricals and electronics and Steel industry).
- (19) However, Hood and Young (1979) argue that the low price elasticity of demand for the new product is attributed to product differentiation or monopoly advantages possessed by the innovating firms.
- (20) See Dunning (1981) for further detail.
- (21) The average amount of Japanese DFI in Korea has been smaller than that of American and European DFI. See ch.6 for detail.
- (22) There are, basically, three types of imperfections which lead to market failures : external effects, public goods and economies of scale (decreasing cost industries) (Calvet 1981. p.47).
- (23) As was mentioned earlier in note (15) there has been no clear distinction between the theory of DFI and that of the TNCs. In literature, the theories of DFI and TNC are ambiguous

and have often overlapped. However, in this chapter, the line which is advanced is that the theories and determinants of DFI are understood in the 'market imperfections paradigm' and the theories of the TNC are understood in the context of 'global theory of the international firm'.

- (24) In the case of the absence of such a market, intra-firm transactions could be the most possible way of dealing
- (25) At the initial stage, the patent system is more effective in protecting new products (Magee, 1977, p.323).
- (26) Dunning later includes Samuelson, thus, Heckscher-Ohlin-Stolper-Samuelson (H-O-S-S) theory of trade (1988).
- (27) Itaki (1991) critically deals with the eclectic theory and argues that Dunning's concept of ownership advantage is redundant for two reasons: firstly, it originates from the internationalisation and integration, and secondly, it does not allow for the cost of its acquisition. For further details, see Itake (1991), Buckley (1990), and Boddewyn (1988)
- (28) There is relatively little consideration of non-economic factors in his earlier work. However, he adds great emphasis on sociopolitical factors within his paradigm (1989)
- (29) See Jenkins (1987), particularly chapter 2 and 9. The terms used in this section mainly come from his book
- (30) Global Reach Category in Jenkins (1987)
- (31) quoted in Colman & Nixson 1986

Chapter III

Technology Transfer, The TNCs and Developing Countries

III-i. An Introduction

The utilisation of industrial technology can be regarded as one of the most important factors in a country's development process. Developing countries, in particular, are becoming increasingly aware of the importance of technology in the process of economic growth. However, many LDCs usually obtain technology from advanced countries rather than by creating it themselves. Most LDCs therefore use a wide range of technology policies in order to realise the following objectives: "firstly, the creation of social, economic and institutional frameworks to ensure the widest possible access to technology and the sharing of its benefits; secondly, the creation of an indigenous capacity of generating technological know-how and for applying both foreign and domestic technology that makes appropriate use of material, human and environmental resources; thirdly, control over the importation of technology through the exercise of bargaining power, and acquisition of the ability to obtain the best terms and conditions and to link importation with the development of local technology; and finally, the development of mechanisms for mobilising mass participation in the choice and application of technology." (UNCTAD, 1978, p.2)

This chapter will attempt to define the concepts of technology, technology transfer and related terminologies, to

examine impacts of technology transfer as well as other influences of the TNC on the host LDCs and to consider the political economy of bargaining with respect to the host LDCs.

III-ii. Technology and Technology Transfer: Definitions

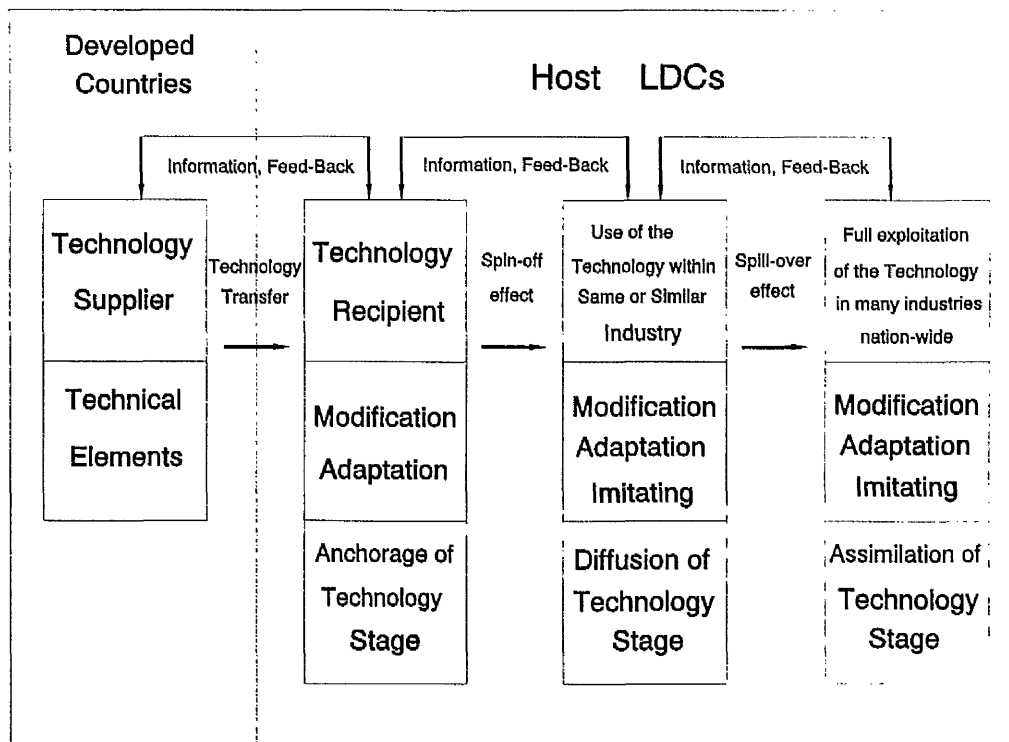
Technology has been defined in many different ways because it is a special category of resource and varies in its content and in the meaning attached to it. Sometimes, definitions of technology overlap with those of technique (Mansfield, 1968). Freeman (1977) distinguishes technology and technological change from technique by saying that "technology is society's pool of knowledge regarding the industrial art. It consists of knowledge used by industry regarding the principles of physical and social phenomena, knowledge regarding the application of these principles to production, and knowledge regarding day-to-day operations of production." He goes on further to define technological change as "the advance of technology, such advance often taking the form of new methods of producing existing products. it is important to distinguish between a technological change and a change in technique. A technique is a utilised method of production, whereas a technological change is an advance in knowledge." Other economists⁽¹⁾ see technology rather active by adding "doing." Langrish (1975) considers the technology as "a way of doing something consisting of hardware and knowledge working in a system, more specially a way of increasing the human capability to perform an activity." Stewart (1977) inserts a word, "useful", into Langrish's definition and

she defines technology as the "skills, knowledge and procedures for making, using and doing useful things." (p.1). There may be a relationship between the notion of inappropriateness of transferred technology and Stewart's definition of technology - useful things - which will be discussed in the later part of this chapter.

As far as technology transfer is concerned, Brooks (1966) has defined : "technology transfer as the process by which science and technology are diffused through human activities." More recently, Marton (1986) has developed the notion of technology transfer in international business activities and makes more specific classifications. According to Marton, the transfer of industrial technology implies the transfer of specialised production and management know-how between different parties which are generally industrial enterprises. In international business activities, however, the transfer of technology is viewed in more specific terms and is usually conceived as the transfer of specialised know-how, which may be either patented or non-patented, from one enterprise to another. Transmission of such knowledge enables the recipient enterprise to manufacture a particular product or provide a specific service. As distinct from the sale of machinery and equipment which embodies technology, the transfer of technology calls, in most cases, for a sustained relationship between two enterprises over a period of time, so that the receiving enterprise can reproduce the product with the desired level of quality standards and cost efficiency.

On the basis of the argument discussed above, some of the concepts related to technology and to its activities can be briefly outlined⁽²⁾. Technology is knowledge for producing better commodities and services. Technological change is new or advanced knowledge of such technology in depth. Techniques are the methods employed to produce goods and services based on the technology. However, changes in technique do not necessarily imply new technology; they may simply represent imitation and diffusion of existing techniques and factor substitution.⁽³⁾ Technical change is the adoption of different techniques. In addition, with respect to technology transfer, the concepts of spin-off and spill-over should be considered. According to Lee and Kim (1983), spin-off is defined as the transfer to commercial use of well-defined products, processes, or materials originally developed in other areas, particularly high technology areas,⁽⁴⁾ and spill-over is used for long-term, non-specific transfer of technology from one area to another, or from one industry to another. It may be worth noting the terms of anchorage, diffusion and assimilation of technology. These terms often overlap with the concept of spin-off and spill-over. Figure III-1 illustrates a simple foreign technology acquisition model of host LDCs⁽⁵⁾.

Figure III-1. A Simple Model of Foreign Technology Acquisition⁽⁶⁾



When we define the anchorage of technology as an implantation of transferred foreign technology in the local employees of the firm that first received the technology to apply in local production, the anchorage of technology limits its scope within the firm only when the transferred technology is used effectively and modified practically by employees in the firm; some enterprises in the same or similar industry as the firm mentioned above will be interested in the technology which is transferred from abroad for their production if the technology is useful. They may imitate, adapt or modify the technology for their use, and the technology becomes spread out in the industry. Hence, we define the diffusion of technology as the spread of technology

to other firms in the industry. The concept of technology diffusion is much wider than that of the anchorage of technology. First, the anchorage of technology takes place and the diffusion of technology takes place in the industry. The assimilation of technology can be defined as the localisation or indigenisation of foreign technology through total absorption into the host economy and through the knowledge of the various aspects of the technology and the capability to apply it as desired. The assimilation of technology is the widest concept and its success depends largely upon the efficiency attained in the diffusion of the technology (Adikibi, 1981)

III-iii. Types of Technology

In the fast changing world of markets, technology can be regarded as one of the major causes of changes in production, market share and profits at the company level and in industrial structure and growth rate at the national level. Technology is an essential factor for production; it can be bought and sold in the technology market as a commodity within the framework of economic theory⁽⁷⁾ in one of the following forms: firstly, in the form of capital goods or intermediary goods which are bought and sold in markets; secondly, in the form of human labour, usually skilled and specialised manpower with the capacity to make a correct use of equipment and techniques and to master the problem-solving and information-producing apparatus; thirdly, in the form of information, whether of a technical or of a commercial nature, which is either readily available in markets

or subject to proprietary right and sold under restrictive conditions (UNCTAD, 1972).

However, UNIDO (1981) typifies technology more specifically into four categories in connection with industrial and commercial usage: 1. Equipment-based technology - the technology required to operate the plant is implicit in the equipment; 2. Product-based technology - the key aspect of the technology is in the chemical composition or physical structure of the final product; 3. Process-based technology - for example, flow-sheet; 4. Operations-based technology - typically these are the oldest and most developed technologies and represent a mixture of the other types of technology (UNIDO, 1981). In every one of these four types, the original technology was developed differently and, consequently, there were different mechanisms of protection of technology and technology transfer; however, in reality, there was a misuse of such characteristics when foreign technology was introduced in LDCs (OECD, 1981). This could, in turn, be one of the reasons for inappropriate technology transfer.

It is argued that , for companies in advanced countries, the need for technology is primarily for patented or proprietary know-how (Marton, 1986). The advanced technological capabilities of licensees and their on-going production and research activities enable these companies to absorb and adapt licensed technology once the technical specifications and the rights to use patented or proprietary information are required. In the case of industrial-technology transfer to companies in LDCs, however, the need of these companies is for a much broader range of technological functions. The licensee company usually needs

technical assistance in the preparation of feasibility and market studies, project planning, the specification of inputs and machinery, production know-how, supervision of project implementation and start-up and operation. The companies in LDCs may need a mixture of all kinds of technology - notably, operations-based technology since equipment, process and product-based technology become more developed and get close to the operations-based technology, or total technology in a new terminology⁽⁸⁾ (The Economist, 1993, Jan. 3rd), and information-based production technology (UNCTC, 1988)

III-iv. Channels of Technology Transfer

If there is no foreign equity participation, the possibility of technology transfer will be significantly reduced. The possible means of technology transfer are licensing,⁽⁹⁾ franchising, management, marketing and technical service contract. In addition, without the TNC involvement in the above categories, the scope of technology transfer will be absolutely reduced. Other ways will be the flow of books, journals, employment of foreign experts and consultancy arrangements, import of foreign machinery, and education and training. If there is absolutely no TNC involvement⁽¹⁰⁾ in technology transfer, it will not be so easy to obtain foreign technology.

In the bulk of literature, TNCs have been regarded as a major source of technology in advanced countries as well as LDCs. Direct Foreign Investment (DFI) has traditionally been

acknowledged as the most important channel of technology transfer by TNCs based in advanced countries. The expansion of the TNCs has been accompanied by technology flows from parent companies to their foreign subsidiaries and affiliates. The close relationship between investment and technology flows is indicated by the high share of technology receipts from affiliated companies out of total payments received for technology and technical services. In the case of American corporations, more than 80 per cent of receipts from technology⁽¹¹⁾ have been from affiliated companies during 1970 to 1985; in the case of British and Japanese corporations, between 41 per cent to 62 per cent of receipts from technology have been from affiliated companies in the period 1975 to 1980 (UNCTC, 1988, p.77). DFI in developing countries has increased by about 15 per cent annually during the 1970s (Marton, 1986) and has constituted 24.8 per cent of world-wide distribution during 1981 to 1985 annually (UNCTC, 1988, p.76) although the DFI has been unevenly distributed.⁽¹²⁾ These investments have been accompanied by the inflow of more complex and advanced technology.⁽¹³⁾

Although technology transfer in conjunction with DFI has remained the most important channel in most developing countries, the rise of joint ventures has become an important form of TNC participation in host LDCs during the 1970s and early 1980s (UNCTC, 1983; Beamish, 1985; O'Reilly, 1988). In many developing countries during the 1970s, Marton (1986) argues, regulatory measures⁽¹⁴⁾ on foreign investment have contributed to joint ventures becoming an important form of TNC participation and, in many cases, production operations which would formerly have been

undertaken through wholly foreign-owned subsidiaries have increasingly been implemented through joint ventures between foreign and domestically-owned companies. Regulatory control, which has sought to channel the flows of DFI into priority sectors (notably the manufacturing sector) and restricted the extent of foreign ownership in various fields, has also directed the sectoral distribution of foreign technology flows.

While subsidiaries, affiliates and joint ventures of TNCs have constituted the dominant channels for technology transfer to developing countries, licensing activities between TNCs and unaffiliated companies in LDCs have grown rapidly (OECD, 1987, quoted in UNCTC 1988). This trend has been influenced by the industrial policies of many LDCs as well as increased production and technological capabilities of domestically-owned companies (Marton, 1986). As industrialisation begins to occur in many LDCs, there would be a growing demand for foreign technology in most industrial sectors. In addition, as far as the TNC is concerned, the regulation of DFI in host LDCs has increased the willingness of the TNCs possessing proprietary technology to transfer technology through licensing agreements. Furthermore, in the TNCs' point of view,

"in some cases local firms can supply knowledge of the local market which would otherwise be unavailable to foreign firms. In other cases the foreign firm may have little interest in on-going production. When the product in question is at a mature stage of development and its technology has become standardised, or where a particular market is of secondary importance to the foreign firm, externalised forms of technology transfer - notably through licensing agreement - may become more acceptable to it (UNCTC, 1988, p.179).

Channels of technology transfer via the TNCs to host LDCs are nowadays very complex⁽¹⁵⁾ and technology transfer mechanisms are

combined with each other. In the international business world, it is a common phenomenon that a TNC in its home country has a licensing contract with wholly-owned subsidiaries in host countries, that foreign joint venture partners sell their machinery and technology to joint-venture companies in host countries and make a technical service agreement, and that some TNCs have many licensing or equivalent agreements with wholly-owned or joint-venture companies in host LDCs.⁽¹⁶⁾ These forms of technology transfer - technical service contracts and the supply of turnkey plants - have been growing even faster than licensing (UNCTC, 1988).

III-v. Effects of Technology Transfer on Host LDCs

The possibility of obtaining modern technology is perhaps the most significant reason why developing countries wish to attract DFI since it involves the transfer of a package of resources which are either in short supply or absent from LDCs. The main components of this package are technology, capital and access to the world market (Casson & Pearce, 1987). However, it does not mean that all such investments must necessarily have a positive result from the point of view of the host country. The interests of TNCs do not necessarily coincide with those of the host LDCs.

As far as technology transfer is concerned, many economists argue that there are many negative aspects of technology transfer to host LDCs. Four undesirable consequences of technology transfer have been argued by Stewart (1977, pp.122-133): firstly, the high cost of importing foreign technology because of a weak

bargaining position; secondly, the loss of national control over decisions regarding technology; thirdly, the inappropriateness of the technology received; and finally, unsuitable characteristics of imported technology. In addition, Soete (1981) implicitly argues that technology transfer itself can be a cause of technological dependence when the major source of the technology comes from abroad; also, the technological gap between rich and poor countries will be getting wider unless the pattern of technology transfer is changed (Singh & Marton, 1991).

In this section, however, we shall consider some important notions of technology transfer.

III-v-1. The Commercialisation of Technology

It is generally agreed that the TNC is one of the main channels of technology transfer to LDCs either via DFI or non-equity operations. The TNC sells technology and the LDCs buy it. The cost of technology transfer, however, tends to be very high because of the monopolistic or oligopolistic nature of the technology market and the weak bargaining position of buyers. The commercialisation of technology may make it possible to calculate the value of technology, but in practice, the estimation of the value of technology is often uncertain before it is actually bought (Vaitsos, 1973; Stewart, 1977). Therefore, the buyer is unavoidably and from the very beginning in a weaker position vis-a-vis the seller, since he lacks the information necessary to make his decision.

Vaitsos has extensively analysed the commercialisation of

technology and argued that

"Technology, being a form of information, is non-exhaustible, ... it is jointly and not individually owned, ... and the marginal cost of using or selling an already developed or existing technology is zero for the owner of that technology. Thus, the price mechanisms are misorienting themselves completely" (Vaitsos, 1973, pp.315-316).

It is generally assumed that the purchaser of technology has less knowledge of the technology and its value than the supplier, the latter being often in a superior bargaining position. The buyer's disadvantage stems from what has been called "the information paradox" (UNCTC, 1988, p.184): in order to bargain effectively, a buyer needs information about the value of the technology to him, the costs of developing it independently, and the direct costs to the seller; however, in order to obtain this information, the buyer have to know the technology, which would then become worthless to the seller (UNCTC, 1988).

There is a variety of types of fees which are typically found in contracts for technology transfer in LDCs. Some fees are on a fixed or lump-sum basis, and others are dependent upon the level of operations of the license; or some contracts provide for a combination of fixed sums payable at the time the contract comes into force, followed by running royalties.⁽¹⁷⁾ Fee rates will vary according to the recipient country, the supplying country, the type of contract, the industry, and the equity relationship, if any, between supplier and recipient (UNCTC, 1988). In this regard, host government's policy towards technology-related transactions will be necessary within the framework of foreign technology encouragement (Singh & Marton,

1991; Marton, 1986). If the item is technology, what is needed is "knowledge about knowledge, which could effectively be one and the same thing" (Vaitsos, 1973, p.317).

Quite obviously, greater information for the buyer⁽¹⁸⁾ would bring about better terms of trade for the LDCs. For the above reasons, Vaitsos considers the process of the technology market, rather than the traditionally defined market-price mechanism. The importance of bargaining should be considered as far as the commercialisation of technology is concerned.

III-v-2. The Transfer of Inappropriate Technology

In general, LDCs were initially dependent on imports for their manufactured goods. With the gradual establishment of import-substituting consumer goods industries, they became dependent on the import of intermediate and capital goods. Thus, partly as a result of industrial development, they depend heavily upon the import of foreign technology (Colman and Nixon, 1986, p.44). It may be assumed that when the transfer of technology takes place, the LDC is not in a position to know whether this technology is an appropriate one for its specific endowments and economic environment. Appropriate technology can be defined as a "set of production techniques which do more to improve the standard of living of the masses through employment generation and economic growth than any available alternative" (Watanabe, 1984, pp.142-143). In order to meet this criteria, the technology should be sufficiently attractive to companies under the conditions prevailing in the country, and capable of creating a larger

aggregate amount of employment than any other.

The characteristics of technology are, however, largely determined by the nature of the economies for which they are designed. Stewart (1984, pp.345-347)⁽¹⁹⁾ argues that the most significant determinants of the characteristics of new technology are income levels, resource availabilities and costs, the system of organisation of production, and the nature of the technology already in use in the society in and for which the technology was designed. In each of these respects, the societies of advanced countries differ from those of poor countries. Consequently, the technology designed to suit advanced countries tends to be inappropriate to the conditions prevalent in poor countries. The transfer of such technology to LDCs tends, as a result, to cause various distortions and inefficiencies.

Indeed, the TNCs have been accused of transferring inappropriate, large-scale, capital-intensive techniques to small, less developed, relatively labour-abundant LDCs, since techniques are produced by the industrialised countries to meet their own requirements - notably, "to exploit the economies of scale in serving large markets and to economise on scarce labour." (Hood and Young, 1979, p.185). It can be presumed that techniques designed for developed countries tend to produce high income products, and require high levels of investible resources per employee, education and skills, labour productivity, and sophisticated management techniques. If these techniques are transferred to LDCs without modification, the result will be a concentration of resources, savings and expenditure on human resources and infrastructure. Incomes will tend to be

concentrated in this area, and resources available in the LDCs will tend to be underutilised.

The neo-classical answer to the above problem would be that TNCs are transferring capital-intensive technologies to LDCs because there are distortions in the factor markets created by government policies such as minimum wage legislation and over-valued exchange rates. As a result, capital is under-priced, and labour is over-priced. In addition, "lack of skilled labour" and "risk-aversion" (Helleiner, 1975, pp.168-169) are the another reasons for utilising the capital-intensive technology. Moreover, "the smallness of markets" does not encourage efforts to adapt technology to meet the needs of the individual LDCs; this, in turn, reduces the incentive to find appropriate technologies (Hood and Young, 1979, p.188).

However, a number of economists have provided other explanations and have questioned the possibility of factor substitutability itself. Griffin (1977) points out that TNCs produce internationally standardised products, in large volumes, with highly mechanised techniques. "The sophisticated products require relatively capital-intensive techniques of production and have limited possibilities of substituting men for machines" (p.68). This, in turn, has important implications for the distribution of income between capital and labour and employment creation in the host economy.

On this issue several interesting points can be raised. On the one hand, efficient labour-intensive technologies for use where labour is cheap relative to capital (as in the case of an LDC) simply do not exist and there are insufficient incentives for

firms to develop them for exclusive use in LDCs (Helleiner, 1975). On the other hand, TNCs do not really face any labour or capital constraints, because they have access to international markets. As pointed out by Helleiner, the factor prices upon which they base their decisions are not those of the particular LDC in which they happen to be located. They select capital-intensive techniques on the basis of rational calculation, in which factor prices do not reflect the social opportunity costs of capital in the host country. Moreover, evidence suggests that the basic technology tends to remain unaltered, because mechanisation is crucial in achieving a uniform quality in output and TNCs consider quality standards as essential in maintaining their reputation (Casson and Pearce, 1987, p.99).

However, technology can be adjusted through both selection, i.e. which of the available technologies will be transferred, and adaptation, i.e., the modification of technologies when the transfer is effected. The two forms of adjustment are related, since in many industries there may be a tendency to select the technologies that are more easily adapted (Casson and Pearce, 1987, p.99). Griffin (1977) warns, however, that local initiative and innovation are likely to be discouraged by the types of policies one typically encounters in countries relying on multinational enterprises for development. Government policy, in terms of technology, is of importance in this respect. The problems of unemployment and the lack of a capital goods sector in LDCs would be diminished by government policies; in Helleiner's words,

"... evidence suggests that multinational enterprises are more likely to employ more labour-intensive techniques and

use capital more intensively in their plants in less developed countries when they face more intense price competition." (Helleiner, 1975, p.170)

It is argued that the concept of appropriate technology transfer in connection with host LDCs should be related to the utility of technology and to the feasibility of its application (Evans, 1984) at the national level, and host government's policy towards technology transfer should be implicit in its national development plan.

III-v-3. The Issue of Control

The centralisation of control has already been mentioned as one of the characteristics of the TNC. Indeed, TNC affiliates in host LDCs are under the supervision of parent TNCs, usually in advanced countries. Therefore, it is argued that this centralised control may prevent the affiliates from behaving in a way consistent with an LDC's developmental objectives. During the past decades,⁽²⁰⁾ although many LDCs have taken active steps to weaken the amount of control exercised by parent TNCs by requiring that technology be exploited through joint ventures with indigenous firms (often state-owned firms) or through licensing and industrial cooperation agreements (Casson and Pearce, 1987, p.104), the issue of control is still one of the remaining areas of conflict between both parties which has yet to be reconciled.

The ownership of the affiliates by the LDC is, however, usually not enough for the country to take over control. Since control is already embodied in licensing agreements, it can take

the form of export restrictions imposed by TNCs,⁽²¹⁾ and it is also present in instances where there is subcontracting. Therefore, "even though ownership is not necessary to ensure control from the TNC's point of view, ownership is necessary but not sufficient from the point of view of LDCs" (Nixson, 1984, p.14).

III-vi. Economic Impacts of TNCs on Host LDCs

III-vi-1. The Balance of Payments (BOP)

Many economists have focused on the TNCs' involvement and the balance of payments (BOP) effect in the host countries. Indeed, the TNCs are accused of the "draining of surplus" which caused the "de-capitalization" of host economies. According to Nixson (1984), during the period 1978-1980, the LDCs reported a total outflow payment on account of DFI averaging US 12.8 billion dollars per annum as compared to an annual inflow of US 8 billion dollars over the same period excluding the effects of transfer prices.⁽²²⁾

Capital inflow takes place once, whereas the repatriation of profits takes place year after year. The initial inflow of capital is obviously offset by a number of factors: import intensity of TNC production, export restrictions imposed on the LDCs, royalty payments, technical and managerial fees to the parent company, profit repatriation, etc. (Colman and Nixson, 1986, pp.345-346). Results from case studies have shown that the TNCs as foreign private investors in LDCs want to repatriate

income from their investment as quickly as possible, "both from fear of expropriation and political uncertainty" (Casson & Pearce, 1987, p.121). This implies that immediate capital outflow can be an effective means of decapitalisation of LDCs.

More importantly, the sources of initial foreign investment are ambiguous. Nixon (1984) summarises some empirical evidence and shows that in the case of Latin American countries, US TNCs financed over 80% of their investments from local sources. In many Sub-Saharan African countries the picture is roughly similar. Furthermore, much TNC direct foreign investment involves the takeover of the already existing, domestically owned enterprises. In this case, TNCs may use domestic financial resources to buy out local firms (Colman and Nixon, 1986, p.346). Most of the case studies show that the overall impact of TNC activities on the BOP is negative.

If the TNCs reinvest domestically due to the pressures exerted by the host countries' governments as a means of preventing continuous capital outflows, an increasing proportion of industry may be owned by foreign firms. If the foreign firms dominate the LDCs' propulsive industries - although this is less likely to be acceptable politically - and if the foreign firms are regarded as profit maximisers, not as development agents, the result will be detrimental for the host LDCs.

One important concept in the relationship between the TNCs and the host LDCs is transfer pricing which makes it difficult for LDCs governments to control capital outflows. Transfer prices are the prices charged on transactions that take place between the parent TNC and an affiliated company, and are therefore unable

to be controlled easily by the LDCs' governments. Clearly, with increasing intra-corporate activities, this can be another cause of worsening BOP in host LDCs. Especially "in industries where intermediate products are widely traded, transfer pricing abuses are more likely to occur, since the intermediate product is specific to the firm, and there is no exactly equivalent product with whose 'arms-length' price the transfer price can be compared" (Casson and Pearce, 1987, p.119). More attention should be focused on this area and the problems for the host LDCs must not be overlooked.

III-vi-2. Employment Creation

In general, TNCs can initially create employment in host LDCs. However, if we consider the host LDC as a labour-abundant economy, there may be a problem resulting from the adoption of advanced capital-intensive technology.

As was mentioned earlier, capital-intensive techniques of production have limited possibilities of substituting people for machines. In this way the composition of output reflects and reinforces the initial inequality in the distribution of income (Griffin, 1977, p.68). In addition, it is argued that TNC employment is likely to be concentrated on those sectors where TNCs tend to predominate (Colman and Nixon, 1986). This could mean that employment can be increased within the specific sectors at the expense of widening imbalance and inequality between sectors in the host LDCs as far as employment and income distribution are concerned.

Indirect employment may be created in host countries by TNCs through the development of linkages. However, it is also of importance to recognise that there significant job losses may be caused by the TNCs. If domestic small and medium-sized firms are not able to compete with the TNCs, they may be forced out of the business arena. Although there are no data available in this case, it can be argued that the host LDC is gaining little from the TNCs in terms of employment and equality. By virtue of its character as a profit maximiser, rather than as an employment creator in LDCs where labour is abundant and cheap, the TNC involvement in LDCs is not concentrated in the countries where labour is cheapest, but in the countries where markets are largest and have been growing rapidly (Elson, 1988).

In order to generate employment and get benefits from the TNCs, the selection of sectoral and intra-industrial distribution of TNC investment by the host LDC government is of importance (Chaudhuri, 1988).

III-vi-3. Linkage Creation

Linkage creation by TNCs refers to direct linkages which can be defined as "those relationships between TNCs and domestic enterprises trading with them that have led the latter to respond, positively or otherwise to technological, pecuniary, marketing, or entrepreneurial stimuli provided by the former" (Lall, 1980, p.30). On the basis of this definition, linkages therefore refer to externalities created for domestic industry by TNC involvement. Two types of linkages can be distinguished,

namely, forward linkages and backward linkages. The former refers to the sale of the output of the TNC to domestic firms for use as inputs into their productive processes, and the latter refers to purchases by TNCs from domestic supplier firms (Colman and Nixon, 1986, p.343).

In general, TNCs have been accused of failing to establish linkages within the host economy, not only because of their highly centralised structure and the use of capital-intensive techniques, but often because of the nature of the products they produce (Colman and Nixon, 1986, p.343). Capital equipment is likely to be supplied by the parent TNCs and production operations, where linkage creation possibilities exist, may be undertaken by other TNC subsidiaries, rather than by domestic firms.

Lall's survey (1976, reprinted 1980) of TNC linkage creation in LDCs concludes that "import-substituting TNCs establish relatively few linkages in small or industrially backward economies; that in larger economies they may create extensive linkages, mostly because of government pressure; and that a substantial part of these linkages in import-substituting industries may be excessively costly and uneconomical" (p.33).

With respect to export-oriented TNCs, Lall classifies the export-oriented TNCs into four categories. The first type is TNCs which start by substituting for imports and later switch to exports. The second type is TNCs which produce and export traditional products such as footwear and textiles. He argues that these two are likely to create most linkages. Thirdly, there are TNC investments in modern industries whose technology is

relatively advanced and production is specifically for exports. This creates fewer linkages. Finally, the least linkages are to be made by "sourcing investment", where only a particular (labour-intensive) process is transferred to LDCs, such as in the electronics industry (1980, pp.33-34).⁽²³⁾

According to Lall, linkage creation may be the most important aspect of TNC involvement in the longer run, and government policy on linkage creation such as conditional participation of TNC involvement is therefore important. He states explicitly:

"The extent of linkages created in particular LDCs depends upon the stage of development of indigenous industry, the availability of local skills and technology, institutions and government policies, changes in demand and technology in world markets and their political attractiveness to TNCs" (Lall, 1980, p.34).

In order to create more linkages, interrelationship between choice of technology, choice of product and institutional factors (Raj, 1984) including government policy assumes a substantial importance.

III-vi-4. Industrial Structure

A large number of writers on TNCs have focused attention on the monopolistic tendencies such corporations show and the effect of these on the industrial structure of host LDCs. The main accusation against the monopolistic nature of the TNC is that it restricts output and redistributes income in its own favour, by raising prices above the competitive level (Casson and Pearce, 1987, p.92). Similarly, on the supply side, if the TNC acquires a monopsony position, it may inflict losses on its workers and suppliers. Evidence suggests that:

"... impact in various Latin American countries found that the operations of transnational corporations had the general effect of transferring oligopolistic market structure from home developed to host developing countries. ... there is an inherent tendency for excessively high prices to lead to supernormal profits, restricted production, and the orientation of output towards high-income, differentiated consumer markets rather than towards the satisfaction of basic needs." (UNCTC, 1985, pp.107-108)

In addition, TNCs cause higher levels of industrial concentration in LDCs than in developed countries. It is argued that the majority of LDCs have limited domestic markets and mainly rely on large-scale capital-intensive imported technology which is utilised in LDCs by TNCs. Newfarmer and Muller (1975, p.61) have found that in Brazil, 59 of the largest 100 corporations were TNC affiliates, and that in Mexico, 71 per cent of all manufacturing sales were accounted for by TNCs.

Lall's study of the manufacturing industry in Malaysia (1980) concludes that the factors which influence the concentration in advanced countries such as U.K. also determine it in relatively small and less developed economies; that the market size is negatively correlated with concentration; that TNC investment has a greater impact on concentration in non-consumer goods industries than in consumer goods industries since, in the former, foreign entry is more related to capital intensity; and that concentration is positively influenced by foreign investment both by small firms from neighbouring LDCs and by large multinationals from advanced countries. The difference is, however, that large TNCs are a more powerful factor than LDC foreign investors. (Lall, 1980, pp.84-85). The UNCTC report gives a strong warning to the LDCs in their relations with the TNCs:

"In any case, many developing countries have found it necessary to adopt policies protecting the competitive

position of domestic enterprises, and mitigating some aspects of the conduct of subsidiaries of transnational corporations that may be considered harmful from the social and economic point of view." (UNCTC, 1985, p.108)

It is not surprising to recognise that the capital structures of TNCs and of domestic corporations in the United States are different. Lee and Kwok (1988) argue that, in general, the TNCs have significantly lower debt ratio than domestic corporations. Shaked (1986, quoted in Lee and Kwok) also finds that TNCs have higher average capitalization ratios (equity/asset) than domestic corporations. This could be because the TNCs' position in an oligopolistic market structure makes it possible to maximise profits and this, in turn, contributes to their structure in a positive way. However, Singh (1988) stresses that the presence of the TNCs in LDCs does not have a significant effect on industrial output growth, whilst the domestic variables, the national savings rate, the state's economic intervention policies, and exports, appear relatively strong determinants of industrial growth.

III-vii. Socio-cultural Impact of TNCs in Host LDCs

III-vii-1. The Transfer of Inappropriate Consumption Patterns

TNCs can create "new tastes" and "new wants". Whilst this is not always seen as harmful for LDCs, it can perhaps be regarded as another negative effect of TNC involvement in the LDCs. As Helleiner (1975) points out, poor consumers are expected to demand products with more essential and fewer luxury characteristics; therefore, they may lose from the disappearance

of essential-intensive products which are replaced by the more luxury-intensive ones produced by TNCs. In some instances, Griffin (1977) argues, the products of the TNCs merely replace locally-produced goods, sometimes of identical quality but lacking an international brand in appealing to consumers. We can take a good example of this from South Korea. In the 1950s, there were numerous traditional beverage industries. However, since foreign beverage industries were established in South Korea in the 1960s, most of the domestic beverage firms have disappeared. (Kum, 1983). As a result, most Koreans nowadays drink TNC products such as Coca-Cola, Seven-up and Fanta, rather than traditional ones. Cigarettes are another good example in many LDCs (UNCTC, 1988).

Aside from the standard considerations above, there is a growing uneasiness about food manufacturing TNCs (Griffin, 1977, pp. 66-67). Griffin also relates the accusation that pharmaceutical TNCs have been using the Third World as a testing ground for new drugs. The companies export and market in the Third World drugs which are not authorised for sale in the country of origin, and they sell drugs in the Third World at higher prices, and sometimes beyond their date of expiry (1977, p.67).

III-vii-2. Political Influence, Domestic Elite and Foreign Interest

"As a matter of self-interest, the TNCs will use their economic power in bargaining to extract concessions from the host government on such matters as protection, tax, rebates, investment allowance, choice of factory, site,

industrial conciliation, and access to resources" (Leonard, 1980, p.456).

It is assumed that TNCs, by virtue of their normal conduct of business, can help shape the broader social forces that influence how a government relates to its constituents, the relationship between elite groups and the populace, and power relationships within and between elite groups. In this respect, there are at least some groups in the host LDC who benefit from TNC activities.

Apter (1980) argues that Brazil, Mexico and Argentina could make economic progress and benefit from socialist revolutions, but that they are unlikely to seek this solution because the TNCs are so thoroughly intermeshed in the prevailing social and political networks. Most significantly, their large and growing middle classes are dependent on the intermediate roles supported by multinationals. Sklar makes a similar analysis in a case study from Zambia; "the bourgeois class, because it has been promoted by the MNCs, will not turn against the interests of the foreign corporations" (quoted in Leonard, 1980, p.473).

Indeed, it is argued that the TNCs can be an actor in the domestic political system to the extent that they influence the authoritative decisions of the host LDCs. Leonard (1980) argues that the TNCs can bribe officials or resort to other means of political manipulation. As a result, the host LDCs' economies would be detrimentally affected, whether directly or indirectly.

A recent study by Jenkins (1987) comparing industrial performance between two East Asian (Korea and Taiwan) and three Latin American (Argentina, Brazil and Mexico) newly industrialising countries (NICs) suggest that the better

performance in East Asia is not due simply to differences in trade orientation or the degree of state intervention, but rather to the effectiveness of intervention. This is explained in terms of the relative autonomy of the state. Rodrik (1992) argues further that, compared to an autonomous state, a subordinate state under-provides economically desirable interventions and over-provides politically-motivated (and economically harmful) interventions.

The autonomy of the state vis a vis the TNCs and a strong national capitalist class would be necessary for desirable economic development in LDCs.

III-viii. How Can LDCs Get More from the TNCs?

The previous sections have revealed that the impact of TNC activities on the host LDCs has been uneven in many areas. Given the level of technological and economic development of the host LDCs, it seems unlikely that the conflicts outlined above can be avoided. As Soete (1981) points out, more than 80 per cent of total R and D expenditures are made by six advanced countries.⁽²⁵⁾ Therefore, technological change as well as capital accumulation is largely determined by those advanced countries.

In the context of LDCs, however, initial acquisition of foreign technology and capital through TNCs is important, and adjustment and control over the TNCs is necessary. During this process, government intervention has, perhaps, the most significant role in terms of national development. The uneven picture of TNC involvement in host LDCs would be altered if TNCs

were properly controlled by the state.

This section will examine some possible ways to gain more from TNCs through government policy, domestic politics, the international environment and through the strengthening of the LDCs bargaining position.

III-viii-1. Government Policy

As pointed out by Helleiner (1975), the inappropriateness of technologies offered to LDCs can begin to be remedied once the LDCs have themselves determined what they consider to be appropriate. It follows that the first task of the LDC state is to define objectives with respect to the TNC in general, and technology transfer in particular, and establish the structures and institutions for achieving these objectives (Colman and Nixon, 1986, p.364). This in turn requires political commitment and consistency within the LDC.

After establishing national objectives in an appropriate institutional framework, Dicken (1986, pp.141-142) argues that the host LDC government may operate a "screening" mechanism to attempt to filter out those TNCs which do not meet national objectives. As we have already discussed, even though some LDCs are small economies, they can exercise control over the TNCs, because the TNCs do not have the same powers as nation states. The power of the state to entirely exclude TNCs from certain sensitive sectors should not be underestimated. The state can also limit the degree of foreign penetration in a sector to a certain percentage share, or it may insist that only joint

ventures involving indigenous capital may be permitted, or it may require TNCs to employ local personnel in managerial positions. Another common policy is for TNCs to meet a certain level of "local content" in their manufacturing activities, aiming to increase the positive effects of foreign investment on indigenous suppliers and to reduce the level of imported materials and components. Conversely, the state may insist on a foreign firm exporting a certain proportion of its output. Greater control over the degree of differentiation of TNC production can be exercised by the state through industrial licensing which restricts the number of firms and the degree of differentiation in each product or industry (Helleiner, 1975, p.177).

The host government's policies towards TNCs should include encouraging competition among TNCs and/or between TNCs and domestic enterprises, ensuring that TNCs operating in a sector do not exploit their monopoly power and do not make decisions which conflict with national development goals, and strengthening their own bargaining capacity vis-a-vis TNCs; this issue will be discussed further in the next section.

However, recent trends show that in many LDCs, the liberalisation of economy is becoming common (Singh & Marton, 1991; UNCTC, 1988), and types of policy changes vary between countries (UNCTC, 1991). Between 1977 and 1987, NICs had the greatest relative liberalisation, and on average received the highest levels of DFI as a percentage of the size of the economy. Among policy categories, other developing and developed countries liberalised mostly in the sectoral-limitations category, whereas NICs liberalised mostly in the category of general limitations

on foreign ownership. However, the policies towards performance requirements have remained the same or been tightened in many countries including developed countries and NICs (UNCTC, 1991). This could, in turn, mean that LDCs could be more attracted to the TNCs and could get more from the TNCs when there are well-defined policy categories which cover national developmental objectives and encouragement of TNCs; or more importantly, where government policies have been flexible (Chaudhur, 1988) in accordance with national and international economic environment for mutually beneficial agreements between the TNCs and host LDCs.

III-viii-2. Domestic Politics

As was mentioned earlier, defining national development objectives and establishing institutions can help a host LDC economy in the sense that if the TNC involvement in the host LDC is not compatible with the development plan, the host government can attempt to adjust or control the TNCs' behaviour.

In practice, however, this implies the importance of political factors. Because the will to control the TNCs is determined primarily by domestic political circumstances, whether and how a country uses its power over the TNCs is dependent upon the political configuration in host LDCs. There could be conflicts between the TNCs, elite groups, the populace and the government in the host country. The probable outcomes of such conflicts would be determined by the dominant group. Leonard (1980) argues that one cannot begin to understand the political impact of the

TNCs on developing countries without desegregating and dissecting the whole world of domestic politics.

In terms of bargaining, not surprisingly, Griffin (1977) argues that the bargain is likely to be relatively less favourable in countries in which a significant section of the ruling class is closely allied to the TNCs. If the foreign investment and other TNC activities are endogenously determined as the outcome of the lobbying process of interest groups, then bargaining and benefits would also be similarly determined, that is, by the political process. Many writers, Colman and Nixon (1986) for example, argue that political change is needed in host LDCs, of a type which enables the host LDC to get more from the TNCs.

III-viii-3. The International Environment

Action by host governments is likely to be strengthened by multilateral action taken by groups of countries. Multilateral action, as was achieved in the Andean Group (Griffin, 1977, p.72),⁽²⁶⁾ improves the bargaining position of the LDCs. Thus, harmonised policies or policy instruments accepted by groups of countries with respect to the admission of investment, fair and equitable treatment, taxation, restrictive business practices, and the adoption of a comprehensive code of conduct towards TNCs, would benefit the host LDCs (UNCTC, 1988).

The proposed UN code of conduct, which deals with the transfer of technology, employment, competition and restrictive practices, and transfer pricing, applies to all industries and aims at

ensuring good behaviour on the part of TNCs, so that their activities become more consistent with, and accelerate the achievement of, national development objectives (Nixson, 1984, p.15). According to the "Draft of International Code of Conduct on the Transfer of Technology", the LDCs can improve their bargaining power and achieve their goals. The main objectives of the code of conduct are

".... to encourage transfer of technology transactions, particularly those involving developing countries, under conditions where bargaining positions of the parties to the transactions are balanced in such a way as to avoid abuses of a stronger position and thereby to achieve mutually satisfactory agreement." (Article 2.1.iii, quoted in Robin, 1983)

Other international codes of conduct on the TNCs are being negotiated under the auspices of the UN commission on TNCs.⁽²⁹⁾ Sooner or later, it is expected that the host LDCs can, ceteris paribus, make an effective utilisation of the international agreements both economically and politically.

III-viii-4. Strengthening LDC Bargaining Power

In general, it has been argued that in terms of both information and bargaining power, the TNC is in a superior position mainly because of its possession of higher technology and marketing skills. From the LDC point of view, however, the weaker bargaining position is partly caused by a lack of information and a lack of knowledge of the specific imported technology.

Bargaining power itself is likely to reside not only in the resources that partners bring to bear but in such environmental

factors as the global position of the firm and the alternatives available (Blodgett, 1991). Therefore, local company or host country bargaining power is enhanced if it has several TNCs to choose from; a TNC's power is enhanced if several local partners or several host countries with the requirements are available. It can be argued in addition that the degree of this competitiveness will depend upon the amount of information a potential buyer has in the pursuit of information purchase. Griffin (1977) argues that the government of the host country should specify which of the components of the package supplied by the TNCs is not available locally and then examine whether it is possible to obtain the missing component more cheaply from other sources. In this respect, information and/or knowledge about technology deserve special emphasis. The outcome of the negotiation between the TNCs and the host LDCs will depend on many factors, including the level of knowledge and bargaining experience and skill (Casson and Pearce, 1987, p.121). Thus, improving local technological capability, education and training in the long term is of importance for the host LDCs.

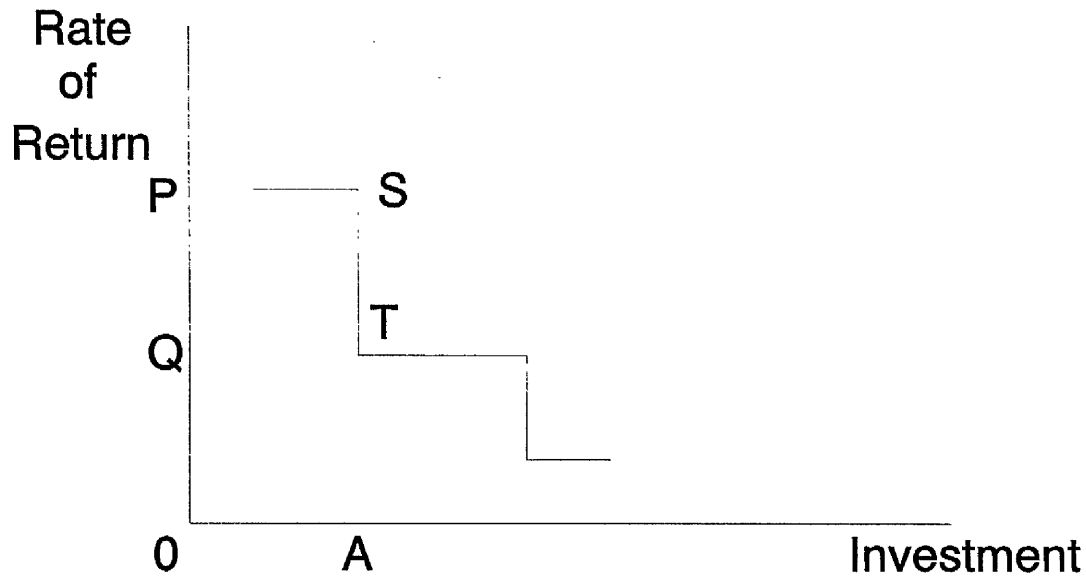
More importantly, as Warren (1980, ch.7) points out, the exploitation of rivalry⁽²⁸⁾ between TNCs, might be one of the ways of improving the bargaining position for the LDCs. If the host government policies on the TNCs are intended to promote competition among the TNCs and/or between the TNCs and domestic enterprises at a certain level, the TNCs may cease to exploit monopoly power in the host LDCs.

III-ix. The Bargaining Process and the Political Economy of Bargaining

The bargaining process is largely concerned with the redistribution of potential monopoly profits, without there necessarily being any reduction in inflows of capital or technology (Nixson, 1988, p.379). During this process, TNCs will try to force concessions as near as possible to the maximum that the host LDCs are prepared to offer, whilst the host government will try to push the level of concessions as near as possible to the minimum acceptable to the TNCs.

Streeten (1976; 1977) has constructed a model to illustrate these relationships. He has rejected the traditional downward-sloping marginal productivity of investment curve and has assumed the "step-like function" illustrated in Figure III-2.

Figure II-2. The Bargaining Process



Source : Streeten (1976, p.225)

The vertical sections of the steps ($ST=PQ$) are the bargaining range. The lower limit of this range is determined by the special monopolistic or oligopolistic advantage enjoyed by the TNC, and the upper limit by the costs to the host government of alternative access to this advantage or the cost of doing without it. The limits of the range P and Q are set by the maximum 'returns' the TNC may earn, whilst the host country is still willing to admit the investment and the minimum 'returns' the TNC is prepared to accept and still invest (the amount OA). Therefore, quite obviously, the TNC has an interest in pushing up the upper limit of the bargaining range and the host country

has an interest in pushing down the lower limit; that is, each partner tries to control the limit in its own favour.

This model, however, assumes that the state represents the whole country's interests and pursues development objectives that are well defined and accepted. However, this may not be true in dealing with the alliance of domestic elites with foreign interests, or in relation to external pressures. In response, Streeten's later work with Lall (1977) gives supplementary assertions for the weakness of his model by arguing that policies implemented by the government may be a reflection of the interests of dominant classes, and that external forces may strongly condition the policies; therefore, the right policies will not be adopted unless they happen to conform to the underlying forces operating in particular LDCs (1977, pp. 221-222).

From the above considerations, Nixon (1988) identifies the three main actors in the bargaining process; namely, the state, ⁽²⁹⁾ national capital and foreign capital. Possible outcomes will be determined by the interaction of these three sets of forces. He develops and identifies five possible situations which will be briefly focused on here:

1. The 'isolationist-socialist' LDC: this case is not directly concerned with bargaining since there is no TNC involvement (e.g. Burma).
2. The 'socialist' LDC with limited and selective TNC involvement: the involvement of foreign capital will be confined to joint venture arrangements and technology

licensing agreements of all kinds. In some cases the 'socialist' LDC will have chosen to invite foreign capital to participate in the development process, (e.g. the People's Republic of China);⁽³⁰⁾ in other cases, necessity or coercion will have dictated the presence of foreign capital (e.g. Angola, Vietnam).⁽³¹⁾

3. The 'national-capitalist' LDC: the host LDC is heavily penetrated by foreign capital via DFI and/or by various non-equity agreements but there also exists (or is being created) a strong national capitalist class and a strong state. In these circumstances, although there are several issues such as national control, technology transfer and indigenous technological development which are confronted in the bargaining model, the possibilities for autonomous capitalist development are greatest and there is no basic conflict between the emergence of such a development model and the presence of foreign capital (e.g. Brazil, India, Republic of Korea).
4. The 'dependent capitalist' LDC Mark I: this case combines significant foreign penetration of the economy with a reasonably strong state and a still weak but rapidly growing national capitalist class. Nixon argues that although this appears to be close to orthodox dependency thinking, there is nothing immutable about this particular 'situation of dependency' and in the longer run the dialectics of the development process itself will determine the actual 'model'

of development that emerges (e.g. Nigeria, Kenya).

5. The 'dependent capitalist' LDC Mark II: this case differs from the 'Mark I' model in that it is characterised not only by a weak national capitalist class but also by a weak state ('weak' vis-a-vis foreign capital, that is). The bargaining position of the state relative to that of foreign capital is weak, in large part because of its relationship with foreign capital, and the concept of a 'comprador bourgeoisie' may well be relevant in this situation (e.g. many sub-Saharan African countries, the Philippines under Marcos, pre-Sandinista Nicaragua).

Nonetheless, as pointed out by Nixon (1988), individual countries are not forever confined to particular categories but can move between them over time as a result of internal socio-economic and socio-political changes; however, the direction of change is not predetermined. The national environment, including the political economy of the TNCs' relationships with domestic capital and the LDC, state, is perhaps the most important determinant of the impact of foreign investment and the bargaining process, and consequently of the direction of change within the host LDC.

More importantly, from the point of view of longer-run development for the host LDC:

"the crucial issue is not the presence or absence of foreign capital or the existing weakness or subservience of domestic to foreign capital, but rather it is the strength of the state and the policies that it may be pursuing to overcome the weakness and eliminate subservience, and to create or encourage domestic capital, that is important."

(Colman and Nixon, 1986, p.364).

III-x. Summary and Conclusion

In this chapter, great emphasis has been placed on technology transfer, and we have looked at the way in which the TNC involvement in host LDCs inevitably leads to a conflict between the TNC and other interests. This has been tackled issue by issue, and has provided the ground-work for the later sections which analysed how these conflicts are and can be fought out, and how more could be gained from the TNCs through government policies in the domestic and international sphere. This was rounded off by a more detailed discussion of the workings of the bargaining process.

Throughout the chapter recognition has been made of the fact that the TNCs do not operate in a vacuum any more than do the local firms in host LDCs. Their patterns of behaviour are affected not only by economic factors but also by socio-political factors, most importantly including the host government's policies and political structures. Bearing this in mind, the next chapter (Ch. V) will discuss the notion of the state as well as the role of the state, with a particular attempt to characterise the Korean state.

Notes

- (1) It is not only economists who define technology as being within their framework of interests. For example, Weiss, Kamenetzky and Maybury (1984), who are World Bank staff, broadly define technology as "human knowledge used to achieve ends. Thus it includes everything from the manufacture of computers to the marketing of breakfast cereals, and from the use of public health measures to prevent disease to the growing of more abundant and butter crops. It also includes the knowledge of how to organise society in order to achieve desired ends (corporations, educational institutions, health care organisations) and how to cope with related consequences." Also, from a scientist's point of view, Sabato (1984) said that "technology is empirical and scientific knowledge organised in sets for its use in the production."
- (2) Based on Freeman (1977), Stewart (1977), Colman & Nixon (1986).
- (3) A notion of choice of technique will be discussed in the latter part of this chapter.
- (4) It is implicitly assumed that technology transfer takes place between different national boundaries whilst spin-off takes place within a national economy.
- (5) The nature of foreign technology transfer may differ in scope and magnitude between licencees in advanced countries and those in LDCs. In the advanced countries, the need for technology may be primarily for patented or proprietary know-how, and they may not want to create the diffusion or assimilation of technology at a national level. This will be discussed later, and see Singh & Marton (1991), Marton (1986) for further detail.
- (6) Some economists, such as Kim (1986) and Lee and Kim (1983) argue that the technology acquisition model in the electronics industry in Korea is different from the typical model illustrated above, and classifies three stages such as Implementation, Assimilation and Improvement stage.
- (7) Although there has been a great debate on this subject: see next section.
- (8) The term total technology is used to describe the requirement for all kinds of technology from the beginning of the production stage to the final stage of end-products.
- (9) There is often some degree of overlap among these categories. DFI may be combined with licensing agreement between a parent company and affiliates, or joint-venture between TNCs and local enterprises often including licensing agreements and management, marketing and other contracts. See UNCTC 1988 for further detail.

- (10) Transnational publishing, machine-making, consulting companies, etc.
- (11) Data include royalties, license fees and fees for management, professional or technical service for the United States, and for other countries, data include royalties and license fees.
- (12) See chapter 2.
- (13) Until the 1960s DFI in LDCs has typically taken place in the extractive and primary goods sector, accounting for almost half of the total DFI. However, during the 1970s and the 1980s, the significant growth of DFI in manufacturing sectors in LDCs is noteworthy. (Marton, 1986; UNCTC, 1988; Singh, 1988)
- (14) It is assumed that joint venture requirements have primarily aimed at increasing domestic participation and control on the part of local industry.
- (15) For example, a joint venture company establishes a joint venture company with another partner - establishing 3 or 4 way joint venture with licensing etc.
- (16) For example, D company in Korea, which is a joint venture company with Allied Corp. in USA, has established another joint venture company with Walbro Korea company (An American TNC subsidiary in Korea), Siemens of Germany, Bendix of America and Siemens - Bendix Korea (which is a joint venture company between Siemens and Bendix). In our survey, D company has 8 different licensing agreements with the companies mentioned above.
- (17) A ceiling of 5 percent of sales as a royalty has come to be widely used (UNCTC, 1988).
- (18) Whether it is a company or host government.
- (19) Reproduced in Meier, G.M. Leading Issues in Economic Development, 1984, OUP.
- (20) Recently, some LDCs have abolished or loosened regulatory policies such as Korea, though during the 1970s, many LDCs have exercised strict control over DFI. Technology related transactions and transfer-pricing are hard to control unless the host government has knowledge about it. However, Al-Eryani, Alam and Akhter (1990) argue that transfer pricing of US TNCs suggests that legal considerations such as compliance with tax and custom regulations, anti-dumping and antitrust registrations, and financial reporting rules of host countries are influential in the use of market-based transfer pricing.

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- (21) As Vaitzos (1976) has shown for the case of Columbia, for example.
- (22) The total outflow must be regarded as a minimum figure for the outflow since Nixon (1984) points out that it does not include unrecorded outflows.
- (23) Assembly of electronic components.
- (24) Cigarettes also give a good example.
- (25) Notably, USA, former USSR, Japan, former W.Germany, UK and France.
- (26) Andean Foreign Investment Code: Common Regime of Treatment of Foreign Capital and Trademarks, Patents, Licenses and Royalties. Organised through the Andean Pact, known as the 'Cartagena Agreement', finally adopted in 1987.
- (27) Many multilateral agreements have been adopted by UN, OECD, UNCTAD, World Bank and Council of Europe; however, there are a few multilateral agreement which have been achieved in developing countries alone. Economic co-operation between LDCs may be needed for their development and better understanding.
- (28) Especially, in the technology market, nowadays, no one nation has a technological hegemony; each has something the other needs (Dunning, 1989).
- (29) The TNCs will be looking for LDC governments which are more pragmatic and less ideological (Chaudhuri 1988).
- (30), (31) Nowadays, however, their economies are wide open to the TNCs.

Chapter IV

Economic Development in Korea : A Historical Approach⁽¹⁾

IV-i. Introduction : An Overview of the Korean Economy

It is well known that the Republic of Korea (hereafter Korea or South Korea) is one of the fastest growing economies in the world. In general, with the successful implementation of several consecutive five-year development plans (FYDP) since 1962, Korea has achieved a remarkable rate of economic growth - about 10 per cent per annum - a rate which is higher than in most developed and other developing countries.

Table IV-1. Growth of Production

	Average Annual Change (%)				GNP Per Capita (US\$)
	GDP		Manufacturing		
Country Group	1965-80	1980-90	1965-80	1980-90	1990
Low-income Economies	4.9	6.1	6.7	11.1	350
Lower-middle income Economies	5.5	2.6	N.A	N.A	1,530
Upper-middle income economies	7.0	2.4	8.9	3.5	3,410
Republic of Korea	9.9	9.7	18.7	12.7	5,400

Source : World Bank (extract from World Development Report 1992)

Table IV-2. Structure of Production

GDP (US\$ million)		Distribution of GDP (%)			
		Agriculture		Manufacturing	
1965	1990	1965	1990	1965	1990
3,000	236,400	38	9	18	31

Source : World Bank 1992

Table IV-3. Growth of Merchandise Trade

Merchandise Trade (1990)		Average Annual Change (%)			
US\$ million		Export		Import	
Export	Import	1965-80	1980-90	1965-80	1980-90
64,837	69,585	27.2	12.8	15.2	10.8

Source : World Bank 1992

When Japanese rule ended in 1945, just after the Japanese surrender to the allied powers, Korea was a typical Asian, agrarian economy with a dense population. Shortly after the first post-war government was set in place - the first general election was held in May 1948 under the supervision of the United Nations and the R.O.K was officially founded on 15th of August, 1948 - a tragic, fratricidal Korean War erupted. By the end of the three-year-long Korean War, from 1950 to 1953, Korea's economy was virtually destroyed.

The economic situation in the early 1960s, just before the start of the first FYDP, was such that Korea was expected to remain an abjectly poor and less developed country (LDC). Few, if any, would have thought it capable of achieving one of the world's most outstanding growth records in the following three decades. In 1961, GNP and per capita income were a mere 2.1 billion and 82 US dollars respectively, while commodity exports amounted to no more than 41 million US dollars. (The Bank of Korea, 1988)

However throughout the 1960s and 1970s, with the good match between the government's export-driven growth policy and favourable external conditions, the Korean economy recorded an average annual growth rate of 9 per cent⁽²⁾. (The Bank of Korea,

1998) By the end of the 1970s, Korea had transformed itself from one of the poorest agricultural countries into a newly industrialising country(NIC). In 1979, as a result of the high economic growth rate, per capita GNP had risen to 1,662 US dollars and export^s had reached 15 billion US dollars. At the same time, the economy had undergone a structural transformation: the share of mining and manufacturing in the GNP had risen to 30 per cent with a corresponding decline in that of agriculture, forestry and fishing to 20 per cent. (The Bank of Korea 1988) ⁽³⁾

Meanwhile, however, the competitiveness of Korean exports based on light manufacturing industries was threatened by other late-comer developing countries with their lower labour costs. Subsequent efforts were made by the Korean government to deepen the industrial structure by encouraging investment in heavy and chemical industries. The Korean economy was vulnerable in the external environment because of its heavy dependence upon international trade and its poor natural resource endowments. Particularly, the oil shock of 1973-74 strongly influenced the Korean economy physically and psychologically, and continuing rapid export growth was unlikely to be guaranteed under the circumstances of slow growth in the developed economies. Accordingly these combined factors provided additional motivation for rapid construction of an independent production base.

Massive investment in these industries in a short period of time caused high inflation. This was principally a result of the structural problems which had been accumulating in the pursuit of the rapid economic growth of the previous two decades (Sakong, 1993).

During the 1979-80 period, an attempt to eliminate chronic inflation and remedy the structural weakness of the economy was made. A series of price stabilisation programmes and other measures to adjust the industrial structure were undertaken. Unfortunately, entering the 1980s, the world economy suffered from a world wide recession with its vicious circle of low growth, higher interest rates, and protectionism, and the delay of industrial adjustment following the second oil crisis. In addition, in the early 1980s political and social unrest - the assassination of President Park in October, 1979 and the Kwangju Movement in May, 1980 - put the Korean economy into difficulties.

Table IV-4. Gross Domestic Product

(Units : billion Korean won)

Year	1986	1987	1988	1989	1990	1991
GDP	93,426	108,428	127,963	143,001	172,724	207,517

Source : Bank of Korea 1992 (Economic Statistics Year Book 1992)

Table IV-5. Summary of Exports & Imports

(Units : US\$ million)

	Export	Import	Trade Balance
1983	24,445	26,192	-1747
1984	29,245	30,631	-1386
1985	30,283	31,136	-853
1986	34,714	31,584	+3130
1987	47,281	41,020	+6261
1988	60,696	51,811	+8885
1989	62,377	61,465	+912
1990	65,016	69,844	-4828
1991	71,870	81,525	-9655

Source : Bank of Korea 1992

From 1983, however, the Korean economy gradually recovered

from this recession with 1980 witnessing the first negative growth rate since 1956. In particular, from 1986, the growth rate was about 12 per cent in three consecutive years. One of the most prominent accomplishments in recent years is the change in the current account from deficit to surplus. The current account changed from a deficit of 5.3 billion US dollars in 1980 to a surplus of 3.1 billion US dollars in 1986, and the surplus expanded to 8.9 billion US dollars in 1988. As a result of this substantial improvement, Korea was able to pay back part of the external debt. The external debt was estimated, at its peak in 1985, to be 46.8 billion US dollars, but in 1987, it was reduced by more than 11 billion US dollars and stood at 35.6 billion US dollars. (The Bank Of Korea, 1988)

Despite the outstanding record of GDP growth, the Korean economy has recently fallen into a current account deficit after four years of consecutive surpluses in trade balances. It may be argued that the lack of competitiveness of export goods in light industries (for example textiles and footwear), in price terms, in comparison with the other developing countries, notably China, Thailand, Indonesia & Malaysia, and world-wide recession together with over-consumption of foreign products by Korea, could be causes of the current trade deficit. (Sisa Journal, March 1992).

Another significant achievement was the remarkable reduction in the inflation rate. An average annual rate of increase in wholesale prices was reduced from 19.3 per cent in 1977-81 to 1.0 per cent in 1982-86, and to 0.5 per cent in 1987 (The Bank of Korea, 1988). With these stable economic conditions, Korea has again achieved outstanding growth rates in the last few years.

It should, however, be recognised that the recent economic performance in Korea was mainly due to the favourable external environment for the Korean economy. Firstly lower oil prices enabled Korea to reduce the foreign exchange outflow. For instance, a proportion of the crude oil from total imports in volume terms in 1980 was 25.3 per cent, but in 1986, it was only 10.7 per cent. (Economic Planning Board, 1987) Secondly, lower international interest rates reduced the burden of interest payments. More importantly, the strong Japanese currency enabled the Korean economy to export more easily where Korean commodities and Japanese ones were in competition. According to Pyun(1987), exports of some Korean products such as electronics and transportation equipment increased remarkably in 1986 because of their price advantage over Japanese products. This favourable external environment suggests that the Korean economy's recent performance has not been achieved only by Koreans themselves but also with the assistance of favourable external forces.

Table IV-6. Changes in Economic Structure

	1961	1971	1981	1984	1985	1986	1987
Agriculture, forestry & fishing	39.1	26.6	15.8	13.3	13.5	12.3	11.4
Mining & manufacturing	15.5	22.5	30.7	30.5	29.7	31.3	31.5
(Light industries)	(73.7)	(61.4)	(49.3)	(46.4)	(45.7)	(43.8)	(42.5)
(Heavy & chemical)	(26.3)	(38.6)	(50.7)	(53.6)	(54.3)	(56.2)	(57.5)
Construction, Electricity, gas & water	4.4	6.1	9.4	11.1	11.3	10.9	11.4
Services	41.0	35.1	34.6	35.5	35.6	35.8	36.2
Producers of government service & private non-profit services	-	9.7	9.5	9.6	9.9	9.7	9.5
Gross domestic product	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: Figures in parentheses represent shares in the manufacturing sector.

Source : Bank of Korea 1988

The industrial structure has undergone significant changes since 1962, as shown in Table IV-6. The share of the primary sector decreased from 39.1 per cent of GDP in 1961 to 11.4 per cent in 1987, whilst the share of the manufacturing sector increased from 15.5 per cent to 31.5 per cent. Within the manufacturing sector, the proportion of light industries has fallen from 73.7 per cent in 1961 to 42.5 per cent in 1987, and the proportion of heavy and chemical industries has increased from 26.3 per cent to 57.5 per cent. (The Bank of Korea, 1988) Mainly because of these structural changes, the proportion of manufactured goods in total exports in 1986 has been 94.6 per cent. (Ministry of Trade and Industry, 1987)

During the era of rapid growth, the style of economic management by the government has also shifted toward seeking increased economic efficiency through greater liberalisation and dependence upon competition and market forces, especially since the 1980s.

IV-ii. The Background to Rapid Economic Development

IV-ii-1. The Traditional Socio-Political Structure of Korea

Korea, known as the "Hermit Kingdom" or the "Land of the Morning Calm", has emerged out of her obscurity only in the recent era. Korea, like other traditional societies in many countries, had experienced the rise and fall of dynasties since the beginning of its nationhood. According to the earliest available historical records, Korea began its dynastic experience with the appearance of three Kingdoms -Koguryo(37 B.C.-668 A.D.), Paekje(18 B.C.-660 A.D.), and Silla(57 B.C.- 935 A.D.). These three Kingdoms were united in 668 by the Silla dynasty. The United Silla dynasty (668-935) was taken over by the Koryo dynasty (918-1392) in 935, when the former became a victim of its own inertia, decadence, and internal power struggles. (Kim, 1978)

The Koryo dynasty from which the present English appellation "Korea" is derived, also followed the wax and wane pattern of the dynastic cycle. The Koryo dynasty was characterised by the rise of an aristocratic landed class, the "Yangban", who were to contest the emergence of a strong monarchy, and by a period of flourishing civilisation (Rees, 1988). Following several invasions by the Mongolian Empire in the 13th and 14th centuries, the weakened dynasty was overthrown by a powerful military general, Song Ge Yi, the founder of the Yi dynasty(1392-1910), the last in the dynastic line.

The centralised confucian system of government which was created by the early Yi Kings in the first century of their rule

was to survive into the 19th century. However, as the Yi dynasty's own leadership began to lose its vitality in the late 19th century, the alien but dynastic force of Western and later Japanese imperialism had begun to sweep across the world. By 1910, overcome by superior power, Korea was formally annexed to the Japanese Empire.

Throughout the history of Korea, the anti-materialistic philosophies of Buddhism and Confucianism have been the dominant religions as well as discipline of everyday life of Koreans. Both religions were imported from China during the three Kingdom period and soon Buddhism became accepted as the state religion in the three kingdoms and the Koryo dynasty, and the confucian ideology as the social order. In Buddhism, one has to be loyal to the state, and in confucian teaching, children should practice filial piety towards their parent, and this attitude, in turn, should go to rulers particularly to kings because kings are an "intermediary between heaven and mankind" or are "the sons of heaven" in the confucian view(Cho, 1960). The combination of these factors makes it easy for a centralised government and the aristocratic ruling class to establish their authority. In such a state, an assertion of political and economic equality by the populace was not conceivable (Kim and Kang, 1987).

Traditional Korean society was made up of basically three classes: the aristocracy or Yangban⁽⁴⁾; commoners; and the "lowborn" who were mainly serfs or slaves. At the top of the social pyramid were the high officials of the government and the royal family. For the most part, only those who were by birth Yangban could become officials through examinations. Not

surprisingly, in traditional Korean society, all occupations were not equally honourable. Government officials and scholars were regarded as the highest-ranked class, and farmers the second, artisans the third, tradesmen, the fourth, and the slaves at the bottom. However, two of the main social trends of the Yi dynasty were the gradual decline in size of the slave class and consolidation of private (as contrasted with government) ownership of land (Mason, et al, 1980). During the Japanese colonial period and particularly since the Korean war, these social differences have gradually disappeared and the traditional values of the Korean people have been gradually supplemented by Western ones.

IV-ii-2. The Impact of Japanese Colonialism(1910-1945)

Most of the writings about the 1910-1945 period have emphasised the dark side of that experience. (McCune, 1951; Clippinger, 1963; Choi, 1961; Kim, 1978; Chung, 1984; Lee, 1984; Rees, 1988). They generally argue that Japanese economic policy in Korea was dictated by typically 19th century imperialistic economic principles. Thus, the Korean economy was to be developed so that it could provide Japan with a source of raw materials, particularly foodstuffs, whereby Korea could become a market place for the rapid expanding Japanese economy.

Politically, they argue that, while Korea was under Japanese administrative control, the political prerequisites to representative government - i.e, organised political parties and interest groups - were systematically prevented from developing.

Even religious organisations, in particular those connected with the newly-introduced christian church, were forced to close down during World War Two. The only organisations not under direct Japanese control were business guilds, and these only served to aid Japanese economic exploitation. The Japanese, moreover, intended to wipe out Korea's national and cultural identity. All Koreans were forced to learn the Japanese language. Therefore, the net effect of Japanese colonial rule was an intermission in Korean political responsibility and cultural heritage.

However, from the point of view of Korean industrial development, Japanese influence was fundamental since the Japanese government managed the Korean economy as an integral part of its empire. Until Korea's division into the North and the South, Korea was a single state. The South was rich in agricultural resources, and the North was rich in natural resources. Industrialisation was, therefore, centred on the production of foodstuffs in the South, and of mineral and manufactured goods in the North, for export to Japan and its other colonies. Without Japanese exploitation, the establishment of such industries would have been delayed (Suh, 1978).

During the 1910-1940 period, the manufacturing sector averaged an annual growth rate of about 10% a year throughout the three decades (Mason, et al, 1980). The share of Net Commodity Product (NCP) grew from 3.3% to 21.9% in the same period (Suh, 1978).

Table IV-7. Net Value of Commodity Product, 1910-1940
 (in 1936 constant price, million Japanese Yen)

Period	Value of NCP		Share of Manufacturing in NCP (%)
	Total	Manufacturing	
1910	645	21	3.3
1914	864	25	2.9
1919	814	69	8.5
1924	970	80	8.3
1929	1,141	137	12.0
1936	1,478	290	19.6
1940	1,661	364	21.9

Source : Suh, 1978 pp.170-171

During the colonial period, Suh(1978) argues that Koreans apparently acquired, through experience, substantial knowledge of how to operate modern industries. However, impressive though this record is, Jones and Sakong(1980) argue that its contribution to post-war growth was limited by three factors: the "colonial enclave" nature of the industrial structure; the dominant role of Japanese owners, managers and technicians; and most importantly the North-South split.

According to Amsden(1989), Japanese imperialism was less effective in Korea than in other colonies, notably Taiwan, from the perspective of economic development. She argues that the exploitation of agriculture was the major endeavour of the Japanese colonial administration. Furthermore, Japanese landlords - both corporate and individual - may have possessed as much as 50 % of Korea's total available land (Amsden 1989). In the colonial era, Japanese set up some manufacturing industries in the northern part of the Korean peninsula for the purpose of supplying their army which was involved in expansion into

Manchuria (1931) and into the rest of China (1937). Although Japanese imperialism contributed to the development of Korean industrialisation, to some extent, since industries (including electricity plant) were concentrated in the North, this, in turn, a great obstacle to the development of South Korea's industrialisation after the North-South split in 1945.

IV-ii-3. Korea's Independence and Foreign Aid

Japan's defeat in the war ended her rule in Korea in August 1945. However, the liberation from Japan's harshly oppressive rule came with unexpected suddenness, and the difficulty in obtaining accurate information from abroad while Japan still controlled all channels of communication engendered confusion among Korean leaders as to what preparatory measures they might appropriately take (Lee, 1984). Because of Japanese colonial rule, they had been isolated from the international political arena, and lacked experience in running their own country. This undoubtedly contributed to the casualness with which Korea was treated by the allied powers after World War Two which led to the tragic partitioning of the country (see Rees, 1988). As a result, despite strong anti-trusteeship movements by Koreans, the Korean peninsula was placed under UN trusteehip, and an artificial line that divided the US and Soviet zones of occupation was drawn at the 38th parallel.

If Japanese colonial rule was a mixture of positive and negative elements from the point of view of economic growth, the division of the country in 1945 was an unmitigated disaster. By

the end of October 1945, the Russians had cut rail, postal and telegraph links, as well as stopping the movement of trade and people (Rees, 1988). More importantly, cutting electric power in May 1948, made it more difficult for industries in the South, since at the time of partition, over 90% of Korea's power generation came from the North (Lee, 1984). By 1948 the 38th parallel had become a frontier.

The two Korean zones were complementary to each other in economic terms. The agricultural south was dependent on the coal, fertilisers and industrial products of north, while the rice surplus of the south fed the mountainous north of Korea. The 38th parallel, therefore, prevented a newly-liberated Korea from making use of these comparative advantages.

Table IV-8. Manufacturing Output, 1940 and 1948
(million won in 1948 constant price)

	Manufacturing Output in 1940 All Korea	Manufacturing Output in 1948 South Korea
Metal	49.2	2.2
Machinery	19.3	3.4
Chemicals	181.5	15.2
Textiles	72.8	21.6
Foods	118.8	6.6
Ceramics	15.7	1.4
Printing	7.0	1.6
Handicraft	7.6	0.7
Other	59.0	0.0
Total	530.9	52.6

Source : The Bank of Korea 1949, quoted in Kim 1985 p.10

Table IV-8 demonstrates the extent to which South Korea's industries were crippled by the partition and had to operate far

below capacity. This, in turn, led to severe shortages of commodities. The shortages of commodities and rapid expansion of the money supply which was intended to resolve the problem caused hyperinflation; retail prices in Seoul were about 123 times higher in 1949 than in 1945 (Kim, 1985).

The real impact of partition, however, did not lie in the direct effect caused by the disruption of established economic links between the North and the South. The most important impact of the division, on the economy as well as on the society as a whole, was the Korean War itself and the continuing military confrontation that has existed on the Korean peninsula ever since. The war involved a destruction of lives and properties in both parts of Korea. In addition, continuing North-South hostility has led to large military budgets which have diverted about 5% of the GNP of the South and perhaps 15-20% of the GNP of the North to what in economic terms are mostly unproductive uses. (Mason, et al, 1980)

Despite the economic and political instability since liberation, the first general election in the history of Korea was carried out in South Korea, on May 10, 1948, under the supervision of the United Nations, and on July 20, in the same year, Syngman Rhee was elected as the first Korean president by the National Assembly. An administrative structure was then created, and on August 15, 1948, the establishment of the government of the R.O.K. was announced. In December of the same year, the R.O.K. was acknowledged by the U.N. General Assembly.

During the 1945-1948 period, South Korea had been governed by the United States Army Military Government in Korea (USAMGIK).

Subsequently, Korea became one of the largest recipients of foreign aid in the world for two decades. The amounts of economic aid to Korea from various sources between the end of World War Two and 1965 are shown in Table IV-9. All but a small fraction of the United Nations Korea Reconstruction Agency (UNKRA) assistance came from the United States.

The American aid programme to Korea began in Sep. 1945 under the USAMGIK. The first relief programme was the GARIOA (Government Appropriations for Relief in Occupied Areas). This programme targeted three basic aims: firstly, prevention of starvation and disease; secondly, boosting of agricultural output; and finally, provision of imported commodities to overcome the shortages of consumer goods such as fertilisers, clothes, foods, fuels and other commodities (Chung, 1984).

In 1948, plans were made to terminate the USAMGIK and establish a Korean government. The US State Department began to plan for a more positive aid programme that would make the new republic less dependent on foreign aid for its long-run survival.

The ECA (Economic Cooperation Administration) programme was already under way in Europe, in January 1949 in order to achieve economic development which, in turn, would prevent Korea from becoming communist. The ECA aid was basically designed for building up mining industries, power generation plants, fertiliser production capacity and other social infra-structures.

However, because of a lack of US congressional support and the Korean War, the budget of this plan was greatly reduced. Consequently, of this aid, about 85% went to subsidise consumer goods and raw materials, and only about 15% was allocated to the

construction base. (Chung, 1984)

Table IX. Aid Imports to Korea, 1945-1965

(thousands of US dollars)

Year	GARIOA	ECA	PL480	ICA & AID	CRIK	UNKRA	Total
1945	4,934	-	-	-	-	-	4,934
1946	49,496	-	-	-	-	-	49,496
1947	175,371	-	-	-	-	-	175,371
1948	179,593	-	-	-	-	-	179,593
1949	92,703	23,806	-	-	-	-	116,509
1950	-	49,330	-	-	9,376	-	58,706
1951	-	31,972	-	-	74,448	122	106,542
1952	-	3,824	-	-	155,534	1,969	161,327
1953	-	232	-	5,571	158,787	29,580	194,170
1954	-	-	-	82,437	50,191	21,297	153,925
1955	-	-	-	205,815	8,711	22,181	236,707
1956	-	-	32,955	271,049	331	22,370	326,705
1957	-	-	45,522	323,267	-	14,103	382,892
1958	-	-	47,896	265,629	-	7,747	321,272
1959	-	-	11,436	208,297	-	2,471	222,204
1960	-	-	19,913	225,236	-	244	245,393
1961	-	-	44,926	156,628	-	-	201,554
1962	-	-	67,308	165,002	-	-	232,310
1963	-	-	96,787	119,659	-	-	216,446
1964	-	-	60,985	88,346	-	-	149,331
1965	-	-	59,531	71,904	-	-	131,441
Total	502,097	112,164	487,261	2,188,840	122,047	122,047	3,886,828

Source : The Bank of Korea, quoted in Chung, 1984, p.139

During the Korean War period(1950-1953), the ECA aid programme was converted into the CRIK (Civil Relief in Korea) programmes.

The CRIK relief was administered by a military unit known as the United Nations Civil Assistance Command Korea (UNCACK) which was later renamed the Korean Civil Assistance Command (KCAC) when its functions were taken over completely by the US army. During the

actual hostilities, UNCACK was the operative agency and proved remarkably successful in preventing the outbreak of massive starvation or epidemics of the kind endemic to refugee populations. (Mason et al, 1980)

The United Nations Korea Reconstruction Agency (UNKRA) was created in December 1950 by the General Assembly to deal with Korea's rehabilitation and reconstruction problems. Unlike UNCACK, the aim of the UNKRA programme was not relief but to "lay the economic foundations for the political unification and independence of the country" (Mason, et al, 1980, p.175). However there was little hope for unification or an end to hostility between the two Koreans, which made it difficult for UNKRA to organise a feasible programme. Individual rehabilitation projects had little linkage with one another (Chung, 1984).

From 1953 on, aid imports to Korea were basically assessed in two main dimensions: economic aid and military assistance, mostly from the USA. Although it would be very difficult to measure or assess the direct impact of the military assistance because of its nature, it should be possible to examine its indirect effects on the political economy of Korea. Despite some controversies (Ahn, 1972), the military assistance programmes have generally made a significant contribution to the training of Korean military personnel in organisation, management, and technical skills. After leaving military service, many enlisted men have gone to work in industrial and service occupations, and many officers have moved into senior management positions, especially in the government-owned enterprises. These managers became a ruling

class in Korea. This will be discussed in the next chapter. Military units, with the latest equipment supplied by the military aid programme, have undertaken the construction of roads, bridges, and other infrastructure for themselves as well as for the civilians. In addition, through military training, illiteracy was eradicated and educational levels were upgraded (Kim, 1978).

In general, if we assume that the maintenance of a large and fully equipped army was necessary to the independence of Korea in order to exist as a nation after the Korean War, the US military assistance relieved the Korean budget of a major part of military spending. During the 1960s and the early 1970s, defense expenditures varied between 22% and 32% of the Korean national budget and amounted to 4 to 4.5% of GNP. This has risen to 6 to 6.5% in the late 1970s as US military assistance has fallen (Mason, et al 1980). According to recent World Development Reports (1985, 1987, 1988, 1992), more than a quarter of the national budget was allocated to defense in Korea. This was one of the highest rates in the world. No matter how important military spending is (World Bank, 1988, pp.106-107) US military aid has been contributing to the Korean economy by reducing the Korean national budget.

There have been substantial shifts in the source and the type of assistance to Korea. Until 1964, nearly all of the aid was on a grant basis, and mostly provided by the USA. Since 1965, however, loans became the dominant form of assistance, and the US share of total assistance declined after Korea opened its doors to Japan.

US assistance to Korea consisted of commodities, and technical assistance directed towards carrying out specific projects and financing specific categories of imports, known as programme aid.

During the 1953-1961 period, ICA(International Cooperation Administration) provided aid worth about 1,744 million US dollars; it mostly consisted of fertilisers, foodstuffs, cottons, petroleum and transportation equipment. Since 1956, under Public Law 480 of the United States, Korea has received massive quantities of agricultural commodities that were in surplus in the USA.

In 1961, the establishment of legislation Agency for International Development(AID) in the USA has shifted the type of US aid from a grant basis to a loan basis, and US assistance to the Korean economy has declined since 1958. Accordingly, the Korean government established the Foreign Capital Investment Act(FCIA) in 1961. By the 1970s, foreign aid became a relatively minor factor in Korea's external relations.

It is always very difficult to assess the impact of foreign assistance on host countries in general, and on the Korean economy, in particular. Such an assessment is inevitably speculative since it is not possible to know with certainty what would have happened if there had been no foreign assistance. In addition, in the Korean case, the accuracy of aggregate economic statistics is questionable for the period of the Korean War.

From the statistics, in 1957 when foreign aid was at its highest, "the proportion of aid to GNP was 19.8%(Chung, 1984), and it financed nearly 70% of total imports from 1953 to 1962"

(Suh, 1975, pp.221-222). Needless to say, "such an enormous amount of foreign aid which filled the shortage in domestic capital has partly enabled the Korean to achieve a fairly high economic growth rate" (Mason, et al, 1980, pp.203-204).

In contrast, Han(1969) argues that almost all of the assistance was imported not in the form of cash but in the form of commodities and services. Accordingly, US assistance was closely related to the exports of American goods and services to Korea, therefore, the US assistance goods and services were of questionable value to the reconstruction and development of the Korean economy. Chung(1984) argues that US assistance has helped in checking inflation. However, the Korean economy became reliant on the US commodities, and this, in turn, led to the Korean economy being dependent upon the United States. In addition, the supply of surplus agricultural commodities under the PL480 has been one of the reasons for the impoverishment of Korean farmers (Chung, 1982).

It is argued that foreign aid before and after the Korean War seemed to be essential to the survival of South Korea since most South Koreans were fed by the US assistance, and it is unlikely that they would have been able to set up medium or long term development plans with their own resources. The foreign aid programmes were carried out with little idea of their role in improving the economic structure through longer term development plans, and mainly were designed by Americans without sufficient consultation with Koreans. Perhaps, the main purpose of the U.S aid programme was to maintain Korea's national security and temporary stability in economic terms, not to develop a self-

sustaining Korean economy.

IV-iii. Industrial Development in Korea

IV-iii-1. Export promotion

Korea has experienced a high rate of economic growth, and this significant rate of economic growth has been associated with an even faster growth rate in exports, especially exports of manufactured commodities. Over the past 25 years, export growth stimulated the inflow of technology and the acquisition of know-how, which helped to raise Korea's total factor productivity growth to unusually high levels (Petri, 1988), diversified its export products, and eventually changed its industrial structure.

Throughout the 1950s, an industrialisation strategy was based on the policy of import substitution. In the early 1960s, however, instead of emphasising further import substitution, Korea changed its industrialisation strategy from import substitution to export promotion. The change in industrialisation strategy was begun by the military government that came into power in 1961. Adoption of the outward-looking strategy seemed to be inevitable. Realising the nation's poor natural resource endowment, small domestic market, low savings, low technological level, and relatively abundant well-educated and disciplined labour force, the government adopted an export-oriented industrialisation and pursued it enthusiastically.

"National strength rests on the foundation of economic power. The most essential^{factor} in establishing the foundation of self-reliant defense or unification is the potentiality of a completely self-reliant economy, and the basis of self-reliant economy is just exports" (President Park 1970, Quoted in Kim, 1978, p450)

The above statement well illustrates what the Korean government thought about the role of exports. President Park himself often talked about the export drive as a "war", and the Korean Government established appropriate organisations such as the Korea Trade Promotion Corporation(KOTRA) in 1962, which maintains more than 80 offices throughout the world and 10 offices in the major Korean cities, the Trade Promotion Council, General Trading Companies, and revitalised already existing organisations such as the Korea Chamber of Commerce and Industry(KCCI) and the Korean Trader's Association(KTA).⁽⁵⁾ In addition, the government established free trade zones in Masan(1970) and in Iri(1973), and special banks such as the Export-Import Bank and the Korean Exchange Bank(1967). More importantly, President Park held regular meetings for export promotion, and all ministries have closely liaised with each other as far as exports are concerned.

In the early 1960s, there were certain types of goods in which Korea had a competitive advantage in terms of labour costs; clothing, fabrics, wigs and veneer board were such examples. Production of these goods and establishment of these light industries required relatively little fixed capital and highly advanced scientific technology (Song, 1970). Since then, exports have always been given the highest priority in investment programmes, particularly, in the first and second FYDPs. However, the industrial policy of Korea has not been exclusively

export oriented. It is important to note that there have been some import restrictions, such as high tariffs and quotas, in order to protect some infant industries, especially during the 1960s. Therefore, it can be said that in the case of Korea, both EOI and ISI have been mutual, though greater emphasis has been focused on the former.

In order to pursue an export-led growth strategy, the Korean government introduced various export incentives to offset the import substitution bias of protection. During the 1950s, although there were various export incentives, the range and variety of export incentives were smaller, and the scale and intensity of each incentive scheme was also much weaker than in the 1960s.

The export incentives introduced during the 1960s and early 70s were as follows: the reduction of corporation and income taxes, tariff exemption of raw material and capital equipment imports for export production, the financing of imports for exports, the organisation of a exporter's association, an accelerated depreciation allowance for fixed capital directly used in export production, the creation of a reserve fund out of current taxable income to help defray the cost of developing new foreign markets, a wastage allowance, financing for suppliers of US offshore military procurements, a fund to promote export industries, a fund to convert small and medium-sized firms into export industries, foreign currency loans to finance imports of capital goods for export production, the financing of exports on long-term credits, an export-import link system, special discounts on electricity and railroad transportation rates for

exporters, and the differential treatment of traders based on export performance and export insurance (Young, 1986; Hong, 1979). To sum up, there have been exchange rate policies, export credits and tax preferences as well as more direct government intervention. Most of these policy measures have been mutually interrelated, and may not necessarily have equal importance in their effects. In addition, it would be worth mentioning that in the case of Korea, one should note the determination of the leadership to attain a high rate of growth, and a virtual lack of constraints on the ability to make such preferential decisions and to carry them out (Kim, 1974)⁽⁶⁾.

Although the scope of export incentives has been reduced since 1973, with the successful implementation of EOI and a favourable external environment in the 1960s and 70s, exports have been expanded very rapidly. As a result, Korea became one of the leading exporters among the Third World Countries by the late 1970s⁽⁷⁾.

IV-iii-2. Promotion of Heavy and Chemical Industries

During the 1970s, the Korean government especially favoured the development of the heavy and chemical industries (HCI) such as shipbuilding, automobiles, steel products, non-ferrous metals, and petrochemicals. There were two main objectives of the government's greater emphasis on developing heavy and chemical industries. Firstly, to serve as a new source of strategic export industries, and secondly, to promote the import-substitution of intermediate materials and capital goods.

There are several causes of change; firstly, continuing rapid export growth was not guaranteed under the circumstances of slow growth of the developed economies. Secondly, in addition to non-durable consumer goods, durable consumer goods and labour-intensive intermediary goods began to be specified as export goods and these items required domestic production of capital goods and capital-intensive intermediary goods. Thirdly, the first oil shock(1973-1974) strongly influenced the Korean economy, thus providing additional motivation for rapid construction of the independent production base. Fourthly, capital and intermediary goods were oversupplied in developed economies during the 1960s and 1970s. Some of the products should have been exported to some developing economies since all of them could not be consumed or traded between developed economies alone.(Kang, 1988, pp.12-13)

The government's shifting policy emphasis was generally seen as essential to further industrial development. However, Suh(1986) argues that Korea's development efforts in the HCI went beyond the normal pattern of industrial development, and included concerted efforts towards building a defense industry base in response to the nation's security situation and the possibility of US troop withdrawal from Korea.

Indeed diversification into heavy industries was an attractive proposition to the Park government since the early 1970s, since the US government intended to reduce its defence commitments to Korea (Edwards 1992). This could, in turn, be one of the other reasons for switching policy towards the heavy industries (see

next chapter).

Taking into consideration both the internal and external circumstances, the government took a strong positive step in the HCI drive by announcing "A Guide Concerning the HCI Promotion" in 1973 and by establishing a "National Investment Fund Law (NIFL)" in 1974 which provided capital at lower interest rates than general loans so that the HCI could afford to undertake large investments.

In order to achieve the ambitious HCI development in a few enterprises, which later became one of the main causes of an economic concentration in favour of chaebul (large business conglomerates in Korea) (Lee, 1986), the government managed to scale down its export support for the labour-intensive industries. The 50% reduction of corporate and income taxes on export earning was abolished, and the system of tariff exemptions for capital equipment imported for export production was changed to an instalment payment system in 1974. In July 1975, the tariff exemptions on raw material imports for export production were dropped in favour of a tariff drawback system with a three-month grace period for actual payment.

Table IV-10. The Growth of Heavy Industries

Year	% of GNP			% of employment			% of manufactured exports	
	1970	1975	1980	1970	1975	1983	1971	1980
Compositi on	11.9	20.9	26.3	3.2	5.7	9.2	14	40

Source : Kang, 1988; Amsden, 1989

The result of HCI promotion policies can be shown in statistical terms (Table IV-10). The composition of HCI in GNP jumped from 11.9% in 1970 to 20.9% in 1975 and 26.3% in 1980. It increased in value terms from 7.5% in 1970 to 11.6% in 1975 and 14.5% in 1980. The employment level of HCI also increased from 3.2% in 1970 to 5.7% in 1975 and 9.2% of total employment in 1983.

Table IV-11. Top 10 Exports in Selected Years

(% of total export amount)

	1961	1970	1980	1991
1	iron ore (13.0%)	textiles (40.8%)	textiles (28.6%)	electronic products (28.%)
2	tungsten (12.6%)	plywood (11.0%)	electronic products (11.4%)	textiles (21.5%)
3	raw silk (6.7%)	wigs (10.8%)	steel products (10.6%)	steel products (6.3%)
4	anthracite (5.8%)	iron ore (5.9%)	footwear (5.2%)	ships (5.7%)
5	squid (5.5%)	electronic products (3.5%)	ships (3.5%)	footwear (5.3%)
6	other fish (4.5%)	confectionary (2.3%)	synthetic resin (3.3%)	chemical products (4.2%)
7	graphite (4.2%)	footwear (2.1%)	metal products (2.5%)	machinery (3.3%)
8	plywood (3.3%)	tobacco (1.6%)	plywood (2.0%)	automobiles (3.2%)
9	grain (3.3%)	steel products (1.5%)	fishery (2.0%)	fishing products (2.3%)
10	animal fur (3.0%)	metal products (1.5%)	electric products (1.9%)	petroleum products (2.0%)

Source : Sakong, 1993, p.232

As a result of the great emphasis on the HCI, the proportion of the HCI products in total exports increased since the late 1970s. According to table IV-11, the top 10 export goods in 1961 and 1970 were mainly raw materials and light industry products while in 1980 and 1991, many HCI products were ranked in the top 10 export products.

As the empirical evidence indicates, the economic improvements of the 1970s look rather good on the surface, yet underneath the statistical improvements, the high growth rates created several chronic structural problems and some negative side effects. Analysts such as Kang(1988), Suh(1986) and many other Korean writers have generally agreed that the costs of the 1970s HCI promotion are as follows. Firstly, some light industries experienced difficulties in getting bank credits, or suffered from a decreasing profit rate. Secondly, big enterprises, the so-called chaebol in Korea⁽⁸⁾ concentrating their investment towards HCI sectors, rapidly obtained enormous market power under the shelter of government policy. Thirdly, lots of ailing industries appeared in such sectors as shipbuilding, construction, heavy machinery, etc, due to overambitious investment without rational medium or long-term projection. Fourthly, the sound development of a finance industry could not be achieved, since the government's heavy intervention kept the finance industry from being competitive and independent. Fifthly, HCI investment required more foreign borrowings and thus in the short run HCI development could not avoid its dependency upon foreign capital. Sixthly, the HCI promotion contributed

to the nation's high inflation because of a rapid rise in real wages in the expanding heavy industries, an over-extension of government investment, and low interest loans in the heavy industries. Consequently and most importantly, this unbalanced sectoral growth in the 1970s was accompanied by a worsening of the distribution of income and a concentration of economic power⁽⁹⁾.

IV-iii-3. Structural Adjustment for Stability and Liberalisation

By the latter half of the 1970s, the Korean economy began to show some signs of strain. By 1979, it became clear to many policy makers that the high inflation was damaging the momentum of the Korean economy's growth, and had other negative effects.

For example, commodity exports in real terms declined by 4% in 1979 for the first time since 1960s, and the growth rate of GNP fell to 6.5% in that year, the smallest rise since 1972. (Suh, 1986)

In response, in April 1979, the government announced a comprehensive stabilisation programme based on fiscal and monetary policies. The main goal was nothing less than restructuring the whole economy to enable the nation to make full use of its resources for sustained growth and stability.

The 1979 stabilisation programme had three major components.

Firstly, to control excess liquidity the government lowered the ceiling for growth in the money supply and proposed a fundamental reform of the banking sector. Secondly, to deal with the problem of uneven development among industries, the government

temporarily suspended all new projects in heavy and chemical industries and shifted credit priorities from sectoral to functional. Thirdly, to eliminate price distortions and promote competition, the government relaxed price controls on many items and stepped up efforts towards import liberalisation (Park, 1987, pp.8-9).

However, the stabilisation policies were hampered by the rapid changing external and internal environment. The mounting structural difficulties were aggravated by the impact of the second oil crisis(1979-80) which nearly doubled Korea's oil import price(Park, 1987), the enduring worldwide recession, the increase in protectionism(Leipziger, 1988), and a disastrous crop failure in 1980 due to unusual weather conditions.

Furthermore the political drive to democracy in the early 1980s was achieved at the expense of the Korean economy. President Park's assassination in 1979 had happened after years of economic boom. As a result of the assassination of Park and the rise of the students movement, the military coup and the Kwangju Movement, the Korean economy suffered from the shrinking of new investment from local entrepreneurs as well as foreign investors, in consequence of the increasing level of potential disorder.

In addition, the Korean economy suffered a foreign currency shortage largely because of the increased price of imported oil and declining terms of trade (by 13% between 1979 and 1980 (Edwards, 1992)). This meant that the economy required foreign borrowing which led to it becoming one of the most indebted countries in the world in the early 1980s.

With these unfavourable circumstances, the Korean economy suffered sharp setbacks in 1980, for the first time in more than two decades, a negative growth rate of 5.2% accompanied by a nearly 39% rise of wholesale prices (Bank of Korea, 1988).

Thereafter, the government undertook wide-ranging structural reforms. The policy reform that was implemented in 1981 was directed towards achieving three inter-related goals: price stability, market liberalisation, and balanced economic growth.

Firstly, in pursuit of price stability, tight monetary and fiscal measures were introduced. Aggregate demand was controlled through a restrictive monetary policy so that the overall rate of expansion of the money supply was limited. Growth in the money supply was reduced from 30% of the 1970s level to 15%. Government sector expenditures were cut back through a programme of government fiscal austerity (Park, 1987). In addition, the government tried to keep the prices of public utilities and services, and wages of government employees and subsidies for farmers as low as possible (Suh, 1986).

The second major objective of the policy reform has been market liberalisation. The government has attempted to give more autonomy to the private sector. Through a variety of internal and external reforms, the government greatly reduced its intervention in the economy and liberalised its policies on imports and foreign investment. The government enacted the Monopoly Regulation and Fair Trade Law designed to reduce monopolistic practices and promote competition in all industries.

Particularly, in an effort to make use of the market mechanism in the mobilisation of savings and the allocation of investment,

the government partly privatised the nation's five commercial banks in 1983. In order to bring greater efficiency in investment allocation, the government eliminated all subsidised policy loans. The former policy of extending preferential access to credit and favoured treatment in taxation to so-called "strategic industries" was also being phased out. Furthermore, the government has relaxed entry barriers for foreign banks, and foreign firms have also been given greater access to the Korean market. On the foreign front, Korea has relaxed import restrictions to promote efficiency and expand international trade. The import liberalisation ratio has impressively risen from 52.7% in 1977 to 76.6% in 1982, and to 95.4% in 1988 (Economic Planning Board, 1992). As the import liberalisation ratio has increased, an average tariff rate on all products has dropped from 24.9% in 1980 to 18.1% in 1988 and 13% in 1991; the rate seems set to fall further in the future. Korea has also been liberalising its foreign investment policy. Foreign investors are free to invest in industries that are not specified on the "negative list"; They are allowed to hold a maximum equity share of up to 100% in many industries⁽¹⁰⁾. The government has also removed all restrictions on the repatriation of principals and remittance of dividends.

Table IV-12. Import Liberalisation Ratio in Korea

Year	Import Liberalisation Ratio				Average Tariff Rate		
	1977	1982	1988	1991	1980	1988	1991
%	52.7	76.6	95.4	96.7	24.9	18.1	13

Source : EPB 1992

Finally, the third policy goal pursued, since 1980, has been

the promotion of balanced growth and development. In this regard, it has attempted to promote equitable distribution of income as well as structural adjustment and the balanced growth of all industrial sectors. It is believed that the rapid growth strategy of the 1960s and 70s caused the imbalances among economic sectors to deepen. In particular, excessive investment in the heavy and chemical industries in the 1970s, which were dependent largely on major business conglomerates, worsened income distribution between chaebul and small and medium-sized firms. The control of crop prices, and inadequate subsidies for farmers was a cause of the deterioration of income distribution between rural and urban sectors.

IV-iii-4. Recent Change in Internal and External Environments

Both internal and external environments of the Korean economy began to change rapidly after 1986. In 1986, the Korean economy, for the first time in its modern history, experienced a current account balance of payments surplus amounting to 4.6 billion US dollars. The BOP surplus has continued for three years and growth rates have been about 12% annually during the 1986-1988 period. This transformation from chronic deficit to sizable surplus was due to such favourable external conditions as the declining US dollar, low oil prices, and low international interest rates.

The low price of the US dollar against the Japanese Yen or Deutschmark helped Korean exporters to increase international competitiveness in the world market, especially compared with the

exporters of strong currency countries, notably, Japan. The low oil price reduced the costs of imports directly, decreased production costs and encouraged demand by raising consumer's real income. In addition, needless to say, the Korean economy profited from the low international interest rates, which led to a reduced burden of interest payments on external debt.

In contrast to the favourable external conditions, the Korean economy began to feel strong internal pressure of structural distortions. Among them, imbalances between the chaebul and small and medium-sized firms are of importance, which are mainly the result of the rapid growth strategy. Without improvements in these structural distortions, possibilities of further development will be constrained. Another problem is related to workers' welfare. It was restricted or neglected in the deficit era. However, recently, the workers themselves are demanding an increase in the wage rate, and claiming that the Korea's development has occurred at the expense of their sacrifices. An appropriate increase in wage rate is required not only for the stable development of industry but also for the expansion of domestic demand.

The latest reports on the Korean economy show some sluggishness. The growth rate of commodity exports is far below that of imports, which caused trade deficits in 1990 and 1991.

Many factors have contributed to the sluggishness; among them, protectionism against Korean products in many developed economies, the currency appreciation and prevalence of labour disputes are of importance. In addition, because of political uncertainty in Korea, and political pressures for import and

market liberalisation from many developed countries, notably from the USA, many enterprises in Korea are reluctant to invest in new plants.

The Korean government's policy has recently aimed at producing a more balanced economy in which domestic demand took from export a share of responsibility for growth with the ideal hope that higher wages could put more purchasing power into the hands of more people. However, it is not an easy problem to solve since many small and medium-sized exporters are facing great difficulties; as a result, some of them, particularly textile and clothing industries, are likely to become bankrupt in the near future. More importantly, Korea's weak political position in relation to the United States will speed up trade liberalisation in America's favour. There are already some signals that the commodity imports from USA have been increasing rapidly. In contrast, because of the protectionism against Korean products in USA, the commodity exports to USA have reduced from 21.4 billion US \$ in 1988 to 18.6 billion in 1991 whilst imports from USA have risen from 12.8 billion US \$ in 1988 to 18.9 billion in 1991 (Bank of Korea 1992).

IV-iv. Concluding Remarks

It seems apparent that during the period of rapid economic growth in Korea, the government has played a great role since the early 1960s. Self-sustaining economic growth has always been the top policy priority since then. Consequently, Korea has emerged as one of the fastest growing economies in the world, and

has achieved, at least in statistical terms, remarkable economic progress.

However, if we look at the Korean economy very closely, foreign influences have always been dominant in both politics and economy in Korea since the early 20th century when Korea was annexed by Japan. Despite the liberation from Japan in 1945, and the establishment of the Republic of Korea in 1948, Korea was not able to possess its own autonomy, since it was divided into two Koreas. Without having any experience of capitalism and a national economic management system after independence, it was inevitably largely dependent upon foreign economic assistance.

After the disastrous Korean War, the Korean economy was much more reliant on both economic and military aid from the USA.

When the government launched the first FYDP, capital and technology were desperately needed; therefore, the Normalisation Treaty with Japan was signed in 1965. Since then Japan has become a major source of both capital and technology to the Korean economy.

Since 1962, the Korean government has tried to develop some specific industries and encouraged some specific enterprises. As a result, the greater proportion of small and medium-sized firms have suffered from unfair treatment by the government. The discrepancy between the agricultural sector and the industrial sector has been widened, and workers and domestic consumers' welfare has been neglected. There have always been two sides of the coin of Korean economic growth in this respect.

It is highly likely that Korea will have to open its doors to the advanced countries because of political pressures, and the

prevalence of protectionism in many developed countries would make it more difficult to export. The external environment is likely to largely determine Korea's future prospects.

Perhaps, Korea has achieved too many things in too short period of time. One can argue that this is why the Korean economy has some problems, and such problems would be cured when the Korean economy has matured. There is a growing nationalist-capitalist class, an increasing proportion of R&D expenditure, an expanding domestic market, an increasing concern with balanced development between sectors, and a pool of well-educated workers.

However, most importantly, as long as national autonomy, in international political terms, is not reserved by Koreans themselves, and external economic environments are not favourable, self-sustaining economic development in Korea seems to be not so certain.

Perhaps the Korean economy will demonstrate the ability to manage current problems both in internal and external environment as it did in the early 1980s. What must be stressed is that to carry out this task successfully and to be classified as one of the advanced countries is a strong desire among the government, enterprises, workers and households. Accordingly, the government should maintain consistent and credible policy measures based on a national consensus so as to make people trust in the government and its pledges. Economic miracles do not happen by themselves but only if there is a consensus between the government, enterprises and workers.

Notes

- (1) Chapter IV and Chapter V are complementary to each other. The former mainly focuses on economic issues whilst the latter focuses more on politics.
- (2) World Bank estimated a 9.9% growth rate during 1965-1980
- (3) Latest figures are shown at Table IV-2 and IV-3.
- (4) Members of high society
- (5) Their roles in export promotion are best summarised in "The Export performance of the R.O.K., 1961-1982", 1984, International Trade Centre, UNLTDA/GATT, Geneva, and Sakong, 1993, pp.238-239
- (6) See next chapter
- (7) As was indicated in Table IV-3, Korea's average annual ^{export} growth rate during 1965-1980 was 27.2% and during 1980-90 was 12.8 whilst in that same period of time, Low-income economies recorded 5.1% and 5.4%, lower-middle income economies recorded 3.9% and 3.8% and upper-middle income economies recorded 3.9% and 1.9% of annual growth rate of exports. (World Bank, 1992)
- (8) Diversified big business groups in Korea. (see next chapter)
- (9) Table IV-13. Percentage change in concentration of economic power of business groups

	Shipment				Employment		
	1974	1977	1982	1987	1974	1977	1982
Top 10 business groups	N.A	21.2	30.2	28.2	N.A	12.5	12.2
Top 20 business groups	24.6	29.3	36.6	33.9	13.5	17.4	16.0
Top 30 business groups	N.A	34.1	40.7	37.3	N.A	20.5	18.6

Note : - Manufacturing Sector only
 - N.A : Not Available
 Source : Amsden, 1989; Sakong, 1993, p.248

- (10) Notably in manufacturing industries with less than US\$ 2 million investment and projects located in Free Trade Zones. See next chapter for more details.

Chapter V

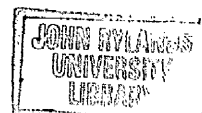
Bureaucratic-Authoritarian Regimes in Korea

V-i. Introduction

In general, it seems to be essential to serve their best interests in a host country that TNCs need to understand not only the character of the ruling authority but also the political and economic developments in the country in which they operate. This can also be applicable to domestic enterprises as well, for as the political environment changes, so may the position or activity of the private sector and its enterprises.

Especially, in the case of Korea, it is apparent that politics shaped the economic environment and activities in many ways since 1961, after the revolutionary military coup by Gen. Park Chung Hee. In this regard, it may be worth discussing why and how a bureaucratic-authoritarian regime emerged and the part it played in the Korean economy.

In this chapter, an attempt is made to analyse some concepts of the state with respect to economic activity, to show how Korean exert political control of foreign as well as Korean business activities, and to try to explain some possible determining political factors of foreign and domestic business expansion in Korea.



V-ii. Analysing the State

V-ii-1. Concepts of the State

In political and social science literature, there is no universally accepted definition of the state. Different authors using different methodologies and associated levels of abstraction use the term in different ways. Associated with the different usages are the use of different key words or the use of the same key words to mean different things. Politics and sociology textbooks when addressing the state have traditionally taken three different points of view regarding the state's nature and role; the Weberian, the Marxist and the pluralist⁽¹⁾. The following discussion is explicitly based on the pluralist perspective.

In the pluralist perspective, the state is, broadly speaking, defined by two categories, organisational or institutional definition and functional definition. The former usually contains the following characteristics. First, the state is a set of institutions so differentiated from the rest of society as to create identifiable public and private spheres. Second, the state is sovereign, or the supreme power within its territory, and the ultimate authority for all law. Third, the state's sovereignty extends to all the individuals within a given territory, and applies even to those in formal positions of government⁽²⁾, producing a system of universal rules. Thus sovereignty is distinct from the personnel who at any given time occupy a particular role within the state. Fourth, the modern state's

personnel are mostly recruited and trained for management in a bureaucratic manner. Finally, the state has the capacity to extract monetary revenues (taxation) to finance its activities from its subject population (Dunleavy and O'Leary, 1987).⁽³⁾

The state is defined functionally as a set of institutions which carries out particular societal goals, purposes or objectives. Consequently, the state can legally exercise its power to maintain social order. (Ibid, pp.3-4).

In this chapter, we use a definition of the state as the set of fixed roles and institutions that make up the generally legitimate political institutions within which groups interests and conflicts are contained.⁽⁴⁾

V-ii-2. The State and Economic Activity

Recently, many political scientists and economists have been interested in the nature of state autonomy with regard to economic activities. In general, politics largely involves authority relations, which use a mixture of coercion and voluntarism (depending upon the degree of legitimacy) to command compliance; in contrast, economic activities are basically driven by exchange relations, which are supposedly voluntary in so far as the exchange satisfies the interests of the groups or individuals involved in the transactions (Lee and Lee, 1992). They argue that diverse combinations of authority and exchange relations can be used by states to regulate political and economic activities.

In this sense, we could classify the state in accordance with

the degree of state intervention in the economy. The minimal non-interventionist state intervenes with restrictions or sanctions only to correct mismanagement of macroeconomic factors (such as inflation, unemployment), or of public services. In this case, economic activities are fundamentally independent of political authority. In contrast, in maximal states, authority relations are predominant not only in the polity but also in the economy, and thus replace voluntary exchange relations based on self-interest; the highest possibility is in the socialist state where private economic activity such as production is reinforced by state-ownership. Between these two extremes, there can be diverse forms of medium state where the state could exercise its autonomy towards economic activity by setting up industrial policy and regulation, but does not exact complete control over the economy.

Furthermore, it might be useful to distinguish between "strong and weak states" (Hall and Ikenberry, 1987) or "hard and soft states" (Lee and Lee, 1992; Michell, 1984; Myrdal, 1968) and between those with or without much state intervention. Hard states or strong states are autonomous from, or incorporate, the partisan interests of social groups such as class and labour unions, and even foreign interests, while soft or weak states are not.

From the above discussions, we could outline diverse types of state, the relative effectiveness of which can be assessed in terms of their capacity to fulfill different tasks, such as development, war, post-war reconstruction and so on. If the national goal is to catch up in terms of economic development, a hard and interventionist state would be necessary since the

development process requires a well co-ordinated nationwide effort (Lee and Lee, 1992). Indeed, a developmental state is a state that has a considerable amount of autonomy to adopt policies of change without interference from class interests, and a capacity to implement these policies effectively (Koo and Kim, 1992).

However, this approach can be criticised. Firstly, if we consider development as a means of economic growth and structural changes in economic and other indicators, economic development can occur at the expense of other aspects of development. The case of Korea shows that during the rapid economic growth era, the repressive aspect of conflict management by the Korean state with regard to labour unions has been a constant source of social discontent (You and Chang, 1993). More importantly, state intervention might be a source of problems if the intervention is not adequately applied. The fact of state intervention per se is less important than the capacity of the state and "the quality of government intervention" (Luedde-Neurath, 1984, p.23).

V-iii. Bureaucratic-Authoritarian Regimes in Korea

V-iii-1. Concept of Bureaucratic-Authoritarianism

In general, in the late 1950s and early 1960s, modernisation theorists expressed optimism about the prospects for democracy in economically advanced Third World countries. Industrialisation and economic growth were expected to generate the preconditions for democracy (Lipset, 1959, quoted in Im, 1987). In contrast,

however, extraordinary economic growth and industrialisation in some countries of Latin America and East Asia in the late 1960s and 1970s did not lead to the development of democratic institutions. Against this background, O'Donnell argued that industrialisation and economic development are associated with military takeovers and the rise of bureaucratic authoritarianism. (O'Donnell and Schmitter, 1986; O'Donnell, 1973)

"... bureaucratic authoritarianism (BA) is a system of exclusion of the popular sector, based on the reaction of dominant sectors and classes to the political and economic crises to which populism and its developmentalist successors led. In turn, such exclusion is the requisite for attaining and guaranteeing "social order" and "economic stability" (O'Donnell, 1978, pp.13-14)."

According to O'Donnell, the essential element is that stern and forceful control is exercised over the population, with no particular concern for their preferences or for public opinion. Within a government, government officers are placed in a clear hierarchy representing an authoritative chain of command.

Although O'Donnell is criticised⁽⁵⁾ (Kim, 1989; Im, 1987), and this analysis does not coincide with the Korean case - during the 1960s and the 1970s, there was no serious economic crisis in Korea except the oil-shock - there were many characteristics in common in Korea with O'Donnell's criteria of bureaucratic authoritarianism. Politically, the popular sector was excluded: competitive elections were abolished (and from 1972 presidential elections); strikes were prohibited; the organisation of labour unions was restricted; and basic human rights were violated arbitrarily. Economically, the popular sector was excluded. The

society, Confucianism, the seniority system, and male dominance have played the role of emphasising social order in general rather than individual rights in particular. A person's frame of mind is essentially geared to the acceptance of an authoritarian and a hierarchical order. It is a characteristic of Korean traditional morality to look at human relations not as ones between men of equal rights and duties, but as ones between superiors and subordinates. In general, all human relations are characterised by vertical rather than horizontal relations in Korea. Even fraternal associations or civic clubs, which are normally institutions of horizontal ties among colleagues, may, on closer examination, be found to have a primary structure of two-person links, namely, vertical in their relationship between the superior and the inferior. Paik (1978) argues that this kind of dyadic patron-client relationship is more conspicuous in such organisations as government organisations and political parties where the exercise of political power and patronage are widely practised. Almost all actions are governed by this explicit or implicit hierarchical pattern of relationships. In addition, in modern Korean society, it is argued that although there are changes in what has typically been Korean thinking about the westernised manner of living (e.g. an individualism, and women's role in the society) the hierarchical pattern of relationships remains unchanged since virtually all men should spend some time in the army for their compulsory military service where strong "command and obey" relations exist.

On the basis of the existence such strong authoritarian attitudes in Korea, it may be possible to explain some

characteristics of the Korean government, especially during the rapid economic growth era since 1961. Paik (1978) argues that important consequence of the authoritarian attitude of Korean administrators has been that they did not feel any responsibility to the common people. Upholding supreme importance of the social order, the confucian ethic emphasised a one-sided obedience of subordinates to the superior. Government officials and even menial public employees in Korean society were traditionally regarded as superior to the common people. According to this tradition of popular obedience to public office holders, the legitimacy of the power ascribed to the superior was not questioned by the subordinates. In other words, the accountability to the subordinates or people of those who exercise power is not usually expressed in a clear-cut manner. Consequently, in many events, government officials could act in their own favour, "the rule of men rather than the rule of law." (Kim, 1982, quoted in Michell, 1984, p.32).

Secondly, an effect of authoritarianism on administrative behaviour is the superior's reluctant acceptance of the inferior's belief system and behaviour on the one hand, the superiors reluctant acceptance of opposing views by the inferior on the other (Paik, 1978). Bark's survey (1987) on policy making in the Korean executive branch reveals that only 12 per cent of the former ministers responded that their subordinates express their opinions quite freely, while 49 and 40 per cent of them respectively answered that their subordinates are reluctant to disagree with superiors or to express their ideas with reasonable freedom. This could be one of the reasons why the Economic

Planning Board (EPB) with the Deputy Premier as its head has been effective in organising other economic ministries (see next section).⁽⁶⁾ Korean bureaucrats usually approach any idea or opinion, be it a superior's or subordinate's, in a strictly hierarchical way. They automatically accept the idea of those above them and reject the opinions of inferiors. In addition, the decision of the superior is accepted by the inferior as if it represents a moral imperative, because of the superior's position.

The other effect of authoritarianism on bureaucratic behaviour is the tendency to refer problems to some higher echelon in the administrative hierarchy for solution (Paik, 1978). Decision-making, then is heavily influenced by the political philosophy (Lee, 1978) and outlook of the ultimate decision-maker himself (Kim, 1978), and the decision-making process is not "bottom-up", but rather "top-down", reflecting presidential guidance (Chung, 1987). In a situation where authority is concentrated in the hands of the top echelon, not only the low-level administrators under him but also common clients approach the appropriate person informally and directly "face to face" (Michell, 1984) to acquire their desired results. This could, in turn, be a cause of bureaucratic corruption (Kim, 1986) and a connection of economic and political relationships (Chang, 1985) in the Korean political economy, which will be discussed in the latter part of this chapter.

Another notable characteristic of the Korean bureaucracy is that there are numerous government officials who originally come from the military. Since 1961, four or five ex-generals at least

have been appointed as ministers in each Korean cabinet, and dozens of ex-generals and officers have been appointed in government institutions or quasi government institutions (quangos); more importantly, during the 1976 to 1988 period, about 600 former military officers who had graduated from military academies retired as captains to join the governmental bureaucracy after six months of special training and became section chiefs or higher in the central government (Chung, 1989).

However, it may be noteworthy that in Dr. Syngman Rhee's governments (1948-1960), cabinets were laden with those who were educated in Western countries, while many members of the 'administrative elite' in the Park Chung Hee cabinet (1961-1979) were educated in Korea, Japan or Manchuria. In fact, some 71% of those appointed by Dr Rhee were educated abroad, mostly in Western countries, whereas about 84% of the Park appointees received their terminal degrees in Korea, Japan, Manchuria, closer to home (Han, 1989, quoted in Oh, 1990). The latter group presumably knew more about the realities existing in Korea than the former. In addition, General Park had hardly appointed anyone with a military background to economy-related posts such as minister of the EPB, Finance, Trade and Industry, etc., though there were many in more politically sensitive posts such as Home Affairs, the National Security Council and Legal Affairs. Like President Park, President Chun (1980-1987) and Roh (1988-1993), both ex-Generals, followed their predecessor in style of personnel management.⁽⁷⁾ During the last three decades, economy-related posts at the minister or vice-minister level in the Korean administration have employed career bureaucrats or outside

experts such as professors, business managers and economic analysts in banks or research institutes. In this respect, it may be an interesting future research topic to have comparative analysis between the Korean case and other Third World countries, many of them military-based bureaucratic authoritarian governments.

As far as social class in Korea is concerned, many writers (Koo and Kim, 1992; Mardon, 1990; Amsden, 1989, 1987; Evans, 1987; Cumings, 1987; Deyo, 1987; Hamilton, 1984) argue that there have been no powerful social groups such as a domestic capitalist class and political organisation of the working class, to contest state power. They argue that the Korean capitalist class was gradually diminished by Japanese Colonial Rule (1910-1945), by land reforms (1947 and 1950), and by the Korean War (1950-1953). Especially with the defeat of Japan in 1945, all linkages between Japanese capital and the Korean comprador class had been disjointed at least until the Normalisation Treaty between Korea and Japan in 1965. In addition, attempts at the organisation of the working class, such as labour union, and the farmers, have been crushed (You and Chang, 1993; Burmeister⁽⁸⁾, 1990; Shafer, 1990) during, at least, the Korean War and the subsequent domination of 'Cold War' politics (Chang, 1993).

However, the absence of such social classes is not likely to be conducive to a strong bureaucratic-authoritarian state. Since the 1980s, although there have been quite a few Korean enterprises on the Fortune's Big 500 corporation list and there have been strong movements towards the organisation of labour and students, the Korean state has still exercised and enjoyed

economic growth with its power to control economic activity and social movements. On the other hand, when the social classes had been weak during the 1950s, the Korean state had also been weak despite the historical and cultural heritage of Confucianism. The strong Korean BA state may be as much "an outcome of calculated political moves and institutional innovations as of historic conditions and culture" (Chang, 1993, p.151).

V-iv. The Korean State and Control over Society

"By turning our strong national consciousness and efforts for the rehabilitation of our fatherland by our own strength to a showdown with poverty, we have to throw off the shackles of backwardness and attain modernisation of our fatherland, full of life and prosperous.⁽⁹⁾ ... A sound development of democracy and build-up of our national strength to win over the Communists and attain unification will after all depend upon our success or failure in our economic construction.⁽¹⁰⁾ National strength rests on the foundation of economic power. The most essential in establishing the foundation of self-reliant defense or unification is the potentiality of complete self-reliant economy, and the base of self-reliant economy is just the export.⁽¹¹⁾ We can attain industrialisation when we receive continuous supply of investment resources. We had to depend heavily upon foreign capital during the initial period of development as we were short of domestic capital. However, we must be able to supply all the needed investment resources with domestic capital in the earliest possible time.⁽¹²⁾ The October Yushin⁽¹³⁾ aims at building a welfare state and attaining prosperity by working harder.⁽¹⁴⁾ Ideologies and systems may change at times, but nations life is everlasting. No atrocious force will be able to oppress our nation's life, nobody will be able to exterminate our independent spirit and peaceful will. We pledge that we will accurately realise what our mission is and that we will become a hard-working generation of sacrifice so that we may bequeath a glorious unified fatherland to our descendants."⁽¹⁵⁾

The above-mentioned statements are all from President Park's speeches. In these statements, it is observed that his ideology

and national goal was to attain the modernisation of Korea, a self-reliant economy through exports, and eventually to create a unified welfare state through the present generation's sacrifice for a prosperous future of Korea. The influence of President Park's ideology on the process of economic development is examined in the following sections.

V-iv-1. Setting Up the National Development Plans and Reorganisation of Institutions

In May 16, 1961, a military coup, led by Major General Park Chung Hee and his nephew-in-law, Lt. Colonel Kim Jong Pil (currently, he is a chairman of the ruling party, Democratic Liberal Party) was carried out in Korea.⁽¹⁶⁾ After taking over power, the military junta undertook several actions: a massive propaganda campaign of anti-Communism (Koreans were fearful about Communism since the Korean War); the institution of needed reforms; and the creation of an anti-coup mechanism, the Korean Central Intelligence Agency (KCIA). The major goals of the military government were the security of its political power and the improvement of economic performance in order to legitimise itself after its illegitimate seizure of power from the legitimate regime (Kim, 1986).

As was mentioned in the previous chapter, the 1950s was the period of difficulties in economic perceptions. No one in power in the 1960s could ignore the huge popular demand for economic-well being. General Park perceived this and attempted to base his political legitimacy on economic performance (Koo and Kim, 1992).

On January 1, 1962, barely half a year after the military takeover, General Park, in his capacity as Chairman of the Supreme Council for National Reconstruction, the military junta, announced the First Five-year Economic Development Plan, 1962-1966. It should be noted that the ambitious economic development plan was launched almost two years before the formal inauguration in December 1963 of President Park to head the Third Republic.⁽¹⁷⁾ General Park evidently decided to risk his own future and that of the military revolution (when few could predict if there would be a future for the military regime) on the outcome of this bold economic initiative. The First Five-Year Plan (FFYP) was followed by subsequent plans and became the corner stone of the economic and social development planning process in every five years up until the present.

Obviously the five year plans were not exactly blueprints to be followed in every detail, as these plans could not forecast uncontrollable external events such as the oil crises and their impact on the plan executions (Oh, 1990). Nevertheless, the plans constituted the "marching orders" (Huer, 1989, quoted from, Oh, 1990) given by General Park, who committed the full weight of his power and that of his administration to give these economic development initiatives the highest priority.

The FFYP was quickly matched by concrete deeds, as General Park proceeded methodically to create the institutions necessary to achieve the economic goals. The Economic Planning Board (EPB) was established on July, 1961, shortly after the Korea Central Intelligence Agency (KCIA) was organised to become a powerful coercive force of the Park regime, reflecting Park's awareness

of the significance of intelligence services in executing control. The first head of the KCIA was Kim Jong Pil, who was regarded as the second strongest man in the early 1960s in Korean politics.⁽¹⁸⁾ The EPB was the most powerful central office among economy-related ministries and bureau. The conflicts between economic ministries were resolved and directed by the EPB because of its superiority in the hierarchical structure of the Korean bureaucracy, on the one hand, and by the virtue of EPB's powers in relation to planning and budgeting, on the other hand. The EPB was responsible for national economic development planning and coordination, annual budgeting, statistical control and coordination, and more importantly, in the early 1960s, cooperation with agencies giving aid to Korea.

Under the EPB control of economic ministries, structural changes in economic ministries have taken place toward more hierarchical distribution of authority. In general, the degree of hierarchical structure of organisation could be compared in terms of the number of organisational layers to which relevant authorities would be distributed: and/or the number of ranks of official positions.⁽¹⁹⁾ In 1959, economic ministries of Korean bureaucracy consisted of three layers, such as vice-ministry, bureau, and division, with six ranks of official grades. However, by 1967, economic ministries consisted of five organisational layers of vice-ministry, assistant vice-ministry, bureau, division, and sub-division, with nine ranks of official positions.⁽²⁰⁾

More importantly, such structural changes in economic ministries have taken place towards more functional organisation

with greater differentiation of tasks. According to Oh (1990) in 1959, there were some 41 governmental bureau and divisions dedicated to wide-ranging economy-related functions from agricultural and industrial development to import and export promotion. By July 1967, the number of these functional units increased to 295.

In addition, in government operations, specification and differentiation of task structures were introduced mostly through a reorganisation process. Twelve major tasks at the bureau level, according to table V-1, have been more differentiated than prior to 1960.

Table V-1. More Differentiated Tasks in Economic Ministries

Major Tasks at Bureau Level	Number of Organisations Responsible	
	December 1959	July 1967
1 Exports and its Promotion	1 division	6 divisions 15 sub-divisions
2 Treasury	2 divisions	1 bureau 4 divisions 11 sub-divisions
3 Banking	2 divisions	1 bureau 4 divisions 11 sub-divisions
4 Foreign Exchange Management	1 division	1 bureau 3 divisions 6 sub-divisions
5 Taxation	1 bureau 7 divisions	1 bureau 3 divisions 7 sub-divisions, plus 1 Office 4 bureaus 11 divisions
6 Industrial Development	1 bureau 7 divisions	2 bureaus 12 divisions 39 sub-divisions
7 Fishery	1 bureau 5 divisions	1 Office 3 bureaus 10 divisions 29 sub-divisions
8 Forestry	1 bureau 3 divisions	1 Office 3 bureaus 9 divisions 24 sub-divisions
9 Highway	1 division	1 bureau 3 divisions 10 sub-divisions
10 Aviation	1 division	1 bureau 4 divisions 12 sub-divisions
11 Tourism	1 division	1 bureau 2 divisions 6 sub-divisions
12 Agricultural Development	1 bureau 5 divisions	2 bureaus 7 divisions 23 sub-divisions
Total	7 bureaus 34 divisions	22 bureaus 78 divisions 218 sub-divisions (plus 3 Offices)

Source : Whang, In-joung (1969, p.57)
 "Political Elite and Organisational Change of the Korean Government",
Korea Observer, Vol.2, No.1

Although there are no data available on economic performance between countries with a simple structure and relatively little differentiation of tasks, and those which have a more

hierarchical structure with more differentiated tasks, the Korean case shows that the post-1960 economic performances in Korea, needless to say, are better than that of the pre-1960⁽²¹⁾.

Another notable institutionalisation in the Park regime was the nationalisation of all existing banks and creation of new state-owned banks such as the Korea Exchange Bank and the Export-Import Bank. The central bank, The Bank of Korea, was under the authority of the Ministry of Finance, and consequently, the Park regime gained control over the financial system in the economy. In addition, as Chang (1993) has pointed out, the role of resource-based public enterprises should not be over-looked.⁽²²⁾ The Korean state has owned various strategic industries, whether wholly or partly, including oil, coal, gas, fertilisers,⁽²³⁾ steel, electricity, and water. Such crucial raw and intermediate materials controlled and supplied by state-owned public enterprise is another important factor contributing to the state's control over private economic behaviour.

V-iv-2. The Korean State and Tamed Capitalism

Soon after the military coup, the military junta arrested many politicians and bureaucrats for political purposes. In addition, the military junta arrested leading business entrepreneurs including B.C.Lee, former Chairman of Samsung group, on charges of "illicit wealth accumulation" during previous regimes,⁽²⁴⁾ with the full intention to punish them. The Park regime, later, however, released them in return for their promises to "serve the

nation through enterprise", which basically meant building new factories and plants in accordance with the Park regime's direction⁽²⁵⁾ (Chang, 1993; Jones and Sakong, 1980). This could be seen as the "beginning in the transformation of merchant or primitive accumulation into industrial capital in Korea" (Hamilton, 1984, pp.41-42).

The Korean state, as a banker, has exercised its power to allocate capital to mould the behaviour of private enterprise. Credit allocation has been clearly the most important tool of state control of business during the Park regime and even the Chun regime. In principle, the role of banks can be divided into two parts. First, the banks mobilise private savings and relay them to investment. Second, the banks provide an adequate supply of money to enterprises because the entrepreneurs do not always possess all the funds needed for investment (Kim, 1986). However, these roles of the banks are closely related to the government's monetary policy. Throughout the period of the Park and the Chun regime⁽²⁶⁾, interest rates of Korean banks were maintained far below the real market prices. In addition, the interest rates of foreign loans were lower than domestic banks' interest rates. Therefore, obtaining foreign and domestic bank loans itself constituted a major source of profits when the loans were relayed to curb markets⁽²⁷⁾.

However, access to these loans was selectively distributed, mainly distributed to exporters in the 1960s, to heavy and chemical industries in the 1970s, and to those enterprises who supported the Chun government in the 1980s.⁽²⁸⁾ According to Koo and Kim (1992), bank credit allocation has been closely tied to

the allocation of another key mechanism of capital accumulation, investment licenses.⁽²⁹⁾ Those who obtained major investment licenses received cheap loans through government-owned banks; and those who were in a position to obtain a large loan were in an excellent position to obtain a new, profitable license. At the nexus of the two, there lies the most critical element of Korean capital accumulation, that is, access to state power. In securing access to the new and profitable licenses with both loans and investment opportunities it was "political connection, not just a firm's capability, that determined who could participate in profitable projects doled out by the government" (Koo and Kim, 1992, p.128).

Throughout the military regimes, it was the state who tamed and guided Korean entrepreneurs by threatening and luring them with its power, and the economic development process was run in accordance with the national economic development plans without severe challenge from the private business sectors. Indeed,

"All Korean businessmen, . . . , have been aware of the need to stay on good terms with the government to assure continuing access to credit and to avoid harassment from the tax officials." (Mason et al., 1980, p.337).

V-iv-3. The State and Control over Labour

The Korean state's role in economic development is not restricted to economic-policy-making through institutionalisation or to control over financial system. No less important was the control and discipline of industrial labour. One of Korea's major comparative advantages in the 1960s and the 1970s was low-wage labour of relatively high quality,⁽³⁰⁾ the success of export-

oriented and labour-intensive industrialisation was highly dependent upon maintaining a low-wage and disciplined labour force in the early stage of rapid economic growth in Korea (Koo, 1987). In order to meet this condition, the Korean state has combined corporate control of labour union activities with, mainly, repression (Shim-Han, 1987; Deyo, 1987)

In Korea, the laws regarding labour have been changed in accordance with political and economic environments. The first labour laws were legislated in 1953 based on the rights of labour stipulated in the first Constitution of 1948. The motivation underlying the first labour laws of 1953⁽³¹⁾ which guaranteed the "three basic rights of labour", i.e., 1) the freedom of association, 2) collective bargaining and 3) collective action, was to provide at least a formal scheme of the rights of labour for workers.

The first revisions were made in 1963 by the Park regime to achieve the national goal of economic development. As was mentioned earlier, in order to maintain the comparative advantage in export oriented light industries, the Park regime thought that wage levels needed to be low to achieve price competitiveness in international markets. In addition, Korea's heavy reliance on foreign aid and capital, at that time, was another cause of the revisions in order to attract foreign capital. The revisions were interpreted as a device to deter the labour-management opposition and struggle which could have detrimental effects upon the economic development plans. (Shim-Han, 1987)

According to the revised laws, intervention in the labour unions by the state was reinforced, and the right of collective

action in labour disputes was restricted. Furthermore, "provisionary special case law on the labour unions and labour disputes in foreign-invested firms" was newly established, which was meant to restrict labour disputes, subject to punitive sentences (You and Chang, 1993).

Under the Yushin Constitution,⁽³²⁾ in 1973, revisions of labour union laws and labour dispute settlement laws further permitted intervention in the labour unions, further restricted collective actions, and further weakened labour committee activities (Kim, 1980). Thus even the economic functions of the labour union were weakened and the grievances of the workers had to find their expression in illegal and explosive ways⁽³³⁾ (Shim-Han, 1987). In addition, in 1974, since the Park regime's development strategy focused on the development of the heavy and chemical industries and defense industries, the possibility of labour control of these strategic industries had more serious implications than for other sectors. Several legal measures such as the National Security Law and the Presidential Emergency Decrees were established and labour disputes were controlled as part of the "national security issue" (You and Chang, 1993; Kim, 1988). Labour disputes were regarded as communist activity controlled by the North Korean authority, leaders of such disputes were arrested, and such disputes were repressed by armed police.⁽³⁴⁾ In 1974, the punishment-oriented regulations were expanded to strategic industries and export-oriented industries with regard to the collective labour laws.

After the assassination of President Park in October 1979, Major General Chun Doo Hwan, the Commander of the Korean Defense

Security Command, carried out a military coup in December 1979 and finally took power as President of Korea in March 1981. In 1980, newly revised labour laws were introduced by the military junta, adding restrictive election eligibility requirements to prevent the return of ex-leaders (whether labour activists or politicians) and to screen new candidates. In 1980, the military junta arrested Kim Dae Jung, opposition leader, Kim Jong Pil, a ruling party leader, and many businessmen for their "corruptive behaviours" under the previous regime, just as Park had done. Kim Young Sam, the present President of Korea, was placed under house arrest. Chun prohibited all political gatherings indoors or outdoors, the colleges and universities were closed, and all publications and broadcasts were to receive prior censorship by his subordinates under a New Martial Law Decree. In these circumstances, however, university student and labour activists including politicians were joined in labour unions in industries. In awareness of the politicisation of the labour unions, the Chun regime revised the labour law and added leadership control as an important means of restricting autonomous union activities by preventing the emergence of union leaders who did not cooperate with the regime (Shim-Han, 1987). In addition, the Ministry of Labour was established in 1980 (formerly, the Bureau of Labour Affairs) for dealing with more complicated labour activity.

However, there was a growing demand for democracy in general and for labour organisation in particular in the early 1980s. Consequently, the labour laws were restored in favour of labour in December 1983. But, in practice, "labour union meetings and strikes were restricted by other laws such as the national

security law and the road traffic laws, with criminal punishment" (Shim-Han, *ibid.*, p.112)

During the Park and Chun regimes (at least in the early 1980s), it is argued that state control over labour was possible partly because of state control over mass communication. During the military regimes, Korean mass communications have been agencies of state advertising⁽³⁵⁾ under the state's Bodo Jichim (press direction). Through state control over the mass means of communication, the state can control people's moral and spiritual attitude and prevent alternatives from being presented. Throughout the 1960s and 1970s, Koreans have heard and seen certain slogans in the media, as Chal Sal a Bose (let's live well) and in the 1980s, Bokji Kuka Kuhyun (obtaining welfare state), in everyday life everywhere in Korea. Without media manipulation, perhaps, the state control over the labour and whole society, to some extent, would be a less easy task for the state.

V-iv.4. The State and Control over Foreign Capital

The Korean state's control over the inflow of foreign capital as well as technology (in conjunction with Direct Foreign Investment) was legally established under the Foreign Capital Inducement Act (FCIA) of 1961 and its subsequent revisions. The FCIA became the principal legislation to control the inflow of foreign loans, DFI, and foreign technology. This act was intended to increase the attractiveness of lending to and investment in Korea together with restrictive labour laws as mentioned earlier.

Under this act, the government guaranteed the repayment of all foreign capital loans approved by the EPB. However, all foreign loans were required to receive state approval prior to their arrival in Korea. The state, through the EPB and later transferred to the Ministry of Finance in 1981, established bureaucratic agencies, most notably, the Foreign Capital Deliberation Committee (FCDC), and rigorous screening procedures over all foreign loans. In order to be approved, all loan applications had to pass test involving econometric techniques to analyse their probable economic impact on the Korean economy (Mardon, 1990). The foreign loans were directed to industries targeted by the state in accordance with a series of five-year economic development plans, with necessary technological capacities to effectively utilise the capital. This screening process allowed the state to control the size and sectoral direction of foreign loans entering the Korean economy and attempted to assure that a loan would generate a rate of return in excess of interest payments as well as aid the national balance of payments (Cho, 1985).

The Korean state also developed monitoring mechanisms in the MOF and the Bank of Korea by receiving compulsory reports regularly from foreign capital-induced enterprises. The contents of the report included process of capital usage, output, price, and export ratio, if any. Further access to foreign loans by a Korean enterprise was dependent upon, together with political connection, the effectiveness by which that enterprise utilised previous borrowed fund - performance base (Koo and Kim, 1992). If an enterprise did not meet state established output levels or

had trouble meeting its debt obligations, the Korean state would not approve further foreign borrowings for that enterprise. The Korean state can also take over the management of an enterprise or force its sale to another Korean firm if it does not effectively utilise foreign funds (Mardon, 1990).

With regard to DFI, the state control over the DFI seems to be rather tighter than for foreign loans (Haggard and Cheng, 1987). The Korean state, during the 1960s and the 1970s, and even in the 1980s,⁽³⁶⁾ has believed that an open foreign investment policy would lead to very adverse effects on the Korean economy and the Korean industrialisation process. According to Koo (1983, and 1988, quoted in Mardon, 1990, p.120), "loans have always been preferred over DFI because more benefits stay in Korea, ... if only capital was required, the government would attempt to borrow it." The adverse effects of DFI - at least, in the literature, - the introduction of inappropriate technology and production, the weakening of domestic capitalist activity, foreign penetration of domestic market, the foreign use of domestic capital markets foreign control over key industrial decisions, and the expropriation of national surplus through transfer pricing, repatriation of profits, and royalty payment (see Ch.2 and 3 for more detail) would restrict the effective implementation of Korean industrial development plans. In this context, the Korean state has attempted to minimise in practice the level of DFI by limiting its entrance into the Korean economy to any cases that the state considers to be necessary for and compatible with state development objectives (see Ch.6; sectoral distribution and timing of DFI in Korea have been shaped by state industrial

policy)

Mainly, the Korean state's methods to control DFI have been pursued in three ways; 1) tight investment screening on entry, 2) regular monitoring of operation, and 3) extensive interventions in the scope of business. In order to attract DFI, as was mentioned earlier, Korea has introduced several incentive schemes such as guaranteeing profit remittance as tax exemption, and has been regarded as one of the most liberalised countries towards DFI in the Third World (UNCTC, 1988), at least on paper, and in terms of laws. However, the reality is different.

In Korean bureaucratic mechanisms, all proposals of DFI are individually passed from the FCDC to the ministries that are concerned with the subject matter of that proposal.⁽³⁷⁾ The proposal is then reviewed in detail on an individual basis at each concerned ministry to assess its economic and technological impact on the Korean economy. If a proposal is deemed unfavourable to the balance of payments by the MOF, or if it is deemed to be in competition with a domestic firm by the Ministry of Trade and Industry (MTI), or if the Ministry of Science and Technology rules the proposal calls for the importation of technology already available on the domestic market, the proposal is denied. Thus, merely because a sector or project is listed⁽³⁸⁾ on the FCIA as open for foreign investment does not guarantee that a proposal in that area will be approved by the government.

In addition, if there is more than one foreign investor interested in investing in a particular sector or project, the Korean state uses investment proposals as bids and bargains with the competing foreign investors to alter the terms of their

proposal to be more advantageous to Korean economic interests⁽³⁹⁾. This could in turn, base the state's decision not merely on the FCIA and its enforcement decrees, but also on a number of unpublished internal regulations and guidelines. The latter are often more important and more restrictive than the law itself in such a bureaucratic-authoritarian government. Problems of this kind are aggravated by the fact that there exist no formal procedures to appeal against the rejection of proposals (Luedde-Neurath, 1984). This screening process at the first stage of DFI inflow could allow the state to control the size and sectoral inflow of DFI.

The second major tool for shaping DFI by the Korean state is a negotiation right on the scope of business. After controlling sectoral inflows of DFI, the Korean government has pursued several other strategies directly designed to limit and control the activity of foreign investment. When negotiating joint-ventures or contracts with Korean partners, foreign investors often assume that once an agreement with them has been reached and signed, the contract can be considered final. But not so in Korea. The government reserves the right to review and - if necessary - demand changes in agreed contracts (Luedde-Neurath, 1984). The government attempts to negotiate into all investment agreements conditions that include 1) a joint-venture be formed with a Korean partner, where the Korean partner will have or will obtain, in a specific period of time, financial and operations control over the firm; 2) an explicit agreement as to the level of capital investment, the level of output, the level of export, the level and type of technology transfer, the provision of raw

materials, and access to foreign markets that the foreign investor will provide; and, 3) "an explicit agreement on the divestiture of foreign held equity to the partner at a specific future date" (Mardon, 1990, p.127).

The effectiveness of these strategies, however, varies on a case by case basis relative to how greatly the government perceives the need for a particular foreign investment in relation to the achievement of development objectives; and to how attractive the Korean market and its environments are to the particular foreign investor. Indeed, this is subject to a bargaining process (Streeten, 1976, see Ch.2). In order to induce the foreign investors, who are needed to achieve some of the objectives of the Korean development plan, into joint venture, the Korean government guaranteed a minimum profit rate of 15 per cent with other incentives to foreign investors in many cases (Mardon, 1990), and opposite cases were also found where Korea's bargaining position is strong (Mardon, 1990, p.135; Luedde-Neurath, 1984). However, it is noted that 599 contracts between foreign and local firms were reviewed by EPB in 1982 and 37.9 per cent of these contracts were revised in favour of domestic interest (ACCKJ, 1983, quoted in Luedde-Neurath, 1984, p.22)

Another notable method of controlling DFI in Korea has been a monitoring system. The Korean state has established several means to monitor foreign invested enterprises to ensure their compliance with appropriate laws and with the terms of their investment agreements. The MOF is responsible for monitoring foreign exchange matters. The MOF's control over financial institutions and credit allocation has strictly guarded against

foreign investors using domestic funds for investment. According to Mardon (1990, p.136), 86 per cent of foreign investors derived 100 per cent of their investment capital abroad and 14 per cent of foreign investors derived their investment capital domestically, all borrowed funds from foreign bank branches in Seoul, using the parent corporations to guarantee the loan. Unlike many other developing countries, use of domestic capital sources by foreign investors is highly restricted to ensure domestic savings are utilised for the development of domestic enterprises. The Ministry of Trade and Industry's Foreign Investment Control Bureau's sole responsibility is the monitoring of the activities of foreign invested firms. Detailed reports must be submitted to the bureau on a monthly basis by foreign investors. These reports monitor output levels, personnel matters, import and export levels, profit rates, and other company information of concern. The Office of National Tax Administration and The Office of Customs Administration also receive regular reports from foreign invested firms and monitor their activities on import-export, tax related matters, and more importantly, on transfer pricing by checking very detailed international price lists with records of virtually all international commercial transactions involving Korea (Luedde-Neurath, 1984). In addition, in Korea, all economy-related ministries and offices can be regarded as to a great extent monitoring agencies as far as the foreign capital and technology is concerned.

According to a series of the United Nations' publication on TNCs, a greater number of developing countries have the same or

similar devices mentioned above to control foreign capital. However, distribution of DFI source of foreign capital and pattern of ownership may differ between countries. Arguably, political structures and qualitative state policies may in practice determine state control over foreign capital.

V-v-5. Economic Policy as an Outcome of Political Environment

Throughout the rapid economic growth era in Korea, it has been suggested that some of the economic policies have been set not by economic rationality but by political rationality. This section attempts to analyse some economic policies in conjunction with Korea's political environment.

As was mentioned earlier, after the military coup, General Park launched the FFYP with the hope of basing his political legitimacy and consolidation of his power on economic performance. Without capital in the early 1960s, the achievement of import-substitution industrialisation in oil-refinery and fertiliser industries and export-oriented industrialisation in light industries was highly unlikely. In addition, politically he was not likely to be supported by Koreans in the early stages of his rule (Rhee, 1990). In these circumstances, the survival of the Park regime rested on economic performance, thus on the achievements of private business (Kim, 1986). This is why the Park regime released businessmen arrested after the coup. General Park sought to achieve the two goals - economic and political - by delivering impressive economic growth, and he believed that the quickest and the most reliable way to do this was by

collaborating with the already proven group of large capitalists. This collaboration was also a convenient means to solve an immediate need of the military junta to raise a large sum of political funds to institutionalise its rule, through the Democratic Republican Party and the KCIA. Thus this "sword-won(Korean currency) alliance" was the product of political exigencies and existing class structures (Koo & Kim, 1992, p.125). This alliance became "privilege - political funds alliance": when a company wished to have a permission for foreign loans from "the Park regime, usually 3-7% of the total loans was collected as political funds by the ruling party" (Kim, 1982, p.209).

Interest rate and exchange rate policies were partly set by the need to keep this alliance⁽⁴⁰⁾. Based on this alliance, the Park regime was supported by the big businessmen, and distribution of such political funds to his followers made it possible for him to consolidate political power (Kim, J.M., Park Chung Hee Ka Bonaen Don Mungchi (The money from Park Chung Hee) Shin Dong A, April, 1993).

The Heavy and Chemical Industrialisation Policy in the 1970s is also partly explained as a political outcome. Since the international security factor was one of the major reasons for the rise of the Yushin system in Korea, the decision of American troop withdrawal from Korea in 1970 and 1971 substantially changed the role of the Korean state in economic policies. The American decision for US troop withdrawal from Korea and the Vietnam War (1965-1974) stimulated the Park regime to pursue "Self-reliance" as the primary goal of state policy and the

development of heavy, chemical, and defense industries as key industrial sectors in the 1970s (Chung, 1992). To mobilise the financial resources for the plan, the Park regime established a "Special Defense Tax" and raised special "Funds for Heavy and Chemical Industry Promotion" through various sources including private donation (Kim, 1988). Again in this process of the HCI policy, the Korean government's special treatments were given to companies who participated in this policy by setting up factories and plants. Special treatments from the government such as free land supply for factories and plants in many cases, very low interest rates or sometimes no interest rates, and market guarantees, were recognisable. The special treatments were made case by case, and the degree of special treatments was subject to Park's decision (Kim, 1988). In this period, President Park's personal command was a crucial factor for the HCI policy. For example, the shipbuilding industry in Korea was set up in direct response to a personal command from the President Park, against the will of the Hyundai group⁽⁴¹⁾ (Jones and Sakong 1980, quoted in Chang, 1993, p.137).

Coming to power by military coup without legitimacy, the Chun regime faced severe difficulties both economically and politically, and economic policy adjustment was required both at home and abroad. As a result, several economic policies were introduced in the early 1980s based on so called "stabilisation and liberalisation policy"⁽⁴²⁾.

Economically, the Chun regime inherited from the previous Park regime many economic problems such as chronic inflation rates (average about 21% in the 1970s, the Bank of Korea, 1993), and

a heavy defense burden (average about 6 % of GNP). In addition, the second oil-shock and political instability after the assassination of Park caused a negative economic growth rate in 1980 for the first time since 1956 (see previous chapter).

Politically, most Koreans expected to have democracy in 1980. Although the military coup destroyed this expectation, the rise of a strong movement of Minjung (the People or the masses) was inevitable. The rise of the Minjung movement was a reaction to both the Yushin regime and the chaebul. A strong sense of distributive injustice spread across diverse sectors of the population: factory workers, farmers, small-business persons, and white-collar workers. "Although they did not belong to the same class, they were bound together by their common moral anger against the collusive relationships between the authoritarian state and the chaebuls" (Koo and Kim, 1992, pp.139-140).

In this situation, the basic goals of the Chun regime were Bokji Kuka Kuhyun and Chungui Sahoi Silhyun (achievement of welfare state and new society of justice). Accordingly, the Chun regime readjusted its development strategy fundamentally by adopting two major shifts. The first one was its emphasis on social development, as the five year economic plan was officially renamed the Fifth Five-year Plan of Economic and Social Development (1982-1986). Secondly, the basic development strategy was shifted from one of rapid growth with inflation to continuous, stable growth with price stabilisation; and from government intervention and closed economy to more liberalised and open economy to foreigners. Such changes in economic direction can therefore be partly explained as an outcome of the

political environment, both internationally and internally.

Internationally, pressures from the USA and international institutions such as the IMF and World Bank made the Chun regime adopt stabilisation policies and open its economy. The Chun regime followed their advice in the hope of obtaining political support from abroad, especially from the USA. Among the world powers, the US maintained a central role in providing an important source for Chun's political legitimacy and in protecting Korea's troubled international status. The political goal of Chun was achieved by shaping economic policies in America's favour (Chung, 1992; Kim, 1986, reprinted in 1993). Consequently, with regard to economic conflicts between the US and Korea, "strong political power of the US led the results of the bargaining with weak Korea to be more beneficial to the US side"⁽⁴³⁾ (Kim, 1989, p.284).

Internally, however, the domestic sectors made conflicting demands. The business sector demanded that the government come to their rescue and save their ailing businesses, while the popular sectors (minjung) demanded measures to control the growth of the chaebuls and to increase distributive justice (Koo and Kim, 1992).

For the popular sectors, at least, economic policies and laws were changed during the Chun regime. After creation of the Committee for Emergency National Security Measures, May, 1980, the military junta carried out radical reforms. The junta announced the "Measure to Rationalise Corporate Structure" in September, 1980. The measure selected 26 chaebuls and forced them to reorganise their group structure around specialised primary

businesses. In order to accomplish this, the Korean state urged them to relinquish their sideline business, sell non-business-related real estate, offer their stocks in the stock market, and improve their financial structures. The committee selected 135 firms as the "main line business firms", and ordered them to give up a total of 166 subsidiary firms by 1984. The Chun regime investigated all the real estate owned by the chaebuls and their owner families, and told them to dispose of the majority of the land ownership.⁽⁴⁴⁾ The state adopted the Fair Trade Act (or Anti-Monopoly Act) in April, 1981. The Fair Trade Committee was established in the EPB to monitor collusion and unfair behaviour of firms.⁽⁴⁵⁾ The state selected the largest 50 chaebuls and put under close supervision their financial status and expansion through merger and acquisition. The state also monitored subcontracting practices between large and smaller firms in order to reduce abuses⁽⁴⁶⁾ by the former. At the same time, banks were ordered to direct 40% to 50% of their total loans to small- and medium-sized firms. The state designated 110 product groups as off-limits to large firms, while allowing the small- and medium-sized companies some collective monopolies in some designated areas. The state also concentrated its effort on selecting 5,000 promising small- and medium-sized firms for extra financial support and technical guidance. More importantly, as was mentioned earlier, the labour movement was restored in December 1983 and accordingly, the Korean Workers' Welfare Council (KWWC) was established in March 1984 by the workers in opposition to the state-sponsored formal trade union, Korea Federation of Trade Union (KFTU).

In reality, however, the Chun regime's actions taken against the chaebuls in the 1980s had no apparent effect in containing chaebul growth. Many studies (Koo and Kim, 1992; Oh, 1990; Rhee; 1990; Kim, 1989; Chang, 1985) argue that the average number of member companies of a chaebul remained the same during the Chun regime and/or increased in the Roh regime; landownership by chaebuls was increased; the share of loans made to small-and medium-sized firms declined; and the number of arrested workers, farmers, students, and politicians in the Chun regime during 7 years was absolutely greater than that during the 18 years under the Park regime.

Despite the effort to initiate the "new society of justice and welfare", the Chun regime was a successor regime to the Park regime that it replaced. Basically, the circumstances and character of the founding of the Chun regime resembled those of the Park regime: a military coup, economic difficulties and political instability. Both Park and Chun showed the authoritarian character of the political regime in terms of their style of leadership, dominated by the military. Their rule was sustained by means of coercion and monopoly of the state apparatus, and used economic policies as a means to obtain political legitimacy. In addition, many economic policies were operated in favour of a selected few with political connection in practice, rather than in favour of popular sectors'.⁽⁴⁷⁾ However, these political connections were controlled by the state in the overall industrialisation process, not by the chaebuls' hands

V-v-6. Summary and Conclusions

In this chapter, theories and concepts of the state were briefly examined, in conjunction with economic activities. Special attention was given to the concept of bureaucratic - authoritarianism and to the emergence of the bureaucratic authoritarianism in Korea, despite a historical background different from that of Latin American countries, mainly because of the absence in Korea of strong capitalist and organised working classes in the early stage of industrialisation.

A strong bureaucratic authoritarian regime in Korea was established by President Park with political ambitions to consolidate his power. In order to achieve his political and economic goals, he set up a blue-print of economic development planning and institutionalised various mechanisms in his administration.

The state, as a planner, a banker, a moral commander and a punisher, was able to control domestic capitalists as well as popular sectors to drive industrialisation. Foreign capital was also controlled by the state as a scrutineer of their behaviour.

Throughout the bureaucratic authoritarian regimes of Park and Chun, economic policies were formulated for political reasons. The economic policies were formulated very speedily and flexibly in accordance with their fundamental political goals and economic and social environments, both domestic and external. The economic policies, however, were biased towards capital accumulation and structural changes through the state and business alliance, and neglected popular sectors.

From this Korean case, perhaps, several interesting points can be drawn in terms of the role of the state in economic development.

Firstly, Korea's rapid economic growth has been achieved by the bureaucratic authoritarian regimes at the expense of the popular sectors. Secondly, economic policies in Korea have been viewed as outcomes of political circumstances. Thirdly, however, a dominant figure in Korea's industrialisation process has always been the state. The state can shape the industrialisation process and can control domestic capital and foreign capital but not vice versa. Fourthly, the Korean case obviously supports the view that a strong state maximising state autonomy is the major variable to economic development rather than market mechanism-oriented theory. Fifthly, economic development can occur positively when the state dominates other sectors and when the state is not controlled by strong anti-nationalist capital as we see in Korea in comparison with some Latin American countries. Finally, since the late 1980s, there has been a growing force for pluralism in the Korean society. The business chaebuls, labour unions and advocacy groups, the middle class, creates a context in which economic policy formulation will no longer be easily insulated from the political process. The result might be a process less economically efficient but more responsive to popular needs. Under these circumstances, if democratically elected civilian government under the Kim Young Sam administration manages to achieve rapid economic growth, the Korean case might open up a new relationship between development economics and the developmental state.

Notes

- (1) The Weberian view sees the state in capitalist and socialist societies as capable of being an independent force that has its own rules of action (the legal and rational rules of bureaucracy according to laws) and as potentially able to dominate all social groups. The Marxist view sees the state in capitalist societies as being tied to the interests of capital and the dominant class. (Two main streams of Marxist view of the state exist. Instrumentalist Marxism sees the state as an outpost of the dominant class because its personnel are drawn from this class. Structural Marxism sees the state as furthering the interests of capital or the capitalist class even though the state has relatively autonomy of the class). The third view of the state, the pluralist view, steers a middle course, viewing the state as a partly independent force which, via the workings of the democratic process, may still be influenced by the different interests that are represented politically (see Hall and Ikenberry, 1989; Dunleavy and O'Leary, 1987; Vincent, 1987).
- (2) Government can be distinguished from the state since it can come and go, at least, in democracies, without any change in the fundamental character of the state.
- (3) These characteristics are abstractions and are not necessarily applicable to all countries.
- (4) Largely as defined in the Penguin Dictionary of Politics, 1985.
- (5) With reference to Korea, Mardon (1988) expressed his view of the Korean state as a bureaucratic-authoritarian industrialising regime (BAIR). He defined BAIR as a bureaucratic-authoritarian regime type that came to power through a political initiative to enhance national security prior to the maturity of the consumer goods import substitution sector, and is highlighted by the state's control over the industrialisation process. (Also, see Cumings, 1987).
- (6) However, since 1968, the powerful "inner cabinet" secretaries in the Blue House (the Presidential Office) acted as both the president's mouth (issuing directives) and ears (listening to ideas). This role of the presidential secretaries is very important, because the authoritarian nature of each president might have seriously blocked the flow of information. These system impediments to feedback shielded each president from the consequences of unclear or contradictory decisions. By virtue of their access to the president, the presidential secretaries had the leverage and proximity to directly influence the president's mind and they exercised very strong power over ministries although their formal position of chief-secretary was equivalent to that of vice-minister or sometimes minister. (See Chung, 1989).
- (7) Although, President Chun and Roh appointed military personnel in semi-economy-related posts such as the Ministry of Science

and Technology and the Ministry of Transportation. According to Cho (1988), during 1964-1986, out of 465 ministers, 155 ministers came from the military (33.3% of the total), out of 403 vice-ministers, 73 vice-ministers came from the military (18.1% of the total), and out of the 254 heads of government institutions and quasi institutions, 99 personnel came from the military (39% of the total) (K.J.Cho, 1988, Hankook Ui Kunbu (Military in Korea) in Wolkan Chosun (monthly magazine for social affairs)).

- (8) The size of the minifarm unit, coupled with state control over vital input and product markets, effectively locked peasants into economic relations with much more powerful actors, namely the state agro-bureaucracy. (Burmeister, 1990).
- (9) President Park's Congratulatory Address, March 1 Independence Movement Day, 1964, Yonsol Munjip, Vol.2 (quoted in Lee, 1978).
- (10) President Park's Congratulatory Address, Independence Day, August 15, 1964, Yonsol Munjip, Vol.2 (Ibid., p.449).
- (11) President Park's Instruction, Export Promotion Meeting of Korea Overseas Missions, Feb. 9, 1970, Yonsol Munjip, Vol.5 (Ibid., p.450).
- (12) President Park's New Year Message, Jan.1, 1965, Yonsol Munjip, Vol.2 (Ibid., p.456).
- (13) Yushin means revitalisation. However, in 1972, formal democracy, for example, direct presidential election, was abandoned and the labour movement was severely restricted under the Yushin constitution.
- (14) President Park's New Year Press Conference, Jan. 12, 1973, Yonsol Munjip, Vol.10. (Ibid., p.461).
- (15) President Park's Congratulatory Address, Dec.5, 1975, Yonsol Munjip Vol.12.
- (16) There have been two contrasting interpretations of the motivations for the coup: one is despair over the corrupt and inefficient governments of Rhee (1948-1960) and Chang (1960-1961) which is an official view of the coup by the Park regime; while the alternative sees it as a consequence of an intramilitary factional struggle (Kim, 1986). However, a full discussion of the subject is beyond the scope of this thesis.
- (17) The chronology of the republics is;
The first, Aug. 15, 1948 - Apr. 19, 1960, Rhee Syngman governments
The second, Aug. 13, 1960 - May 16, 1961, Chang Myon government
The third, Dec. 17, 1963 - Oct. 7, 1971, Park Chung Hee governments
The fourth, Dec. 26, 1972 - Oct. 26, 1979, Park Chung Hee

governments
 The fifth, March 5, 1981 - Feb. 24, 1988, Chun Doo Hwan governments
 The sixth, Feb. 25 1988 - present, Roh Tae Woo governments and Kim Young Sam government at present

*The brief gaps in the chronology represent transitional periods

(18) It is believed that most of the statements and commitments of General Park were written by Kim Jong Pil after the military coup. More importantly, Kim organised all elements which were essential for a successful military coup. (Munhwa Broadcasting Corporation, The Third Republic, broadcasted weekly in 1993).

(19) This notion is derived from the terms 'bureaucracy' and 'authoritarianism' in the Penguin Dictionary of Sociology in 1984, and the Penguin Dictionary of Politics in 1985.

(20) This system is still effective in almost all Korean ministries.

(21) Table V-2. Comparative Analysis of Economic Performance

	1953 - 1960	1962 - 1977
Average annual growth rate	4 %	9.8%
Average annual export growth rate	N.A.	40%

Source : Sakong, 1993, pp.2-3

(22) Although their efficiency in management is subject to criticism, partly due to the mismanagement of personnel since many appointees come from the military without experience of other jobs.

(23) As a means to control farmers, (Chang, 1993).

(24) The same thing happened in 1980 when General Chun succeeded in a military coup in Dec, 1979.

(25) The deal reflected the changed economic emphasis of the new regime, whereby criminal charges would be dropped if the businessman agreed to build factories and donate them to the state (Hamilton, 1984).

(26) President Chun, as a successor of Park, has continued Park's policy in many cases except opening-up some markets (See next sections). Interest rates of foreign loans such IBRD and ADB (Asia Development Bank) funds have been similar to those of

domestic bank loans (The Bank of Korea, 1993).

(27) Table V-3. Interest rates on bank loans 1971 - 1976

Year	Domestic Bank Loan	Policy Loans (leading rates)		Curb Market Rate
		Export	Machinery Promotion Fund	
1971	22.0	6.0	N.A.	46.4
1972	15.5	6.0	N.A.	37.0
1973	15.5	7.0	10.0	33.4
1974	15.5	9.0	12.0	40.6
1975	15.5	9.0	12.0	41.3
1976	18.0	8.0	13.0	40.5

Source : Sakong, 1993, p.244
Koo and Kim, 1992, p.129

(28) During the Chun regime, "face to face meetings" between President Chun and Chairmen of major business conglomerates (Chaebul) were frequently arranged. In these meetings, exchange -based-transactions occurred between them (Ryu, 1988, Shin Dong A, monthly magazine for social affairs, pp.382-408).

(29) With regard to big and new projects, government approval (sometimes President's permission) is necessary in many cases (see *ibid.*).

(30) Even in management, there was an abundance of low salaried managers with high levels of education (Amsden, 1989; Hattori, 1987).

(31) Notably, the labour union law, the law of labour-dispute settlement, and the law of the labour committee were recognised as aiming for the labour, supported by the democratic constitution.

(32) The major characteristics of the Yushin Constitution were: 1) the Presidential election by indirect election through the presidential electoral colleagues, 2) supreme authority of the President over the National Assembly and Supreme court, and 3) restructuring of the ruling coalition by rearranging the ruling party and by establishing Yu Jong Hoi (The Yushin Political Friendship Association). A member of the Yu Jong Hoi was a member of the National Assembly and was appointed by Park according to his or her loyalty to Park (Kim, 1988; Kim,

1993). Yu Jong Hoi members constituted one-third of total membership of the National Assembly. The Yushin Constitution was abolished and the Yu Jong Hoi were dismissed in 1980. Although the Korean President has been elected directly by the people since 1987, the power of the President seems to have remained the same since the president appoints the chairman of the National Assembly and the Head of the Supreme Court. Thus, the authority of the President is simply unchallengeable in Korea.

- (33) Since T.I. Chun's self-immolation in 1971, the labour movement has been very active (See, Kim, 1985, Shin dong A (Monthly magazine for social affair, August 1985, pp.276-299).
- (34) The Korean state's attitudes towards labour disputes continued in the Chun and Roh governments. Notably, the number of police has been increased from about 30,000 in 1960 to 120,000 in 1986 (Oh, 1990).
- (35) The State control over mass communication has been achieved by appointing the head of some broadcasting and newspaper companies, by nationalisation, and laws concerning the mass communication such as New Press Law under the Chun regime (See Kim, 1993, Shin Dong A (monthly magazine for social affairs, July 1993, pp.30.8-324).
- (36) In the 1980s, the Chun regime has gradually opened the Korean economy towards DFI by converting "the positive list system to the negative-list system" in 1984, by establishing automatic-approval system in manufacturing sector with less than 1 million US\$ foreign investment in 1988, and by further liberalising its negative - list and the automatic-approval system in the Roh regime. However, the role of FCDC and the compulsory report system have still not been changed.
- (37) In addition, the proposals are screened by EPB when foreign investment is over 10 million US\$, when it relates to overall economic development plans, by the Fair Trade Committee when foreign investment is over 3 million US\$, and concerns laws regarding monopoly and fair trade, by the Industrial Bank of Korea when foreign investment is over 5 million US\$ or over 3 million US\$(in cash), and concerns the source of the capital and its adequacy, and by the Ministry of Environment, concerning environmental matters. (Source: MOF, 1992).
- (38) If a sector of project does not appear on the negative list.
- (39) For example, the degree of technology transfer, of ownership, etc. The Dupont Corporation and Kerr McGee Co.Ltd., for instance (See Mardon, 1990, pp.118-119).
- (40) This relationship has been continued in the 1980s since a large proportion of bank loans was concentrated in Chaebul.
- (41) One of Korea's biggest business conglomerates, owned by Mr. Chung Ju Young, Presidential candidate in 1992. Nowadays,

Hyundai Shipbuilding Ind. Co., is one of the biggest shipbuilding companies in the world.

- (42) Stabilisation policies were recognised by freezing wages, reducing the money supply, and cutting government expenditures. Liberalisation policies were introduced by reducing government intervention, partially privatising banks, promoting market mechanisms through competition, opening the domestic market to foreigners through tariff reductions, and encouraging DFI through adopting the negative system and an automatic approval system.
- (43) America's support for the Chun regime and such economic results has become one of the most crucial factors of Anti-Americanism in the 1980s (See Kim ,1988,pp.272-290).
- (44) Given the small size of territory with very high density of population (one of the top 5 in the world, the World Bank, 1992), speculation on land was one of the important sources of capital accumulation throughout the 1970s and 1980s.
- (45) Under the law, it was expected to eliminate such monopolistic practices as cartels and price fixing by the chaebuls.
- (46) The main abuses of large firms against smaller firms are; delaying payments; frequent rejections on their products to cut down prices; and issuing illicit receipts (See Lee. J.H, 1993 for detail).
- (47) In the relationship between the state and businessmen throughout the last three decades, there is plenty of evidence of misuse of power in a corrupt manner by President Park, Chun and Roh in favour of businessmen. Most of the evidence involves the political funds of the Presidents. Various issues of monthly magazines of social affairs such Shin Dong A, Wolkan Chosun, and Wolkan Kyunghyang reveal such matters. Particularly, Ryu, E.Y. (June, 1988; April 1993), Chung, J.Y. (June, 1986), and Special Report (April, 1988) in Shin Dong A, Cho,H.Y. (August, 1988) Chung,S.T. (July, 1988), and Lee,C.(July, 1988) in Wolkan Kyunghyang, and Kwon,Y.K.(June, 1988) and Suh,B.W.(October, 1987) in Wolkan Chosun provide good examples. Such matters are also found in academic writings in Chang (1993), Koo and Kim (1992), Kim (1986, reprinted in 1993), and very clearly with a lot of evidence in D.J.Chang(1985).

Chapter VI

Characteristics of DFI and Technology Transfer in Korea

VI-i. Introduction

It may be useful to show the Korean government's policy towards DFI and technology transfer from abroad to Korea in conjunction with actual situations of DFI and technology transfer. In this respect, the intention of this chapter is to analyse some characteristics of DFI and technology transfer in Korea. In this analysis, general trends of DFI and technology transfer including industrial distribution of DFI and royalty payment for technology transfer by industry is examined, and this chapter is concluded with future prospects of DFI and technology transfer.

VI-i-1. Government Policy and General Information

VI-i-2. General Foreign Investment Policy⁽¹⁾

Foreign investment has been vital to the success of the Korean economy as it has contributed not only to the promotion of economic cooperation with foreign countries, but to the strengthening of the international competitiveness of the Korea's industries by inducing the adoption of the necessary advanced technology.

As is stated clearly in the Foreign Capital Inducement Act (FCIA), the government's fundamental policy regarding foreign capital is

"to effectively induce and protect foreign capital conducive to the sound development of the national economy and to properly manage such foreign capital" (FCIA Article 1).

Based on this policy, the Korean government has striven to open the door to foreign nationals who seek to invest in Korea.

Recently, many kinds of policy measure have been taken to actively induce foreign investment, to protect foreign enterprises and to facilitate the smooth operation of foreign companies. Various incentives and guarantees such as tax benefits and guarantees on the remittances of dividends and principal are included in these measures.

As part of its ongoing efforts to actively induce foreign investment, the government recently revised the FCIA and the accompanying Presidential Decree and Working Rules. The highlight of the revision was the adoption of an automatic approval system in 1988 and the notification system in many cases, which substantially simplified the authorisation procedure for applicable projects. The Korean government will expand the foreign investment notification system in 1994, when almost all liberalised projects will be under the notification system.

V-i-3. Methods of Business Formation

Foreign companies who are seeking to invest in Korea may open a branch office or establish a locally incorporated business. The investment method is at the discretion of the investor depending upon the purpose of investment.

V|-i-3-1. Branches

A branch may be opened by reporting to the Bank of Korea that the branch is to be a repatriating or nonrepatriating entity. If the branch wishes to repatriate or remit its earnings or profits in the form of foreign exchange, it must be authorized to do so by the Bank of Korea in accordance with the Foreign Exchange Control Act (FECA). To repatriate profits, all forms of businesses remit through designated foreign exchange banks. Branches cannot own shares in Korean companies, cannot engage in manufacture and are prohibited from performing financial services. Special laws and procedures apply to finance, insurance and securities companies interested in setting up operations. In these instances, prior authorization must be obtained from the Ministry of Finance. Registered branches must conduct business for profit and are subject to taxes. Since 1981, branches have been allowed to obtain import-export broker licenses.

V|-i-3-2. Corporations

A foreign company that decides to establish a locally incorporated business can set up under either the FECA or the FCIA. In practice, most foreign investors choose to establish a company under the FCIA which offers tax benefits and guaranteed repatriation of profits and incentives. Since 1962, 3,672 foreign investment projects have been approved and their total value amounts to US \$9,269 million. About 70 per cent both of the total number of project, and of the total amount in terms of money have

been made by Japanese and American firms (see next sections).

V|-i-3-3. Locating Partners and Agents

A number of organisations provide advice and assistance to foreign businessmen. The Korean Chamber of Commerce and Industry, other foreign chambers of commerce, the Federation of Korean Industries, the Korean Traders' Association, the Korean Federation of Small Business, foreign banks, merchant banks and large Korean commercial banks are major information sources. Outside Korea, branches of the Korea Trade Promotion Corporation (KOTRA) are good preliminary contacts.

There are numerous smaller exporters and importers^S in very large general trading companies⁽²⁾. Buying agents are best located through the Korea Export Buying Offices Association. Only these agents are allowed to issue selling orders or quotations that are recognized by the government and by banks authorised to deal in foreign exchange. Selling agents function as distributors with their own inventories, or they sell on a commission basis as direct agents.

V|-i-4. Guidelines for Foreign Investment

The current "Regulations on Foreign Investment" (Ministry of Finance Notification No. 91-3, effective from March 1, 1991) defines projects restricted to foreign investment in accordance with the provisions of the FCIA and it established necessary regulatory framework for foreign investment. The main contents

of the Regulations are as follows ;

VI-i-4-1. Industry Classification

The Regulations provide a detailed classification of industries⁽³⁾ according to the Korean Standard Industrial Classification (Economic Planning Board Notification No.71, amended on January 26, 1984).

VI-i-4-2. Project Classification

Projects are classified into 999 categories. These plus adding in the 49 categories including such areas as government institutions and religious and political organisations, form the 1,048 categories listed in the Korean Standard Industrial Classification. Prohibited projects are those areas in which foreign investment is prohibited, and include public projects to be carried out by the nation or public organisations under Article 9 of the FCIA. Restricted projects refer to projects in which foreign investment is currently restricted, in principle, but for which approval can be obtained in certain cases in an effort to liberalise foreign investment. In cases where an applications made for approval of a project classified as restricted, the Ministry of Finance (MOF) can review and approve the investment after consultation with the Ministries concerned in the following cases;

- When a foreign invested company which has already been approved by the MOF increases its capital for the same

approved purpose

- When the MOF sets certain general criteria for the approval of foreign investment in specific industrial sectors after consultation with the relevant ministries.

The Korean government partially adopted an automatic approval of a Negative List System in 1984. This meant that projects which do not appear on the Negative List shall be automatically approved. Currently 793 industries out of 999 are liberalised to foreign investors, and the Government is willing to open its door wider for foreign investors. Remarkably, in the manufacturing sector, 97.7 per cent of total manufacturing industries do not appear on the Negative List (see previous chapter and next sections).

V\ -i-4-3. Minimum Foreign Investment Amount

The minimum allowable amount of foreign investment is the equivalent of 50 million Korean Won (about US \$70,000) and when two or more foreign investors intend to make a joint capital investment, each foreign investor should invest at least W25 million. However, when a foreign investor participates in additional investment in an enterprises to which the foreign investor has already made capital investment, the limitation on the investment amount shall not be applicable.

V|-i-4-4. Adoption of Notification System

Currently, manufacturing projects whose foreign investment ratio is no more than 50% qualify for notification. In addition, regardless of the industry and the investment ratio all projects whose foreign investment is less than US \$200,000 qualify for notification; in other words, an approval is not required. The Korean government intends to qualify for notification all liberalised projects, except a few cases by the end of 1993 (The Bank of Korea and the MOF Bulletin 1991), and it will be further expanded in 1994 (Hankook Ilbo, daily newspaper, 13th Jan. 1994)

V|-i-5. Investment Guarantee Schemes

The Korean Government has tried to create an attractive climate for foreign investors and to provide the guarantees and incentives for foreign-invested enterprises. It is argued that the privileges offered to foreign investors in Korea may be considered more generous than those provided by other developing countries. As pointed out by the World Bank, Korea is one of the 22 countries that have set up investment guarantee schemes - almost all the others are industrialised countries (World Bank, World Development Report, 1985, p.131). Some of the main preferential ways in which foreign investors are treated is briefly examined below.

V|-i-5-1. Guarantee of Overseas Remittance

The overseas remittance of dividend profits accruing from stocks or shares acquired by a foreign investor, sales proceeds of stocks or shares and principal shall be guaranteed in accordance with the contents of the approval and notification acceptance in compliance with Article 4 of the FCIA (FCIA Article 11).

V|-i-5-2. Permission to Reinvest Profits

A foreign investor may invest dividend profits accruing from stocks or shares acquired in accordance with the FCIA. However, a foreign investor should submit a notification to the MOF when he intends to invest dividend profits in the foreign-invested enterprise concerned and should obtain approval (FCIA Article 13).

V|-i-5-3. Property Guarantee

All rights of foreign-invested enterprises are guaranteed and protected from requisition or expropriation by relevant laws and decrees. the same rights, privileges and protection enjoyed by Korean nationals are extended to foreign nationals and enterprises except in cases specifically prescribed by law (FCIA Article 14).

V|-i-5-4. Equal Treatment for Foreign Nationals

Foreign-invested enterprises and foreign investors shall, except for cases specifically prescribed by law, be accorded the same treatment as Korean nationals in their course of business (FCIA Article 15).

V|-i-5-5. Tax Incentive Systems

Foreign-invested enterprises are considered as domestic enterprises under Korean laws and are treated equally with regard to tax laws including the Income Tax law, Corporation Tax Law and Tax Exemption & Reduction Control law. Accordingly, various domestic tax exemptions and reductions previously granted uniformly to foreign-invested enterprises were abolished (in 1987) through the revision of the tax exemption and reduction system. However, a broad range of exceptional tax benefits are still afforded the foreign-invested company whose projects are considered important to the national economy. Under the FCIA foreign investor may choose either tax exemption or reduction of taxes which may be more favourable for capital intensive industries.

V|-i-5-5-1. Tax Privileges Under The FCIA

If the foreign-invested projects are located in the free export zones in Masan and Iri, or the projects are accompanied by advanced technology which meet the following certain criteria

they can get such benefits as tax reduction or tax exemption.

- advanced technology projects in 42 specified fields⁽⁴⁾
- projects that are accompanied by technology which is deemed to be difficult to develop independently in Korea and whose economic and technical effect is deemed to be significant by the MOF through consultation with the relevant Ministries and the Ministry of Science and Technology (MOST)
- projects which will domestically establish a manufacturing process that requires the technology
- projects intended to manufacture a product the same or similar to one already manufactured in Korea, if four years have not passed from the date of initial foreign investment approval or acceptance, or from the date of the Technology Inducement Report acceptance.

In addition, the FCIA allows tax exemption on royalties accruing from technology transfer contracts as well as for Direct Foreign Investment (DFI). Eligibility for tax exemption is based on whether or not the transferred technology is in one of the 62 industries specified by the MOF⁽⁵⁾.

V-i-5-5-2. Tax Incentives Under the Tax Exemption and Reduction Control Law (TERCL)

Foreign-invested companies as well as domestic companies can enjoy the tax exemption and reduction for certain period of time if their companies are categorised as small or medium-sized enterprises.⁽⁶⁾ In addition, if domestic as well as foreign-

invested companies' projects meet specified certain criteria, they will get the tax benefits. The eligible cases are as follows;

- projects that are engaged in development of Technology and man-power, the balanced development of urban and rural areas, a business based on foreign currency earning and engaged in the encouragement of investment⁽⁷⁾.

(/i-5-5-3. FCIA and TERCL

The FCIA and the TERCL are complementary to each other foreign investors or foreign-invested companies who cannot receive tax benefits according to FCIA shall have tax benefits according to TERCL, and vice versa.

To sum up, Korea's rapidly expanding economy, together with its open door policies offer a good investment climate to the foreign investor. Protection of property rights, an abundant labour force, efficient and reliable infrastructure facilities and a relatively large market in comparison with other developing countries all were positive factors facing foreign investors when it come to deciding where to invest. However, frequent government intervention⁽⁸⁾ and unstable politics, with democracy in transition, might be barriers for new entry. It is, perhaps, of importance that good personal relationships could be an important factor in the success of foreign-invested company since the mixing of different cultures can create potential problems as well as rewards. In addition, as was mentioned in chapter IV

and V, foreign investors should note that there is a gap between laws and practice in Korea.

VI-ii. Actual Situations & Trends of DFI in Korea

VI-ii-1. An Overview

In 1962, the Korean government approved foreign investment for a joint venture between Korean Nylon Company and Chamtex Inc. Ltd. of USA. It was the first foreign direct investment in Korea and was followed by large scale investment in the oil refinery industry and in the fertiliser industry.

According to Table VI-1, the direct foreign investment approved by the Government between 1962 to 1991 totalled US \$ 9,269 million for 3672 projects (an average of 2.5 million US dollars per project). The rapid increase in DFI since 1967 was due to the Korean-Japanese Normalisation Treaty in 1965, while another particularly marked expansion in the early 1970s was accelerated by the policy measures, encouraging the establishment of foreign ventures rather than foreign loans. In the late 1970s and early 1980s, it is argued that foreign investment was frustrated largely because of political turmoil - students and workers rioted in Pusan, Masan and Kwangju, the assassination of President Park and a military coup - and the second oil shock. As was mentioned earlier, in 1980, the Korean economy experienced a negative growth rate of GDP by 5.2 percent for the first time in its history (The Economic Planning Board, 1981). Since the early 1980s, it is argued that the expansion of DFI would be

partly explained by the opening-up of the Korean economy and by the attractiveness of the Korean economy as a consequence of the expansion of that economy. However, recently the number of foreign investment projects has declined and total amount of DFI has been fluctuating.⁽⁹⁾ This may be a reflection of the Korean economy's current sluggishness caused partly by less productivity. Table VI-2 shows a good example.

Table VI-1. Direct Foreign Investment by Year

Year	No. of Projects ⁽¹⁾	Total Amount (US\$ 1000) ⁽²⁾
1962-66	39	47,411
67-71	350	218,620
72-76	851	879,425
77-81	244	720,649
82-86	565	1,767,729
1987	362	1,063,327
1988	342	1,282,732
1989	336	1,090,279
1990	296	802,532
1991	287	1,396,096
Total	3,672	9,268,800

Source: The Ministry of Finance, 1992

* On an approval basis

1) New project only

2) Newly proposed amount plus additionally approved amount

Table VI-2. Labour Wages and Productivity in Selected Country
(unit: US dollar)

	Labour cost per hour		Value-added in production (1990)
	1986	1990	
Korea	1.45	4.16	14,430
Taiwan	1.73	3.98	20,350
Singapore	2.23	3.78	28,580

Source: The Economic Planning Board, 1992
The Ministry of Finance, 1992

VI-ii-2. DFI by Nationality

According to Table VI-3. DFI in Korea has been dominated by Japan and the USA by 1991; the total sum invested by corporations of Japanese origin amounted to US \$ 4019 million, 43.4% of the total amount of investment, whilst American-originated DFI amounted to US \$ 2,555 million, 27.6 % of the total investment. However, the average Japanese investment per project is relatively smaller than that of other countries since a large proportion of Japanese DFI goes into small and medium-sized firms in Korea, particularly in manufacturing and in service industries. Dutch and Swiss investment amounts are relatively bigger than that of the other countries though their number of projects are small because their investment is mainly engaged in capital-intensive industries such as petroleum, chemical, food processing and insurance industries.

Table VI-4 shows recent trends of DFI in Korea by nation both in number of projects as well as in amount, Recently, however, Japanese investment has dropped sharply from 497 million US \$ in 1987 to 226 US \$ in 1991, while European investment has been

increased significantly.

Table VI-3. DFI by Nationality

(1962-1991)

(Unit: 1,000 US \$)

Classification Country	No. of Project (Ratio %)	Amount (%)	Average Amount per Project
Japan	2,178 (57.7%)	4,018,934 (43.4%)	1,845
USA	887 (23.5%)	2,554,659 (27.6%)	2,880
Germany	122 (3.2%)	353,583 (3.8%)	2,898
Hong Kong	81 (2.2%)	235,648 (2.5%)	2,909
U.K.	67 (1.8%)	246,258 (2.7%)	3,675
Switzerland	57 (1.5%)	317,169 (3.4%)	5,564
Netherlands	55 (1.5%)	803,191 (8.7%)	14,603
France	54 (1.4%)	195,148 (2.1%)	3,613
Rest of the World	271 (7.2%)	544,210 (5.8%)	2,008
Total	3,772 (100%)	9,268,800 (100%)	2,524

Source: The Ministry of Finance 1992 (calculated by Author)

Note: In some cases, a number of countries have invested in the same project. Thus, number of project is different from that in other tables.

Table VI-4. Recent Trend of DFI by Nationality

(Unit: Million US \$, %)

Year Country	1987	1988	1989	1990	1991
Japan	497 (46.7%)	696 (54.3%)	462 (42.4%)	236 (29.4%)	226 (16.2%)
USA	255 (24.0%)	284 (22.1%)	329 (30.2%)	317 (39.4%)	297 (21.3%)
Europe	210 (19.8%)	243 (18.9%)	212 (19.4%)	207 (25.8%)	823 (59.0%) ^[10]
Others	101 (9.5%)	60 (4.7%)	87 (8.0%)	43 (5.4%)	50 (3.5%)
Total	1,063	1,283	1,090	803	1,396

Source: Korea Development Institute. 1992 (Report to the Economic Ministers' Meeting)

VI-ii-3. DFI by Industry

Table IV-5 illustrates DFI in Korea by line of business, 0.4 percent of the total amount of investment has been in agriculture and fisheries, 0.2 percent in mining industries, 66.9% in manufacturing sector and 32.5% in service industries. Among the manufacturing industries, chemical, electric & electronics, transport equipment and machinery industries have been attractive to foreign investors and composed 44% of the total DFI. This is a reflection of Korean government's policy that emphasises targeted industries since 1962.

There is a significant change in the pattern of DFI in Korea. Notably, the number of DFI projects in manufacturing industries has fallen from 321 projects in 1987 to 109 projects in 1991. In contrast, DFI in service sector has been increasing from 36 project in 1987 to 178 projects in 1991. Recently,

foreign investors have been less likely to invest in manufacturing sector because of rising wages and growth in number of labour dispute. In addition, ^{a result of} as the Korean government's policy of opening-up of the economy, direct investment in Korea is not necessary for those who intend to invest in order to escape the tariff and non-tariff barriers in Korea (KDI 1992). Furthermore, with liberalising efforts in finance and foreign exchange by the Korean government, the amount as well as number of project of DFI in general trading, banking & insurance industries have been increasing quite significantly.

VI-ii-4. Ratio of Foreign Ownership

In Table VI-6, sole ventures by foreign investors amounted to 23.8% of total investment on an approval basis as of the end of 1991. The enterprises with foreign share over 50% accounted for 58.7% of the total. However, according to Mardon (1990), this is very low figure by international standards. He argues that in the study of 66 countries, Korea ranked the lowest of all countries in the proportion of foreign firms that were wholly foreign owned. The second lowest on the list was Israel with 30%, and the third was Japan with 33%.

DFI and its timing reveals some important points. Firstly, in the 1960s, a large proportion of DFI was invested in the import substitution of raw materials such as fertilisers and petroleum. Secondly, in the 1960s and 1970s, export-oriented light

industries such as textiles and garments and electric and electronics industries were highlighted in terms of DFI industries. Thirdly, since the 1970s, as a result of the government emphasis on heavy and chemical industrialisation policies, a greater proportion of DFI has been concentrated on chemical, machinery, metals and transport equipment industries. Fourthly in the early 1980s, according to the fifth five year plan (1982-1986), the development of the tourism industry was targeted for development in order to host Asian Games in 1986 and Olympic Games in 1988. Over 43% of DFI approved by the government in this sector (notably hotels alone accounted about 38% of total DFI in 1982-1986). Finally, since 1987, Korea's effort to open its financial sector to foreign investors sizeable amount of DFI being in the banking and insurance industries.

Table VI-5. Industrial Distribution of DFI in Korea

Unit: No. of Projects and Amount (\$1 000)

YEAR	62-71		72-76		77-81		82-86	
	P	A	P	A	P	A	P	A
Arg.,Liv. and Fisheries	15	2,096	45	7,986	11	4,726	6	5,611
MINING	3	312	20	4,278	3	1,695	10	4,261
MANUFACTURING	336	231,441	734	676,168	191	582,161	449	927,926
Food Processing	13	5,710	24	17,709	13	35,025	45	85,255
Textile & Garments	50	22,522	100	167,087	10	4,981	19	16,682
Wooden Work	7	1,784	17	5,124	6	6,491	5	13,768
Chemicals	38	24,106	77	172,013	20	140,738	50	118,009
Fertilisers	3	24,500	2	21,325	-	1,500	1	1,282
Pharmaceuticals	10	3,674	9	2,497	9	14,521	35	75,018
Petroleum	5	42,747	2	32,460	2	9,515	2	5,266
Ceramics	15	10,598	26	10,100	7	5,730	8	15,259
Metal Products	20	17,725	66	46,274	21	36,097	24	21,582
Machinery	36	21,000	103	40,522	47	58,081	82	53,880
Electric & Electronics	64	45,279	189	104,160	31	124,394	98	250,351
Transport Equipment	9	4,250	16	39,552	11	38,645	23	255,290
Others	66	7,546	103	17,345	14	6,443	45	16,284
SERVICE	35	32,182	52	190,993	39	232,067	100	829,931
Construction	3	3,680	-	-	1	9,800	4	41,254
Whole & Retail Sale	-	-	-	-	-	-	12	17,022
Trading	2	42	1	10	3	358	9	4,241
Restaurant	-	-	-	-	1	100	5	1,581
Hotel	5	7,794	29	160,763	11	71,314	16	671,852
Transport & Warehouse	6	3,904	5	3,428	3	23,183	3	4,408
Banking	2	2,921	5	10,441	7	90,778	8	66,679
Insurance	-	-	-	-	3	3,009	-	563
Others	17	13,841	12	16,351	10	33,525	43	22,331
Total	389	266,031	851	879,425	244	720,649	565	1 767,729

*Source : The Ministry of Finance 1992
(Calculated by author)

Unit: No. of Projects and Amount (\$1 000)

87		88		89		90		91		Total		Ratio(%)	
P	A	P	A	P	A	P	A	P	A	P	A	P	A
1	2,747	1	9,841	1	2,158	-	-	-	-	80	35 165	2.2	0.4
4	962	3	1,652	-	1,317	1	526	-	1,172	44	16 175	1.2	0.2
321	772,602	272	736,189	194	727,433	136	583,313	109	1,069,286	2 742	6 206 519	74.7	66.9
17	50,282	14	13,474	18	41,171	8	32,777	11	92,306	163	373,709	4.4	4.0
16	12,271	15	20,513	13	14,023	5	6,798	7	12,518	235	277,395	6.4	3.0
5	14,425	3	4,263	1	5,526	4	1,133	4	9,790	52	62,304	1.4	0.7
45	153,401	44	237,471	30	173,230	19	217,585	20	160,603	355	1,397,156	9.7	15.1
-	-	-	-	-	-	1	214	-	-	7	48,821	0.2	0.5
4	33,634	3	41,142	5	37,033	4	35,594	2	46,352	81	289,465	2.2	3.1
1	54,613	-	-	-	37,319	-	-	2	472,935	14	654,854	0.4	7.1
6	7,560	4	12,966	7	41,390	3	16,317	2	2,440	78	122,360	2.2	1.3
16	17,527	18	13,435	6	12,641	8	13,198	6	8,464	185	186,943	5.0	2.0
47	86,902	62	64,972	41	100,162	32	79,382	33	85,089	483	589,990	13.2	6.4
79	206,157	55	267,884	41	116,164	20	89,331	11	124,123	588	1,327,843	16.0	14.2
31	119,532	12	43,138	11	142,890	13	74,921	4	49,850	130	768,068	3.5	8.3
54	16,298	42	16,931	21	5,884	19	16,063	7	4,817	371	107,611	10.1	1.2
36	287,016	66	535,050	141	359,371	159	218,693	178	325,638	806	3,010,941	21.9	32.5
-	-	-	-	-	-	2	1,500	2	515	12	56,749	0.3	0.6
4	685	8	1,519	1	840	3	972	14	39,733	42	60,771	1.1	0.7
5	11,226	11	4,354	89	35,352	92	47,028	88	63,747	300	166,358	8.2	1.8
2	340	8	1,261	4	1,279	2	949	10	17,036	32	22,546	0.9	0.2
8	251,992	5	418,902	2	101,057	-	23,783	1	31,132	77	1 738,589	2.1	18.8
1	1,700	-	1,129	-	3,585	5	3,339	9	1,794	32	45,304	0.9	0.5
1	16,080	7	89,767	7	154,354	13	78,191	8	77,643	58	586,854	1.6	6.3
-	630	-	9,979	6	44,924	2	46,670	3	75,709	14	181,484	0.4	2.0
15	4,363	27	8,139	32	17,980	40	16,261	43	18,329	239	151,120	6.5	1.6
362	1,063,327	342	1,282,732	336	1,090,279	296	802,532	287	1,396,096	3 672	9,268,800	100	100

Table VI-6. Ratio of Foreign Ownership

Unit: U.S. 1 000 amount

Year	62~71		72~76		77~81		82~86		87		88		89		90		91		Total		Compositio n (%)	
	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A
Less than 10%	4	5 353	8	13 885	12	31 474	9	156 808	5	31 015	9	106 771	3	198 225	5	42 551	8	57 516	63	643 538	1.7	6.9
10% ~ 49%	156	74 678	376	178 671	128	226 126	263	772 711	202	375 383	187	382 037	160	260 746	143	230 752	124	686 944	1 739	3 188 048	47.3	34.4
50%	92	77 346	255	243 366	68	165 412	138	361 068	48	239 326	48	377 116	40	239 439	25	112 024	37	123 168	751	1 938 445	20.5	20.9
51 ~ 99%	72	40 186	87	151 569	23	100 803	83	139 768	62	218 689	52	115 522	48	223 606	46	194 947	26	116 887	499	1 301 977	13.6	14.0
100%	65	68 468	125	291 934	13	196 834	72	337 374	45	198 714	46	301 346	85	168 283	77	222 258	92	411 581	620	2 196 792	16.9	23.8
Total	389	266 031	851	879 425	244	720 649	565	1 767 729	362	1 063 327	342	1 282 732	336	1 090 279	296	802 532	287	1 396 096	3672	9 268 800	100.0	100.0

*P Project

*A Amount

Source : Economic Planning Board 1992 (Calculated by Author)

Table VI-7. Capital Outflows from Korea through TNCs

Class Year	Repatriation of Principals	Remittance of Dividends	Total
61-71	3,732	23,110	26,842
72-76	22,411	116,452	138,863
77-78	177,952	267,097	445,049
82-86	191,300	419,184	610,484
87	23,680	120,968	144,648
88	46,093	141,667	187,760
89	75,054	166,045	241,099
90	136,201	170,198	306,399
91	47,291	211,315	258,606
Total	723,714	1,636,036	2,359,750

Source: The Ministry of Finance 1992 (calculated by Author)

VI-ii-5. Capital Outflows from Korea through TNCs

Table VI-7 demonstrates that capital outflows from Korea through TNCs continues to increase. Their dividends amounted to US \$1,636 millions and repatriation of principals reached US \$724 millions by the end of 1991, this from a total DFI of US \$2,360 millions. These capital outflows accounted for nearly 26% of the total invested amount. Disregarding the repatriation of principals, there is no doubt as to the huge profitability of DFI which allowed remittance of dividends average of 14% of the total investment during 1987-1991 period.

To sum up, since 1962, the Korean government has tried to open its economy gradually towards foreign investors. However, foreign investors seem to be reluctant to invest in Korea. Some of the

foreign managers in foreign-invested firms in Korea complain⁽¹¹⁾ about the relatively higher wages when compared with other developing countries, labour disputes, frequent policy changes and government intervention - indeed, foreign invested enterprises should report to the MOF about their business activities every month. In addition, Korea's socio-cultural background of strong nationalist anti-foreign attitudes is regarded as a barrier to invest in Korea (see next chapter). As a result, the proportion of DFI to GNP in Korea is smaller than that of other countries illustrated in table VI-8.

Table VI-8. Proportion of DFI to GNP in Selected Countries
(%, 1989)

	Korea	Taiwan	Singapore	Taiwan	USA	France
DFI/GNP	0.36	1.61	14.6	2.58	1.36	2.50

Source : Korea Development Institute, 1992

Given that DFI is a valuable source of technology, the Korean economy will be in this regard relatively weaker.

VI-iii. Actual Situations & Trends of Technology Transfer in Korea

VI-iii-1. Introduction; An Overview

The technology transfer from foreign countries to Korea through DFI and licensing agreements has been increasing rapidly in terms of the number of projects; and royalty payments for the technology transfers have also been increasing. In this section,

the general trend of technology transfer and royalty payments is analysed.

VI-ii. Trends of Technology Transfer

As of the end of 1991, the Korean economy has imported 7526 technology projects⁽¹²⁾ since 1962 from 41 countries. Partly as a result of industrial development, the Korean economy as a late-comer has become heavily dependent on imports of foreign technology.

Table VI-9 shows that most of the imported technology comes from Japan and the USA, Japan provides technology transfer to Korea in 3,812 cases which consist of 50.6% of the total technology transfer, and the USA in 1991 cases, 26.5% of the total. It could mean that the Korean economy is largely dependent upon Japanese and American technologies which consist of 77.1% of the total technology transfer.

Table VI-9. Technology Transfer by Nationality
(No. of Projects)

Nation Year	Japan	USA	Germany	France	U.K.	Rest of the World	Total
62-76	494	164	23	7	21	43	752
77-81	631	302	70	39	49	134	1,225
82-86	1,074	515	122	82	73	212	2,078
87	307	180	25	40	21	54	637
88	354	200	49	47	20	81	751
89	343	244	37	41	23	75	763
90	333	221	55	25	28	76	738
91	276	165	34	26	27	54	582
Total	3,812	1,991	452	307	262	729	7,526
Composition (%)	50.6	26.5	5.6	4.1	3.5	9.7	100

Source: The Ministry of Finance 1992

Table VI-10 shows that Japanese and American technologies have been transferred to all Korean industries, particularly more than 60% of the total transferred technologies in machinery industry (1,188 cases out of 1,934) have been transferred from Japan, and power plant industry's technologies have been transferred from the USA (53 cases out of 98).

Table VI-10. Distribution of Technology Transfer by Industry & Nationality

Nation	Japan	USA	Germany	France	U.K.	Rest of World	Total
Industry							
Arg. & Livestock	20	11	-	-	1	3	35
Food Processing	108	86	9	9	7	22	241
Wooden Work	14	10	2	-	-	2	28
Fabrics of Products	21	19	2	3	4	14	63
Chemical Fibre & Yarns	128	65	9	99	14	54	369
Ceramic & Cements	123	41	13	10	11	14	212
Petroleum & Chemicals	659	328	76	57	54	103	1,277
Pharmaceuticals	55	64	24	8	8	22	181
Metal Products	235	78	24	7	24	39	407
Electric & Electronics	892	682	75	30	17	119	1,815
Machinery	1,188	336	133	40	90	147	1,934
Ship Building	48	27	26	14	16	82	213
Communication Equipment	42	33	4	-	1	18	98
Power Plants	19	53	6	2	1	8	89
Construction	62	34	1	2	9	21	129
Others	198	124	21	26	5	61	435
Total	3,812	1,991	425	307	262	729	7,526
Composition (%)	50.6	26.5	5.6	4.1	3.5	9.7	100.9

Source: The Ministry of Finance, 1992

Most of the technology transferred has been targeted to industries such as in Machinery (25.7%), Electric and Electronics (24.1%) and Petroleum & Chemicals (17.0%). This is shown at Table VI-11. However, technology transfer projects in Korea have been declined from 763 cases in 1989 to 582 cases in 1991. It is argued that in Korean companies' point of view, foreign firms are reluctant to transfer their technology simply because they are aware of Korean firms' ability to do catching up and to create more sophisticated technology from them. As

Korea has become a major competitor, Hobday (1991, p.3) argues, Japan has become more reluctant to transfer technology in many key areas of components, software, capital goods and machinery. On the other hand, however, from foreign companies' point of view, many foreign companies' managers complain about the Korean government's tight control over transfer of technology, especially in terms of royalty payments⁽¹³⁾. It is also argued that the declining number of projects introducing technology transfer is partly due to the growing hesitancy of foreign investors.

Table VI-11. Distribution of Technology Transfer by Industry and Year

(No. of Project)

Year	62-76	77-81	82-86	87	88	89	90	91	Total	Compo sition (%)
Industry										
Arg. & Livestock	6	5	15	3	1	4	1	-	35	0.5
Food Processing	15	30	101	23	15	22	18	17	241	3.2
Wooden Work	7	7	3	2	4	3	1	1	28	0.4
Fabrics Products	17	12	21	7	1	2	2	1	63	0.8
Chemical Fibre & Yarns	21	29	106	30	51	54	42	36	369	4.9
Ceramic & Cements	21	34	50	25	20	22	26	14	212	2.8
Petroleum & Chemicals	149	194	317	127	147	134	124	85	1,277	17.0
Pharmaceuticals	27	31	55	8	14	16	14	16	181	2.4
Metal Products	74	105	112	31	26	23	21	15	47	5.4
Electric & Electronics	154	205	473	162	209	227	212	173	1,815	24.1
Machinery	180	403	546	148	181	158	174	144	1,934	25.7
Ship Building	11	45	94	13	14	10	14	12	213	2.8
Communication Equipment	26	21	28	2	3	4	7	7	98	1.3
Power Plants	9	37	24	7	4	5	3	-	89	1.2
Construction	8	25	39	5	5	18	13	16	129	1.7
Others	27	42	94	44	56	61	66	45	435	5.8
Total	752	1,225	2,078	637	751	763	738	582	7,526	100.0
Change by Previous Year (%)	-	-	-	23.2	17.9	1.6	-3.3	-21.2	-	-

Source: The Ministry of Finance, 1992

VI-iii. Trends of Royalty Payment

Royalty payments from Korean firms and/or foreign invested firms have been increasing. Despite the fact that the number of projects involving the transfer of technology decreased between 1989 and 1991 the royalty payments have gone up by 24% from US \$889 to US \$1184 M. This is illustrated in Table VI-12. About

72.8% of the total royalty payment are paid by electric and electronics, machinery and petroleum and chemical industries. The power plant industry alone has paid about 10% of the total royalty payments though the number of projects was only 1.2% of the total.

Table VI-12. Distribution of Royalty Payment by Industry & Year

(Unit: US\$ 1 000)

Industry	YEAR 62~ 76	77~ 81	82~ 86	87	88	89	90	91	Total	Composit- ion (%)
Arg. & Livestock	2038.6	4561.9	2513.0	684.3	1326.4	1939.6	3119.7	1724.0	17907.4	0.3
Food Processing	2039.5	3311.1	16312.5	4314.4	5169.8	8932.8	9483.4	14399.1	63.962.4	0.1
Wooden Work	111.7	7353.2	673.2	270.0	431.3	966.4	1215.2	2771.3	13292.3	0.2
Fabrics Products	664.1	4910.7	5712.9	2094.5	1351.7	362.3	1288.0	3784.0	20168.3	0.3
Chemical Fibre & Yarns	8700.6	13367.2	16281.7	6188.6	6928.5	12823.2	13169.8	21364.1	98823.8	1.6
Ceramic & Cements	1040.6	10565.1	28457.8	6703.5	6804.8	25686.4	15575.5	18241.9	113075.6	1.9
Petroleum & Chemicals	32631.4	147275.3	149046.0	61242.0	106541.7	146451.5	210321.6	177482.0	1030791.4	16.9
Pharmaceuticals	1184.4	649.6	14773.3	4157.8	5642.9	4983.6	6799.7	9692.7	47879.0	0.8
Metal Products	23906.1	31976.4	36933.7	12025.0	6029.9	10456.3	8631.8	6918.7	136878.3	2.2
Electric & Electronics	12801.8	47461.6	315244.4	190241.7	259617.8	380925.4	461265.8	471159.6	2138722.1	35.0
Machinery	14566.5	89329.1	238328.3	119694.2	120751.0	154518.2	216370.2	323953.7	1277511.3	20.9
Ship Building	5091.0	11272.9	92163.9	11547.7	6027.9	12369.3	16183.6	34065.1	188723.4	3.0
Communication Equipment	5033.4	18700.3	42474.5	6926.9	5403.6	7511.6	6493.6	1439.1	93983.0	1.6
Power Plants	2759.0	25416.0	173792.1	75052.2	113744.2	88231.0	79875.2	65981.0	624850.6	10.2
Construction	248.2	17707.1	14175.6	1934.2	1837.0	503.7	4027.2	3877.3	44310.3	0.7
Others	725.6	17534.0	38060.1	20629.6	28757.1	31911.7	33169.8	27431.2	198219.1	3.3
Total	113542.5	451391.5	1184943.0	523706.5	676356.6	888577.0	1086990.1	1183784.8	6109298.3	100
Change by Previous Year (%)	-	-	-	27.4	29.1	31.4	22.3	8.8	-	-

Source : The Ministry of Finance, 1992

Table VI-13. Distribution of Royalty Payment by Year & Nationalities

(Unit: US\$ Million)

Nation Year	USA	Japan	Germany	France	Others	Total
62-76	29.7	63.7	8.2	1.6	10.4	113.0
77-81	159.2	139.8	14.0	14.3	124.1	451.4
82-86	602.7	323.7	49	34.7	174.8	1,184.9
87	239.9	181.4	18.6	25.1	58.7	523.7
88	330.0	214.7	22.1	47.9	61.6	676.3
89	415.7	273.9	52.8	39.9	106.3	888.6
90	814.1	341.4	59.3	29.9	142.3	1,087.0
91	621.9	370.6	59.8	41.2	90.2	1,183.7
Total	2,913.2	1,909.2	283.8	236.6	768.4	6,109.2
Composition (%)	47.7	31.3	4.6	3.8	12.6	100.0

Source: The Ministry of Finance, 1992

Table VI-13 shows the quite controversial relationship between number of projects and royalty payments. Royalty payments to Japan have amounted to 1,090 million US \$ for 3,812 projects whilst American firms were paid 2,913 million US \$ for 1991 projects. This reflects the fact that American DFI per project is bigger than that of Japanese DFI. As was mentioned earlier, American DFI and technology transfer mainly take place in heavy industries such as petroleum & chemical, power plant, and automobile industries which may require more sophisticated technology and capital intensity.

To sum up, technology transfer from abroad to Korea has been increasing for the past three decades. Although recent trends show a sluggishness in transferring technology from abroad to Korea it would be expected that more active technology transfer to Korea would occur as the Korean government as well as Korean

firms are enthusiastically seeking more advanced technology. However, a diversification of sources of technology from mainly Japan and the USA towards other advanced countries would give Korea more bargaining power and so might aid long-term development of the Korean economy. However, one thing that should not be overlooked is that control over royalty payments would be harmful for the Korean economy in two ways. If it had to pay more, the Korean economy would be damaged by losing foreign currency. In contrast, in case of trying to pay less, highly-sophisticated or very advanced technology might not be transferred.

VI-iv. Concluding Remarks

Assuming Korea can no longer depend upon low value-added and labour-intensive industrialisation to sustain its growth, the role of DFI as a means of technology transfer is still of importance in Korea. Although the Korean government has introduced many schemes favourable to foreign investors, the amount of DFI and the number of technology transferred to Korea would not be increased if the Korean government continues to control foreign capital and foreign technology only for national economic development. This, in turn, has been a cause of problems for inducing foreign capital and technology respectively. However, as the Korean government plans to open up opportunities for foreign investment, its role in determining DFI and technology transfer in the industrialisation process will be more important.

Notes

- (1) This introductory section and many portions of section I are mainly based on the many of various kinds of foreign investment guidelines which have published from the Ministry of Finance and the Economic Planning Board in recent years.
- (2) Notably there are eight large general trading companies such as Samsung, Hyundai, Daewoo, Lucky-Goldstar, Sunkyung, Ssangyong, Hyosung, Korea Explosive.
- (3) The code number is composed of five units in Arabic figures.
- (4) 42 specific fields are classified by the MOF and the Ministry of Science and Technology. Almost all are highly advanced technology fields such as precision engineering, computers, semi-conductors and high-tech machinery fields.
- (5) Almost all industries are highly advanced and sophisticated industries.
- (6) Number of employees should be less than 500.
- (7) Especially new investment in equipment or facilities such as those for increasing productivity, energy saving, anti-pollution, etc.
- (8) Indeed, ^{foreign companies} should report to the relevant ministries or Bank of Korea concerning their business every month (see chapter 5)
- (9) In 1991, there was massive foreign investment of 471 million US \$ in the chemical industry in Korea from ARAMCO Ltd (Netherlands). Despite this investment, the general trend of DFI in Korea in terms of both the number of projects and amount of investment has been declining.
- (10) See above.
- (11) During my stay in Korea, several foreign managers were interviewed. Details will be discussed later.
- (12) The term technology project is defined as the number of cases of technology transfer.
- (13) During the field-work, we have interviewed some foreign managers. Detailed information will be discussed later.

Chapter VII

DFI and Economic Environment of Korea

VII-i. Introduction

VII-i-1. Objective of the Study

This study examines the situation of foreign invested companies in Korea. Firstly, their reasons for investing and the problems which the foreign-invested companies have experienced in their operation in Korea will be looked at. This will be followed by a comparison with the general situation of foreign invested companies in other Asian NICs. Secondly, this study aims to determine the sources, level and pattern of technology transfer to the host companies in Korea. Thirdly, the education system generally and technical training in particular in Korea will be examined. The study concludes with policy recommendations for the future.

VII-i-2. Choice of Industry

The metal, machinery and chemical industries were chosen for the initial case study, and the automobile industry was chosen for the core part of this research.

The choice was influenced largely by the following considerations. Firstly, these industries are the heavy industries which the Korean government intended to develop since 1970's by encouraging foreign and domestic investors.

Therefore, there has been a lot of foreign participation in these industries. Secondly, these industries and the automobile industry in particular, have been vital to the Korean economy as a whole. Locally produced products from the metal, machinery and chemical industries are, to some extent, demanded by the automobile industry in Korea, which will be one of the major industries in the future so that these industries contribute significantly to the Korean economy. Thirdly, these industries are regarded as being part of the modern manufacturing sector, in comparison with the textile and clothing industries and the electronics assembly industries in Korea. This reflects the high quality of their products and the technological level of Korea. Finally, these industries are typically dominated by multinational corporations all over the world, and so provide an appropriate form for research into multinational activities and technology transfer in Korea.

VII-i-3. Choice of Firm and Research Methodology

At the end of 1991 the total number of foreign invested companies in the chemical industry was 355, in the metal industry 185 companies and in the machinery industry 483 companies (Ministry of Finance, 1992). Out of this population some companies have been ignored in this study for the following reasons. Firstly, there were some companies whose addresses were not known mainly because of withdrawal of their assets, while some companies were still looking for a base for their operation. Secondly, some companies were not really operating, mainly

because they were still building their factories and offices. For these reasons, this study concentrates largely on those companies who invested during 1970s and 1980s. Finally, some companies who invested less than U.S.\$500,000 have been ignored since their activity and contribution to the economy has not been very significant. However, 7 companies who invested less than a half million U.S. dollar were considered since all 7 companies belonged to big group of companies; chaebuls. These companies include companies from different industries, but all are in manufacturing.

In this study, two methods were used to obtain data; a questionnaire and interviews. A formal questionnaire was designed and sent to foreign invested companies in Korea. The questionnaire was designed to enhance response rates and extract as many objective answers as possible. In the personal interviews, comments were solicited from respondents on the subject matter as well as other relevant issues not covered in the questionnaire. Most of the interviewees were alien Korean or foreign officials and businessmen.

Most of the questions were presented in a systematic and sequential order and analyzed by a 5 or 3 scale average. Some responded questions were good enough but others were not. Badly answered or poorly completed answers were ignored, and only effective answers have been considered in this study. The interviews were used in support of the questionnaire results.

VII-ii. Analysis of Data

VII-ii-1. Background

We got 85 effective responses from 195 enterprises; that gives a 43.6% response ratio. Table VII-1 shows us the general background of the sample companies. Among the 85 sample companies, Japanese investors invested in 47, (that is 55.3%), American investors invested in 14, (16.5%), German investors invested in 7, (8.2%), and the rest of the world, invested in 17, (20%). As far as the ownership ratio is concerned, 12 cases were 100% owned by foreign investors, 16 were between 51 and 99% foreign owned, 16 were owned half by foreign investors and half by Koreans, and 41 cases (48.3%) were owned predominantly by Korean entrepreneurs. When we calculate the average amount of investment, the figure for the chemical industry is much higher than for the other industries.

Table VII-1. General Background of the Sample Companies

By Industry

	Chemical	Metal	Machinery	Others	Total
Questions Sent	74	32	84	5	195
Effective Response	25	14	41	5	85
Ratio(%)	33.8	43.8	48.8	100	43.6

By Nationality

	Japan	U.S.A.	Germany	R. of World	Total
No. of Case	47	14	7	17	85
Ratio(%)	55.3	16.5	8.2	20	100

Foreign Ownership Ratio

	100%	99-51	50	49-1	Total
No. of Case	12	16	16	41	85
Ratio(%)	14.1	18.8	18.8	48.3	100

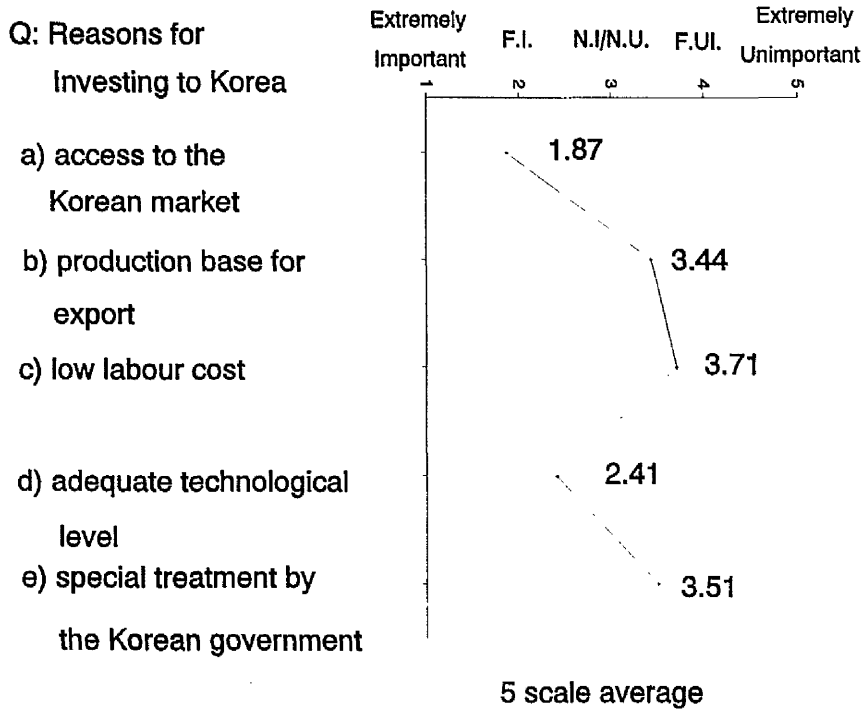
By Amount

(unit: thousand U.S.\$)

	Chemical	Metal	Machinery	Others	Total
Investment Amount	110,278	20,180	86,544	6,844	223,846
Average Amount	4,411	1,441	2,111	1,369	2,633

VII-ii-2. General Environment

Figure VII-1. Major Reasons for Investing in Korea - Foreign Investors' Point of View



Source: Research Data

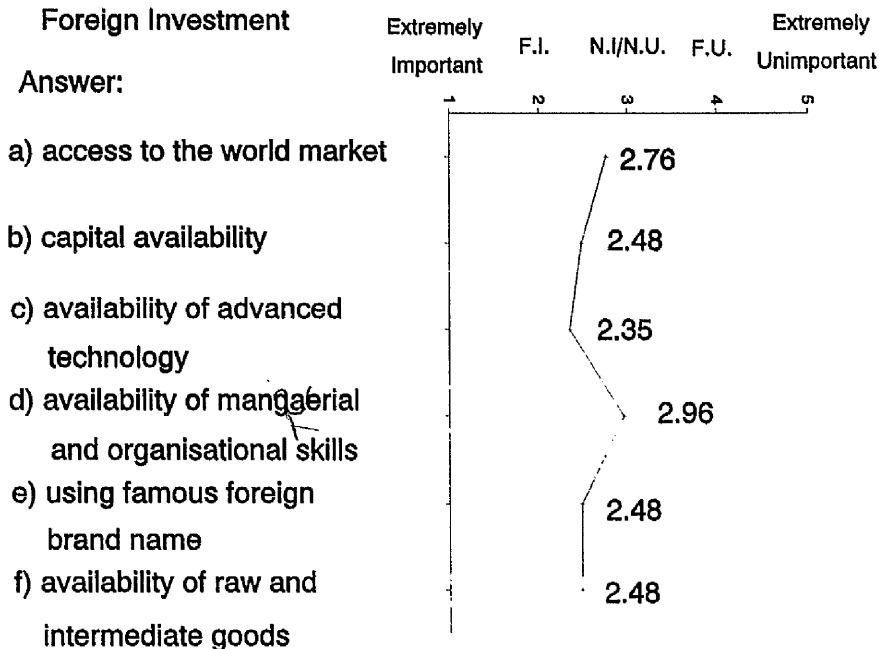
From the above data, it is clear that foreign investors are mainly attracted by the Korean market(1.87) and relatively adequate technological level(2.41) in comparison with the other LDCs rather than because of the Korean government's special treatment(3.51) or Korea's advantages as an export base(3.44).

Recently, Korea has ceased to be a cheap labour economy from the foreign investors' point of view (see table VI-2).

Figure VII-2. Major Reasons for Adopting Foreign Investment - Korean Partners' Point of View

Q: Reasons for adopting Foreign Investment

Answer:



5 scale average

Source: Research Data

Major reasons for adopting foreign investment from the Korean partners and Government's point of view are availability of

advanced technology(2.35), the use of trademarks(2.48) and capital(2.48). Also, access to the world market(2.76), availability of raw materials and intermediate goods(2.79) and managerial skills(2.96) are of importance.

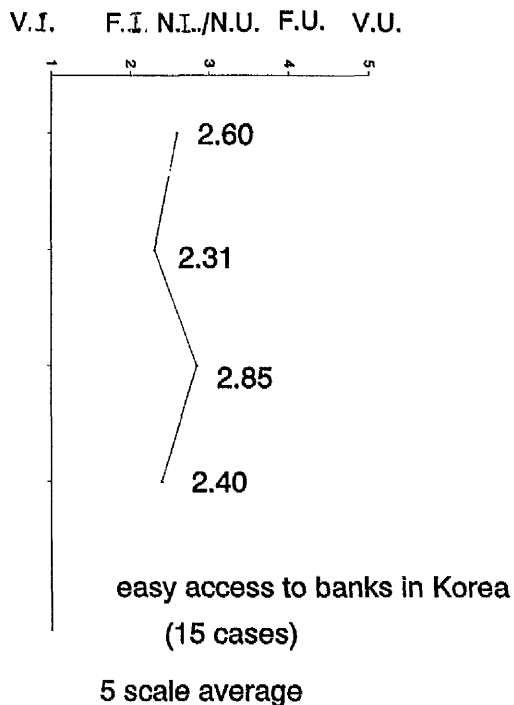
VII-ii-3. Foreign Investors' Desire

Figure VII-3. Foreign Investors' Desire

Q: What kind of special treatments would you prefer from the Korean government?

Answer:

- a) tax exemption
- b) repatriation of capital
- c) anti-labour dispute law
- d) supplying factory site
- e) others



Source: Research Data

Foreign invested companies are willing to receive special treatment from the Korean government, especially free repatriation of capital dividends (2.31). In an indirect interview⁽²⁾ with a foreign banker, Mr. Alan Timblich, the head

of Barclays Bank in Korea noted that "Koreans are not very internationally minded, a foreigner making profits is still seen as exploiting Korean workers, and foreign businessmen are complaining about difficulties of capital repatriation". Especially in the case of a joint venture company although the Korean government guarantees the repatriation of capital, in many cases the Korean partners take a different point of view from their foreign partners. "A foreign manager will want to run his company according to criteria and accounting principles determined at head office level. The Korean partner is likely to argue that in Korea you do not go for return on capital but for market share, at least until you have eliminated your competitor". (Timblich, cited in Financial Times, 3rd June, 1993). In this sense, Mr Timblich says: "The Koreans are waking up to the foreign exodus. For the first time last year (1992) more companies left than arrived. It is one thing to be suspicious of foreigners making profits. It is another to be shunned. It is exactly what they do not need at a time when they should be upgrading their technology". (Ibid, p.33)

As was mentioned in chapter V, it is very difficult for a foreign company to persuade a Korean bank to lend. Furthermore, "foreigners are forbidden to hold land, unless in high-tech industries." Mr. Twist, head of ICI in Korea, says further that "if you are a pharmaceutical company, you can build a plant. If not, you can own the business 100 per cent, but you cannot build the factory. So in chemicals, for instance, you would still want a local partner - partly for market access, but mainly to get hold of land". Foreign businessmen in Korea generally believe

that having a partner is the best way to operate. In an interview with Mr. Gindele, Director of the German Korean Chamber of Commerce in Seoul, he said "I believe there are many areas, particularly in dealing with labour unions and negotiating with government officials where you need a local partner. The ideal arrangement is a partner with a 25% stake in the joint venture".

It is clear that foreign investors are in need of Korean partners in order to gain access to banks, land, local markets, and to deal with labour and government officials. It is argued that the low ratio of foreign ownership in Korea is not solely because of the Korean government's policy (see chapter V) but because of the foreign investors' own strategic interests.

VII-iii. Problems of Operation in Korea

Foreign invested companies in Korea have often experienced technical, financial and administrative problems. Table VII-2 shows that the sample companies have experienced 243 problems in Korea.

Table VII-2. Problems Experienced in Korea

Problem	Technical Problem	Financial Problem	Administrative Problem	Labour Dispute	Environmental Regulation	Total
No. of Cases	67	71	75	16	14	243 (85)
%	78.8	83.5	88.2	18.8	16.5	*

Source: Research Data

*: Percentage is calculated by total number of companies

() : No. of total companies

Table VII-2 shows that most of the foreign invested firms have experienced with a range of administrative, financial and

technical problems. However, labour and environmental matters seem to be less significant problems in the sample companies. It may be true that foreign invested companies generally pay their workers more than purely Korean-owned companies. This would, together with typical anti-disputes laws for foreign invested companies, explain the lower level of industrial disputes in the sample companies than in Korea generally⁽³⁾. Also, it seems that the Korean government is relatively generous on environmental matters.

VII-iii-1. Administrative Problems

Table VII-3. Administrative Problems

Problem	So many regulations, delays in official procedure	Customs and import restriction	Sudden change of government policy	Regional or person differences in regulation	Total
No. of case	46	21	4	4	75
%	61.4	28	5.3	5.3	100%

Source: Research Data

Many foreign investors complained about Korea's approval system for DFI, and its regulations. As was mentioned in chapter V, the screening and monitoring procedure for foreign investment is among the biggest problems experienced by foreign investors. The head of a German manufacturing company could not believe the amount of paper work he had to go through to get approval for his joint venture. "We had to meet 376 different rules before we were accepted", said the GM, who asked that his name and company

should not be identified. Even in Communist China, the GM continued, "for the same deal there would be only 80 relevant regulations". In an interview, soon after President Kim Young Sam's inauguration, when asked what changes British companies would like to see in Korea, Mr. Douglas Gray, First Secretary for Commercial Affairs at the British Embassy in Seoul, replied simply, "less regulation, lower tariffs and lower taxes". The main problem that most of the foreign invested companies have in Korea is that the numerous rules and regulations make life difficult. Foreign investors are particularly upset by long-standing rules governing taxation of foreign business and approval procedures for establishing permanent operations in Korea. Foreign invested companies complain about the lack of transparency in these guidelines, which makes them difficult to understand and even harder to comply with. Foreign executives working in Korea also complain that the interpretation of vague regulations is often left to the discretion of individual government officials.

VII-ii-2. Financial Problems

Table VII-4. Financial Problems

Problem	Access to bank loans	Repatriation of capital	Availability of foreign exchange	Local taxes	Total
No. of cases	43	14	8	6	71
%	60.6	19.7	11.3	8.4	100%

Source: Research Data

Not surprisingly, investors are facing severe financial difficulties with their operations. Apart from the other problems, they are prohibited by law from obtaining bank loans for working capital, forcing them instead to rely solely on profits in order to expand their operations. With investment in the manufacturing sector severely curtailed because of rising labour costs and lack of working or operating capital⁽⁴⁾, the only interest these days is in the service and retailing sectors. "Anyone who comes to Korea to set up a manufacturing base must have a hole in his head" says one foreign executive working for the local branch of a major securities company. "Those days are gone forever. With overheads so much cheaper in China, Indonesia, the Philippines and Thailand, no one wants to come to Korea any more. Those who do come are not interested in manufacturing. They want to invest in the service sector where the return on investment is faster than in the manufacturing sector".

It is argued that the Korean government's tight control over the financial system which does not allow foreign investors to access bank loans may be one of the reasons for diminishing

foreign investment in the manufacturing sector and for increasing foreign investment in the service sector (see chapter VI). It may be harmful for the Korean economy if DFI continues to go to the service sector without bringing in manufacturing technology.

VII-iii-3. Technical Problems

Table VII-5. Technical Problems

Problem	Inadequacy of technology level	Shortage of technical expertise	Matter of standardised products from Korean suppliers	Lack of information service system	Total
No. of cases	30	17	11	9	67
%	44.8	25.4	16.4	13.4	100

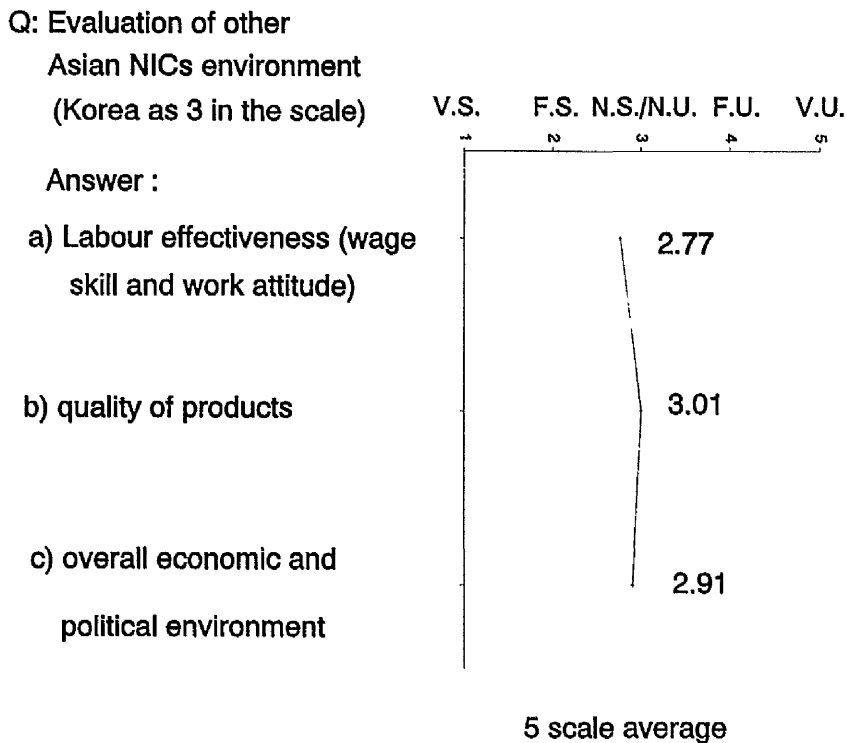
source: Research Data

Among 67 foreign invested firms who experienced technological problems, inadequacy of the technological level of Korea has been the most serious problem (30 cases, 44.8%). A shortage of technological expertise was ranked the second most serious problem. Indeed, in the machinery industry in particular and in Korea in general, partly because of shortages, skilled workers and technicians are paid more than university-educated managers.

For example, in computer-related work in the machinery industry. For example, (CNC machine tools, CAD, CAM and CAE), wages are very high because of the difficulty in finding appropriately skilled workers. A shortage of technological expertise may, in turn, partly be a cause of difficulties in obtaining standardised products in some industries in Korea. The absence of information service system also contributes to the problems.

VII-iii-4. Evaluation of Korea's Environment with Respect to Other Asian NICs⁽⁵⁾

Figure VII-4. Comparative Analysis of Environment



Source: Research Data

"The Koreans want only three things from us (not USA). They want our cash, they want our technology and they want us out" (a Senior Western businessmen, unknown, cited in Financial Times, June 3, 1993)

The remark contains a nugget of truth even if it is not wholly serious. It also illustrates a genuine and pressing problem for the Korean economy. Many foreign executives in Korea express the view that in other Asian NICs, the economic and overall

environment for foreign investment is better than that of Korea. Particularly, workers' efficiency, in terms of wage levels, productivity and attitudes, in other Asian NICs, is more effective than with Korean workers. As was shown in Table VI-2, among the Asian NICs, Singapore is the most attractive to foreign investors in terms of labour cost and productivity. Figure VII-4 shows that overall the environment of the other Asian NICs is likely to be more favourable to foreign investors than Korea.

However, some foreign officials and investors are reluctant to agree with the above. Mr. Gindele says: "I believe people cannot have a strategy for the Asian-Pacific region which excludes Korea. It is the second most advanced industrial nation after Japan, and the size of the national economy is absolutely greater than the other NICs". Mr Twist adds that "in chemicals, Korea has 50 per cent of the whole Asian market excluding Japan, and Korea has a resource of very skilled operators. They know how to make things like cars and very advanced computer chips while the others are not likely to produce such things with their own technology".

But the general feeling gained from our survey is that the Korean government needs to change its view of foreigners. Particularly with regard to technology, Korea needs to make allies of foreign investors since Korea desperately needs foreign advanced technology. In this context, there is a growing consensus between the government, workers and Korean companies about the attractiveness of DFI⁽⁶⁾. In an interview, Mr. T. Kinoshita, general manger of the Seoul branch of Nissho Iwai (Japan) says:

"They need to change, and that will be a challenge. But I think they will do it. They have in the past. And what was happened in the past few months is really remarkable."

VII-iv. Characteristics of Transferred Technology in the Chemical, Metal and Machinery Industries

VII-iv-1. Characteristics of the Technology

By virtue of their character, transferred technologies in these industries seem to be capital-intensive, but not very sophisticated technologies. Table VII-6 shows that the transferred technology from foreign investors to Korea is capital-intensive rather than labour-intensive. However, the level of the technology transferred seems to be conventional. As usual in Korea, a greater proportion of technology transfer comes from Japan and the USA.

Table VII-6. Characteristics of the Transferred Technology by Capital Intensity

	Very Capital-intensive	Fairly Capital-intensive	Balanced	Fairly labour-intensive	Very labour-intensive	Total
No. of case	15	21	25	17	7	85
90	17.1	24.7	29.4	20.0	8.2	100%

5 scale average: 2.76

	Very sophisticated	Fairly sophisticated	Conventional	Fairly unsophisticated	Very unsophisticated	Total
No. of case	4	17	37	21	6	85
%	4.7	20.0	43.5	24.7	7.1	100%

5 scale average: 3.09

By Nationality

	Japan	USA	Germany	U.K.	France	Others	Total
No. of case	31	20	7	2	2	9	71
%	43.7	28.2	9.9	2.8	2.8	12.7	100%

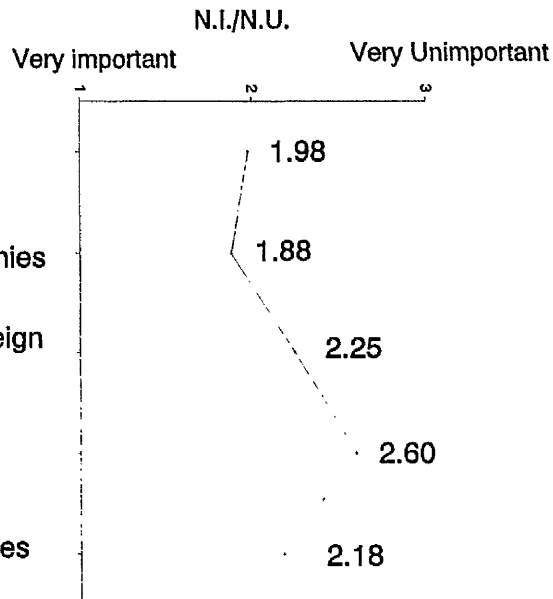
Source: Research Data

VII-vi-2. Purchase of Raw Materials and intermediate Products
 Figure VII-5. Source of Raw Materials and Intermediate Products

Q: Where do you purchase raw materials intermediate products from

Answer:

- a) from Korean companies
- b) from foreign parent companies
- c) from subsidiaries of the foreign parent companies
- d) supplied by yourself
- e) from other foreign companies



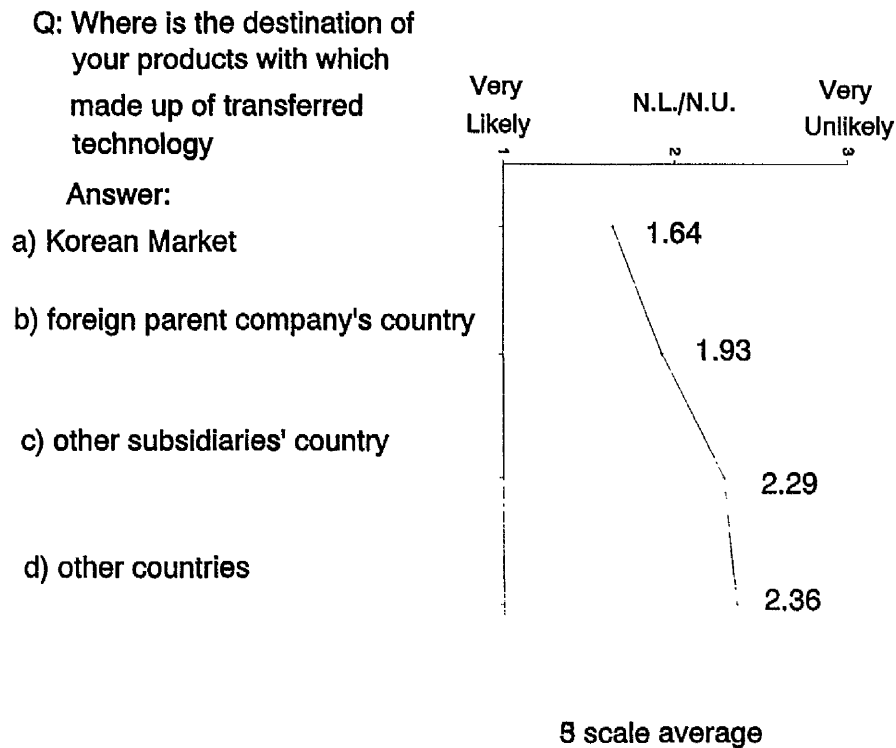
5 scale average

Source: Research

According to figure VII-5, a major source of raw materials and intermediate products for final products in the sample companies has been the parent company of the foreign investors (1.88). Korean companies have also been regarded as sources of raw materials and intermediate products (1.98). However, their significance seems to be less important than the former.

VII-vi-3. Destination of Final Products

Figure VII-6. Destination of Final Products



Source: Research Data

As was mentioned earlier, access to the domestic market is a major reason for foreign investment in Korea (1.64); though some

portion of the final product of the sample companies goes to the foreign parent company's country (1.93) this is of less importance than the Korean market. The final products of the sample companies are less likely to be destined for other countries.

VII-v. Diffusion of Technology

VII-v-1. Availability of Technology

In our survey, 85.4% of the total of (64 cases out of 75) foreign invested companies could not buy the same or suitable technology from Korean firms which they purchased from their parent company abroad. The major reason for that is that they thought there was no suitable technology in Korea (41 cases) and that Korean firms would not be willing to transfer the technology to them (10 cases). According to table VII-7, some sample companies (7 cases) in Korea were prohibited from buying technology from Korean firms because of restrictions from their parent companies abroad. The lack of information between companies in Korea with regard to what technology was available (6 cases) was also one of the reasons given.

Table VII-7. Availability of Technology in Korea

Q: Can you buy the technology from Korean firms?	Yes	No	Don't Know	Total
No. of case	7	64	4	75
%	9.3	85.4	5.3	100

Q: Why not?	Not available in Korea	Korean firms' unwillingness	Parent company would not want	No information	Total
No. of case	41	10	7	6	64
%	64.1	15.6	10.9	9.4	100

Source: Research Data

For the reasons mentioned above, foreign invested companies in Korea got technology from abroad, usually from their parent company.

VII-v-2. Diffusion of Technology

In our survey, a great majority of foreign invested firms thought that transferred technology from abroad would not be diffused to other Korean companies within a few years.

Table VII-8. Diffusion of Technology

Q: Can transferred technology be diffused to Korean firms?	Yes	Yes, but subject to time period	No	Total
No. of case	20	24	31	75
%	26.7	32.0	41.3	100

Q: Why not?	We do not want to transfer	Because of restrictive contract with technology supplier	Development cost for adaptation is high	Korean firms are not interested in the technology	Very sophisticated technology which Korean firms cannot use	Total
No. of case	24	14	7	3	7	55
%	43.6	25.5	12.7	5.5	12.7	100

Source: Research Data

Initially transferred technology from abroad to foreign invested firms cannot be easily diffused to Korean companies mainly because of the unwillingness of the technology holder (43.6%) and restrictive contracts between technology supplier and receivers, which prevents transferred technology from being diffused to other companies. In addition, because of technological sophistication, initially transferred technology is not likely to be diffused to other firms in Korea (7 cases, 12.7%).

VII-vi. Education and Technical Training⁽⁷⁾

In our survey, in many cases, foreign invested companies expressed the opinion that the Korean education system was not capable of providing adequately qualified people for all grades of staff. Table VII-9 shows that the Korean education system was being blamed in many ways, and most of the possible factors were blamed equally.

Table VII-9. Korean Education System and Providing Capable Personnel

Q: Providing capable People?	Very capable	Fairly capable	Convent- ional	Fairly incapable	Very incapable	Total
No. of case	10	22	21	20	12	85
	11.8	25.9	24.7	23.5	14.1	100

5 scale average: 3.02

Why Not Capable	No. of case	%
a) Korean education system is too academically oriented, not very practical	16	19.0
b) Neglect of technological education and vocational training	14	16.7
c) Concentrated on No. of students rather than quality of education	14	16.7
d) Absence of clearly designed long term education plan	10	11.9
e) Lack of integration between education policy and industrial demanding	10	11.9
f) Lack of modern equipment and facilities	17	20.2
g) Others, (failure of foreign language teaching)	3	3.6
Total	84	100

Source: Research Data

The Korean technical education system in particular does not seem to have satisfied the needs of the sample companies with regard to the supply of technical labour. Table VII-10 illustrates the shortage of modern technical equipment and facilities (26.7%), lack of funds for technical education (22.7%) and absence of co-ordination between education planners and industries (14.7%)

Table VII-10. Technical Education and Providing Technical Labour Force

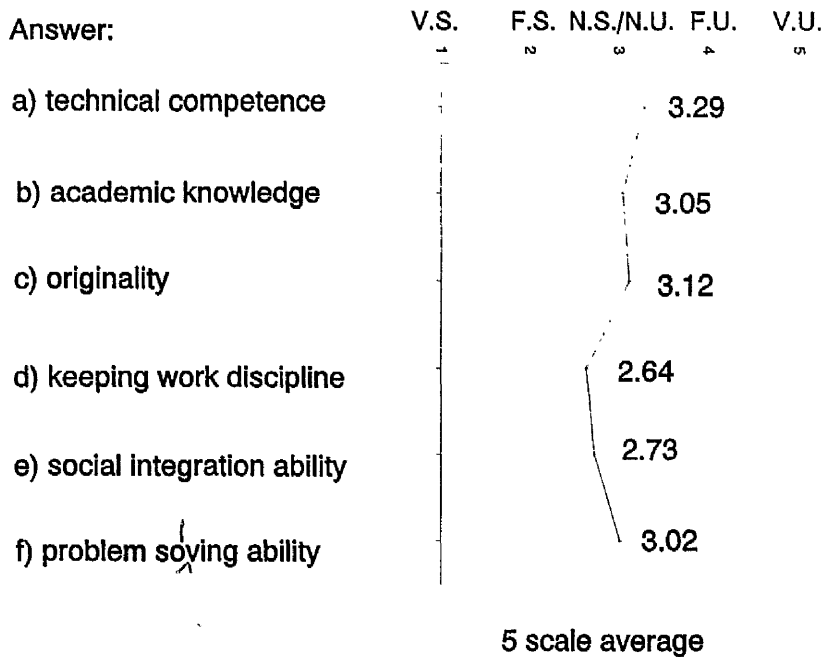
Q: Does the Korean technical education system satisfy the needs of your company	Very satisfied	Fairly Satisfied	Neither well nor badly	Fairly unsatisfied	Very unsatisfied	Total
No. of case	9	17	28	16	15	85
%	10.6	20.0	32.9	18.8	17.7	100

Why Not Capable	No. of case	%
a) Shortage of modern technical equipment and facilities	20	26.7
b) Irrelevance of courses and teaching techniques	5	6.7
c) Traditional social value which regard technical education as an inferior one	4	5.3
d) Absence of co-ordination between educational planner and industries	11	14.7
e) Funds allocated to technical education are not sufficient	17	22.7
f) Technical school, colleges and institutes are limited in number so that the number of graduates is not sufficient	6	8.0
g) Teachers' qualification are poor and do not enable them to impart skills and transmit knowledge required by the real world of industry	8	10.7
h) Absence of long-term strategy of technical and vocational training	4	5.3
Total	75	100

Source: Research Data

Figure VII-7. Evaluation of Technical Workers Recently Graduated from University

Q: Evaluation of university graduates



Source: Research Data

Technical workers who had recently graduated from university, in the sample companies in Korea, had both positive and negative abilities in terms of executives' satisfaction. Work discipline (2.64) and social ability(3.02), academic knowledge(3.05), originality(3.12) and technical competence(3.29) were viewed negatively by executives of foreign invested companies in Korea.

Figure VII-8 shows the main methods of technical training of university graduate employees in foreign invested companies. In order to do technical training for the technical workers who had recently graduated from university in the sample companies in

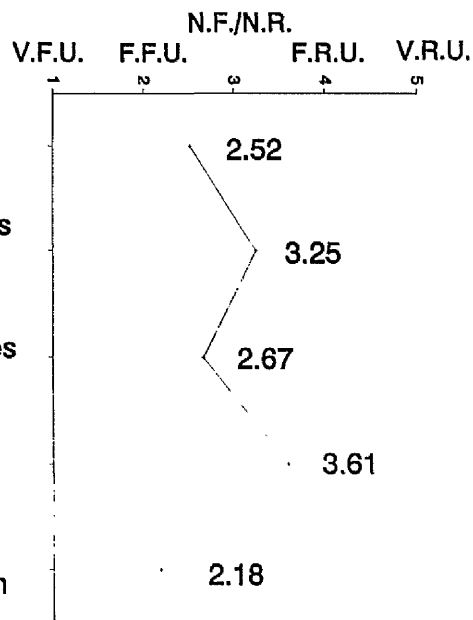
Korea, special training programmes within their companies were used (2.18), and dispatching the technical labour to parent companies abroad was another important source of training (2.52). However, dispatching them to other Korean companies (3.6) and to foreign universities and institutes (3.25) were not frequently used. The former case, could be one cause of failure to achieve diffusion of technology in Korea.

Figure VII-8. Main Methods of Technical Training

Q: Main methods of technical training for university graduate

Answer:

- a) dispatch them to parent company abroad
- b) dispatch them to universities and institutes in developed countries
- c) dispatch them to universities and institutes in Korea
- d) dispatch them to other Korean firms
- e) short or long term special training programmes within your firm



5 scale average

Source: Research Data

To sum up this section, it is believed that in Korea "university R&D facilities are poorly developed, and links with industry are also poor" (Hobday, 1991, p.12). The assumption is

that competitiveness issue in a company has to do with the quality of management and technical labour force, how it is organised, and the attitudes of managers and the technical labour force. More specifically, this issue depends as well on the ability of university graduate employees to be aware of what is happening on a global scale. In this sense, foreign invested companies in Korea are moving in the right direction by dispatching their employees abroad as their training method for university graduated employees is of importance.

From an academic standpoint, one fundamental weakness in the education system in Korea is that Korean business schools provide very little training in how Korean managers can be effective in foreign markets⁽⁸⁾. This problem is reflected further in Korean firms' attitudes towards sending employees overseas. Some Koreans are sent abroad by their companies mainly to acquire advanced degrees in science and technology but not for more practical and technical training⁽⁹⁾. In this regard, foreign invested companies in Korea seems to be better in terms of technical training.⁽¹⁰⁾

VII-vii. Summary and conclusions

In our survey, it is clear that foreign investors have invested in Korea mainly to penetrate the Korean market and to utilise Korea's relatively adequate technological level for their production. From the Korean partners' point of view of foreign investment, however, the primary goal is to gain access to advanced technology including know-how and trademarks. In this

situation, Korea's best approach to acquire technology transfer seems to be to attract DFI. But most foreign investors experienced many problems with operating in Korea most notably with regulations for approval at the early stage, and with financing during their operation.

Korea may not be very attractive to foreign investors in comparison with the other Asian NICs in terms of labour costs, labour productivity and severe government intervention especially in banking and access to land. In response to difficulties in accessing domestic bank loans and land, some foreign investors may prefer forming joint ventures with Korean partners with the hope that the Korean partners may be able to get bank loans and land. In this case, it is not the Korean government which can control foreign ownership. It is a foreign investor who can shape its ownership ratio for its own interest (Korean market). In addition, partly because of the Korean government's intervention in preventing bank loans, and partly because of the government's policy towards opening up the economy, DFI ^{nowadays} is more likely to occur in the service sector than in the manufacturing sector. In this respect, the Korean government needs to change its policy from a restrictive one to a more liberalised one if the intention is to induce the transfer of more advanced technology to the manufacturing sector.

In our survey, the major source of technology as well as intermediate inputs for final products came from foreign parent companies. But the destination for final production is mainly to the Korean market. Transferred technology from abroad to Korea, however, may not be easily diffused to Korean companies because

of the unwillingness of the technology holder (foreign invested company) and restrictive contracts between the technology supplier abroad (foreign parent company) and technology receiver (foreign invested company in Korea), the former not allowing the latter to transfer technology to other Korean companies. In this respect, some policy measures may be needed.

It is argued that the Korean education system with regard to technical training needs to be changed. The Korean government may have to spend more money to provide modern technical equipment and facilities at schools, universities, etc, and to collaborate with education planners and industry for setting up long-term strategies for technical training and technology development. In addition, more Koreans should be sent abroad for technical training, both to academic institutes and companies in the more advanced countries.

Notes

(1) 5 scale average is calculated by

$$\frac{(1 \times a_1) + (2 \times a_2) + (3 \times a_3) + (4 \times a_4) + (5 \times a_5)}{a_1 + a_2 + a_3 + a_4 + a_5}$$

$$= \frac{\sum_{i=1}^5 i \times a_i}{\sum_{i=1}^5 a_i}$$

For example,

a	(E.I) 1	2	3	4	(E.U.) 5	Total
No.	47	18	10	4	6	85
	(a ₁)	(a ₂)	(a ₃)	(a ₄)	(a ₅)	$\sum_{i=1}^5 a_i$
%	55.2	21.2	11.8	4.7	7.1	100%

5 Scale average: 1.87

b	(E.I) 1	2	3	4	(E.U.) 5	Total
No.	11	13	17	15	29	85
%	12.9	15.3	20.0	17.6	34.1	100%

5 Scale average: 3.44

c	(E.I) 1	2	3	4	(E.U.) 5	Total
No.	4	10	21	22	28	85
%	4.7	11.8	24.7	25.9	32.9	100%

5 Scale average: 3.71

d	(E.I) 1	2	3	4	(E.U.) 5	Total
No.	19	34	17	8	7	85
%	22.4	40.0	20.0	9.4	8.2	100%

5 Scale average: 2.41

e	(E.I) 1	2	3	4	(E.U.) 5	Total
No.	7	11	23	19	25	85
%	8.2	12.9	27.1	22.3	29.4	100%

5 Scale average: 3.51

- (2) We tried to meet Mr. Alan Timblich directly but because of his tight time schedule, we were not able to meet him. Therefore, we asked one of his staff, Miss E.J. Keum, to fill in the questions giving Mr. Timblich's point of view. His views are also cited in the Financial Times and the Korea Economic Report.
- (3) However, it is reported that in labour-intensive industry, such as textile and clothing companies in the free export zone in Masan, the loss of working days on average caused by labour dispute is larger than the national average during 1983 - 1987 period. (Kim, 1988; Shim-Han, 1988)
- (4) An outcome of investment in manufacturing sector seems to be subject to time period and consequently subject to the operating capital.
- (5) In this analysis, the Asian NICs refer to Hong Kong, Singapore and Taiwan
- (6) In a series of articles in Chosun Ilbo (the major national newspaper in Korea), Werounsum Hankook (Isolated Korea) has illustrated many factors which foreign investors do not like including very strong nationalism, the inconsistency of policies, no protection of property rights, and corruption.
- (7) See the detailed discussion in chapter IX
- (8) Interview with Mr. C.S. Kim, Director of the Economic Planning Board
- (9) Interview with Mr. S.S. Kim, Director of the Ministry of Science and technology
- (10) See chapter IX for detail.

Chapter VIII

THE AUTOMOBILE INDUSTRY IN KOREA

VIII-i. Introduction : General Trends

The automobile industry is a large, dynamic and comprehensive industry with many links with other related industries such as iron and steel, machinery, electronics, transportation and other industries. Since the industry is capital and technologically intensive, it requires large scale investments to exploit economies of scale and high technology⁽¹⁾.

As the Korean automobile industry has grown, it has passed through various stages; from the assembly of knocked down kits with only a small proportion of locally produced inputs to locally designed mass production using automated production technology. This transition has been accompanied by the switch from production solely for the domestic market to production for the world market.

The Korean automobile industry made rapid progress in the 1980s due to its successful entry into the US market and the increasing domestic demand resulting from rising household incomes. Korea has enjoyed a rapid increase in automobile exports after its advance into the American markets and it began to register a trade surplus in 1986. This however has contributed to a mood of neo-protectionism that has risen in many advanced countries. In order to ease this challenge in the international environment, the Korean Government produced import liberalisation policies on automobiles, and by April of 1988, the Korean

automobile market was fully opened.

The government also lifted restrictions on the domestic automobile industry in July, 1987 and allowed automakers to produce any type of automobile in order to enhance their international competitiveness through competition with domestic companies⁽²⁾. As a result, the Korean automobile industry has reached a stage of free competition.

In the 1990s, the Korean automobile industry is expected to grow substantially because domestic demand will increase steadily due to rising personal income and because export will recover gradually due to the Korean automakers' efforts to enhance competitiveness and diversify export markets.

But, the industry is now confronted with such problems as low technological levels, rising labour costs and an underdeveloped automotive parts and components industry. For the steady growth of the industry, Korean automakers should strive to solve such problems.

VIII-ii. Recent Performance of the Automobile Industry

VIII-ii-1. Production and Production capacity

In the 1980s, the Korean automobile industry experienced unprecedented growth with an increase in demand for Korean-made cars both overseas and at home. During the 1986-90 period production witnessed an average annual growth rate of 21.7 percent. However, owing to poor exports, its growth rate has slowed down since 1988, in spite of the rapid increase of

domestic demand.

Table VIII-1. Automobile Production in Korea (in units, %)

	1986	1987	1988	1989	1990	1991
Passenger cars	455,285	789,819	865,685	856,133	964,603	1,158,245
Commercial Vehicles	146,261	189,920	218,070	273,337	357,027	339,573
Total	601,546	979,739	1,083,655	1,129,470	1,321,630	1,497,718

Source : Korea Automobile Manufacturers Association (KAMA), 1992

Due to a series of labour disputes which began in 1987, production came to a halt for a considerable period. Furthermore, weak sales in North America brought about an overall decrease in automobile exports. Production increased only 4.2 percent in 1989 because export decreased 38.2% over the previous year, though at the same time domestic demand increased remarkably by 45.7% reflecting a motorisation boom in the Korean market. In 1990, despite the decreased exports, production increased by 17% owing to the rapid increase in domestic demand.

By type of vehicle, passenger cars led the growth of the automobile industry. Out of total automobile production, passenger cars amounted to 73%. Nevertheless, since 1989 the proportion has dropped steadily, reflecting the overall decrease in exports. The production of commercial vehicles also maintained an upward trend, however, the production volume is relatively smaller than passenger cars.

In response to the rising demand for automobiles, Korean

automakers have expanded their investment in production facilities and developed new models. Since 1985, the production capacity has increased sharply as a result of increasing domestic demand and the promotion of exports. The Korean automobile industry has been in full-scale mass production since 1986, when the annual production capacity of the Korean automobile industry surpassed 1 million units. The figure increased to more than 2 million units in 1990. The main reasons for this sharp increase are that each automaker is not only pursuing the expansion of production facilities but also developing new models in order to enhance its share of the domestic market.

Table VIII-2. Production Capacity of Automobiles
(in thousand unit)

	1985	1987	1989	1990
Passenger Cars	486	1,103	1,480	1,684
Commercial Vehicles	197	290	415	456
Total	683	1,393	1,895	2,140

Source : companies concerned (reproduced from The Korea Development Bank, 1991)

II-2. Domestic Demand

In the 1980s, the Korean automobile market expanded along with the economic progress in Korea and a growing desire for car ownership encouraged by the improved standard of living. Between 1986 and 1990, domestic demand increased by an average yearly rate of 34.9%, boosted by oil price reductions and the improvement of personal income led by sharp wage increases

initiated in 1987.

In 1990, domestic sales, boosted by the acceleration of motorisation and sales of new models, jumped to 25% over the previous year, with total car sales recording 954,277 units. The domestic sales of passenger cars and of commercial vehicles reached 604,238 and 350,039 units, increasing by 20.8% and 33.1%, respectively, over the previous year. Notably, in 1991, domestic sales recorded over million units, 1,104,184 units.

This rapid growth of the domestic market may primarily be attributed to the increase in passenger car sales produced by the rising standard of living and by manufacturers efforts to introduce incentives like long-term interest free financing and new models along with the reduction of purchasing and maintenance charge.

The proportion of domestic demand to total demand rose from 48.5% in 1986 to 73.3% in 1990 and to 73.7% in 1991 indicating that the growth of the automobile industry in Korea was chiefly led by domestic demand.

Table VIII-3. Domestic Demand for Automobiles

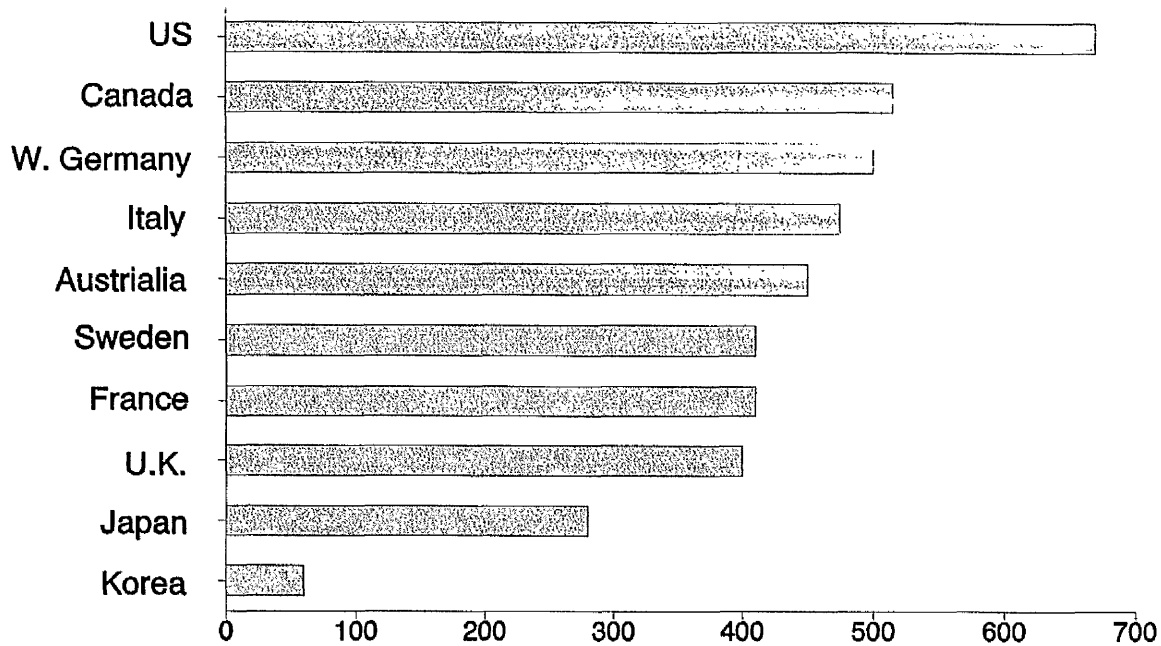
(in units)

	1986	1987	1988	1989	1990	Annual Growth Rate (1986-90)
Passenger Cars	154,561	246,714	318,010	499,949	604,238	40.6%
Jeeps	1,902	2,734	5,551	14,535	21,888	84.2%
Buses	34,880	54,100	65,893	79,066	105,640	31.9%
Trucks	88,516	109,484	126,575	159,368	198,923	22.4%
Special Vehicles	8,392	7,016	7,447	10,041	23,588	29.5%
Total	288,251	420,048	523,476	762,959	954,277	34.9%

Source : Korea Automobile Manufacturers Association, 1991

Though a greater proportion of passenger cars are sold in Korea with an average annual growth rate of 40.6% during 1986 - 1990, the number of passenger car owners in Korea is still far lower than that of other countries with equivalent levels of GNP. Figure VIII-1 shows that as of the end of 1990, only 48 out of every 1,000 people own a passenger car in Korea, far below the level of the advanced countries. However, this, could, in turn, mean that the domestic demand for passenger cars could rapidly increased until certain level of the car ownership equivalent to that in advanced countries is reached.

Figure VIII-1. Passenger Car per 1000 People



Source : Financial Times, 20th Oct. 1992, and The Korea Development Bank, 1992

II-3. Export of the Korean Car

During the 1986-88 period, Korea's automobile exports increased rapidly due to their success in the US market. In 1986, the Korean automobile industry entered a new era with Hyundai's advance into the US market with its Excel model. Following Hyundai, in 1987, Daewoo started shipping its Pontiac LeMans, and Kia, its Ford Festivas, to the biggest auto market in the world. As a result, exports of Korean-made automobiles increased from 306,369 in 1986 to 576,134 units in 1988.

Nevertheless, in 1989, exports recorded a negative growth rate of 38.2% due to the appreciation of the Korean Won and labour disputes at home. The decrease in export can be attributed to both a weakening in competitiveness and to the technology development. During the 1986-90 period, the Korean Won appreciated rapidly against the US dollar (about 30%, The Bank of Korea, 1991). Moreover, the labour costs of Korean automakers increased rapidly owing to the wave of recent labour disputes. Therefore, the price differences between Korean and Japanese cars in the US market were narrowed.

Also, such weak sales were due in part to the fact that Korean automakers were unable to offer competitive financing to American consumers, and they were likewise unable to compete with the well-established Japanese post-sales car service network (from the interview with S.H. Lee General Manager of Daewoo). Furthermore, Korean automakers could not offer appropriate model changes despite the shorter life spans of car models. Nor could Korean cars compete with Japanese cars in quality because of the low level of technology (Far Eastern Economic Review, 1992). Therefore, the Korean automakers lost not only price competitiveness but also non-price competitiveness.

Table VIII-4. Automobile Exports (unit)

	1986	1987	1988	1989	1990	Annual Growth Rate
Passenger Cars	298,702	534,837	563,978	346,835	338,968	3.2%
Jeeps	177	394	533	438	704	4.1%
Buses	605	2,312	3,186	1,104	1,891	3.3%
Trucks	6,695	8,457	7,962	6,774	4,731	-8.3%
Special Vehicles	190	310	475	889	806	43.5%
Total	306,369	546,310	576,134	356,040	347,100	3.2%

Source : Korea Automobile Manufacturers Association, 1991

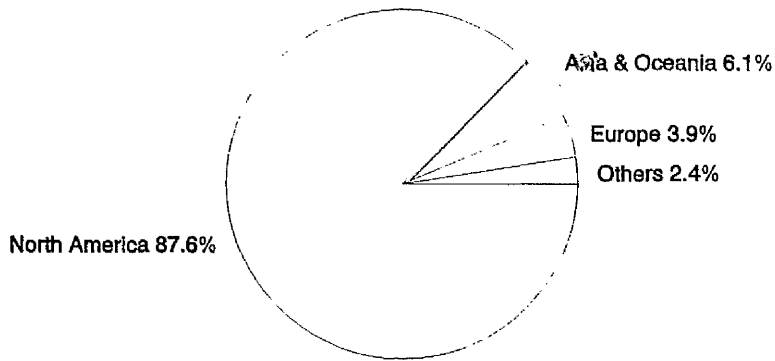
Exports of Korean made cars also decreased due to the sluggish demand for automobiles in the US, the major export destination for Korean cars. In particular, the demand for foreign cars decreased because sales of locally produced Japanese cars had made inroads into the imported car market.

However, nowadays, there are a good signs for exports of the Korean automobiles by diversification of its export markets. In 1986, the proportion of Korean exports to the US and Canadian has occupied more than 87%.

Korean automakers are making efforts to diversify their export markets by expanding exports to Europe, Asia, and other countries as their exports to the US have shown a downward trend (Figure VIII-2).

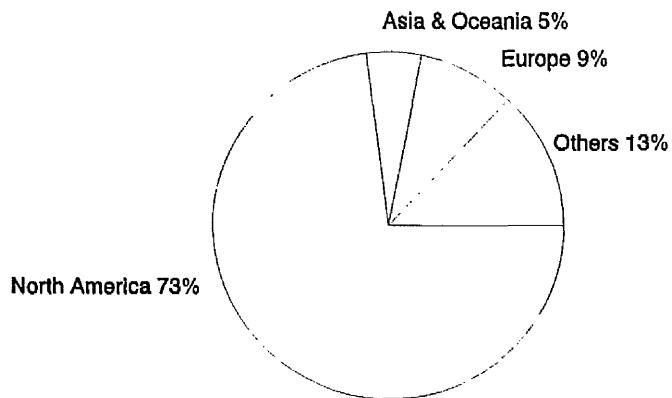
Figure VIII-2. Composition Ratio of Export by Region and Year

1986



Total : 306,369 Units

1990



Total : 347,100 Units

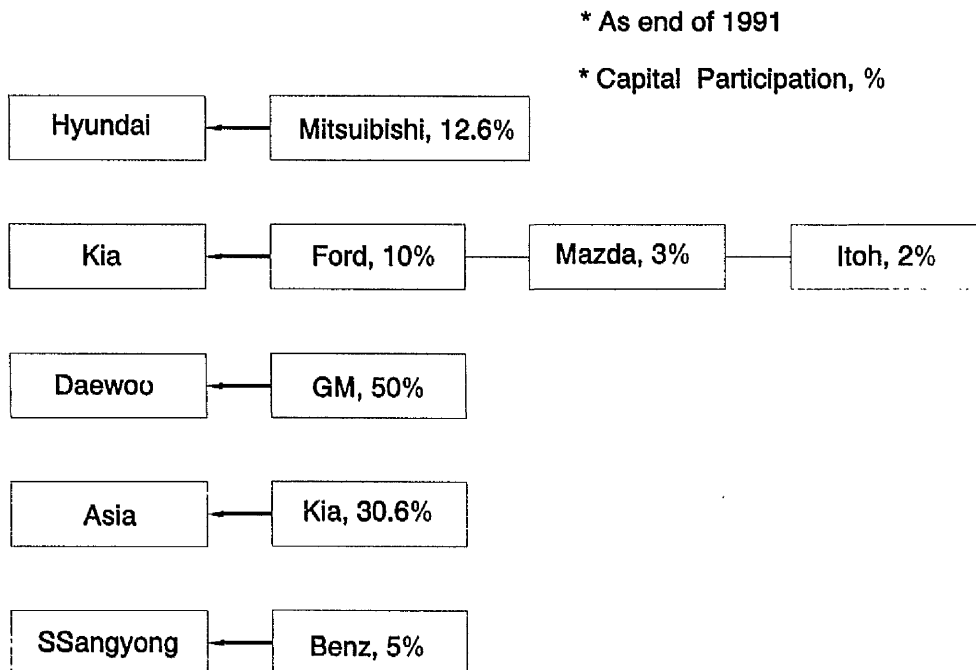
Source : The Korea Development Bank, 1991

VIII-iii. International Cooperation and Status of Korean Car Makers

VIII-iii-1. International Cooperation

The Korean automobile manufacturers have pursued international ties to elevate technological standing and to strengthen its international competitive edge. According to Figure VIII-3, Hyundai has a technical and capital tie-up with Mitsubishi of Japan, and Daewoo with GM of the US⁽³⁾, Kia with Ford of the US and two other Japanese partners, Mazda and C. Itoh.

Figure VIII-3. Korean Car Makers and Their Partner



Source: KAMA, 1992

VIII-iii-2. Status of Korean Car Makers

According to table VIII-5, three Korean car manufacturers have appeared on the list of top manufacturers in terms of units of production. Hyundai ranked 14th, while Kia and Daewoo ranked 21st and 25th. There were 12 companies ^{in the world} who produced more than million units in 1991. This table also reveals that most of car manufactures operate their overseas plants for production.

Table VIII-5. Top 25 Manufacturers Ranked by 1991 Domestic and Worldwide Production (Passenger Cars and Commercial Vehicles)

Domestic Production			Worldwide Production	
Rank	Company	Unit	Rank	Unit
1	Toyota - Japan	4,085,081	3	4,511,219
2	GM - US	3,720,547	1	6,634,735
3	Ford - US	2,428,238	2	5,138,360
4	Nissan - Japan	2,391,472	5	3,025,759
5	Volkswagen-Audi - Germany	2,026,405	4	3,088,433
6	PSA - France	1,780,360	6	2,467,227
7	Renault - France	1,630,109	7	2,004,237
8	Fiat - Italy	1,623,286	9	1,898,555
9	Mitsubishi - Japan	1,405,647	11	1,595,075
10	Mazda - Japan	1,385,941	12	1,551,255
11	Honda - Japan	1,358,415	8	1,908,764
12	Chrysler - US	1,073,850	10	1,674,289
13	Suzuki - Japan	858,268	13	912,778
14	Hyundai - Korea	767,090	15	795,291
15	Daimler-Benz - Germany	753,390	14	861,198
16	VAZ - C.I.S	687,000	16	687,000
17	Daihatsu - Japan	670,481	17	670,481
18	BMW - Germany	536,003	19	536,003
19	Fuji - Japan	528,333	18	644,630
20	Isuzu - Japan	470,950	20	470,950
21	Kia - Korea	425,296	21	425,296
22	Rover Group - U.K.	419,907	22	419,907
23	GAZ - C.I.S.	268,000	24	343,089
24	Volvo - Sweden	232,422	23	268,000
25	Daewoo - Korea	203,792	25	203,792

Source: American Automobile Manufacturers Association, 1993, World Motor Vehicle Data

VIII-iv. Technology and R&D Activities

The Korean automakers are heavily dependent upon the introduction of technology and designs from advanced countries such as Japan, the US and Germany. As a result, basic manufacturing technology for assembling and processing is quite good compared with that of advanced countries, but core technology for designing, testing and developing new products lags behind. Furthermore as the competition in the industry becomes sharper than before, advanced countries are more unwilling to transfer their high technology to the Korean automakers. Also, royalty fees to foreign companies have weakened the price competitiveness of Korean-made cars.

Faced with this situation the Korean automakers are trying to achieve technological self-sufficiency by increasing their investments in research and development. The ratios of R&D expenditure to total sales rose from 2.4% in 1987 to 4.1% in 1990 and the Korean automakers have plans to raise the ratio to 5% by 1995 (Korea Automobile Manufacturers Association, 1991)

The Korean automobile industry is enhancing its technological independence by developing new models and core parts with its own technology. Firstly, for example, Hyundai Motor Co. and Daewoo Motor Co. developed new models, named Lantra and Esperro, with their own technology. Secondly, the Korean big three automakers, Hyundai, Daewoo and Kia, have developed car engines, DOHC (double overhead camshaft) engines with their own technology during 1990-91 while Hyundai also developed manual and automatic transmissions for passenger cars in 1990.

As the emission standards for cars will become more strict from 1994 than before due to the US government's revision of the Clean Air Act in 1990, the Korean automakers are trying to develop high fuel economy engines and high technology parts and components in order to meet the new emission standards.

The Korean automakers and auto parts makers established Automotive Technology Institute in 1990 and have plans to construct car proving grounds by 1993 in order to improve the quality of their cars and to meet the standards of advanced countries.

Since 1986, Korean automakers and auto parts makers have expanded international collaboration such as joint ventures and technological tie-ups in order to improve product quality and to enhance their competitiveness. During 1987-90, 92 joint-ventures and 222 technological tie-ups were authorised; those with Japan made up over half of the total (KAMA, 1991, and The Ministry of Finance)

VIII-V. Automotive Parts and Components

Automotive parts and components manufacturing is the infrastructure of the automobile industry, making its qualitative improvement essential to the upgrading of the automobile industry.

The automotive parts and components industry in Korea has shown steady growth since 1986 and new companies involved in the field have increased in parallel with the growth of the car assembly sector. The number of the manufacturers increased from

950 in 1986 to 1807 in 1990. (Korea Automobile Manufacturers Association, 1991)

As the automobile industry in Korea has grown, the demand for parts and components has also increased. In 1990, shipments of the industry amounted to US\$ 8,158 million, an increase of 26% from the previous year.

Table VIII-6 Supply and Demand of Automobile Parts and Components
(in million dollars)

	1986	1987	1988	1989	1990	Annual Growth Rate (1986-90)
Shipment	1839	3,216	4,762	6,476	8,158	45.1%
Exports	165	265	355	398	495	31.6%
Imports	442	703	725	667	670	11.2%
Total Demand from Korean Automakers	2,116	3,654	5,132	6,745	8,339	

Source : Korea Automobile Manufacturers Association, 1991
Ministry of Trade and Industry, 1991
Calculated by Author

Exports of automotive parts and components have grown steadily in line with the industry's technological progress and increased demand for replacement parts has grown with the growth of production. In 1990, exports of parts and components amounted US\$ 495 million, up 24.3% from the previous year, and annual average growth rate of 31.6% between 1986 and 1990.

Korean automakers have usually imported many parts from Japan. However, as the Japanese yen has appreciated since 1985, imports of automotive parts and components increased production costs and to *weaken* their price competitiveness. As a result, since 1989, imports of automotive parts and components have decreased gradually owing to the growth of local production of the imported

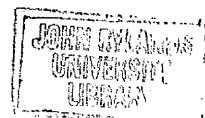
items. In 1990, the amount of imported parts and components reached US\$ 676 million, down 6.8% from 1988.

In parallel with the globalisation of the automobile industry, some of Korean auto parts makers have plans to establish overseas production system. Since 1989, Halla Corp. (Chairman of the Halla Corp. is a brother of Hyundai Chairman) has operated a parts factory in Canada and other companies such as Saeil Heavy Industries Co. are investing and constructing factories in China, South-east Asia and even in America.

VIII-vi. Prospects and Conclusions

The point of view of most of the Korean automobile manufacturers and Government funded research institutes is that the automobile industry in Korea is expected to make substantial progress in the 1990s not only because domestic demand is expected to increase, but also because exports are predicted to recover gradually with the introduction of new models in the US market and with diversification of the export markets.

According to Table VIII-7, during the 1990-95 period, the demand for Korean cars is expected to increase by 10.4 % per year taking into account rising incomes and demand for new cars as well the replacing of older, outdated models. Korea's rapidly rising per capita GNP and a low car ownership ratio also imply potential for a stable increase in demand. Exports of Korean-made automobiles are expected to increase from 347 thousand units in 1990 to 718 thousand units in 1995. Moreover, aware of the setbacks caused by labour disputes, automakers are likely to



expand investment in automated production facilities.

Table VIII-7. Prospects for Supply and Demand
(in thousand units)

	1985	1990	1995	Annual Growth Rate (%)	
				1985-90	1990-95
Domestic Demand	246	954	1,418	31.1	8.2
Exports	123	347	718	23.1	15.6
Total	369	1,301	2,136	28.7	10.4

Source : Korea Institute of Economics and Technology 1991

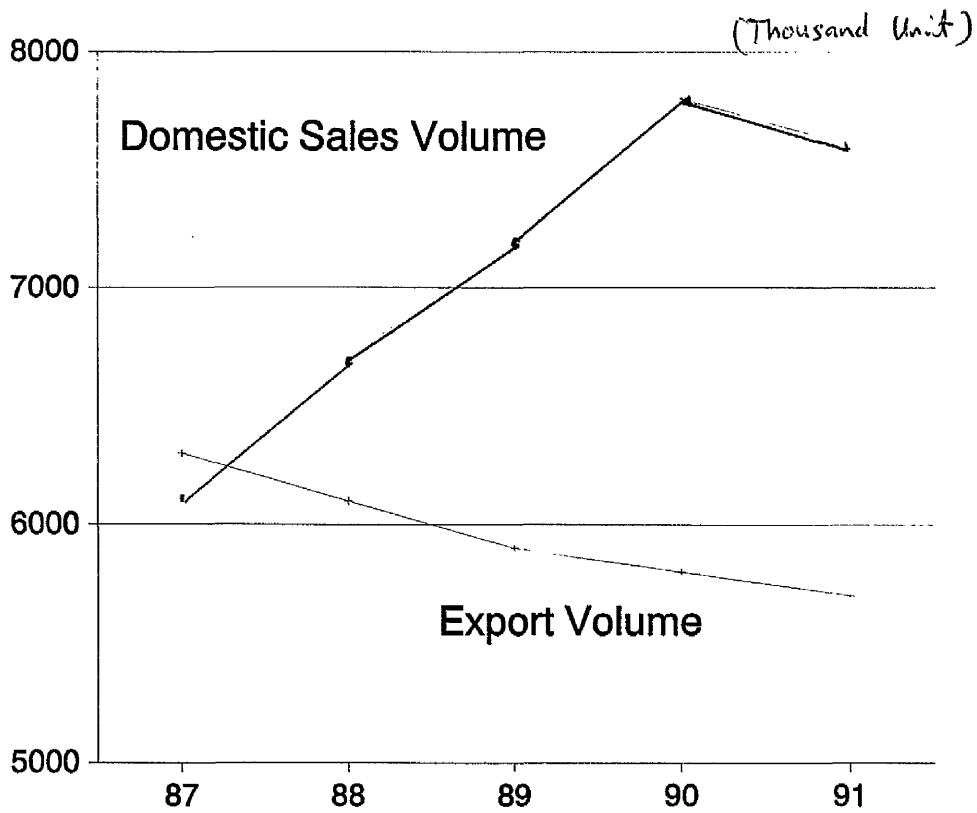
However, there are great obstacles to be overcome in order to maintain this growth.

Firstly, in the early 1990s, world car makers are facing weakening demand in Western Europe, Japan and America. Since the big three US automobile manufacturers have made huge losses in 1991, industrial analysts have predicted that only a handful of car manufacturers will survive the global shakeout of the 1990s. None of Korea's present automakers is expected to be among them, having been driven from the field or relegated to niche markets dependent on alliances with Toyota, Honda or Nissan of Japan, Volkswagen of Germany or Ford and General Motors of the US (Automotive News, reproduced in Far Eastern Economic Review, 1992).

Even the Japanese automobile industry is facing difficulties with a downward car sales curve in both domestic and export markets. The Japanese motor industry

"may now be at a structural crossroads, and the global motor industry is facing a business climate of unprecedented severity" (Yoshifumi Tsuji, president of Nissan, quoted in Financial Times, 1992)

Figure VIII-4. Recent Performance of Japanese Automobile Industry



Source : Japanese Automobile Manufacturers Association quoted in
SISA JOURNAL 1992

With such a difficult situation in the global automobile industry, the continuing success of the Korean industry, requires that its technological level should come up to the standard of those in advanced countries as well as maintaining its price competitiveness. As protectionism becomes stronger, advanced countries are less willing to transfer high technology. In response, Korean automakers should raise their capability for technology development by increasing investment in R&D projects and training, and establishing integrated institutes of

technology.

Secondly, although domestic sales are the mainstream of the Korean automobile industry, exports need to be increased for the stable growth of the industry. Since the industry has been actively pursuing the establishment of new production facilities, excessive competition due to overcapacity is inevitable if exports do not increase remarkably.

Thirdly, since a car is composed of more than 30,000 parts and components, the quality of finished cars is largely determined by the quality of parts and components. Thus, quality improvement in the manufacturing of the automotive parts and components is essential to the automobile industry's progress. It is necessary for the auto parts industry to introduce advanced technology in order to strengthen its competitiveness both in terms of price and quality. Close relationship with joint-projects among manufacturers of auto parts and automobiles is indispensable in order to raise technological level of both sectors and to facilitate investments for technological development.

Finally, for the sound growth of the industry, good relationships between workers and management is necessary. The interruption of supplies because of labour disputes causes a tremendous impact, not only on the companies directly involved but also on other makers as well. In order to minimise damage caused by industrial disputes, the industry must shift from the current production system, which relies heavily on single auto part makers, to a diversified production system which relies on a wide range of suppliers for core parts and components.

Notes

- (1) The initial investment required for setting up a car manufacturing facility is substantial. Karmokolias (1990) calculates that it can range from \$1.5 billion for development, engineering, and tooling for a new passenger car in Europe to 150 million for a 35,000 cars-per-year assembly plant in China.
- (2) Until 1986, only two companies (Hyundai and Daewoo) were allowed to produce passenger cars in Korea in order to exploit economies of scale. However, this restriction was politically explained (see Chang, D., 1985)
- (3) The capital participation relationship has broken at the end of 1992. But there are still technical tie-ups between them.

Chapter IX

Technology Transfer & Technical Training in the Automotive Industry

IX-i. Introduction

IX-i-1. Aims of the study

In this chapter, we attempt to identify situations of foreign technology transfer to the Korean automotive industry and the application of foreign technology in their production activities. The characteristics of the transferred technology to the industry are examined in a number of respects including content, usage and evaluation by three different company categories: car manufacturers, joint-venture companies and purely Korean-owned companies with foreign technology acquisition.

In the latter part of this chapter, an analysis is made of the R&D activities and the technical training of these companies. In this part, purely Korean-owned companies without foreign technology acquisition are surveyed for a comparative analysis with the others which will give us some policy directions for the future.

IX-i-2. Choice of company and Research Methodology

In 1991, there were 14 vehicle manufacturers in Korea. There were 7 four-wheel drive car assemblers⁽¹⁾, 2 motor-cycle assemblers and 5 special vehicle manufacturers (notably heavy

equipment such as conveyor cars). For our study, however, 5 big four-wheel drive car assemblers have been chosen (HYUNDAI Motor, KIA motors, DAEWOO Motors, SSANGYONG Motor, and ASIA Motors). The other 2 four-wheel drive car assemblers have been excluded since their major business interests are in shipbuilding (DAEWOO Shipbuilding Ind.) and container and heavy machinery construction (HYUNDAI Precision Co.), and they have only produced four-wheel drive cars since 1991, (The Daewoo Shipbuilding Ind. produced the TICO and the Hyundai Precision Co., produced the GALLOPER). Also, two-wheel drive cars and special vehicle manufacturers have been excluded since their contribution to the industry seems to be small proportion, and collecting adequate data from such companies is rather difficult because their product range is so wide (including agricultural cultivators) and categorisation of their products would be ambiguous.

The Korea Auto Industries Cooperation Association (KAICA) in 1991 (KAICA 1992) lists 1,410 automotive parts and components manufacturers, and about 2,000 companies are listed as automotive parts and components manufacturers by Korea Automobile Manufacturers Association (KAMA) at the end of 1991 (KAMA 1992). However, in our survey, 422 members of the KAICA have been initially considered since most of the products of the members have been automotive parts and components whilst non-members' products have been rather complex, and only a small proportion of their products could be regarded as auto parts and components. In addition, and more importantly, it was easier to access and collect data from the member companies than non-member companies since the KAICA keeps information about the members including

full address, phone & fax number. Among 422 initially chosen sample companies, 105 companies have had foreign technology transfer and 97 companies have by the end of 1991 been involved in joint-ventures (KAICA, 1993). About 47.9 % of the 422 companies, that is 202 companies listed by KAICA as members, have had foreign technology and capital participation.

In order to get the best possible data, however, some companies were excluded: First, where a greater proportion of their products did not supply to the big five companies; second, where their locations were not very clear (in some cases, company addresses in KAICA do not exist in the post-code book and their phone numbers are wrong); and finally, very small and young companies such as those with less than 30 employees or less than three years of operation. 353 companies were chosen for our survey. Among these sample of companies, 79 (22.4%) companies were joint-venture companies, 91 (25.8%) companies were purely-Korean owned with foreign technology acquisition, and 183 (51.8%) companies were purely-Korean owned without technology acquisition from abroad.

In our survey, two main approaches have been used; questionnaires and interviews. A formal questionnaire was designed and sent to the President of each the sample companies along with a stamped and addressed envelope for their convenience. The questionnaire was designed to enhance the likelihood of response and extract as many objective answers as possible. However, there was a poor response ratio to the questionnaire (about 20 %), and the answers filled in were of poor quality. In order to get better data, it was absolutely

necessary to ask them to fill in the questionnaire through phone calls or visiting directly.

The personal interviews were mostly held at the offices or factories of surveyed companies, and in some cases interviews were arranged outside work in the evening usually after work, with an informal atmosphere. In formal meetings, at companies, most of the interviewees were of a very senior level in their companies, usually above director level, and some managers joined at their senior's request. However, at the informal meetings, the interviewees were mostly at manager level. In principle, contents of interviews were based on the questionnaire, however, further discussions which are not covered by the questionnaire such as the direction of change of the automotive industry in Korea as well as other countries, technology trends, company history, etc., were also recorded.

In addition, statistics and supporting data were collected from various public and non-public research institutes, companies' own research institutes, from the Korean Government, the Bank of Korea, the Ministry of Finance, the Ministry of Science and Technology, and various organisations. However, when the data were not completely consistent with each other, the publications from the Korea Automobile Manufacturers Association (KAMA) (car assemblers' association, only for five member companies called big five) and from the Korea Auto Industries Cooperation Association (KAICA) (auto parts and components manufactures association with 422 member companies) were taken to be the most accurate.

For our analysis, we had 180 effective responses from 353

companies which gave a 51 % rate ratio. From purely Korean owned companies without foreign technology acquisition we collected 100 questionnaires out of 183 cases (54.6%); 43 companies out of the 91 Korean owned with foreign technology transferred companies (47.3%) and 37 companies out of 79 joint-venture companies (46.8%). (See Table IX-1 below)

Table IX-1. Questionnaire Response Ratio

(case, %)

	C1	C2	C3	C4	C2+C3+C4
Sent	5	79	91	183	353
Received	5	37	43	100	180
%	100	46.8	47.3	54.6	51

Source : Research Data

- C1 refers to 5 car assemblers.
- C2 refers to joint-venture companies
- C3 refers to Korean owned companies with foreign technology acquisition.
- C4 refers to Korean owned companies without foreign technology acquisition.

As a preliminary, it may be necessary to clarify the terminology. The term "car assembler" or "car manufacturer" refers to a company whose finished products are mobile cars of any kind. The term automotive parts and components (auto parts, hereinafter) company refers to a company whose final products are parts of car assemblers' final products. Some abbreviation of frequently-used words may be required such as company category (big five), company category 2, 3 and 4 (See above) for a better comparative analysis. Also, as most of the questions are presented in an orderly, systematic way, and sequential order, it might be a good method to analyse them with a 5 scale average as was used in chapter VII.

IX-ii. Background of the Industry and Surveyed Companies

In general, according to Table IX-2, our surveyed companies' performance was better than that of car assemblers and KAICA member, more generally. Using the figure for 1991, the average number of employees in car assemblers was 13,079 persons whilst in the surveyed car assemblers it was 18,420 persons. In the auto parts industry 422 KAICA member companies employed 119,000 workers, an average of 282 workers per company. ^{On average,} There were 432 workers in C2, and 694 workers in C3 companies. However, purely Korean-owned C4 companies employed 170 workers on average. In terms of the number of employees on average, C3 companies had the largest (694), and C2 companies had the middle position (432) while C4 companies employed fewer workers (170) than the other company groups, and even fewer than KAICA member companies (282).

As far as the average annual sales amount per worker is concerned, C1 companies' workers performed well (108 MW (Korean Currency)) in comparison with total car assemblers (96MW). In the auto parts industry, again C3 companies achieved the highest average sales amount per person (85MW) compared with 66 MW by C2 companies. C4 companies' achievement was also a bit lower (58MW) than KAICA members' average (60). This could mean that, apart from car assemblers, company size in terms of number of employees and total paid-up capital (C3>C2>C4 in average) could be related to the kind of products produced, the bigger-sized companies being likely to produce the higher value added products in the auto parts industry in Korea.

In contrast, however, in the case of export ratio to total

sales amount, the size of companies was found to be not proportionally related to export performance since C2 companies exported 8.5% of their products while C3 companies exported 4.6% of their products. This could be partly explained by the fact that some joint-venture companies in Korea were established with foreign markets in mind, This will be discussed in the next section.

Table IX-2. Basic Indicators of Industry and Surveyed Companies
(as of Dec 1991)

	Car Assembl er	C1 (Big 5)	KAICA Member	C2	C3	C4	C2+C3+ C4
No. of Company (ea)	14	5	422	37	43	100	180
No. of employees (person)	183,000	92,100	119,000	16,000	29,800	17,000	62,800
Average No. of employees per company (person)	13,070	18,420	282	432	694	170	339
Total Sales Amount (Billion Won)	17,487	11,305	7,139	1,056	2,533	986	4575
Average Sales Amount per Person (Million won)	96	108	60	66	85	58	73
Total Export Amount (U\$ Million)	N.A.	390,36 2 (unit)	522	122	158	39	319
Export Ratio to Total Sales Amount	N.A.	26%	5,3%	8.5%	4.6%	2.9%	5.1%
Average paid-up capital /company	N.A.	604BW	N.A.	3,063	7,580	1,011	3,002

Source : KAICA, 1992 (Calculated by Author)
 KAMA, 1993 (Calculated by Author)
 The Bank of Korea 1993 (Calculated by Author)
 Research Data
 * 1U\$ = 730W
 N.A. = Not Available

IX-iii. Technology Transfer to the Korean Auto Industries

IX-iii-1. Technology Level of the Korean Automobile Industry

The continued utilization of new technology is a key factor for firms which survive in the automobile industry since competition between car manufacturers in the world-wide market is getting tougher every year. This increase in competition is partly because of the world recession in the early 1990s, and the over capacity of the car industry (F.E.E.R. 1992). There are general trends of technology development in the industry which reflect the global market situation. For example, after the oil shock of the 1970s, energy saving technology needed to be produced in most industries including the auto industry. In order to reduce fuel consumption, cars needed to be smaller, and lighter, or alternatively, quality and fuel efficient related auto parts needed to be developed. Consequently, cars became more aero-dynamically styled, and weighed less because of newly developed materials, and the increased use of electronics. A result of this was that the average amount of electronic products in a car in the U.S.A. was U\$ 60 in 1975, U\$ 248 in 1980, U\$ 600 in 1985, and U\$ 1,400 in 1992 (KAICA, 1992, estimated for 1992).

Another trend is related to safety. Shock absorption, air-bags, anti-locking brake systems (ABS) have all become common. Furthermore, research into environmentally related technology in the auto industry is actively undertaken by many auto manufacturers.

By virtue of the auto industry's character, a single change

factor in the economic environment spills over into other manufacturing industries (see previous chapter), and even to service industries such as transportation.

It is believed, however that Korea's technological capability is lower in many respects than that of advanced countries. According to the Korea Institute of Economics and Technology (KIET), there is a substantial technological gap between Korean auto-technology and Japanese auto-technology.

Table IX-3. Level of Production Technology of Korean Auto Industry

Technology	Korean Level
Assembling Technology	A
Fitting Technology	A
Forging Technology	B
Welding Technology	B
Mold & die Casting Technology	B
Heat Treatment	C
Test and Inspection	C
Coating and Painting	C

- * A : Advanced Level (Japan)
 - B : Between A and C
 - C : Similar with Brazil and Mexico
- Source : KIET 1990

Examination of another indicator shows us that the average value-added for Hyundai Motor is far below that of Japanese and American car assemblers.

Table IX-4. Comparative Analysis of Productivity by Selected Company in 1988

	HYUNDAI	G.M.	FORD	TOYOTA	HONDA
Product per head	19.3 (ea)	9.0	17.9	58.5	43.8
Value-added per head	30,513 (U\$)	42,478	60,439	97,719	58,579

Source : KAICA, 1992

More importantly, in 1988, there were 1077 applicants for patents regarding the auto industry in Korea. However, 855 cases (77%) were by foreign nationalities and only 23% (202) cases were by Korean applicants (KAICA 1992). It is believed that in the case of the Korean auto industry, most sophisticated and advanced technology comes from abroad and the acquisition of foreign technology seems to be very important for the future of the industry.

IX-iii-2. Technology Transfer

Largely because of the Korean auto industry's lack of technological capability to develop its own technology and partly because of some companies strategy of international co-operation with foreign companies for accessing export markets and information (Hyun, 1990, Kim 1989) about technology, the number of technology tie-ups between Korean and foreign companies has been increasing rapidly in recent years.

Tables IX-5 - IX-8 illustrate that by the end of 1991, 719 foreign technologies had been introduced to the Korean Auto industry. Among them, 243 cases (33.8%) had been transferred to

car assemblers and 476 cases (66.2%) had been introduced to the auto parts industry.

During the 1987-1991 period, 54.7% of the cases of transferred technology came from Japan (175 cases), 18.8% from the U.S.A. (60 cases), 29 cases from the U.K., 23 cases from W. Germany and 32 cases from rest of the world. As far as auto technology is concerned, Korea is largely dependent upon Japanese and American technology which together counts for about 74% of the total imported technology.

During the same period, 56.4% of transferred technology was in companies with patents (180 cases) and trade marks have been used in 46 cases (14.4%).

Table IX-5. Technology Transfer by Year

(Case, as end of 1991)

Year	Until 1976	1977 - 1986	1987 - 1991	Total
case	100	300	319	719
Ratio (%)	13.9 %	41.7 %	44.4 %	100

Source : KAMA, various year (calculated by author)

Table IX-6. Technology Transfer by Nationality (1987 - 1991)

Country	Japan	U.S.A.	U.K.	Germany	Others	Total
case	175	60	29	23	32	319
Ratio	54.9%	18.8%	9.1%	7.2%	10%	100

Source : KAMA, various years (calculated by author)

Table IX-7. Contents of Technology Transfer (1987 - 1991)

Contents	Patent*	Trade - Mark	Others	Total
Case	180	46	93	319
Ratio	56.4%	14.4%	29.2%	100

* Know-how included

Source : KAMA, various years

Table IX-8. Technology Transfer by Car Assemblers & Auto Part Industry

(As end of 1991)

Classif.	Car Assemblers	Auto Parts Ind.	Total
Case	243	476	719
Ratio	33.8%	66.2%	100%

Source : KAICA, 1992

Our surveyed companies, however, have experienced 371 cases of foreign technology transfer. The Big five have 212 cases of transferred technology, 51 cases in C2 companies and 108 cases in C3 companies. This reveals that the bigger and better-performing companies are more actively seeking foreign technology.

Table IX-9. Technology Acquisition of Surveyed Companies

(As end of 1991)

	C1	C2	C3	Total
Number of Case	212	51	108	371
Number of Company	5	37	43	85

Source : Research Data

C1 companies seem to be very enthusiastic to get foreign technology, accounting for 57% (212 cases) of total imported technology. Among them, Hyundai has experienced 80 cases (38%), Kia, 55 cases (26%), Daewoo, 50 cases (24%), Asia, 15 cases (7%), and Ssangyong 12 cases (5%). It has been Hyundai who has led the Korean auto industry as the biggest car manufacturer for the last two decades in terms of size, including production capacity, numbers employed, exports amount, total assets, etc.

Table IX-10. Basic Indicators of Selected Korean Car Assemblers
(As end of 1991)

	HD	KIA	DW
Total Assets	5,637 BW	4,084 BW	2,967 BW
Total Sales Amount	5,605 BW	2,745 BW	1,596 BW
Export (Unit)	254,555	80,020	51,253
Total Employees	40,000	22,000	17,000
Technology Transfer (case)	80	55	50
No. of T/T between 1989 - 1991	10	33	17
Average Contract Period of T/T	3.83 Years	3.95 Years	4.4 Years*

Source : KAMA 1993
Research Data

* There are 2 cases of T/T without specification of time period, valid until partner company's existence as a share holder of Daewoo. In these cases, contract period are counted from their effective date to end of 1991.

C3 companies are likely to be more active than C2 companies in terms of technology transfer. The survey shows that 10 out of 37 C2 companies have initially been purely Korean-owned companies

with foreign technology acquisition. However, as their business succeeds with imported technology, some companies (6 companies) need to secure the technology and export market, and consequently propose to technology suppliers to work with them in a joint-venture, and establish new enterprises involving foreign partnership. Another 4 companies are also established largely because of foreign technology. In this case, however, the main purpose of establishing a joint-venture company (or allowing foreign capital participation) from the Korean owners point of view tends to be to secure a source of technology as well as to reduce royalty payment burdens.

In both cases, foreign partners' participation in the newly established joint-venture companies are usually made in the forms of capital participation, supply of specific equipment (notably capital equipment) and technology. Although the foreign partners can get paid for their technology by various kinds of licensing such as lump-sum payments, initial payments and running royalty payments, the price of technology tends to be lower than when they sold their technology to Korean companies (free 4 cases, lower 2 cases, same 2 cases, higher 2 cases).

From the foreign partners' point of view of such collaboration with Korean companies, however, although they get less for their technology initially, they get more if the business is successful through dividends, assets income, and revaluation of property, especially when they withdraw their capital. In this respect, from the view point of anti-TNC economists, there can be criticism of the double-repatriation of capital to home countries and technological dependence of the host countries (see chapter

III).

In reality, however, such a strategy for the Korean companies is inevitable in dealing with technology. S company, for example, was established in 1970 and started its business importing foreign automotive components and selling them on the Korean market. In 1978, the company established its first factory and produced key sets, door-locks and window switches, through a technical tie-up with a Japanese company, with a contract period of 5 years and royalties of U\$ 50,000 as an initial payment and 3% of total sales amount as a running royalty. In 1983, S company extended its licensing period with the same conditions. In 1985, when S company established a joint venture company with capital from a Japanese company, the Japanese partner exempted S company from licensing fees from that time onwards. Since 1986, as a new joint-venture S company has used transferred technology from a Japanese partner company regarding auto-locking and power window technology, there has been no initial payment but 2% of total auto-locking and power window sales as a running royalty, and more importantly, the Japanese partner consumes 30% of its products.

Another case is D company. D company has 9 divisions and employs 2500 persons. Each division of D company produces different products. From 1979 to 1986, a number of technologies have been transferred in D company. The President of D company tried to establish joint-venture companies and by 1990, 5 divisions of D company had become 5 joint-venture companies with 7 foreign partners. Among them, 2 companies were producing auto parts and components with 750 employees. The President of D

company, D.H.Koh, the eldest son of the founder, asserts ;

"When we started our business in 1960s, we did not need any technology. All we needed was machines and plenty of girls to fit our products. In the 1980s, technology seemed to be essential for future business. Therefore, we bought technologies from abroad without full knowledge of technologies. After few years of operation with foreign technology, we could use the technology correctly, and we made better products than the technology suppliers. As we know about technology, it has been easy to do deals with foreign partners to establish successful joint-venture companies."

Although there is no large data set it can be assumed that companies who were initially technology buyers and have become joint-venture companies with the same partners seem to do well in terms of the development of technological capabilities.

IX-iii-2-1. Reasons for Technology Transfer

At the national level, Korea has been a technology importer. Table IX-11 shows that Korea mainly relied upon foreign technology rather than developing and exporting it.

Table IX-11. Self-Dependence Ratio of Technology in Selected Country in 1991

Country	Korea	Japan	U.S.A.	U.K. (1989)	France (1990)	Germany (1991)
Ratio	0.03	0.47	4.79	0.96	0.67	0.45

Source : MOST 1993

Note : Self-Dependence Ratio
= $\frac{\text{Total Earnings on Technology Exports}}{\text{Total Spending on Technology Imports}}$

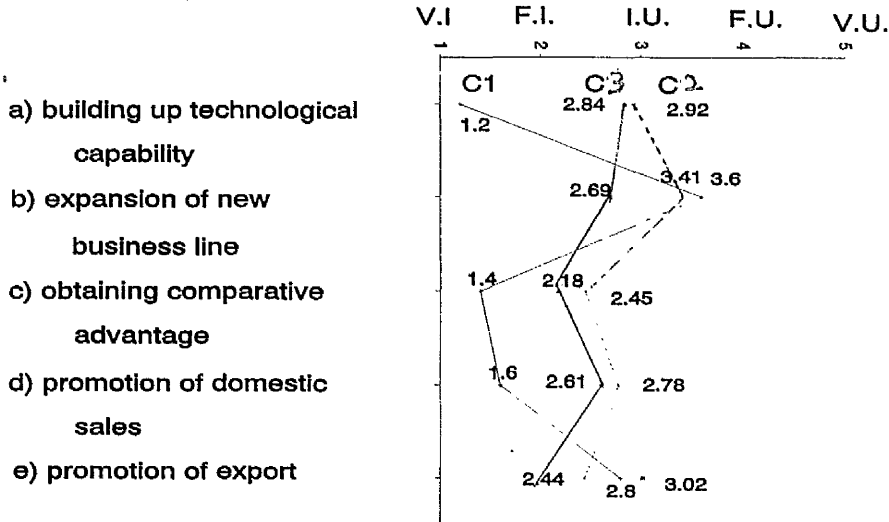
At a company level foreign technology acquisition would be

determined by the company's own interests though there are possibly the same or similar technologies existing within the country.

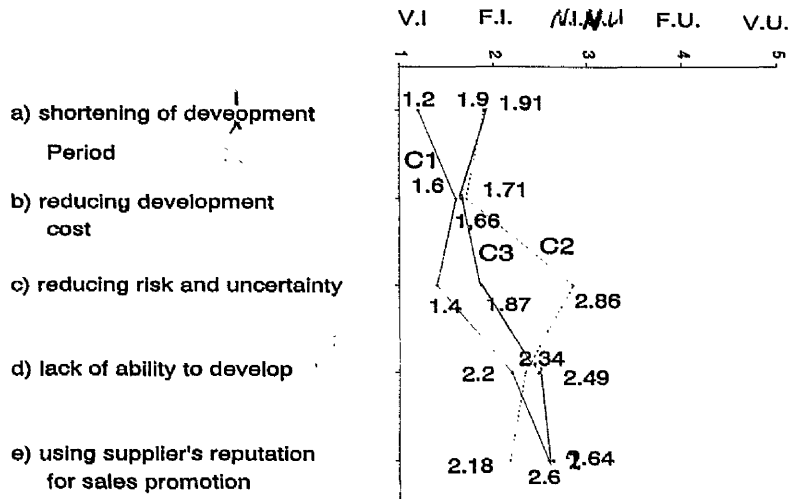
Figure IX-1. Reasons for Technology Acquisition

V.I. : Very Important
 F.I. : Fairly Important
 N.I./U. : Neither Important/Nor Unimportant
 F.U. : Fairly Unimportant
 V.U. : Very Unimportant

- Reasons for T/T



- Why not develop it yourself?



In our study, the reasons for importing foreign technology varied between company groups. The building up of their technological capability was the most important factor for car assemblers (1.2) while obtaining a comparative advantage was of importance to C3 companies (2.18), and C2 companies were encouraged by their export activity (2.44).

Technology transfer as a means into expansion of new business lines appears to have been a less important factor in C1 (3.6) and C2 (3.41) companies, whilst in C3 companies it was of importance (2.69). It can be argued that for the car assemblers and joint-venture companies, the up-grading of already produced products is more likely to be a vital factor; while in the case of C3 companies, entering a new production range seems to have been essential for their future business.

All our surveyed companies were looking for technology in order to gain comparative advantages over their competitors (C1:1.4, C2:2.45 and C3:2.18), and the promotion of both domestic and export sales was of importance. Although both markets are important, C2 companies seem to have been more willing to export their products (2.44) than to sell domestically (2.78) with transferred technology. In contrast, however, the domestic market was more important for C2 (1.6) and C3 (2.61) than the export market (C1 2.8 and 2.04 in C3).

The reasons given for acquisition of foreign technology rather than developing technology by themselves reveals the whole range of conventional factors, a) to e), affecting their decisions to acquire foreign technology. This could, in turn, mean that the Korean auto industry lacks the confidence to develop its own

technology, and consequently, Korean companies are spending at a very high level in total R&D expenditure (Table IX-12) for technology imports comparing with advanced countries.

Table IX-12. Technology Dependence Ratio by Selected Countries

	Korea (1989)	Japan (1989)	W.Germany (1989)	U.S.A. (1988)
Ratio	22.3%	6.6%	6.2%	1.6%

Source : Industrial Bank of Korea, 1991

Note : Technology Dependence Ratio

$$= \frac{\text{Total Spendings for Technology Import}}{\text{Total R\&D Expenditure}}$$

IX-iii-2-2. Characteristics of Transferred Technology

In this section, we surveyed 71 cases of technology transfer which had occurred since 1989. In order to examine the issues more deeply interviews were conducted with those employees who had been actually responsible for the technology transfer. The number of cases covered amounted to about 70 % of the total number of technology transfer cases which occurred in all our surveyed companies (C1, C2 and C3) in that period (102 cases). During that period, 164 cases of technology transfer occurred in the auto industry.

Table IX-13. Stage of Transferred Technology in Advanced Countries

(case, %)

	C1	C2	C3	Total
R & D stage	4 (11.8)	2 (12.5)	4 (19)	10 (14.1)
Introduction Period	11 (32.4)	3 (18.8)	3 (14.3)	17 (23.9)
Mass-Production Period	15 (44.1)	9 (56.3)	12 (57.2)	36 (50.7)
Standardised Period	3 (8.8)	1 (6.2)	2 (9.5)	6 (8.5)
Declining Period	1 (2.9)	1 (6.2)	-	2 (2.8)
Total Case (%)	34 (100)	16 (100)	21 (100)	71 (100)

Source : Research Data

In many cases, the technology transferred to the Korean auto industry has been technology from the mass-production stage of the product life cycle (Table IX-13).

About 51% (36 cases) of the total number of transferred technology consists in the full use of its level of exploitation in advanced countries, and about 62% (44 cases) of the transferred technology could be recognised as on a downward slope in the product life cycle. This table possibly illustrates that car assemblers were more successful in getting relatively new technology than the others (C1 32.4%, C2 18.8% and C3 14.3%). At the R&D level of technology, C3 companies had the highest ratio (19%). C2 companies (18.8%) are more likely to transfer technology from the introduction period than are C3 companies (14.3%). However, it may be possible to argue that C3 companies were, in general, relatively better than C2 companies in terms of technology acquisition since their ratio of R&D stage plus

introduction period to the total number of technology transfers was higher (33.3%) than that of C2 companies (31.3%) and their ratio of standardised and declining stage of the technology to the total number of technology transfers was a bit lower (9.5%) than that of C2 companies (12.4%).

For transfer of technology, an adaptation period is necessary in order to make full use of it. Table IX-14 shows that the Korean auto industry seems to have applied foreign technology to its production in a relatively short period of time though there are no foreign and other data available.

Table IX-14. Minimum Requirement Period for full exploitation of Imported Technology

(case, (%))

	C1	C2	C3	C2+C3	C1+C2+C3
Within 1 year	7 (20.6)	6 (37.5)	6 (28.6)	12 (32.4)	19 (26.8)
1-2 years	14 (41.2)	6 (37.5)	13 (61.9)	19 (51.4)	33 (46.5)
3-5 years	11 (32.3)	4 (25)	2 (9.5)	6 (16.2)	17 (23.9)
more than 5 years	2 (5.9)	-	-	-	2 (2.8)
Total	34 (100)	16 (100)	21 (100)	37 (100)	71 (100)

Source : Research Data

According to table IX-14, technologies transferred to the auto parts industry require a shorter period of time to be fully exploited (83.8% within two years) than those transferred to car assemblers (61.8% within same period). It is argued that the technology transferred to car assemblers tends to have been more

advanced and sophisticated and takes longer to be fully used. It is also argued that the technology transferred to car assemblers may not be ready-to-use. It may require a certain level of technology in other parts procured from their sub-contracting companies, (notably auto part companies), Mr. Yeom, Senior Researcher of Hyundai Motor asserts.

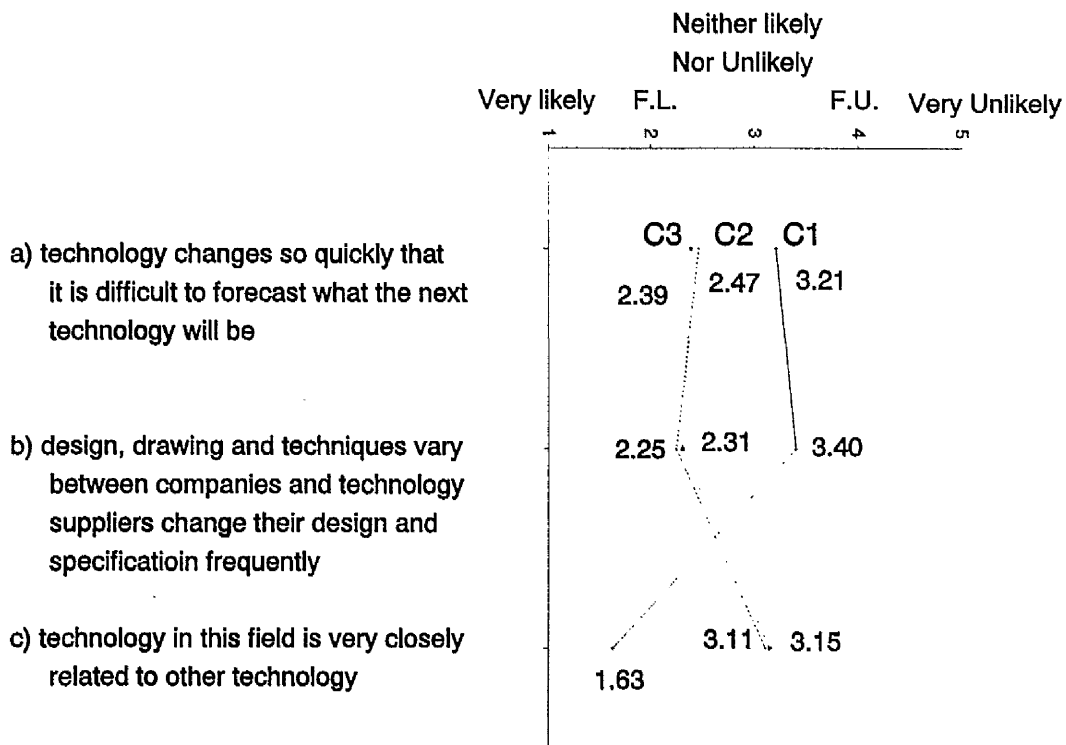
"Perhaps we could easily develop a new car using foreign patents if car could be made without sub-contractors. We could read the drawings and understand fully the patent. But in order to collaborate with our sub-contractors, we have also to offer them guidance since a car is made up of about 30,000 parts requiring many subcontractors, this is a problem. Especially, when we developed automatic gear boxes with a Japanese patent a few years ago, there was no auto part company who could cut and grind the gear using computerised hobbing machines (gear cutting machine) which are needed to get the preciseness required. Therefore, our soft-ware engineers and mechanical engineers spent a couple of months in a manual hobbing machine manufacturer with another foreign technical license in order to computerise their hobbing machines."

C2 companies tended to use imported technology fully in the shortest period (within 1 year, 37.5%) while C3 (28.6%) and C1 (20.6%) took longer (usually 1 to 2 years). However, these differences can be explained by the fact that the technology transferred may have been ready-to-use. H company, for example, a producer of bumpers for Kia, in order to manufacture a new type of bumper for Kia's new car model, needed new technology to make die-casting and mouldings and imported a full package of moulding technology from Japan. It included such things as computerised and numerically controlled milling machines (CNC milling machine) with computer-aided-design (CAD) and computer-aided-manufacturing (CAM) systems including software. In addition, H company dispatched two engineers to a technology supplier to be trained for one month. As a result, H company utilized their CAD/CAM and

CNC machines relatively easily. However, as versions of the software were upgraded, they have had to learn and practice how to use the new programmes in Japan. In this case, full exploitation of transferred technologies is still subject to training. On the one hand, acquisition of foreign technology and adaptation for full use in a short period of time is necessary. On the other hand, however, building-up one's own technological capability, rather than mere operating skills, seems to be crucial for the future.

Other characteristics of technology transferred to the Korean auto industry are illustrated in Figure IX-2.

Figure IX-2. Characteristics of Transferred Technology



This figure shows that there were substantial differences between auto assemblers and auto part companies view points. Car assemblers tended to be optimistic about their ability to forecast the future of technology transfers while auto part companies seem to have been worrying about the direction of future changes. This can be explained by looking at the responses to questions b) and c). The car industry is supposed to be a combination of other related industries by its nature, as was discussed earlier; its design, drawing and technology would not be changed easily in a short period of time unless all related industries' technology changed very quickly as well. However, in the case of an auto parts company which only produces certain car

parts, its relationship with other industries could be a limiting factor, and if changes of certain parts do not seriously affect the car such as power window systems, mirrors, etc., the scope of technology change will vary between companies. In this respect, the choice of foreign technology supplier is of importance for auto part companies.

IX-iii-2-3. Conditionality of Technology TransferTable IX-15. Conditionality of Technology Transfer

(case, (%))

	C2	C3	Total
a) confidential Treatment	19 (51%)	34 (79%)	53 (66%)
b) restriction on purchasing line	17 (46%)	10 (23%)	27 (34%)
c) restriction on production quantity	6 (16%)	10 (23%)	16 (20%)
d) restriction on export market	7 (19%)	26 (60%)	33 (41%)
e) restriction on re-transfer of technology	29 (78%)	37 (86%)	66 (83%)
f) grant-back clause	17 (46%)	23 (53%)	40 (50%)
g) certain level of royalty payment required	14 (38%)	33 (77%)	47 (59%)
h) restriction on sale price	3 (8%)	14 (33%)	17 (21%)
i) restriction on R&D activity on T/T	11 (30%)	27 (63%)	38 (48%)
j) restriction on usage of competitors' products	5 (14%)	17 (40%)	22 (28%)
k) others	3 (8%)	7 (16%)	10 (13%)
Total	131 cases	238 cases	369 cases
No. of Surveyed Company	37 companies	43 companies	80 companies
	3.5 cases per company	5.5 cases per company	4.6 cases per company

Source : Research Data

In many cases, technology transferred from abroad to the Korean auto industry has been accompanied by some restrictions.

In general, 37 joint-venture companies experienced 131 cases of restrictions, an average of 3.5 cases per company, while 43 purely-Korean owned with foreign technology transferred experienced 238 cases of restrictions, or an average of 5.5 cases per company. This could imply that purely Korean companies were more conditioned by their technology suppliers than joint-venture companies.

The most frequently imposed restrictions on the Korean companies involved the possibility of re-transferring of the technology to others (37 cases, 86%), confidentiality (34 cases, 79%), a guaranteed level of royalty payments in all circumstances (33 cases, 77%), restrictions on R&D activity on the transferred technology (27 cases, 63%), restrictions on the markets to which the production based on the technology can be exported (26 cases, 60%) and grant-back clauses (23 cases, 53%) (grant-back means that when a new technology based on a transferred technology is developed, the technology receiver should transfer the newly-developed technology back to initial technology supplier). For joint-venture companies, restrictions on re-transfer of technology to others (29 cases, 78%) and confidential treatment (19 cases, 51%) were mainly favoured by foreign technology suppliers.

C2 companies are more restricted on the purchase of necessary input for their production (46%) than C3 (23%), and C3 companies were less free than C2 companies in many respects, notably, export market restrictions (C3:60%, C2:19%), royalty payment conditions (C3:77%, C2 38%), sales price restrictions (C3:33%, C2:8%) and restrictions on R&D activity towards transferred

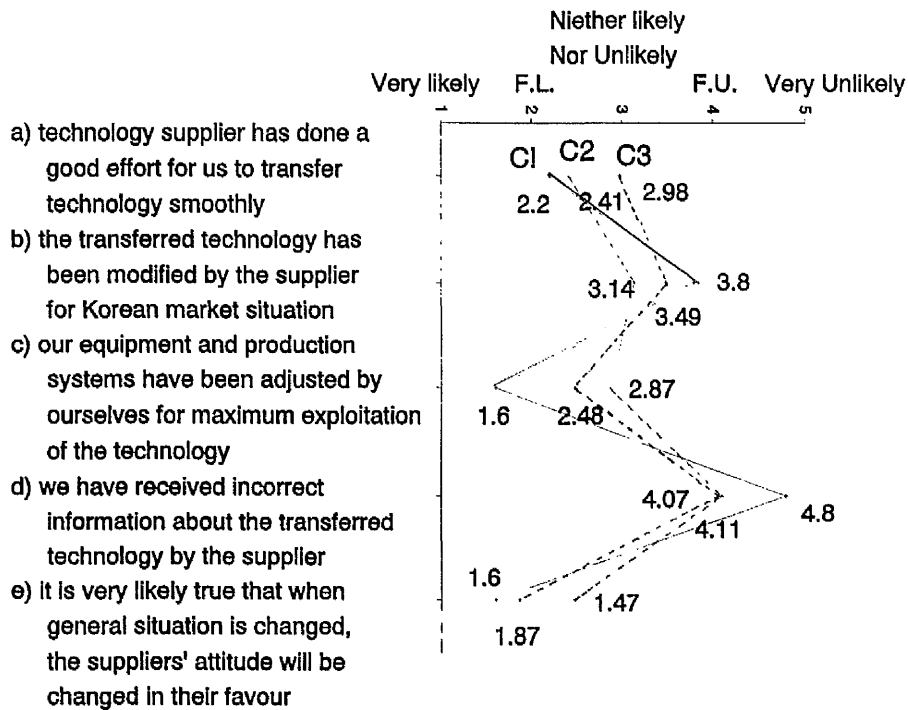
technology (C3:63%, C2:30%). Restrictions on export markets and R&D activity by technology suppliers should not be over-looked.

IX-iii-2-4. Co-operation with the Technology Supplier

In principle, it is clear that close collaboration between partner companies is one of the essential factors for mutual benefit in international business. However, in many Korean partners' point of view, foreign partners' active participation on technology transfer may be required though there is likely to be disharmony between foreign investors and Korean partners (See Chapter VII).

In the Korean auto industry, the dissolution of the partnership between G.M. and Daewoo, in 1992 after a 15-year joint venture period, perhaps is one of the clearest examples of the development of disharmony (see chapter V and VIII).

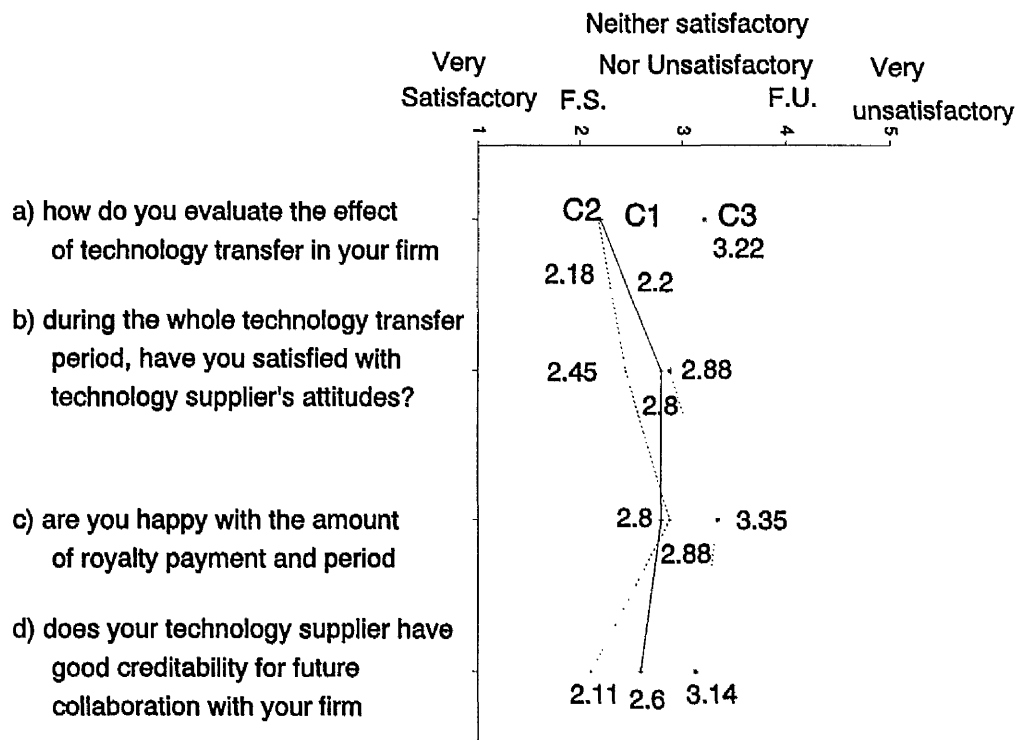
Figure IX-3. Co-operation with Technology Supplier



Source: Research Data

In this analysis, in general, it has been found that technology suppliers to the Korean auto industry have collaborated well with Korean partners during the technology transfer period ((a) to (d)). However, in practice, modifications to the transferred technology and the adjustment of equipment for the maximum exploitation of the transferred technology were by Korean auto companies. Some of the C2 companies received somewhat modified technology from the suppliers. However, it is believed that the relationships between technology supplier and all the surveyed companies are dependent on the economic environment.

Figure IX-4. General Evaluation of Technology Transfer



Source : Research Data

From Figure IX-4, it may be seen that joint-venture companies and car assemblers tended to be satisfied with the imported technology and their partners, including prospects for future collaboration with their partners if the general situation between them and their foreign partners were to remain the same. In the case of Korean firms with foreign technology experience, results from the same question showed that they were unlikely to be satisfied with imported technology in general. C3 companies seem to have been a little more satisfied with their partners'

attitude (2.88) while the other factors were judged negatively. Particularly, they were not likely to be happy with the licensing fees and royalty payment periods (3.35) and as a result, in part, the intention of future collaboration with the same technology provider seems to be subject to further consideration (3.14).

As far as the licensing fee and the period of royalty payments were concerned, it appears that C3 companies were paying royalties for longer periods than those C1 and C2 companies. In our survey, C3 companies seem to have been paying for longer periods for their imported technology (average 5.6 years) than the others (C1:3.9 years and C2 4.7 years).

Table IX-16. Average Contract Period of Technical Licensing

	C1	C2	C3	Total
No. of case	212	51	108	371
Total years of contract	808 years	239 years	604 years	1,651 years
Average years of contract	3.8 years	4.7 years	5.6 years	4.45 years

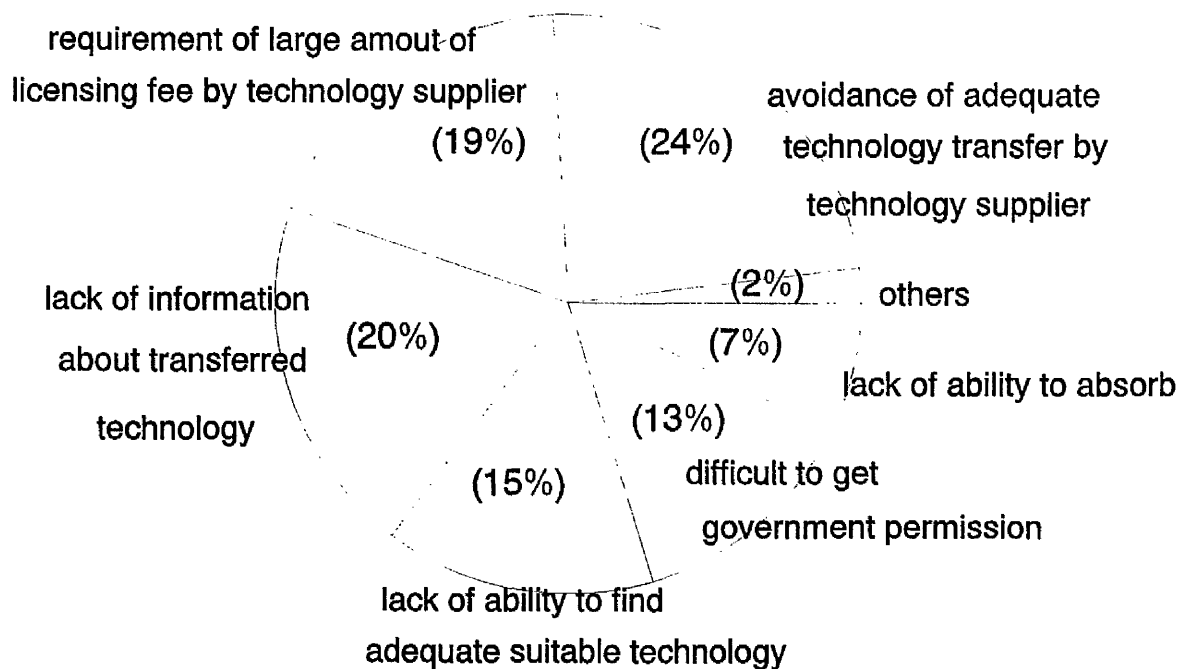
Source : Research Data

Although these data are subject to criticism since a contract period for technical licensing is not always linked with a royalty payment period (· in reality, however, there has been an ambiguity between the two concepts in the literature and data †) and in the case of lump-sum payments with technology transfer, the longer period of contract seems to be better than the shorter period of contract. In addition, it would be more adequate and desirable when all kinds of payments such as initial payments,

lump-sum payments and running royalties are counted within the contract period. However, in reality, the prices in each part of the automotive industry are different and even vary within the same part; i.e. it varies between companies - as a means of commercialisation of technology, (see chapter 3). Apart from such constraints in research, our survey shows that Korean-owned companies with foreign technology acquisition seem to pay for longer periods for their imported technology than the others if licensing contract period is proportionally related to the royalty payment period.

In the case of C3 companies, foreign technology suppliers are not to be blamed. A study carried out by the Industrial Bank of Korea in 1991 illustrated that a greater proportion of obstacles in dealing with foreign technology transfer were caused by Koreans.

Figure IX-5. Proportion of Obstacles in dealing with Technology Acquisition



Source : The Industrial Bank of Korea, 1991.

According to Figure IX-5, 55 percent of total constraints in dealing with foreign technology acquisition were Korean bottlenecks while foreign factors, such as an avoidance of adequate technology transfer and requirements of large amount of licensing fee by technology suppliers, accounted for 43% of total obstacles.

In the Korean factors, lack of technological capability, in general, seems to be the fundamental obstacle of technology acquisition. This could, in turn, be a major cause of the limitation of effective use of transferred technology. In this

regard, technical education, technical training and R&D activity appear as interesting research topics with reference to technology transfer in Korea.

IX-iii-3. Technical Training in the Automotive Industry

IX-iii-3-1. Background of Surveyed Companies

For this analysis, we chose 4 company categories notably, 5 car assemblers (C1), 37 joint-venture companies (C2), 43 purely-Korean owned with foreign technology acquisition experience (C3), and 100 purely-Korean owned companies without foreign technology transfer (see table IX-2).

According to table IX-17, the proportion of university-graduate employees to total employees was the highest in the C1 companies, which accounted for 21.3% of the total employees, that is 3,920 employees out of 18,420 employees. C3 companies, on average, employed 91 university-graduate employees, accounting for 13.1% of the total number of employees, while C2 companies, on average, employed 47 university degree holders, accounting for 10.8% of total employment. In C4 companies, there were 13 university-graduate employees, on average, composing 7.6% of total employment.

The proportion of less-educated workers force, (i.e. below high school level), can be found from the same table and illustrates the fact that C1 companies employed the lowest percentage of less-educated employees (5.4% of total employment) compared with, 16 % in C3, 22.2% in C2, and the highest level of

less-educated employees was in C4 companies (22.9%). These data could mean that C1 companies employed a relatively better educated work force than the others, and C3 companies were a bit better in terms of the educational background of their employees than that of C2 companies.

In table IX-19, the technical ability of employees in each company group is examined. This is, perhaps, a reflection of general levels of education. C1 and C3 companies had more engineers than C2 and C4 and less unskilled labour than the same two groups. In this regard, it may be argued that educational level is related to technical level in a directly proportional way in the Korean auto industry.

Table IX-17. Composition of Employment by Education Level
(Average No. employees per company)

	C1	C2	C3	C4
University Graduate	3,920 (21.3%)	47 (10.8%)	91 (13.1%)	13 (7.6%)
College Graduate	2,400 (13%)	34 (7.9%)	67 (9.7%)	21 (12.4%)
High School Graduates	11,000 (60.3%)	255 (59%)	425 (61.2%)	97 (57.1%)
Below High School	1,000 (5.4%)	96 (22.2%)	111 (16%)	39 (22.9%)
Total	18,420 (100%)	432 (100%)	694 (100%)	170 (100%)

Source : Research Data

Table IX-18. Composition of Employment by Technical Level
(Average No. of Employees per company)

	C1	C2	C3	C4
Engineers	2,780 (15.1%)	57 (13.2%)	104 (15%)	19 (11.2%)
Management	6,580 (35.7%)	49 (11.3%)	90 (13%)	19 (11.2%)
Skilled-Labour	7,760 (42.1%)	230 (53.2%)	411 (59.2%)	89 (52.3%)
Unskilled-Labour	1,300 (7.1%)	96 (22.3%)	89 (12.8%)	43 (25.3%)

Source : Research Data

Note :- Engineers refers to those who are non-management with university graduates or first or second class engineer certificate holders approved by the Government

- Skilled-Labour refers who has experienced for more than two years after technical high school graduation, or those who have 5 years of experience without technical high school graduation in same or similar production

IX-iii-3-2. Technical Education in Korea

In general, after attending 9 years of compulsory schooling (excluding play-school and kindergarten), that is at the age of 15, all Korean boys and girls face two main options. One option is to go to high school and the other option is to get a job. However, according to the Ministry of Education, more than 95% of total middle school leavers joined high schools. There are two kinds of high schools in Korea, namely ordinary high school and industrial high schools. About 64% of total high school students are enrolled in ordinary high schools while 36% are in industrial high schools (Table IX-22). The major objective of ordinary high schools is the preparation for higher education, notably universities and colleges, while students in industrial high schools are trained for 3 years as future technicians, clerks,

agricultural cultivators, etc.

It is technical high schools which produce the technicians for manufacturing industry in Korea, and universities and colleges educate students for higher level positions. Other types of technical institution are the vocational training centre or job centre system operated by the Government, private industry and other public organisations.

According to table IX-19, about 1.5 million workers have been trained under these arrangements since 1967, mainly for manufacturing industry.

Table IX-19. No. of Trained Technical Trainees by Job Centre*

	(No. of person)						
	1967-1986	1987	1988	1989	1990	1991	Total
Government-oriented vocational training centre	358,772	22,593	20,745	20,073	24,441	25,950	472,574 (31.6%)
Privately-oriented vocational training centre	667,736	14,208	18,168	15,019	25,690	43,304	794,125 (53.2%)
Other training Centre approved by MOL	143,981	9,258	10,335	21,671	17,571	24,249	227,065 (15.2%)
Total	1,180,489	46,059	49,248	56,763	67,702	93,503	1,493,764

Source : The Ministry of Labour, 1992

* : Six-month-course of institutional training for non-technical high school graduates or lower educational background

In our analysis, however, it seems to be clear that companies in Korea are unlikely to be satisfied with Korea's technical education system. Table IX-20 shows that virtually all our

sampled companies were not very happy with technical education in Korea for a variety of reasons. (see table IX-21)

Table IX-20. Technical Education in Korea

(case (%))

	C1	C2	C3	C4	Total
Very Satisfied	-	-	-	-	-
Fairly Satisfied	-	5 (13.5%)	4 (9.3%)	18 (18%)	27 (14.6%)
Neither Satisfied Nor Unsatisfied	3 (60%)	18 (48.6%)	20 (46.5%)	39 (39%)	80 (43.3%)
Fairly Unsatisfied	2 (40%)	10 (27%)	17 (39.5%)	36 (36%)	65 (35.1%)
Very unsatisfied	-	4 (11.9%)	2 (4.7%)	7 (7%)	13 (7%)
Total	5 (100)	37 (100)	43 (100)	100 (100)	185 (100)

Source : Research Data

Table IX-21. Reasons of Dissatisfaction with Korean Technical Education

Reasons of dissatisfaction	No. of Case
a) shortage of modern technical equipment and facilities	46
b) irrelevance of courses and teaching techniques	41
c) traditional social values which regard technical education as inferior	21
d) funds allocated to technical education are not sufficient	48
e) absence of co-ordination between education planners and industry	19
f) technical school, colleges and institutes are limited in number so that graduates are not sufficient	61
g) teachers' qualifications are poor and do not enable them to impart skills and transmit knowledge required by industry	18
h) absence of long-term strategy of technical and vocational training	30
Total	284

Source : Research Data

Note : Total No. of Surveyed Company : 78

There were 284 cases from the 78 companies surveyed who were fairly or very unsatisfied with technical education in Korea. According to table IX-21, the small numbers of technical institutes and students are the major problem.

Indeed, in our interviews, many interviewees expressed difficulties in employing technically adequate workers, blaming the Korean technical education system which produces fewer technically and technologically-adequate workers than other countries. According to table IX-22, the ratio of technical high school students in Korea in 1988 (8.6%) is far lower than that

of the Republic of China (Taiwan) ^{with} 33.6%. It may be true that Taiwanese high schools are more industrially-oriented than Korean high schools since the number of students in industrial high schools accounted for 71% of the total number of high school students while Korean industrial high schools have only 36.6% of total high school students.

The Figures in table IX-23 illustrate that the percentage of post-graduate level students in engineering faculties in the Korean universities was only 16.6% of the total in 1988 while the Japanese and Taiwanese ratios were 35.4% and 34.0%. This implies that the future technical qualification of the labour force in Korea both at the high school and more highly - qualified level of post-graduate qualification is lower than in Japan and Taiwan.

Consequently, there will be serious shortages of technically qualified workers for the manufacturing sector in Korea in the future, and table IX-24 shows this.

Table IX-22 No. of Student enrolled in High School
(Unit : Thousand Student, %)

	Korea				R.O.C.
	1982	1984	1986	1988	1988/89
Ordinary High School	1,069 (55.6)	1,200 (57.4)	1,345 (59.5)	1,458 (63.4)	209 (29)
Industrial High School	853 (44.4)	892 (42.6)	917 (40.5)	843 (36.6)	515 (71)
Technical High School		201 (9.6)	203 (9)	198 (8.6)	243 (33.6)
Total	1,922 (100)	2,092 (100)	2,262 (100)	2,301 (100)	724 (100)

Source : KIET 1990 (extracted from various tables)

Note : Industrial high schools are consist of commercial technical, agricultural, fisheries, etc

Table IX-23. No. of students enrolled in Engineering Field University in 1988 (person, %)

	Korea		Japan		R.O.C. (Taiwan)	
	Total	Engine ering	Total	Engine ering	Total	Engine ering
Doctoral Candidate	11,863	2,129 (17.9%)	25,880	3,639 (14.1)	3,222	1,238 (38.4)
Master level	63,254	10,334 (16.3)	56,596	25,528 (45.1)	14,119	4,663 (33.0)
Sub- Total	75,117	12,463 (16.6)	82,476	29,116 (35.4)	17,341	5,901 (34.0)
Under- graduate	1,003,648	216,449 (21.6)	1,861,306	368,207 (19.8)	207,479	35,894 (19.1)
Total	1,078,765	228,912 (21.2)	1,943,782	397,374 (20.4)	224,820	41,795 (18.6)

Source : KIET 1990 (quoted from various tables and calculated by author)

Note : Open university and 2 or 3 year course of colleges are excluded.

Table IX-24. Estimated Supply and Demand of Technical Manpower
(1990-1994)

(unit : Thousand person)

Industry Contents	Machinery	Electric & Electron ics	Metal & Material	Chemical & Chemical Eng	Others	Total
Difference between Demand & Supply	96.5	65.7	31.3	30.0	38.1	261.6
Insufficienc y Ratio (%)	79.8%	51.6%	78.4%	65.4%	71.2%	67.5%

Source : KIET^(b) 1990

Note : * Difference = Estimated No. of Demand
- Estimated No. of Supply
Total No. Difference

* Insufficiency Ratio = $\frac{\text{Total No. Difference}}{\text{Estimated No. of Demand}}$

* Technical man power refers to employees those who are in manufacturing sector

Other significant factors in table IX-22, such as poor equipment, a), inadequate teaching techniques, b), and insufficient funds, d), could be caused by lack of funds. Total expenditure on education in comparison with GNP in Korea in 1987 was 3.2%, while Japan in 1982 it was 5.7% of GNP and 5.3% in 1983 in the U.K. (UNESCO, quoted in KIET 1990).

Average expenditure on education per student at each school level is shown in table IX-25.

Table IX-25. Average Expenditure on Education per student
(Unit : US\$)

	Korea (1986)	U.S.A. (1985)	Japan (1983)	U.K. (1983)
Elementary School	410	3,173	1,618	1,114
Middle School + High School	391 + = 906 515	3,173	1,184 + = 3,545 2,361	1,794
University	1,430	6,255	5,471	5,542

Source : KIET 1990

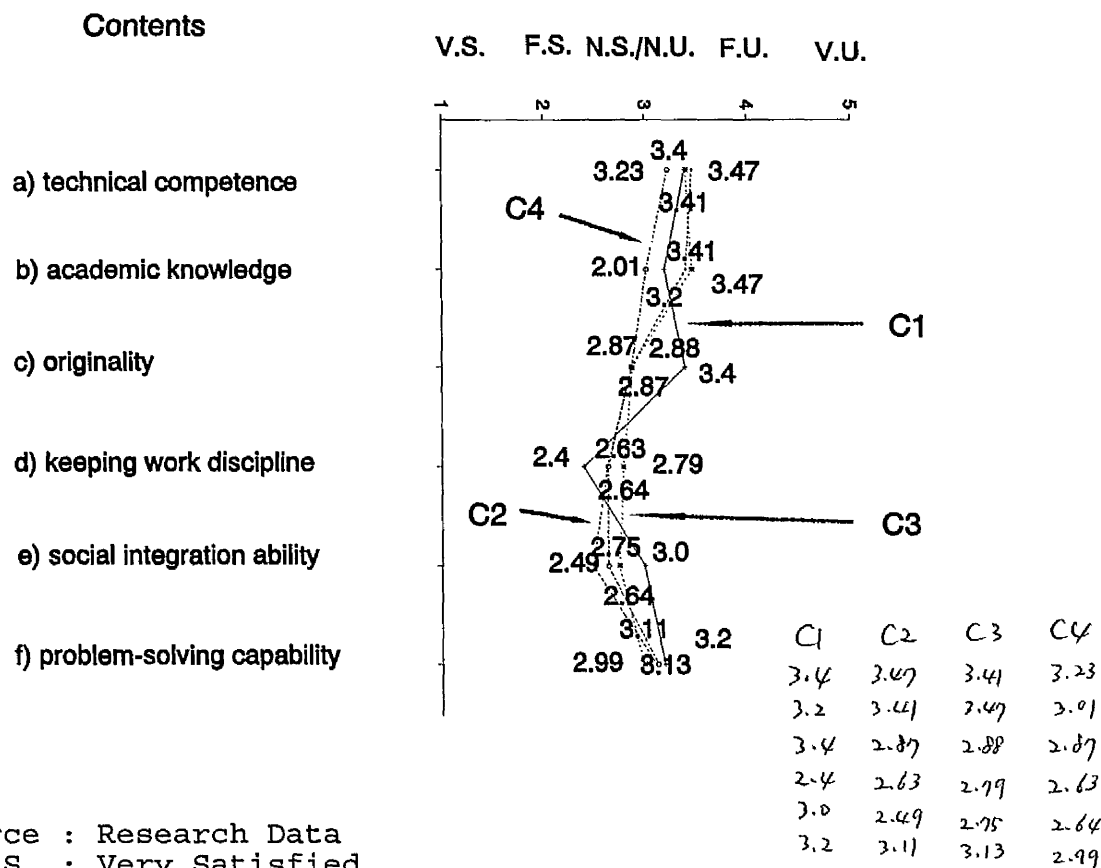
Given this relatively low level of expenditure, it would be difficult to get modern technical equipment and facilities at all technical institutes. Consequently, in part, poor teaching techniques and poor quality teachers are also unavoidable.

IX-iii-3-3. Evaluation of Recent University Graduates in the Auto Industry

Figure IX-6 shows that technical competence, academic knowledge and problem-solving capabilities of ^{the} recently graduated technical labour force in the auto industry in general are viewed negatively by all companies. ^{In contrast,} the good attitudes towards work, discipline and social integration of the workers who had recently graduated from university with technical skills seem to be welcomed by virtually all company groups. It is argued that recent university-graduates with technical skills in the auto industry are well-trained with social skills rather than the technical factors which can be explained in the hierarchically structured-society like Korea.

There is one thing which does not coincide in all company groups. The original contribution of workers who are recently graduated from universities in the auto part industry (C_2 , C_3 and C_4) tends to be higher than of those in the car assemblers. It may be that in a big company such as a car assembler, where everything is organised in orderly vertical relationships, proposals for new ideas from relatively young men are not likely to be heard by the top management since some Korean car assemblers are described as being like military camps rather than work plants. In contrast, however, in relatively smaller organisations and less restricted conditions of work, fresh ideas are more likely to be used.

Figure IX-6. Evaluation of Recent University Graduate Technical Labour



Source : Research Data

* V.S. : Very Satisfied

F.S. : Fairly Satisfied

N.S./N.U. : Neither Satisfied Nor Unsatisfied

F.U. : Fairly Unsatisfied

V.U. : Very Unsatisfied

The negative aspects of ability and technical competence of the recently university-graduated technical labour force in the auto industry could be derived from the insufficiency of funds devoted to each university student (Table IX-26) in Korea in general. Indeed, most mechanical engineering departments in Korean universities do not possess sophisticated and advanced modern equipment such as CNC machines and CAD/CAM systems which are essential equipment for production in mechanical-related

manufacturing industries. Such trainees will have an academic deficiency in the use of such equipment.

It may also be argued that the deficiency of academic knowledge of the recently university-graduated technical labour force in the auto industry is not only a phenomenon of the auto industry alone but also a phenomenon of industries in Korea in general. If we assume that a smaller number of students could get more from teachers than a larger number, Korean university students are not likely to get more academic knowledge from their lecturers than Japanese and Taiwanese university students. As table IX-26 shows, Korean lecturers teach more students on average than the others. In addition, more importantly, the average number of students per teaching staff at universities in Korea increased from 20.9 in 1975 to 37.5 in 1986 whilst Japanese and Taiwanese universities experienced decreasing average numbers during the same period.

Table IX-26. Average No. of Student per Teaching Staff at the university

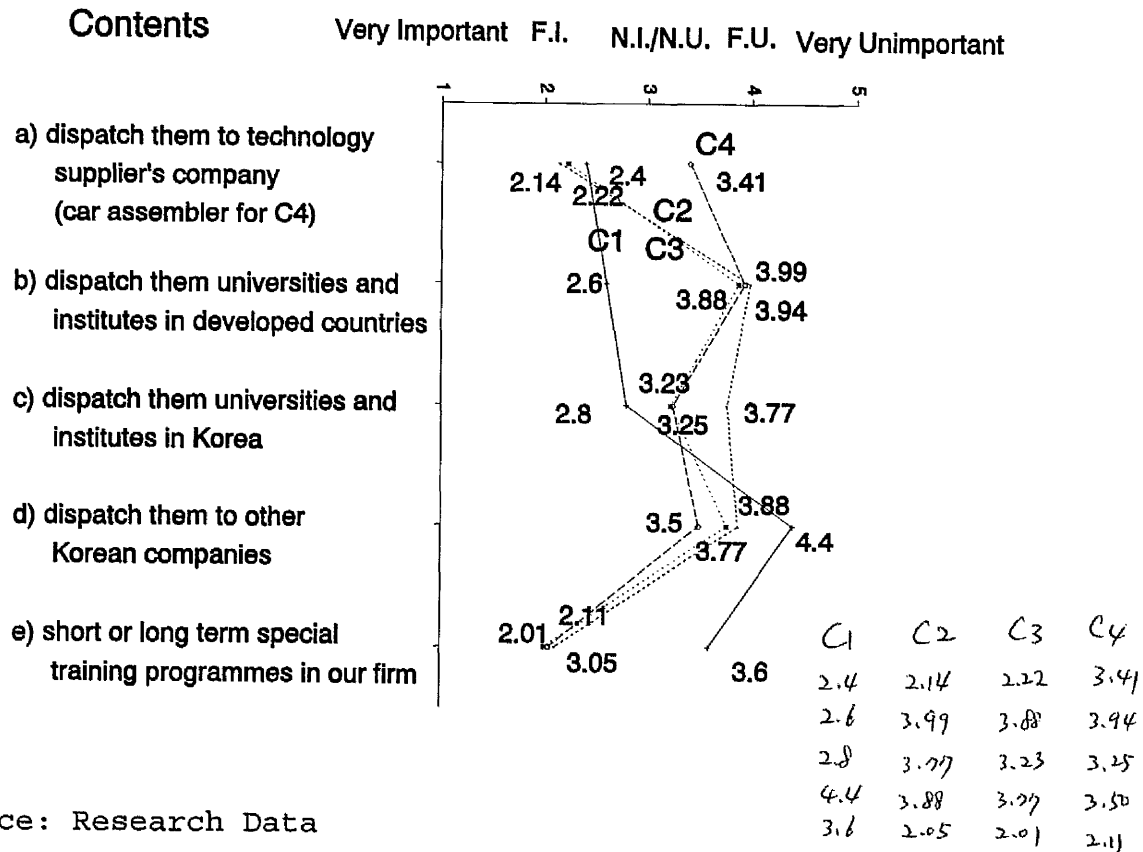
	1975	1980	1984	1985	1986
Korea	20.9	28.9	37.0	37.7	37.5
Japan	19.8	18.5	17.4	17.1	17.2
R.O.C.	21.3	20.8	20.6	20.6	20.3

Source : M.W. Suh 1989 (quoted in KIET 1990)

* Teaching staff refers full time lecturers and above level.

IX-3.3.4. Main Methods of University-Graduated Technical Labour Force Training in Auto Industry

Figure IX-7. Main Method of Technical Training for University Graduates



Source: Research Data

The main methods of technical training for university-graduates in the Korean auto industry differ between company categories. According to figure IX-7, car assemblers seem to recognise technical training abroad is an important factor for their university-graduated technical labour force. Car assemblers dispatch their technical labour force to the technology suppliers' company, foreign universities and institutes. This is, however, not to say that car assemblers use this method very frequently for a large number of their employees.

All company groups, C1, C2, and C3, except C4, dispatch their

technical labour force to technology suppliers companies to ensure the smooth technology transfer on the one hand, and for technical training on the other. It seems to be vital for the Korean auto industry to use such a method for technical training since foreign technology suppliers know the transferred technology well; therefore, they can supply appropriate training for the technical labour force with reference to transferred technology, in particular, and other activities, in general, in a relatively short period of time - usually less than 3 months.

It is believed, however, that joint-venture companies seem to be rather enthusiastic to dispatch their technical labour force to their parent or partner companies abroad. In the case of C company, for example, the company dispatches about 10 technical workers including high-school graduates to its joint-venture partner, N company in Japan, every year, for technical training, on the one hand, and to encourage its labour force, on the other hand, by giving them an opportunity to travel abroad in general and to its partner company in the name of industrial observation.

Training in foreign universities and institutes, however, is limited in most auto companies, except car assemblers, in Korea. Only the big 5 could cope with dispatching their technical labour force to foreign universities and institutes, mainly because the duration of training seems to be longer -usually more than 6 months -, the cost of training is higher, and the direct outcome which can be applied in a short period of time is questionable. In the case of Hyundai Motors, about 50 technical workers are chosen every year for one or two-year masters courses in industrialised countries. The major objective of this training

method is summarised as follows;

"We need highly-educated and qualified technical workers for the accumulation of technological ability in order to develop our own technology to an international standard and we hope such well-qualified and educated staff can do better with regard to international technology co-operation in the long-term" (Mr. H.C.Park, Director of Personnel Dept.)

Also, car assemblers, in some cases, provide sponsorship to their employees for further training or higher degrees in Korean universities and institutes, whilst companies in the auto-part industry are likely to be reluctant to sponsor their employees for further education and training in Korean universities as well as foreign universities and institutes. It seems that the Korean auto assemblers recognise that long-term investment on training and education of their employees is important.

In contrast, however, technical training in Korean companies and in their own companies seems to be less important than in car assemblers. It is, however, not to say that car assemblers rarely use such training methods. Indeed, employees of car assemblers, in general, have to join a couple of technical training programmes which are held at their companies or their subcontracting companies in such subjects as quality control (QC) training, usage of new soft-ware, and operating techniques of new equipment.

In general, all auto companies in Korea seem to be very reluctant to dispatch their technical labour force to other Korean auto companies as one of the methods of training. It is argued that Korean auto companies are not very co-operative with each other in technical training between car assemblers, and

between car assemblers and their sub-contracting companies, although there have been numerous co-operative agreements under the umbrella of the big 5. There are 5 co-operative associations with the big 5 and their sub-contractors (Hyundai with 231 companies, Daewoo with 179 companies, Kia with 170 companies, Asia with 125 companies, and SSangyong with 131 companies as ^{at the} end of 1991 (source, KAICA, 1992). In many cases, companies supply their products to 2 or more car assemblers. Indeed, technical training collaboration between car assemblers is limited mainly because of their rivalry (except Kia and Asia since Kia has 30% of share of Asia's). Between car assemblers and their co-operative association companies limits their technical training collaboration since the objective of such associations is mainly business-oriented with top managers rather than technically-oriented association of their technical labour force. This could mean that diffusion of technology in the auto industry in Korea has limited scope, being only within a company itself.

Virtually all of our surveyed companies have their own technical training programmes. In a broad sense, on-the-job training, perhaps, is mostly used in all companies since on-the-job training has been essential to all grades of employees. It not only covered production workers but also management and highly-ranked technical labour forces when they move to another production line, department, or other grade of position, mainly because of minimum requirements for promotion. In most cases, on-the-job training is carried out at the section and department level, or by a person who was the predecessor of the newly appointed person.

There was no substantial difference between C2 companies and C3 companies regarding the training methods of university-graduated technical labour force. However, there is a great difference between car assemblers and auto part companies.

IX-iii-3-5. Technical Meetings with Car Assemblers

In our survey, most of the auto-part companies in Korea have technical meetings with car assemblers whether regularly or non-regularly depending upon need.

Table IX-27. Regular Technical Meetings with Car Assemblers
(No. of cases, (%))

	C2	C3	C4	Total
Yes	19 (51.4)	27 (62.8)	29 (29%)	75 (41.7)
No	3 (9.1)	1 (2.3)	10 (10%)	14 (7.8)
If Necessary	15 (40.5)	15 (34.9)	61 (61%)	91 (50.5)
Total	37 (100)	43 (100)	100 (100)	180 (100)

Source : Research Data

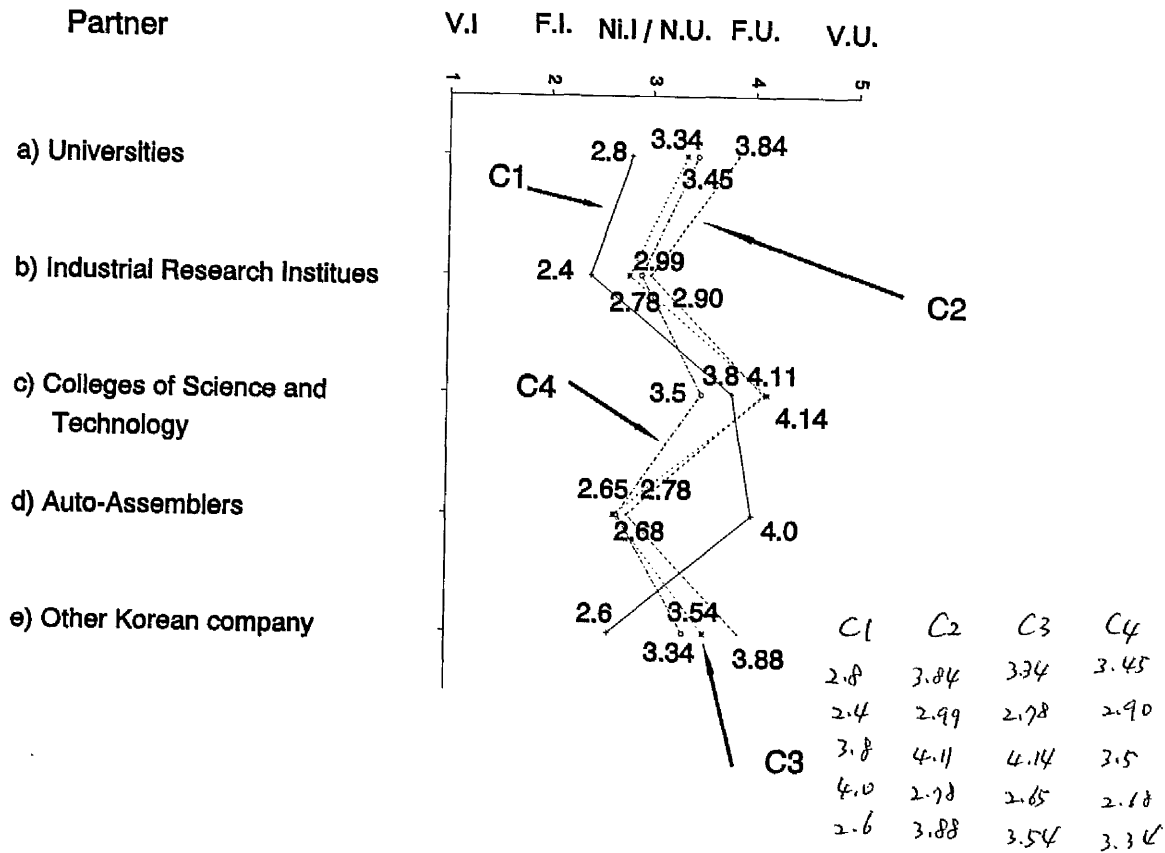
As table IX-27 shows, companies purely owned by Koreans with foreign technology transfer tend to hold regular meetings with car assemblers (27 cases, 62.8%) more actively than joint-venture companies (19 cases, 51.4%) and purely Korean companies with no foreign technology experience (29 cases, 29%). This shows that if we assume that regular meetings with car assemblers are a necessary condition of technical man power training as a means of learning by doing with technologically superior partners, C3 companies are doing better than the others in terms of technical

training than car assemblers, and more importantly, C3 companies could get more from C1 companies than the others in terms of technical knowledge.

IX-iii-3-6. Major partners for Training and Technical Manpower Development Programmes of Auto Industry within Korea

When we exclude technical training from abroad, the Korean auto industry's main co-operative partners for technical manpower development and training seems to be Korean industrial research institutes. For auto part companies auto assemblers are the main partners.

Figure IX-3. Major Partners for Training and Technical Manpower Development



Again, Korean universities, colleges and co-operation with other Korean companies are excluded in many cases, except for car assemblers' activity with Korean universities. It is argued, however, that Korean car assemblers are eagerly willing to employ graduates from well-known universities. Therefore, notably, in the case of Daewoo, a number of students joined the company during the summer and winter vacations of their final year of university as interns. In this period, the students are paid during the duration of their internship and the students are guaranteed a job in the company after graduation. Also, because of the relatively well-organised personnel department of car

assemblers and their group level purpose, certain technical training is jointly held and supervised by each group headquarters of car assemblers since all car assemblers belong to a huge business conglomerate (chaebol see chapter 5). In this sense, car assemblers' technical training and technical man power development partners are not the other Korean companies but their partners in the same group controlled by group headquarters.

For the auto part industry, even for the car assemblers, industrial research institutes are important for their role in technical manpower development. In auto part companies, auto assemblers are of importance for their technical manpower development and training as was discussed above. However, joint programmes between car assemblers are not likely to be found except Kia and Asia for their interests (since Kia possess 30% of the total share of Asia).

When we compare C2 companies and C3 companies, C3 companies seem to be more active in collaboration with universities, industrial research institutes, car assemblers and other Korean companies while C2 companies are active only in collaboration with colleges although it is not at a very significant level.

IX-iii-4. Research and Development (R&D) Activity

IX-iii-4-1. General Background

In general, Korea has spent less on its R&D activity than advanced countries in terms of the ratio of R&D expenditure to gross national product (GNP). As table IX-28 shows, the ratio of

R&D expenditure to GNP in Korea is smaller than that of advanced countries. This could explain, in part, why Korea is mainly dependent upon foreign technology.

Table IX-28. R&D Expenditure Ratio of GNP by Selected Countries
(Unit : %)

Country	Korea	U.S.A.	Japan	W.Germany	France	U.K.
Year						
1988	1.94	2.77	2.58	2.86	2.31	2.20
1989	1.99	2.68	2.69	2.89	2.35	2.25
1990	1.95	2.63	2.77	2.89	2.33	-
1991	2.02	2.63	-	-	-	-

Source : Ministry of Science & Technology (MOST) 1993

Table IX-29 illustrates that in 1991, there were 76,252 researchers engaged on R&D activities in Korea. Korean industries employed 45,043 researchers (59% of total) while Korean universities, employed 20,680 researchers (27% of total) and Korean Government-Oriented research institutes had 10,529 (14% of total) researchers. Although the greater proportion of the total number of researchers were engaged by Korean industries, their educational background was generally poorer than that of the universities and the institutes. Korean universities had 14,320 doctors which was 76% of total doctors engaged in R&D activities in Korea (18,836 doctors) and 69% of total researchers in the universities (20,680 researchers), and in R&D institutes financed by the Government, there were 3,021 doctors which was 16% of the total doctors and 29% of the total researchers in the institutes (10,529 researchers). However, in the Korean

industries, there were 1,495 doctors which was 8% of the total doctors and 3% of the total researchers in the industries (45,043 researchers).

Table IX-29. No. of Researchers in Korea by Institute (1991)

	Government -Oriented Research Institute	Higher Education (Universit y)	Industry	Total
Dr	3,021 (16%) (29%)	14,320 (76%) (69%)	1,495 (8.1%) (3%)	18,836 (100%)
Master	4,903 (23%) (46%)	5,743 (27%) (28%)	10,664 (50%) (24%)	21,310 (100%)
Bachelor	2,315 (7%) (22%)	587 (2%) (3%)	31,265 (91%) (69%)	34,167 (100%)
Others	290 (14%) (3%)	30.. (27%)	1,619 (59%) (4%)	1,939 (100%)
Total	10,529 (14%)	20,680 (27%)	45,043 (59%)	76,252 (100%)
	(100%)	(100%)	(100%)	(100%)

Source : Ministry of Science and Technology (MOST), 1993
Science and Technology Year Book, 1992

Table IX-30. R&D Expenditure per Researcher
(Unit : Thousand W)

	1987	1988	1989	1990	1991
Government- Oriented Institute	61,278	61,378	57,080	70,063	85,875
Higher Education (University)	11,321	12,474	10,994	11,453	13,959
Industry	46,904	57,715	56,822	61,298	65,839
Total	37,611	43,402	42,544	47,514	54,536

Source : MOST 1993

At masters level, 4,903 graduates with masters degree (46% of

the total researchers in the institutes) were engaged in the institutes, 5,743 (38% of the total researchers in the universities) were in the universities, and 10,664 (24% of the total researchers in the industries) were working for the industries.

At first degree level, Korean industries have 31,265 bachelor graduates (91% of the total bachelors engaged in R&D activity in Korea and 69% of the total researchers in the industries) while the number and proportion of bachelors in the Government-oriented research institutes and Korean universities as researchers is not a very significant in total research activities.

To sum up, the general educational level of researchers in Korea differs between the universities, the institutes and the industries. R&D activities are largely undertaken and carried out by doctors in the universities, by masters in the institutes and by bachelors in the industries in terms of the number of researchers.

In terms of R&D expenditure per researcher, table IX-30 shows that the Government-oriented research institutes tend to have spent more R&D expenditure per researcher (85,875 thousand Won) than that of the Korean industries (65,839 thousand Won) in 1991, while average R&D expenditure per researcher in Korean universities is approximately one-fifth of the average R&D expenditure per researcher in the industries. It could derive from that lack of fund on education, in general, (table IX-26), lack of co-operation with Korean industry in terms of technical training (figure IX-7 and 8) and in terms of R&D collaboration (figure IX-9). Korean universities, are blamed by Korean

industries with respect to technical training and R&D activity mainly because of under-utilisation of such highly-educated researchers.

Table IX-31 shows that the number of researchers per 1,000 employees in Japanese industry (38.2) was larger than that of Korean industry (20.9) in 1988. In the manufacturing sector, the gap between two countries was bigger (Japan 46.8, Korea 22.2) than that of the all-industry average.

Our surveyed companies, in general, however, had 31.3 researchers per 1,000 employees in 1991 which was more than the average of the manufacturing sector in Korea but less than that of Japan - if we consider the difference in time period which is 3 years, the gap might be bigger since a greater number of R&D centres have been established after 1989 (see Table IX-33).

Table IX-31. No of Researchers in Korea and Japanese Industry
(No. of Researcher per 1,000 employees)

	Korea	Japan	Year
All Industry	20.9	38.2	1988
Manufacturing Sector	22.2	46.8	1988
Auto Industry			
C1	35.9	N.A.	1991
C2	20	N.A.	1991
C3	35.9	N.A.	1991
C4	9.1	N.A.	1991
C2+C3+C4	24.6	N.A.	1991
C1+C2+C3+C4	31.3	N.A.	1991

Source : Industrial Bank of Korea, 1991
Research Data

Note : Researcher is defined as university degree holder

However, according to MOST, as table IX-33 shows, a few

companies dominate the figures for R&D expenditure. Among 1,943 company research institutes, R&D spending from top 20 companies has been more than that of the other 1923 companies although the percentage has been reduced from 53% in 1989 to 51% in 1991. Indeed it is argued that R&D expenditure in Korea is heavily concentrated in small number of companies.

Table IX-32. Concentration Ratio of R&D Expenditure in Korea
(Unit : Billion W)

	1989	1990	1991
Top 5 companies	737 (37%)	824 (35%)	985 (33%)
Top 10 companies	891 (45%)	1,014 (43%)	1,246 (42%)
Top 20 companies	1,062 (53%)	1,226 (52%)	1,513 (51%)
Total R&D Expenditure	1,998 (100%)	2,375 (100%)	2,966 (100%)
Total No. of R&D Institutes	1,689	1,718	1,943

Source : MOST 1993

* Companies in this table is ranked by total amount of R&D expenditure

IX-iii-4-2. R&D activity of Korean Auto Industry

By the end of 1991, there were 136 R&D institutes in the 113 companies in the auto industry. 14 car assemblers (including two-wheel drive cars and special vehicle producers) operate 24 R&D centres and 99 auto parts companies run 113 R&D centres.

Table IX-33. Establishment of R&D Institutes by Year

	- 85	86	87	88	89	90	91	Total
Car Assembler	8	4	-	-	1	5	6	24 (14)
Auto Parts Industry	9	10	16	15	21	11	30	112 (99)
Total	17	14	16	15	22	16	36	136 (113)

Source : KAICA 1992

Note : () No. of Company

The concentration ratio of R&D expenditure by the top few companies is getting smaller. In addition, as table IX-33 shows, 74 R&D institutes, out of 136, have been established since 1989 in the auto industry. This number is larger than the number of R&D institutes established before 1988 (62 R&D institutes).

Table IX-34. General Situation of R&D Activity in Auto Industry (As end of 1991)

	C1	C2	C3	C4	Total
No. of Institutes	15 (5)	17 (17)	33 (21)	12 (11)	62 (49)
No. of Researchers	3,310	320	1,071	155	4,856
R&D expenditure to total sales	4.0%	1.6%	2.2%	1.1%	1.8%

Source : Research Data

() No. of Company

In our sample companies, there are 4,856 researchers - who are above the bachelor level of education - in 62 R&D institutes from 49 companies. Car assemblers (C1) employ 3,310 researchers and there are 1,017 researchers in C3 while C2 and C4 are a marginal fraction. On average the number of researchers per R&D institute,

for C1 companies is about 220 in C2, 19 in C3, 32 and 13 in R&D institutes of the C4 companies.

In terms of the ratio R&D expenditure to total sales, C1 companies spent about 4% of total sales on R&D activities; C3 companies spent more for their R&D activities (2.2%) than C2 companies (1.6%) and C4 companies (1.1%). This could mean that car assemblers are playing a major role in terms of R&D activity, and purely-Korean owned companies with foreign technology acquisition tend to be more active than joint-venture companies (table IX-34).

Quite notably, in the case of Kia, two R&D centres are located abroad. Although size of the R&D centres and the number of staff is small (staff refers to researchers as well as other employees since no information about educational levels is available.) - in Tokyo there were 12 staff and 5 staff in Detroit - their role was the collection of technological information and joint-research with foreign partners. As Dr. Namkoong, Senior Researcher of Kia Motors, asserts,

"We have received a lot of information about new trends in technology and foreign companies from our R&D branches in Japan and the U.S.A. Based on their special reports, we are looking for the right partners who can co-operate with us in terms of technology transfer and R&D activities. I believe that other Korean car assemblers are also preparing to operate R&D branches abroad."

Table IX-35. No. of Researchers in the Korean Auto Industry in 1991

	C1 (%)	C2 (%)	C3 (%)	C4 (%)	C2+3+4 (%)	C1+2+3+4 (%)
Dr	49 (0.71)	2 (0.4)	5 (0.3)	4(1.6)	11 (0.5)	60 (0.6)
Master	4.97 (6.9)	41 (7.9)	148 (9)	17 (6.9)	206 (8.5)	703 (7.3)
Bachelor	2,764 (38.5)	277 (53.5)	918 (55.7)	134 (54.3)	1,329 (55.1)	4,093 (42.7)
Sub-Total	3,310 (46.1)	320 (61.8)	1,071 (65)	155 (62.8)	1,546 (64.1)	4,856 (50.6)
R. Assistant	3,036 (42.3)	126 (24.3)	361 (21.9)	62 (25.1)	549 (22.8)	3,585 (37.4)
Management & Clerical	830 (11.6)	72 (13.9)	216 (13.1)	30 (12.2)	318 (13.1)	1,148 (12)
Grand Total	7,176 (100)	518 (100)	1,648 (100)	247 (100)	2,413 (100)	9,589 (100)

Source : Research Data

Note : Percentages are calculated by Grand Total

The educational background of researchers in the Korean auto industry shows no significant difference between company groups. However, C3 companies had more university-graduates as a proportion (65%) of total staff in their R&D centres than the others (C4, 64.1%, C2, 61.8% and 46.1% in C1), while C1 companies had more support staff such as research assistants (42.3% of the total). It may be argued that more research assistants are needed in car assemblers since they employ special technicians such as test drivers who are not likely to be found in auto parts companies at the moment, it is estimated that there are 150 test drivers in R&D centres in C1 companies.

IX-iii-4-3. Main R&D Partners of the Auto Industry

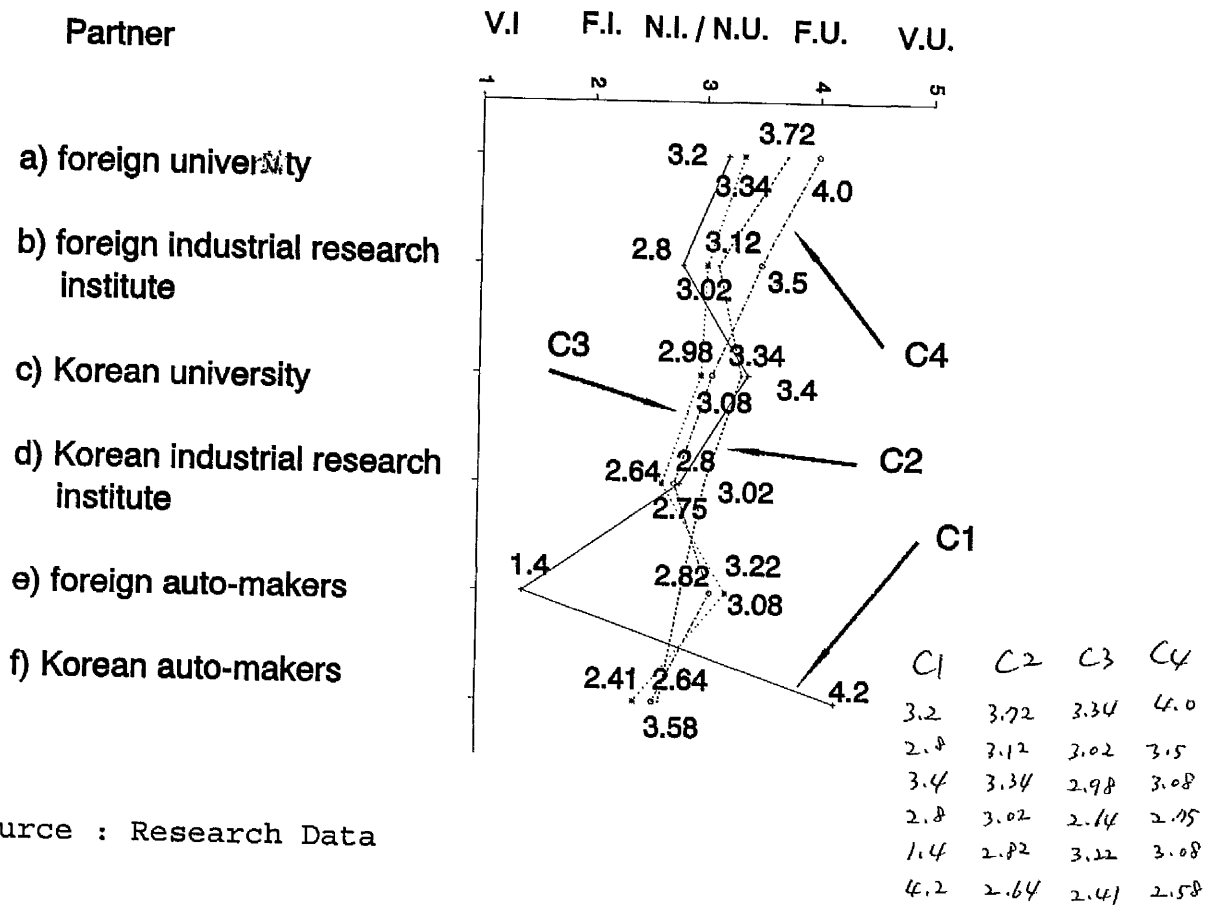
In our survey, in the case of car assemblers, foreign car makers were mostly favoured for their R&D activities. In contrast, Korean car makers are not obviously considered as R&D partners (Figure IX-9, e) and f)). It is argued that Korean car assemblers are very eager to collaborate with foreign car makers but very anxious about domestic rivalry. This could be a reflection of the international environment of the auto industry that all car makers in the world are aware of a rather gloomy future and they consider technical tie-ups between auto makers to be one of the methods to reduce the uncertainty of the international environment and eventually to survive in international arena (see previous chapter).

In contrast, protectionism in terms of technology transfer between car assemblers prevails world-wide. Protectionism, however, is not always applicable to all car assemblers. Acting in their own interests, car assemblers can collaborate with other car assemblers in technology transfer, R&D activity and sales promotion, especially in the case of capital participation and close technology transfer partners between car assemblers, for example, Hyundai and Mitsuibishi, Kia and Mazda and Kia and Asia (see previous chapter). But this collaboration seems to be limited only to the partners and it seems to be strictly forbidden to competitors.

In the case of Korea, car assemblers have totally different foreign sources for their capital and technology. The foreign sources - foreign car assemblers - are generally seen as

competitors in their markets. This, in turn, could be a reason why Korean car assemblers are not likely to collaborate with each other in terms of R&D activity and technology.

Figure IX-9. Major R&D Partners of Korean Auto Industry



Source : Research Data

According to figure IX-9, foreign universities, foreign industrial research institutes and Korean universities were not generally considered as important R&D partners from the Korean auto industry's point of view. Particularly, in case of C4, foreign sources were unlikely to be important for their R&D collaboration while Korean auto makers and Korean industrial research institutes were generally regarded as important

partners.

In relative terms, to some extent, C3 companies seem to have considered that the importance of all partners except foreign auto makers are more positive than that of C2 companies although some partners of C3 are in negative scale.

IX-iii-4-4. Major Forms of R&D Collaboration

Table IX-36. Major forms of co-operation for R&D
(No. of case (%))

	C2	C3	C4	Total
Financial Sponsorship	3 (14.1)	7 (17)	2 (17)	12 (17)
Exchange of research results	4 (19)	13 (34)	3 (25)	20 (28)
Joint-research programme	10 (48)	13 (34)	6 (50)	29 (41)
Others	4 (19)	5 (13)	1 (8)	10 (14)
No. of Case	21 (100)	38 (100)	12 (100)	71 (100)

Source : Research Data

According to table IX-36, the Korean auto industry's major form of collaboration with its R&D partners seems to be joint-research programmes which consist of 29 cases 41% of total 71 cases. Other methods of collaboration such as the exchange of research results (20 cases, 28%), financial sponsorship (12 cases 17%) and other methods - notably training of researchers as well as administrative staff for R&D management technique - were used.

It seems to be clear that joint-research programmes were the most important factor since they include other factors. The joint-research programme can partly cover some expenses of R&D

activity from both partners' point of view, and eventually can get research results. More importantly, through joint-research work, virtually all processes of research method and results in each step can be obtained. This could be a source of know-how in many cases. In addition, a certain type of training of researchers can be achieved through the joint-research programme, notably collaboration and communication with other researchers, especially with foreign researchers.

In this respect, joint research programmes need more encouragement, especially for C3 companies.

IX-iv. Concluding Remarks

Throughout this chapter, we have attempted to analyse technology transfer, technical training and R&D activity in the Korean auto industry. Within the industry, we have classified four company categories by their status, in order to conduct a comparative analysis.

Our analysis showed that car assemblers have been dominant in most cases, mainly because of their large size, followed by purely Korean-owned companies with foreign technology experience and joint-venture participation while purely Korean-owned companies without foreign technology acquisition seem to have played a less important role in many cases.

In terms of technology transfer to the industry, as in all industry in Korea, the Korean auto industry's source of technology was largely Japanese and American technology. Car assemblers were enthusiastic to use foreign technology, and

dealings with the transferred technology were regarded as more desirable than in the auto part companies since they imported relatively newer technology in order to build-up their own technological capability, and they seem to pay less than the others in terms of the royalty payment period. In a comparative analysis between joint-venture companies and purely Korean-owned companies with foreign technology acquisition, we have found several contradictory results. The latter seem to have been more active than the former in terms of technology transfer in general. However, the former seem to have been involved in closer relationships with their technology suppliers since they paid less in terms of licensing period and had less restrictive conditions on the transferred technology than the latter. Partly as a result of this, the latter seem to have been less happy than the former with the transferred technology.

As far as technical training and technical man power is concerned, again car assemblers tend to have employed a rather well-educated labour force compared with the others. Apart from the car assemblers, Korean companies with foreign technology acquisition seem to have had a better qualified labour force than the joint-venture companies and Korean companies without foreign technology involvement. However, in a comparative analysis between the joint-venture companies and Korean companies with foreign technology transfer experience, the former seem to have been happier with their labour force than the latter. This could mean that the latter was more aggressive and demanded a better qualified labour force. Therefore, the latter seem to have had a longer period to develop technical man power abilities by

collaborating and organising closer relationships with car assemblers and other sources of collaboration, than the former. The Korean technical education system, in general, and Korean universities, in particular, have been blamed for their lack of ability to produce and train sufficient numbers of suitable technical workers for Korean industry.

In general, the Korean auto industry has had more activity than other industries in terms of the number of researchers employed. Again, it is car assemblers who devoted more funds and staff to their R&D activities than the others. In a comparative analysis between joint-venture companies and Korean owned-companies with foreign technology acquisition, the latter seem to be more active in R&D activity than the former, while purely Korean companies without foreign influence seem to have been the least active among all categories of company.

However, in all cases, more attention must be given to the internationalisation of the industry's research activity. Research networks which are linked with research institutes, universities and industries around the world are inevitable in the fast changing world of technology.

Chapter X

Summary and Conclusions

In the early part of this study, we have analysed the characteristics of the TNCs and the expansion of TNC activities. Various characteristics of the TNCs and the reason for their expansion have been explained both economically and politically. Determinants of DFI and various theories of the TNC have been considered and we have found that a multi-disciplinary approach may be required if superior explanations of TNC involvement are required. Despite different schools of thought and approaches to the TNCs, one thing that is certain is that the TNCs are sufficiently large and important that changes in their operations can affect the host economy, especially host LDCs.

A great emphasis has been placed on technology transfer, and we have considered the way in which TNC involvement in host LDCs inevitably leads to a conflict between the TNC and other interests. This has been tackled issue by issue, and has provided the ground-work for our analysis of how these conflicts are and can be fought out and how more can be gained from the TNCs through government policies in the domestic and international sphere. This was rounded off by a more detailed discussion of the workings of the bargaining process.

Throughout ~~the~~ part one, a recognition has been made of the fact that TNCs' pattern of behaviour is affected not only by the economic factors but also by socio-political factors, most importantly, including the host government's policies. In this regard, we have discussed the role of ^{the} state with a special

reference to the Bureaucratic-Authoritarian regimes in Korea in conjunction with Korea's economic development in the part two.

It is clear that during the period of rapid economic growth in Korea, the Government has played a great role since the early 1960s. Since 1962, the Korean government has tried to develop some specific industries and has encouraged some particular enterprises. The Korean state, as a planner, a banker, and a punisher, has been able to control domestic capitalists as well foreign capital, and has shaped the industrialisation process in its favour.

Consequently, DFI in Korea was concentrated on targeted industries such as chemical, electric and electronics, transport equipment and machinery industries in the early stage of the industrialisation process in the 1960s and the 1970s. Recently, however, service industries such as hotel, banking and insurance industries have been attractive to foreign investors. This is a reflection of the changing economic environment in Korea.

Korea may no longer be so attractive to foreign investors in ~~the~~ manufacturing sector in comparison with the other Asian NICs in terms of labour costs, labour productivity, and the extensive government intervention from an approval stage and onwards especially in banking and access to land. DFI is more likely to occur in the service sector than in the manufacturing sector. In this respect, the Korean government needs to change its policy from a restrictive one to a more liberalised one if the intention is to induce the transfer of more advanced technology to the manufacturing sector. Recent trends show that total amount of DFI in the manufacturing sector has been reduced while the total

amount of DFI in service sector has increased. Accordingly, the total number of cases of technology transfer in Korean industry has been smaller since the end of the 1980s.

In the automotive industry in Korea, in a comparative analysis between foreign invested companies and purely Korean-owned companies with foreign technology acquisition, we have found several contradictory results. The latter seems to have been more active than the former in terms of technology transfer in general. The former, however, seems to have been involved in closer relationships with its technology suppliers since it has paid less in terms of licensing period and has had less restrictive conditions on the transferred technology than the latter. In this sense, DFI in manufacturing sector needs to be encouraged by the Government through non-regulatory measures. In addition information centres concerning technology and technology transfer at the national level may be needed for the full exploitation of the transferred technology for Korean firms.

In order to develop Korea's own technological capability, many factors should be considered. At the national level, the Korean technical education system with regard to technical training needs to be changed. The Korean government has to spend more to provide modern technical equipment at schools, universities, etc., and to collaborate with education planners and industry for setting up long-term strategies for technical training and technology development. An adequate link between Korean universities and industry and the link between government-

oriented research institutes and industry in more practical ways should be established. With regard to technical manpower development the number of students enrolled in technical high schools, technical colleges and higher educational institutions should be increased. At the company level, more employees need to be sent abroad for technical training, both to academic institutes and companies in the more advanced countries; thus following the example of many foreign invested companies in Korea.

Particularly, with regard to R&D activities, more attention needs to be paid to the internationalisation of Korea's research activity at both company and national level. Research networks which are linked with research institutes, universities and industries in the advanced countries will be essential factors for the development of technological capability in the fast changing world of technology.

Korea faces three insurmountable tasks. Firstly, it is clear that the Korean government's control over society, in absolute terms, during the bureaucratic authoritarian regimes can no longer be taken for granted since the late 1980s there has been a growing force arguing for pluralism in Korean society. The business chaebuls, labour unions and advocacy groups, the middle class, and even the political process provide a context in which economic policy formulation can no longer be easily insulated from various competing interests. The result might be ^{the} process less economically efficient but more responsive to popular needs.

In this respect, an attempt should be made to try to achieve a consensus between the Government, enterprises and workers. Secondly, assuming Korea can no longer depend upon low value-added and labour-intensive industrialisation to sustain its growth, the role of TNCs as a means of technology supplier is of importance in Korea. It may be difficult to be attractive to foreign investors if the Korean government insist on intervening in its favour. In this regard, policy measures should be directed towards making Korea more attractive to the TNCs on the one hand and the full exploitation of its technology on the other hand. Finally, in order to grow continuously, substantial policy measures should be introduced to develop Korea's own technological capability. Economic miracles do not happen miraculously but only if there is a harmonised effort in Korean society as a whole.

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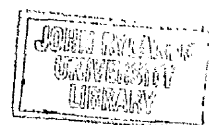
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Appendix I : Questionnaire

———— General Background

- Q1. Name of company, address and phone & fax number.
- Q2. Name of President of company.
- Q3. Name of foreign technology supplier and nationality.
(technology supplier is subject to transfer of technology including know-how, license, patent, trade-mark, capital equipment, etc.)
- Q4. Main Products : please specify
- Q5. What is the size of your firm in terms of;

a) number of total employees :

University graduates:	Engineers:
College graduates:	Management:
High school graduates:	Skilled labour:
Below high school:	Semi & unskilled labour:

b) paid-up capital

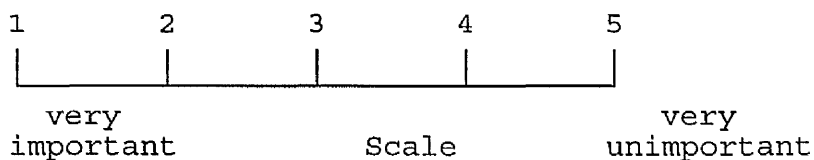
c) sales amount in 1987 _____
 1989 _____
 1991 _____

d) export amount in 1987 _____
 1989 _____
 1991 _____

e) ratio of R&D expenditure to total sales in
 1987 _____
 1989 _____
 1991 _____

———— Reasons for Adopting Foreign Technology

Q6. For what reasons does your firm adopt foreign technology?
Please pick a number according to the scale below and write it
in the bracket.



a) building-up technological capability ()

- b) expansion of new business line ()
- c) obtaining comparative advantage in technical terms ()
- d) promotion of domestic sales ()
- e) promotion of exports ()
- f) others (please specify)

Q7. In the same manner as the previous question what are the main reasons for adopting technology rather than developing it yourself?

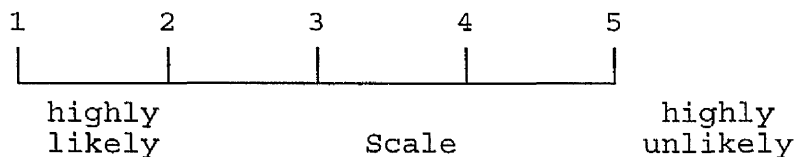
- a) shortening of development period ()
- b) reducing development cost ()
- c) reducing risk and uncertainty ()
- d) lack of ability to develop ()
- e) sales promotion with exploitation of technology suppliers' reputation ()
- f) others (please specify)

——— **Characteristics of Technology**

Q8. What is the stage of development of the transferred technology in the advanced countries? Please tick one.

- a) research and development stage ()
- b) introduction period ()
- c) mass-production period ()
- d) standardised period ()
- e) declining period ()

Q9. Please evaluate transferred technology in your firm and pick a number according to the scale and write it in the brackets.



- a) technology in this field changes so quickly that it is very difficult to forecast what the next technology will be ()
- b) design, drawing and techniques in this field vary between

companies and technology suppliers change their designs and sizes frequently

- c) technology in this field is very closely related to other technology ()

Q10. How long does it take to adapt or make full use of transferred technology? Please tick one.

- a) within 1 year ()
b) 1-2 years ()
c) 3-5 years ()
d) more than 5 years ()

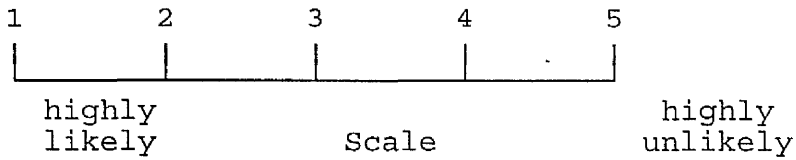
———— **Conditionality of T/T**

Q11. Please tick in the bracket when you have experienced such conditions in dealing with technology transfer from foreign companies. You can tick as many as appropriate.

- a) confidential treatment required ()
b) restrictions on purchasing line ()
c) restrictions on products quantity ()
d) restrictions on export market ()
e) restrictions on re-transfer of technology
f) grant-back clause ()
g) certain royalty payment required in all circumstances ()
h) restrictions on sale price ()
i) restrictions on research & development on transferred technology ()
j) restrictions on usage of competitors' products ()
k) others (please specify)

———— **Co-operation with Technology Supplier**

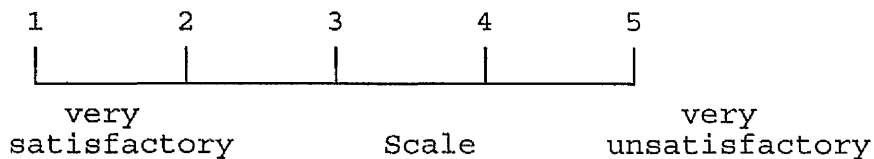
Q12. Please evaluate and pick a number according to the scale and write the number in the bracket.



- a) technology supplier has done a good job for us to transfer their technology smoothly ()
- b) the transferred technology has been modified by the technology supplier for the Korean market situation ()
- c) our equipment and production systems have been adjusted by ourselves for the maximum exploitation of the transferred technology ()
- d) we have received incorrect information about the transferred technology by the technology supplier ()
- e) it is very likely true that when general situation is changed, the technology supplier's attitude is also changed in his favour ()

———— **General evaluation**

Q13. Please evaluate generally and pick a number according to the scale and write the number in the bracket.



- a) how do you evaluate the effect of technology transfer in your firm? ()
- b) during the whole technology transferring period, were you satisfied with the technology supplier's attitudes? ()
- d) are you happy with the amount of payment and period? ()
- d) does the technology supplier have good creditability for future collaboration with your firm? ()

———— Technical Training

Q14. Does the Korean technical education system satisfy the needs of your company in general for an adequately qualified technical labour force? Please tick one.

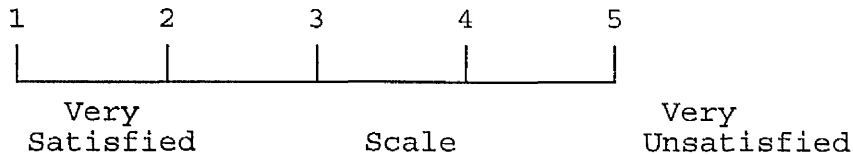
- a) very satisfied ()
- b) fairly satisfied ()
- c) neither well nor badly ()
- d) fairly unsatisfied ()
- e) very unsatisfied ()

Q15. If you are very or fairly unsatisfied with above question, please tick in the bracket which best represents your opinion. You can tick more than two if you have more than two factors to emphasise.

- a) shortage of modern technical equipment and facilities at schools and institutes ()
- b) irrelevance of courses and teaching techniques for production line in our company ()
- c) traditional social values which regard technical education as inferior ()
- d) funds allocated to technical education are not sufficient ()
- e) absence of co-ordination between education planners and industry ()
- f) technical school, colleges and institutes are limited in number so that graduates are not sufficient enough ()
- g) teachers' qualifications are poor and do not enable them to impart skills and transmit knowledge required by industry ()
- h) absence of the long-term strategy of technical and vocational training ()
- i) others (please specify)

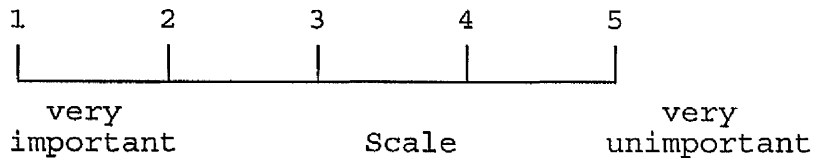
Q16. Please, evaluate the standard of recent university-graduated employees in your firm working as technical labour force. Please, pick a number of according to the scale and write the number in

the bracket.



- a) technical competence ()
- b) academic knowledge ()
- c) originality ()
- d) keeping work discipline ()
- e) social integration ability ()
- f) problem-solving capabilities ()

Q17. What are the main methods of technical training for the university-graduated employees in your firm? Please pick a number according to the scale and write it in the bracket.



- a) dispatch them to technology supplier's company ()
- b) dispatch them to universities and institutes in developed countries ()
- c) dispatch them to universities and institutes in Korea
- d) dispatch them to other Korean companies
- e) short or long-term special training programmes within your firm ()
- f) others (please specify)

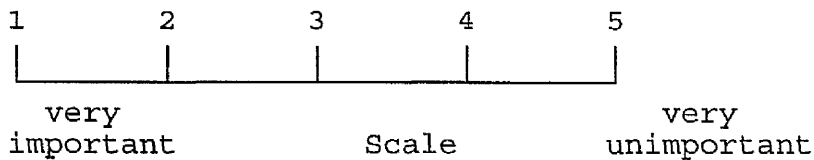
Q18. Which of the following types of training programmes does your company provide to develop indigenous skilled personnel? Please tick as many as appropriate.

- a) management training ()
- b) scholarships for higher education ()
- c) intermediate staff training ()
- d) on-the-job training at each level ()
- e) others (please specify)

Q19. Do you have regular technical meetings with your buyer such as Hyundai, Daewoo, Kia, etc.?

- a) yes ()
- b) no ()
- c) when necessary

Q20. Who are the main partners in Korea your company co-operate with in training and technical man power development programmes? Please pick a number according to the scale and write it in the bracket.



- a) universities ()
- b) industrial research institutes ()
- c) colleges of science and technology ()
- d) auto-assemblers such as Hyundai, Daewoo, Kia, etc. ()
- e) other Korean companies ()
- f) others (please specify)

Q21. After under taking certain levels of training and education, what kind of benefits do your employees get? Please tick as many as appropriate.

- a) promotion ()
- b) special bonus ()
- c) pay rise ()
- d) no incentives ()
- e) others (please specify)

----- R & D

Q22. Does your company have its own R&D centre?

- a) yes ()
- b) no ()

Q23. If yes from the previous question, what is the size of your R&D centre in terms of ;

a) ratio of R&D expenditure to total sales in

1985 _____

1987 _____

1989 _____

1991 _____

b) number of researchers

- doctoral degree holders :

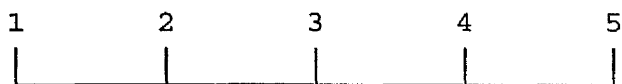
- master degree holders :

- bachelor degree holders :

- other researchers :

- clerical or assistant :

Q24. Who are the main partners of your company in research and development that you co-operate with? Please pick a number according to the scale and write it in the bracket.



very
important

Scale

very
unimportant

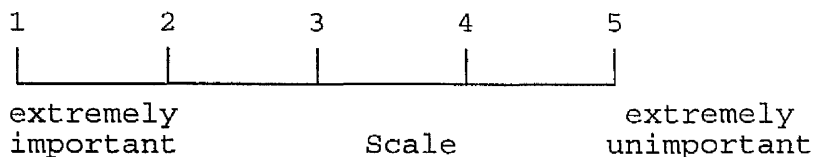
- a) foreign universities ()
- b) foreign industrial research institutes ()
- c) Korean universities ()
- d) Korean industrial research institutes ()
- e) foreign auto-makers ()
- f) Korean auto-makers ()
- g) others (please specify)

Q25. What is the form of co-operation?

- a) financial sponsorship of research ()
- b) exchange of research results ()
- c) joint-research programmes ()
- d) others (please specify)

_____ General Environment

Q26. What are the main reasons for investing in Korea? Please write a number which best represents your opinion.

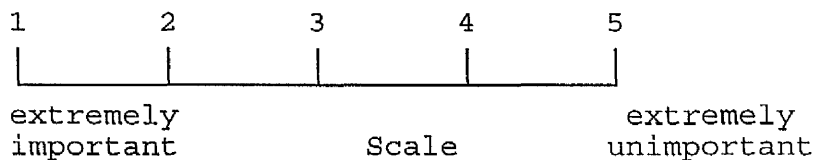


- a) access to the Korean market ()
- b) production base for export ()
- c) low labour cost ()
- d) adequate technological level ()
- e) special treatment by Korean Government ()
- f) others, please specify

Q27. In the same manner, what are the main reasons for adopting foreign investment from the Korean partners and Government's point of view?

- a) access to the World market ()
- b) capital availability ()
- c) availability of advanced technology including know-how ()
- d) managerial and organisational skill ()
- e) using famous foreign brand name ()
- f) availability of raw & intermediate goods ()
- g) others, please specify

Q28. What kind of special treatments would you prefer from the Korean Government?



- a) tax exemption ()
- b) repatriation of capital ()
- c) anti-labour dispute law ()
- d) supplying factory site ()
- e) others

Q29. Please tick in the bracket in which your firm has experienced following problems in Korea. Please mark X against any which your firm has not experienced.

- a) technical problem ()
- b) financial problem ()
- c) administrative problem ()
- d) other, please specify

Q30. What kind of administrative problem have you experienced? Please tick in a bracket.

- a) so many regulations and delays in official procedure ()
- b) customs and import restriction ()
- c) sudden change of government policy ()
- d) regional or personal difference in regulation ()
- e) others, please specify

Q31. What kind of technical problem have you experienced? Please tick in the bracket.

- a) inadequacy of technological level ()
- b) shortage of technical expertise ()
- c) availability of standardised products from Korean supplier ()
- d) lack of information service system in Korea ()
- e) others, please specify

Q32. What kind of financial problem have you experienced. Please, tick in the bracket.

- a) availability of foreign exchange ()

- b) access to bank loans ()
- c) repatriation of capital ()
- d) local taxes ()
- e) others, please specify

Q33. If your parent company or related company has invested to other countries, especially in Asian NICs, please evaluate their overall contribution with regard to cost and effectiveness such as wage payments, skill and behavioral attitudes compared with Korean employees. Please tick one.

- a) very satisfactory ()
- b) fairly satisfactory ()
- c) neither satisfactory nor unsatisfactory ()
- d) fairly unsatisfactory ()
- e) very unsatisfactory ()

Q34. If your parent company or related company has invested to other countries, especially in Asian NICs, please evaluate their quality of products compared with Korean products. Please tick one.

- a) very satisfactory ()
- b) quite satisfactory ()
- c) more or less same ()
- d) quite unsatisfactory ()
- e) very unsatisfactory ()

Q35. In the same manner, please evaluate their overall political and economic environment compared with Korean environments.

- a) very satisfactory ()
- b) fairly satisfactory ()
- c) neither satisfactory nor unsatisfactory ()
- d) fairly unsatisfactory ()
- e) very unsatisfactory ()

Q36. What is the main source of technology transfer to your firm? Please tick one.

- a) foreign parent company ()

- b) subsidiaries of foreign parent company ()
- c) other foreign multinationals ()
- d) Korean companies ()
- e) using own technology developed by yourself ()
- f) other, please specify

Q37. Given that there are two main patterns of technology (labour-intensive and capital-intensive), could you please tick one in the bracket in accordance with your technology transferred from abroad?

- a) very capital-intensive ()
- b) fairly capital-intensive ()
- c) balanced ()
- d) fairly labour-intensive ()
- e) very labour-intensive ()

Q38. What are the nationalities of your sources of technology and know-how in general? Please tick one.

- a) Japan ()
- b) U.S.A. ()
- c) Germany ()
- d) France ()
- e) U.K. ()
- f) others ()

Q39. What level of technology do you receive from your parent or related multinational companies? Please tick one.

- a) very sophisticated technology ()
- b) fairly sophisticated technology ()
- c) conventional ()
- d) fairly unsophisticated ()
- e) very unsophisticated ()

Q40. Where do you purchase raw materials and intermediate products from? Please write a number which best represents your opinion.

1	2	3
very imp.	scale	very unimp.

- a) from Korean companies ()
- b) from foreign parent companies ()
- c) from subsidiaries of the foreign parent company ()
- d) supplied by yourself ()
- e) from other foreign companies ()
- f) others, please specify

Q41. Where is the destination of your products with which made up of transferred technology? Please write a number in the same manner with previous question.

- a) Korean market ()
- b) foreign parent company's country ()
- c) other subsidiaries' country ()
- d) other countries ()

Q42. Do you think you could buy the same or suitable technology from Korean firms which you have used to purchase from the foreign companies? Tick one please.

- a) Yes ()
- b) No ()
- c) don't know ()

Q43. If not from the previous questions, what is the main reason of that? Please tick one.

- a) no available in Korea ()
- b) Korean firms are not willing to transfer ()
- c) relatively bad terms of trade compared with the foreign companies ()
- d) parent company would not want to buy it from Korean firms ()
- e) few informations between Korean firms ()
- f) others, please specify

Q44. Do you think that the transferred technology from the abroad to you/ firm would be diffused to other Korean companies within few years time? Please tick one.

- a) Yes ()
- b) Yes, but depends on time period ()
- c) No ()

Q45. If not, or subject to the time period, what would be a main cause of that? Please, tick one.

- a) simply, we do not want it ()
- b) because of contract with technology supplier ()
- c) development cost is high ()
- d) no interest of the Korean firm ()
- e) very sophisticated technology ()
- f) other, please specify

Appendix II : SAMPLE COMPANIES

CHEMICAL INDUSTRY

(unit: thousand U.S.\$)

Company Name	Foreign Investors	Nationality	Amount	Ratio (%)	Year of Approval
Koran Carbon Co. Ltd.	Tri-Onics	U.S.A	2,037	90.8	78
Kangnam Whasung	Dainippon Inc.	Japan	1,604	49.0	70
Kumho Monsanto	Monsanto Co.	U.S.A.	3,750	50.0	87
Kumho EP Co.	Japan Synthetic	Japan	6,491	50.0	85
Dalsung Sanso Co.	Teisan Co.	Japan	6,009	40.0	78
Dalsung Henkel	Henkel KGAA	Germany	135	45.0	89
Daehan Chemical	Ciba-Geigy	Swiss	3,600	50.0	81
Daehan Int'l Paint	Califonia S.A.	Swiss.	1,017	50.0	80
Dongju Ind.	PPG Ind.	U.S.A.	5,333	50.0	85
D.S. Co. Ltd.	Dennison Mfg.	Canada	715	100.0	85
Lucky DC Silicon	DowCorning Corp.	U.S.A.	1,027	50.0	83
Samyoung Ink	Toyo Ink	JAPAN	4,781	100.0	70
Seotong P&G	P&G	U.S.A.	9,000	60.0	85
Shinheung Komu	Kyushu Shinko	Japan	1,570	86.4	73
KIFCO	NIFCO Inc	Japan	600	60.0	85
Hankook Sunstar	Sunstar Eng.	Japan	2,878	90.0	85
Hankook Jungsang	Inoue Rubber	Japan	3,630	100.0	73
Hankook G.E. Plastic	General Electric	U.S.A.	11,300	100.0	86
Hankook Gastrol	Gastrol Ltd.	U.K.	2,740	100.0	88
Hankook Tire	Yokohama Rubber	Japan	16,168	13.3	87
Hankook Partner Ind.	I.F.C.		584	49.0	86
Hankook Pelzer	HP-Chemie Pelzer	Germany	4,410	100.0	86
Hanbul Yunhwalyu	Societe Des Lubrifiants	France	902	40.0	89
Hoehoon Commercial	Nishikawa Rubber	Japan	1,197	49.0	87
Hyosung Basf	BASF	Germany	18,800	50.0	80
Total 25 Companies			100,278		
Average amount			4,411.1		

METAL INDUSTRY

(unit: thousand U.S.\$)

Company Name	Foreign Investors	Nationality	Amount	Ratio (%)	Year of Approval
Daedong Intermet	Intermet Corp.	U.S.A.	595	20.0	87
Daeshin Ind	Wakinihawa Kogyo	Japan	607	71.3	83
Daeyoung Kangkwan	Yoo Moom Soo*	Japan	556	80.0	88
Samwha Jekkwan	Toyo Seikan Kaisha	Japan	8,658	49.0	72
Shilla Eng.	Hirotec Corp	Japan	945	45.0	87
Union Technology	Union Carbide	U.S.A.	2,871	100.0	86
Changwon Ind.	Chta Detsukosho	Japan	602	30.0	74
Korea Nikel	Inco Ltd.	Canada	523	25.0	87
Taeyong Coating	Shine Konkei	Japan	622	49.0	87
Hankook Dongyang Lining	Kim Jong Byuk*	Japan	1,198	90.0	84
Hankook Oriental Metal	Hokudo Thusio	Japan	1,032	45.5	70
Hanil Kumsok Ind.	Parker Netsushori	Japan	742	50.0	86
Hwasun Key Metal	Porson Investment	Singapore	512	50.0	82
Heusung Kumsok Ind	Tanaka Kikinzoku	Japan	717	45.0	74
Total 14 companies			20,180		
Average amount			1,441.4		

(*: Korean-Japanese)

MACHINERY INDUSTRY

Company Name	Foreign Investors	Nationality	Amount	Ratio (%)	Year of Approval
KumkangJunwon Keumsok	Dengensha MFG.	Japan.	599	49.0	86
Dinacast Korea	Diltech Ltd.	U.K.	704	90.0	86
Daedong Cable Ind.	Nihon Cable System	Japan	599	30.4	88
Daesung-Nachi	Nachi Fujikoshi	Japan	1,003	45.0	88
Daesung-Chaffoteaux	Chaffoteaux Et Maury	France	165	45.0	84
Daesung-Tacology	Tokyo Automatic Co.	Japan	124	40.0	87
Daesung-Flonic	Schlumberger Eastern	Panama	143	50.0	86
Daehan Chemical Machinery Ltd.	Kobe Steel Ltd.	Japan	2,108	25.6	76
Dongsung Ind.	Daedong Metar Co.	Japan	3,550	49.0	88
Dongpoong Lining	Howa Textile Ind.	Japan	2,346	74.6	86
Bumyang Naengbang	Daikin Ind.	Japan	1,057	15.4	67
Benda Sunkwang Ind.	Benda Kogyo	Japan	2,521	91.1	86
Patine Int'l Korea	Patine Corp.	Japan	1,000	100.0	86
Samyang Heavy Ind.	Suh Sang Rok*	Japan	680	12.6	69
Sanduik Precision	Sanduik AB	Sweden	833	100.0	86
Seoul-Ervin Ind.	Ervin Ind	U.S.A.	1,094	49.0	79
Seya Mold ind.	Onodekko Co.	Japan	917	34.4	88
Shindoricoh	Ricoh Co.	Japan	2,245	35.0	70
Shinpoon Ind.	Yamaichi Univen	Japan	694	25.5	88
Asia Hertel Co. Ltd.	Karl Hertel	Germany	3,093	50.0	79
Walbro Korea	Walbro Corp.	U.S.A.	730	83.3	88
Yuil Ind.	Kennt K. Yoo**	U.S.A.	885	49.9	88
Insung Clestra	Clestra S.A.	France	5,391	94.4	85
KEPICO	R. Bosch GmbH	Germany	13,478	51.0	87
Tisk Co. Ltd.	Kwik Products International	Canada	1,000	25.0	87
Pacific Nikkyo Precision	Nikko Seisakusho	Japan	574	40.0	86
Hankook Machine Tool	Dainichi Kinzoku Kogyo	Japan	554	19.6	67
Hankook Nikken	Nikken-Kosakusho	Japan	1,734	75.0	86
Hankook Brake Ind.	Allied-Signal	U.S.A.	7,931	49.0	88

Hankook Vickers	Vickers Inc.	U.S.A.	3,675	49.0	88
Hankook Wiper	Nippon Wiper	Japan	1,195	49.0	86
Korea Precision	Nippon Seiko	Japan	5,068	50.0	87
Cambridge Filter Korea	Cambridge Filter Japan	Japan	183	50.0	85
Hankook Conveir Ind.	Tsubakimoto Chain	Japan	532	55.0	70
Hankook T.M.C.	Technical Modelling Center	Japan	1,576	100.0	85
Hankook Poongsung Machinery	Hojo Machine Ind.	Japan	892	49	87
Hankook Fanuc	Fanuc Ltd.	Japan	1,160	50.0	78
Hankook Festo	Festo Holding	Germany	2,008	100.0	78
Halla Kongjo Co.	Ford Motor Co.	U.S.A.	10,000	50.0	86
Hanil Kyejang Ind.	Nihon Koso Ind.	Japan	515	49.0	79
Hilti Korea Co.	Int'l Fasteners Corp.	Holland	1,988	100.0	86
Total 41 companies			86,544		
Average amount			2,110.8		

(*: Korean-Japanese)
(**: Korean-American)

OTHERS

(unit: thousand U.S.\$)

Company Name	Foreign Investors	Nationality	Amount	Ratio (%)	Year of Approval
Daesung Automotive	Mikuni Co.	Japan	250	10.0	87
Pusan Bund.	Tube Makers	Austrilia	1,134	49.0	79
Changwon Carbureter	Nippon Carbureter	Japan	103	5.0	74
Kasco	SIEMENS	Germany	4,000	50.0	87
Hyosung Heavy Ind.	Westinghouse Electric	Swiss	1,357	1.2	77
Total 5 Companies			6,844		
Average amount			1368.8		

