

**INTERNATIONAL COMPETITIVENESS
OF THE SEACEN COUNTRIES**

Kyung-Ho Lee



**The SEACEN Centre
Kuala Lumpur**

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by
Kyung-Ho Lee



The South East Asian Central Banks (SEACEN)
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PREFACE

The SEACEN Centre's programme of research has evolved out of the various proposals and priorities identified by the directors of research of the member central banks and monetary authorities, as well as the Board of Directors and the Research Division of The SEACEN Centre. In view of the increasing number of research topics proposed every year, a priority listing is usually done using the following criteria: topics related to core central bank business (monetary policy, bank supervision, payments system) and the external sector; currentness of topics; in-house expertise; and staff constraint.

Rapid globalisation has characterised the economic environment over the past decade. Increased interaction among national economies has intensified competition. Until recently, a number of SEACEN countries have achieved an impressive annual growth rate averaging more than 8 percent.

There has been a vigorous debate on the causes of this phenomenal growth: whether it was driven by accumulation of inputs or by productivity gains. Although productivity is often associated with international competitiveness, the latter concept is not easily defined nor assessed. Indeed, international competitiveness reflects overall economic potential and performance under a common external and perhaps unique domestic environment each country faces.

This study on *International Competitiveness in the SEACEN Countries* attempts to analyse the current competitive performances of SEACEN countries and to suggest policies for their improvement. Since competitiveness can be addressed from various viewpoints and assessments based on different approaches can lead to contrasting policy implications, the focus is on a discussion of analytical frameworks than on drawing specific conclusions about each country's competitive standing. It is hoped that this approach encourages further studies on this topic.

This in-house research, the second of sixteen research projects to be published in 1998 and which follows the first published volume, edited by Dr. Villanueva, *Financial System Soundness and Risk-Based Supervision*, was conducted by Kyung-Ho Lee, Senior Economist seconded by The Bank of Korea to The SEACEN Centre. He is indebted to : Dr. Dan Villanueva, Deputy Director in charge of Research for guidance and supervision; colleagues in the Research Division for comments; Seow Yun Yee for research assistance; Sally Ho and

Kanaengnid Tantigate Quah for editorial assistance; and, Karen How and Haslina Muda for reformatting the final manuscript. The Centre wishes to express its gratitude to member central banks and monetary authorities for their many useful comments and suggestions. It is hoped that this and subsequent research publications will stimulate discussion and experience-sharing among policy-makers in and out of the SEACEN membership.

The views expressed are those of the author and do not necessarily reflect those of the member central banks/monetary authorities nor those of The SEACEN Centre's Board of Directors and Governors.

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Kuala Lumpur
May 1998

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Chapter I

INTRODUCTION

The notion of international competitiveness has become one of the central preoccupations of government and industry in every nation as well as a new “buzz-word” of daily economic talks. It literally means an ability of a country to compete in the world market and is meaningful only in the context of an open economy. Since the conclusion of the Uruguay Round negotiation and the establishment of the World Trade Organization (WTO), most countries have sharpened their competitive edge in preparation for the new era of global competition.

The effort to reinforce competitiveness is an endless task for a country to maintain and enhance its living standard as long as a tension between scarce resources and unlimited wants of human beings remains unresolved. The law of the fittest has demonstrated the intensity of competition ever since human society was formed, and is continuing even in the current era of enhanced cooperation and mutual understanding. It is unfortunate but true that the weak can hardly play an equal role as the strong either in competition or in cooperation. The increasing formation of economic blocs, motivated and initiated under a slogan of cooperation, essentially reflects efforts to enhance an individual country’s competitive edge by integrating itself into a bigger and stronger economic group.

International competitiveness of a country reflects its overall economic potential in the world market. Measurement of international competitiveness should therefore be based on an appropriate definition and a comprehensive study of trade theory. However, competition in the real world is far more complicated than the trade theories postulate. Therefore, it is necessary and worthwhile to review the world trading environment as a starting point.

1. World Economic Environment in Trade Perspective

The past three decades can be characterised by the evolution of globalisation¹ that has been a major force behind the increasing preoc-

1. We define globalisation as an increasing interaction of domestic economies with the world economy. See Carl Dahlman, et al., “The World Trading Environment,” Trade, Technology, and International Competitiveness, EDI, 1995, p. 156.

cupation with international competitiveness. The growth of exports as a share of world output and the increased capital mobility, including foreign direct investment, are clear signs of globalisation. Such developments have been brought about largely by the rapid technological progress and a pervasive role of the multinational corporations (MNCs). At present, about 30 percent of world trade is intra-firm trade initiated by the MNCs.²

Consequently, the structure of world trade has changed with a substantial rise in the share of manufactured products as compared with a fall in primary products. This change has been dramatic in developing countries, especially for the Asian New Industrial Economies (NIEs). A shift towards industries that require a greater use of technology can be seen from the falling share of resource-based industries, while the shares of industries classified as scale intensive, differentiated, and science-based have risen. It is noteworthy that while the labour-intensive industries' share has stayed nearly unchanged from the world perspective, it has dropped sharply for the Asian NIEs (Table 1.1). This situation seems to result from these countries' export-oriented strategies, which have focused upon manufactured products, particularly electronics.

As mentioned above, the globalisation of production and the changes in the structure of trade have been made possible by technological change that has had a profound impact on the production process. The falling costs of information as well as the increasing emphasis on R&D and education are the keys to innovation. The rapid pace of technological change, the rising number of innovators, and the accelerated diffusion of technology have led to shorter technological life cycle for both production process and products. Thus, there is an increasing pressure to capture technological rents as quickly as possible before an innovation becomes obsolete. This in turn compels major firms to develop new competitive strategies and to form strategic alliances with overseas firms.

Technological progress has a significant implication for developing countries. Created endowments such as physical capital and manage-

2. James R. Markusen, "The Boundaries of Multinational Enterprises and the Theory of International Trade," *Journal of Economic Perspectives*, Vol. 9, No. 2, Spring 1995, p. 171.

TABLE 1.1
THE STRUCTURE OF MANUFACTURED EXPORTS, 1965 AND 1990
(In Percent)

	World		Industrial Countries		Developing Countries	
	1965	1990	1965	1990	1965	1990
Resource intensive	31.2	18.9	24.6	17.5	76.5	25.7
Labor intensive	15.5	15.1	15.6	12.3	14.2	28.2
Scale intensive	27.1	30.0	30.3	32.4	5.8	18.9
Differentiated	19.0	23.3	21.5	24.2	2.1	19.4
Science based	7.2	12.7	8.0	13.7	1.4	7.9

	Asian NIEs		Japan		United States	
	1965	1990	1965	1990	1965	1990
Resource intensive	30.9	11.9	9.1	2.9	20.3	14.9
Labor intensive	46.5	29.8	26.1	6.3	10.3	7.6
Scale intensive	13.6	18.0	43.6	40.2	25.2	25.4
Differentiated	6.8	28.1	19.1	39.6	29.4	26.3
Science based	2.2	12.2	2.1	11.1	14.8	25.9

Source: Reproduced from "The World Trade Environment", Carl Dahlman, et al., The World Bank, 1995.

ment skills have become more important than given factor endowments such as natural resources and abundant labour force. It is no longer sufficient for producers to take market conditions as given, instead, they need to create market opportunity or at least to anticipate market trend and adapt their production decisions accordingly. Even so, a rapid technological change can be either a blessing or a threat, depending on whether a country is able to take advantage of such an opportunity.

Meanwhile, globalisation has progressed within the framework of free trade regime coordinated by the GATT and more recently by its successor - the WTO. This global trading regime is guided by such principles as multilateralism and non-discrimination, reciprocity of members and a reduction of trade barriers. The past three decades have witnessed some measure of success from multilateral trade negotiations to liberalise the world trading environments. However, the periods have also witnessed a proliferation of regionalism in both developed and developing countries as well as the emergence of protectionism in the industrial countries.

Although the latest Uruguay Round, after seven years of negotiation, has been concluded with some success including the creation of the WTO, a high degree of uncertainty in the enforcement mechanism to mitigate protectionist measures still remains. Of particular concern to developing countries is the protectionist measures against imports from countries that are perceived to maintain unacceptably low environmental and labour standards. "Techno-nationalism" or national protection of technology transfer is another area of concern. As technology has become a key element of international competitiveness, more efforts are being made to privatise knowledge emphasising intellectual property protection and the exploitation of "first mover" advantage. With sluggish economic growth, industrial countries seem to be less willing to transfer technology to developing countries than they had been during the 1980s.

The proliferation of regional arrangements are well demonstrated by the integration and the subsequent expansion of the European Union as well as the establishment of the North America Free Trade Agreement (NAFTA). Many other regional arrangements have also been established or are under negotiation, especially among developing countries. Regional trading arrangements are generally intended to

reduce or eliminate trade barriers among member countries while giving discriminatory treatment for outsiders. It may seem questionable, therefore, whether regionalism will contribute to or detract from global trade liberalisation. However, the recent trend among developing countries shows that the emphasis have shifted to developing an outward orientation, in contrast to earlier schemes that focused on enlarging the protected markets for import substitution. Thus, regionalism does not necessarily conflict with globalism; rather, it is more likely to contribute to trade liberalisation as a second-best approach since it is relatively easy to implement as well as effective as compared to multilateral agreement which takes much longer to conclude.

Indeed, the world economic environment characterised by an increasing competition at a global level, a proliferation of regional economic blocs and the growing importance of technology makes it imperative for a country to reappraise its economic conditions and international competitiveness. The SEACEN countries are no exception and the issue is crucial for them, especially with the increasing trend of techno-nationalism. Most of them lack the necessary advanced technology and infrastructure which are vital to enhancing competitiveness. They also tend to depend heavily on foreign direct investments from the MNCs for both domestic production and exports.

2. Objectives and Scope of the Study

The main objective of this study is to analyse the current competitive performance of the SEACEN countries based on the appropriate indicators and to suggest policy implications for improvement. However, the study will focus more on providing analytical frameworks than on coming up with a hasty conclusion of each country's competitive standing. This is not only because competitiveness can be addressed from various points of view, but also because assessments based on different approaches may lead to contrasting results, making policy implications pointless.

This paper is organised into 4 chapters. Chapter II gives a broad review of literature covering the questions of how to define international competitiveness, the rationale behind the issue of competitiveness, and the recent methodologies available to assess it. Chapter III assesses international competitiveness of the SEACEN member countries using a selected analytical framework. A brief overview of this metho-

dology is discussed before a country analysis in which competitive industries are identified and analysed in relation to the underlying factors. Issues and problems faced by each country are also discussed. Chapter IV summarises and concludes with some general suggestions.

Chapter II

CONCEPTUAL FRAMEWORK: A LITERATURE REVIEW

1. Issues on Defining International Competitiveness

The analysis of international competitiveness should begin with questions of what is international competitiveness and how to define it, because it is not a simple concept to define and the choice of a definition will determine the methodology of assessment. As a matter of fact, determinants of competitiveness and the criteria of measurement may also change depending on the definition, subject analysed, and time horizon.

There are several reasons why it is not easy to define international competitiveness. First, the coverage is so broad that it can be approached from virtually all perspectives. Indeed, international competitiveness is a multi-dimensional concept which can refer to firms, industries, sectors, or countries. It also encompasses almost all factors affecting market performance, such as policies, market structure, and business practices with respect to trade, investment, technology, and regulation. Second, it is not a straightforward answer to the question of who competes, nations or firms. A controversy over this issue has been raised by academicians, notably Paul Krugman who is opposed to the discussion of competitiveness at the national level, arguing that nations do not compete in the same way as companies do. Instead, they may compare themselves with others. He went on to say that the concept of national competitiveness is elusive and competitiveness is a dangerous obsession.³ Krugman's contention that obsession with competitiveness might skew domestic policies and threaten the international economic system is a valid point. However, it is equally true that the economic responsibilities of a country have increased so much that it is simply impossible to ignore its influence, and countries do compete in the sense that they choose policies to promote higher living standards.⁴ Although the common image of competitive struggle is one of

3. Paul Krugman, "Competitiveness: A Dangerous Obsession," *Foreign Affairs*, Vol. 73, No. 2, 1994, pp. 28-44.

4. "The C-word strikes back," *The Economist*, June 1, 1996, p. 86. For further discussion, see "The World Competitiveness Yearbook 1996," *International Management Development*, 1996, pp. 10-12.

winners and losers, the pursuit of international competitiveness is not necessarily a zero-sum game, at least in the long run. From this point of view, it is meaningless to ask whether or not competitiveness is a dangerous obsession. What is more important is the competitive entity in focus, whether at a firm, industry or national level as this yields a significant difference in measurement as well as policy implications.

In the broadest sense, strength in macroeconomic performance has generally been considered as a country's international competitiveness. The ability to sustain a high rate of growth in a dynamic sense and a high level of living standard in a static sense is the most popular criterion. This approach looks at the GDP growth or per capita income as the most significant indicator. One of the advantages of this view is the simplicity of the indicators. However, GNP and GDP are not adequate indicators because they do not include all aspects of value added although it is assumed to be so. For example, they only account for the monetary aspect of the economy. Progress in education, science and technology, and social harmonisation, which are increasingly thought to be more important in determining a country's long term growth potential, are not taken into consideration. Moreover, they do not distinguish the cause of competitiveness from the result of it.⁵

Productivity is often deemed as synonymous with competitiveness. Productivity in this context goes beyond the simple definition of output to input ratio. Rather, it encompasses the elements of efficiency in producing goods, process technology that affects the quality of the products, economies of scale, ability to develop new products that can be marketed at higher price, and marketing ability. Strictly speaking, however, it is one of the underlying factors that affect competitive standing rather than revealing competitive performance.

Export performance and current account balance have also been used as indicators of changing competitiveness position by both journalists and academicians. It is often said that a declining export market share is a clear sign of waning competitiveness. This aspect will be discussed in more detail later to determine the causes with an emphasis on either cost factors or non-cost factors.

5. "The World Competitiveness Yearbook 1996," International Management Development, 1996, p.7.

In the meantime, the increased importance of the MNCs complicates the definition and measurement of competitiveness as it raises a controversial question of whether it is nations or firms that compete in the world market. For instance, let us assume that the export market share best represents a nation's competitiveness, and a certain country is the home base for the MNCs specialising in electronic products with many foreign subsidiaries manufacturing and exporting the same products. Assume further that exports from the subsidiaries comprise 80 percent of total exports of MNCs worldwide whose world market share is 20 percent. The home country's export share in the world market is no more than 4 percent, while the host country's export share stands at 16 percent, four times as much as that of the home country. Does this mean that the host country is more competitive than the home country? Although this seems to be a technical problem concerning measurement, it actually involves a fundamental issue of defining the dimension of competitiveness.

There are several market performance indicators to look into, and the choice will determine the subsequent policy implications. There are also several factors that account for these market performances at either a micro or a macro level. According to a BIS study, "Competitiveness can be used to cover almost any aspect of market performance. Product quality, the ability to innovate, the capacity to adjust rapidly to customers' needs, and the absence of restrictive practices in the labour market are frequently evoked in discussions of competitiveness. In narrower meaning, that based on relative prices or costs."⁶ An OECD paper also stated that "The concept of competitiveness encompasses many factors that impact on a country's macroeconomic performance. They include productivity and technological innovation, which in turn depend on investment in human and physical capital, and on the institutional and structural policy environment."⁷ These general views, however, are too general to provide a systematic and precise concept of competitiveness.

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6. Philip Turner and Jozef Van 't dack, "Measuring International Price and Cost Competitiveness," BIS Economic Papers No. 39, BIS, Nov. 1993, p.9.
 7. Martine Durand, Jacques Simon and Colin Webb, "OECD's Indicators of International Trade and Competitiveness," Economics Department Working Paper No. 120, OECD, 1992, p. 5.

It was not until the early 1980s when the notion of competitiveness, in comparison with the traditional terminology of comparative advantage, first gained significance. Interestingly, the study of international competitiveness was initiated in the United States which is the biggest and the most influential economic power in the world. According to the Report of the President's Commission,⁸ "Competitiveness is the degree to which a nation can, under free and fair market conditions, produce goods and services that meet the tests of international markets while simultaneously maintaining or expanding the real incomes of its citizens." This is the first and one of the most often referred to definition of international competitiveness in literature.

Since then, there have been extensive studies on the issue of definition. Among others, the World Competitiveness Report published since 1989 as a joint-research effort by the Institute for International Management Development (IMD) and the World Economic Forum (WEF) concluded that "Competitiveness is the ability of a country or a company to, proportionally, generate more wealth than its competitors in world markets."⁹ This definition is very similar to the Report of the President's Commission. Moreover, it took an eclectic approach by defining competitiveness at both the national and firm level. Since 1996, however, due to disagreement over the approaches, the IMD and the WEF have begun to publish separate reports. The IMD redefined competitiveness as the ability of a country to create added value and thus increase national wealth by managing assets and processes, attractiveness and aggressiveness, globality and proximity, and by integrating these relationships into an economic and social model.¹⁰ The WEF simplified the definition as the ability of a country to achieve sustained high rates of growth in per capita GDP. The IMD's definition is an outcome of an effort to specify and stress the process through which a country achieves competitiveness, while the WEF prefers a simpler definition focusing on per capita GDP. This difference illustrates the ambiguity and difficulty in defining competitiveness. However, it should be noted that both commonly define international competitiveness as the ability of a country to compete.

8. "Global Competition: The New Reality," The Report of the President's Commission on Industrial Competitiveness, Vol. 1, January 1985, p. 6.

9. The Institute for International Management Development and The World Economic Forum, "The World Competitiveness Report," 1995, p. 36.

10. "The World Competitiveness Yearbook," IMD, 1996, p. 6.

It is Michael E. Porter who first viewed competitiveness as a system consisting of many relevant factors that are dynamically interacting and reinforcing one another. He is accredited with introducing the notion of *competitive advantage* that has been widely accepted in most contemporary literatures, replacing the conventional notion of comparative advantage and even competitiveness. He identifies determinants of competitive advantage in the so-called system of the national diamond: factor conditions, demand conditions, firm strategy, structure, and rivalry, related and supporting industries, chance events, and the role of the government. He avoided the controversy over the entity of competition by stressing the importance of the national environment in which firms are born and compete. Specifically, he addresses competitiveness from the industrial perspective in which individual firms strive to gain competitive advantage. He pointed out that a nation's firm may initially draw their competitive advantage from just one determinant, but to sustain it will require others. Eventually, the clustering of competitive industries is the key to sustaining and improving competitive advantage. A nation is deemed competitive if clusters of competitive industries exist.¹¹

Apart from the above, there are many other definitions. For instance, one of the reports from the World Bank¹² viewed competitiveness as a country's long-run potential for growth and the creation of an economic structure and export composition that adjusts flexibly to the rapidly changing patterns of world demand. The Union Bank of Switzerland, sharing the view with the IMD, defined it as the ability of a country to attract and retain enterprises that develop better products and produce, market, and service these products more cost-effectively in world markets.¹³

On the whole, no matter what the definition of international competitiveness is, there is a tendency to analyse it at a national level. Another common factor is that a country's competitiveness depends on its ability to take advantage of opportunities in the international market.

11. Michael E. Porter, "The Competitive Advantage of Nations," Free Press, 1990.

12. Hamid Alavi, "International Competitiveness: Determinants and Indicators," The World Bank Industry and Energy Department, Mar. 1990, p. 2.

13. "Competition Among Nations," UBS International Finance, Union Bank of Switzerland, Autumn 1993, p. 3.

2. Theoretical Development

The complexity of defining international competitiveness requires a comprehensive literature review of related theories not only because it might help to guide the direction and confine the scope of the study, but also because it might shed some light on the implications of trade policies for developing countries. A wide range of sub-disciplines in economic theory should be covered ranging from international trade and investment theory to technology and growth theory, as the concept of international competitiveness encompasses almost all these aspects. However, the need to keep the study within focus requires that the review of the theories will be confined to core elements only.

2.1 International Trade Theory

2.1.1 Comparative Advantage

The theory of international trade has evolved in line with the rapidly changing world economic environment. Questions of why nations trade, what are the gains from trade, how trade pattern is determined have been the central issues of concern of trade theory. Determinants of trade and its pattern, however, have been changing as technology progresses and the trend of globalisation advances.

Adam Smith is accredited with introducing the notion of *absolute advantage*, which means a nation specialises in and exports a product if it is the world's lowest-cost producer. Since his assertion was based on the labour theory of value, it can be interpreted that nations have different labour productivity. In a hypothetical world of two countries and two products, if one country produces both products at lower costs, it may follow that either one country exports both products or they do not trade at all. Both of these results seem to be unrealistic.

Refining this notion, David Ricardo articulated the doctrine of *comparative advantage*, which means that a nation may export a product even when it is not the lowest-cost producer as long as it can produce the goods relatively cheaper than the other nation. Consequently, in the same hypothetical world as mentioned above, trade can still occur. In this case, each nation can benefit from trade through the international division of labour which enables both countries to achieve higher levels of utility. In conclusion, the pattern of specialisation

and trade depends not upon the absolute but upon the relative costs of production, and trade is not a zero-sum game as it offers an opportunity for mutual gains to all trading nations. Comparative advantage had been considered a synonym to international competitiveness until recently when the notion of competitive advantage began to replace it.

The comparative advantage doctrine was further developed and formalised by neoclassical economists, notably Heckscher and Ohlin. According to the Heckscher-Ohlin (H-O) theorem, a country has a production bias towards, and hence a tendency to export, the commodity that uses intensively the factor with which it is more abundantly endowed. This doctrine is based on fairly strong assumptions that include: identical tastes and production technology across countries; no scale economies; no international factor mobility; a perfectly competitive market with two factors of production, namely land and labour; substitutability among these factors; and, no transportation costs.¹⁴

A subtle but important difference between the Ricardian theory and the H-O theorem lies in the treatment of production technology, which drew little attention at the time when the theories were first introduced, but later became one of the most decisive factors of competitiveness. The Ricardian model considered production technology as different among nations, while the H-O theorem assumed it is identical across countries. Under the Ricardian model with one input and two goods, the only factor that distinguishes the production cost of one good from the other is labour productivity, which is basically a ratio of output to input. The H-O model with two inputs and two goods, on the other hand, specifies the productivity, at least in technical terms, as identical across countries. Man-hours and acres of land used in producing each unit of both goods, say cloth and food, are the same in both countries. The only difference is the factor intensity. For example, cloth is more labour intensive while food is more land intensive. The factor intensity is determined by the abundance of factors of production which is endowed in the country.

14. Ronald W. Jones, and Peter B. Kenen, ed. "Handbook of International Economics," Vol. 1, North Holland, 1984, pp. 14-21.

The empirical testing of the theorem has been extensive, yielding various results.¹⁵ The main extension to the simple H-O model is to take into account explicitly human capital endowment or skill variable as a third factor of production.¹⁶ The skill variable has performed well in empirical tests which conclude that industrial countries enjoy comparative advantage in exporting products that require greater or more advanced skills, and developing countries in those that require less or simpler skills.

In general, the notion of comparative advantage based on factors of production has intuitive appeal, and factor costs have certainly played a significant role in determining the trade patterns in many industries. Nevertheless, the orthodox trade theory of comparative advantage failed to explain such international trade phenomena as the growing trend of intra-industry trade, the emergence of the newly industrialising countries, and so on. Numerous attempts have been made to overcome the limitation of the traditional trade theory, both within and beyond the neoclassical framework. They include the new trade theory, the industrial organisation theory, and the neo-technology theory.

2.1.2 New Trade Theory

The new trade theory grew out of an attempt to amend and to develop traditional trade theory within the neoclassical analytical framework. The new theory does not reject comparative advantage as a determinant of international trade, but supplements it. It expanded the analytical scope to the firm level and integrated industrial organisation concepts with international trade theories. It has both positive and normative aspects. The latter is a basis for strategic trade theory.

15. The Leontief Paradox attracted a whole body of research: on one hand, to save the theorem; on the other hand, to challenge and to find new rationales for it. The former developed into neo-factor proportions theory, while the latter developed into technology theory of trade.

16. In transition to this, capital and labour had been considered two primary factors of production within the mainstream neoclassical framework replacing traditional factors of land and labour.

Positive Theory

The positive version of the theory¹⁷ considers the sources and nature of international trade as well as production specialisation. It relaxes some of the most restrictive assumptions under the traditional theory, such as assuming economies of scale with monopolistic competition, and fits them into a general equilibrium framework. Other forms of market imperfection such as externalities, and technical progress are also taken into consideration.

It is argued that scale economies can play a crucial role in determining the pattern of trade. Scale economies apply to individual product varieties within an industry characterised by a common technology. In other words, firms in one industry produce differentiated products even in the absence of comparative factor advantage. Consequently, trade in similar goods that belong to the same industry, namely intra-industry trade, takes place.¹⁸ Product differentiation driven by economies of scale at the firm level is the source of intra-industry trade, while comparative advantage still applies at the industry level determining the pattern and volume of inter-industry trade.

In addition, technical change that results from substantial R&D and a learning curve¹⁹ also enables firms to export even if they might have a comparative disadvantage. This explains a predominance of developed countries in some industries where they take advantage of being the “first movers” or “head starters” even though they do not have advantage in terms of factor cost.

In summary, virtually every market imperfection creates a rationale for trade even if factor costs are equal across countries. Nonetheless, the central issue as to why firms based in some countries are major traders of certain products remains unanswered.

17. See E. Helpman and P.R. Krugman, “Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition, and the International Economy,” MIT Press, 1985.

18. Although it has become a world-wide phenomenon, the initial focus was on the intra-industry trade among developed countries where industrial structure and technological progress are similar, because traditional trade theory was not able to explain it.

19. A learning curve relates unit cost to cumulative output. The curve is downward-sloping, which reflects the effect of experience gained through production on costs.

Normative Theory

The normative implication of the theory is the most controversial area of the new trade theory, because market imperfections not only prompt strategic moves of firms but also justify an activist government role. It is argued that government policy can play the same role in international competition that strategic moves play in domestic competition. A government, by subsidising exports, could allow national firms to counter aggressive moves, and thus deter competition by foreign firms. Such a strategic trade policy can raise national income at other country's expense by shifting monopoly rents from foreign to domestic firms, unless the foreign government retaliates.²⁰ A number of highly sophisticated studies have been conducted on the issue with a conclusion that policy recommendations in this area are very sensitive to the subtle aspects of competition.²¹ Indeed, most of the new trade theorists tend to display considerable caution in the policy conclusions of their analysis.²²

Also important is the implication of externality of trade policy. Since technological innovation is likely to generate valuable spill-overs, it is tempting to say that a promotion of certain high-technology sectors which generate large spill-overs through protection might raise national income. Most of the policy makers of many nations seem to be pre-occupied with this idea. However, the empirical results turned out mixed.

In the normative sense, the difference between the traditional theory and the new theory is the question of whether the trade policy of a country can influence its national income and affects the income of others. The new theory starts with a premise that there may be strategic sectors after all, while the conventional approach views that there are no such sectors where labour and capital either directly

20. James A. Brander, "Rationale for strategic trade and industrial policy," *Strategic Trade Policy and the New International Economics*, Paul Krugman, ed., MIT Press, 1986.

21. For example, Brander and Spencer showed that with Cournot competition, an export subsidy will raise national income. Eaton and Grossman showed, however, that if firms compete on prices rather than quantities, then an export tax turns out to be the right policy. This is due to one of drawbacks of Cournot model which assumes quantities are set by physical capacity constraints. See Eaton and Grossman (1986).

22. See, for example, Brander and Spencer (1984), p. 204.

receive a higher return than they would elsewhere or generate special benefits for the rest of the economy. However, the answer to this question is not straightforward. There are several reasons for not supporting the government's strategic policy. Firstly, there is no clear delineation of strategic sectors. Secondly, the efficacy of policy to promote the sectors is questionable. And lastly, based on experience, the implementation of the policy does not guarantee objectivity and it may cause other governments to retaliate.²³

The new trade theory was initially developed in an attempt to explain the occurrence of intra-industry trade among developed countries. However, its policy implications have exerted a pervasive influence on most developing countries. For example, the success of NIEs is often attributed to the role of government intervention through industrial and trade policies. Although the new trade theories are not intended to advocate protectionism, its conclusion has been widely used to support protectionism under the guise of strategic industrial policy.

2.2 Technology Theory of Trade

Technology-oriented theories of trade have grown out of efforts to explain trade and investment in particular industries where technological differences are important. They dated back to early 1960s, even before the birth of the new trade theory, in line with other efforts to solve difficulties raised by the Leontief Paradox in 1954. Unlike neo-classical theorists, this school of thought basically shares the same view with the Ricardian theory which rests on technological differences in a broader sense. Their common feature is an emphasis on technological change and the resulting pattern of trade in new products. The idea later shed some light on the new trade theory in that technological innovation itself is an externality.

The first major theoretical study was the technology gap model conceived by Posner.²⁴ He observed that as new products and pro-

23. See Paul R. Krugman, "New thinking about trade policy," *Strategic Trade Policy and the New International Economics*, Paul R. Krugman, ed., The MIT Press, 1986, pp. 15-20.

24. M.V. Posner, "International Trade and Technical Change," *Oxford Economics Papers*, vol. 13, no. 3, Oct. 1961.

cesses are continually being developed, the country in which these innovations occur will enjoy a technological advantage and higher exports over its trading partners for some time until this technology diffuses and the technological gap closes. Although he did not formulate a formal model, his contribution was to describe the dynamic process in which technological progress is continually being made and existing technologies are being transferred to other countries.

Another attempt to explain trade in terms of technology is the Vernon's product cycle hypothesis,²⁵ which departs from the theory of comparative advantage by rejecting both factor proportions and comparative costs as factors determining the location of production - and later export - of new products. Instead, he advocated that new products will be first produced in, and later exported, from the country where they are first demanded. Then, as the product matures and becomes standardised, production moves to a location of lower cost.²⁶ However, the adequacy of the product cycle model has been questioned as the growth and spread of MNCs has lessened the need for production of new products to start near their markets. The presence of MNCs and their growing role have indeed undermined part of the rationale for the model in that production can be initiated in developing countries even before its life cycle comes to an end in developed countries. In fact, the model is basically an analysis of the behaviour of an individual innovating firm in a developed country.²⁷

In contrast, the "flying geese" paradigm describes the situation of a developing country, where the cycle begins with the product introduced through import rather than innovation. The economic growth of a developing country is explained through its leadership-emulation interaction with developed countries. It industrialises and goes through industrial upgrading step by step by capitalising on the learning oppor-

25. Raymond Vernon, "International Investment and International Trade in the Product Cycle," *Quarterly Journal of Economics*, May 1966, pp. 190-207.

26. A major distinction between Posner's technology gap and Vernon's product cycle can be made in that the former emphasizes newness in terms of time while the latter emphasizes product differentiation as opposed to standardization. However, empirical test by Hufbauer (1970) shows that advanced countries tend to export products that are both new and differentiated, which supports both Posner and Vernon.

27. For modified version of the hypothesis, see Raymond Vernon, "The Product Cycle Hypothesis in a New International Environment," *Oxford Bulletin of Economics and Statistics*, Nov. 1979, Vol. 41, pp. 255-267.

tunities made available through its external relations with the more advanced countries.²⁸

Despite its initial purpose of explaining the growth of U.S. multinationals, Vernon's idea was applied to trade and investment by other countries and became part of the literature of neo-technology explanation of international trade. The neo-technology theories differs from the traditional trade theory in that they reject most neoclassical assumptions of efficient markets with identical production functions, equal access to knowledge, identical tastes, small firms and homogeneous products. Rather, the theories identify differences based on technology and taste as key determinants of comparative advantage. Comparative advantage is created by individual firms operating in imperfect markets rather than by factor-endowments. Innovation is not only the major driving force of comparative advantage but also gives rise to trade and investment. Accordingly, the theory suggests that developing countries have comparative advantage in low technology industry since standardised and mature products are not subject to technological innovation. In other words, developing countries are by and large passive recipients of mature technology from industrial countries, and the best policy is to allow free trade and to acquire technology through direct foreign investment.²⁹ It also predicts that much of the trade resulting from this force is within rather than among industries with broadly similar factor requirements.

The technology theories have identified an important set of variables that can help to explain trade. All these variables relate to the creation of new products or processes by technological changes. They also relate to the special knowledge of individuals, firms, and countries that enable them to develop and exploit technologies. Recent literature on technology theory tends to view technology as a complex bundle

28. The idea was originally conceptualized as a general theory of economic development in the early 1930's, and is in essence a "catching-up cycle" model constructed from a latecomer's point of view. See Kaname Akamatsu, "A theory of unbalanced growth in the world economy," *Weltwirtschaftliches Archiv*, Vol. 86, 1961, pp. 196-215.

29. This prediction is challenged by recent success of the Asian NIEs, where a rapid development of domestic technology had occurred not only through successive adaptation of imported technology to local conditions but also efforts to build up independent capability to develop domestic technologies, although these were minor technological developments rather than major breakthroughs in the frontier of knowledge.

of information - both tacit and codified - as well as physical capital.³⁰ Both existing technologies and innovation require tacit knowledge that is specific to particular products, processes, firms and markets. The theory also recognises that it is individual enterprises, rather than industries, that invest in technology creation, and thus, in turn, link up with the theory of international investment.

Thanks to this philosophy, technological progress has emerged as the most significant factor determining growth and competitiveness of a country. The cross-sectional evidence also suggests that the relative technological capabilities of each sector in each country explain the export share in the world market, which is used as a proxy for competitiveness.³¹

2.3 Growth Theory

The use of technological progress to explain trade necessitates a review of growth theory in which technological change plays a key role. In addition, given that economic growth can be viewed as an indicator of international competitiveness, the identification of major determinants for growth will also be beneficial to our analysis.

A neoclassical growth model developed by Solow assumed that the two-input production functions, which are subject to a constant return to scale, are identical across the border, while savings rate, population growth rate, depreciation rate of capital, and technological progress are exogenously determined. Among others, the model shows that: (i) each economy converges to its own steady-state regardless of initial conditions in the long run; (ii) the steady-state level of income depends positively on the rates of savings and negatively on population growth; and, (iii) the steady-state *growth rate* of per capita income depends only on the rate of technological progress. As such, it implies that poor countries tend to grow faster than rich countries with the

30. Conventional wisdom has often said that technology takes two forms: codified information or disembodied technology, and capital goods or embodied technology. This inevitably implies that the technology is readily transferable.

31. See Luc Soete, "A General Test of Technological Gap Trade Theory," *Weltwirtschaftliches Archiv*, Vol. 117, 1981, pp. 638-660, and Jan. Fagerberg, "International Competitiveness," *The Economic Journal*, Vol. 98, 1988, pp. 355-374.

magnitude of income differences being proportionate to differences in savings rate.³²

This model has attracted both criticism and support. The main criticism is the assumption that technological progress is exogenous when it is commonly accepted that technology is the sole explanatory factor of a long-run economic growth. The model is also not supported by empirical evidence. Income disparity observed across countries is much greater than the model predicts. Per capita income growth rates have little correlation with the initial level of income. Variations in rates of return to capital across the border are observed to be less than what the model predicts. Finally, the share of capital is observed to be greater than what can be inferred from the model.³³

With new insights, the “endogenous growth theory” was postulated to overcome these shortcomings. It allows technological progress as an endogenous variable on the basis that such progress results from capital accumulation and investment in human resource development.³⁴ They expounded the various channels through which growth can occur endogenously. Lucas examined the interaction of physical and human capital accumulation as well as the interaction of trade and development.³⁵ By introducing human capital into the neoclassical model, he exhibited sustained per capita income growth from endogenous human capital alone and no external engine of growth was required. With regard to trade, taking human capital accumulation to be specific to the production of particular goods and to be acquired on-the-job or through learning-by-doing in an open economy model, he argued that each country produces goods for which its human capital endowment suits it. Countries accumulate skills by doing what they are already doing,

32. Robert M. Solow, “A Contribution to the Theory of Economic Growth,” *Quarterly Journal of Economics*, 1956, pp. 65-94.

33. N. Gregory Mankiw, “The Growth of Nations,” *Brookings Papers on Economic Activity*, Brookings Institution, 1995, pp. 281-295.

34. The theory varies depending upon the source of technological progress: productivity improvement through learning-by-doing by Romer (1986) and Young (1991); human capital accumulation by Lucas (1988), Becker and Tamura (1991); and investment in R&D by Grossman and Helpmann (1990).

35. Robert E. Lucas, Jr., “On the mechanics of economic development,” *Journal of Monetary Economics*, Vol. 22, 1988, pp. 3-42.

intensifying whatever comparative advantage they begin with. Meanwhile, he also pointed out that a country should not be locked in this initial pattern of production due to the external forces that would enable the country to create comparative advantage in other goods over time. Barro's empirical study showed that a poor country tends to grow faster than a rich country, but only for a given quantity of human capital: that is, only if the poor country's human capital exceeds the amount that typically accompanies the low level of per capita income.³⁶

One of the important implications of this model is that growth would be higher with more investment in human capital because of the spill-over effects of human capital accumulation. Hence, a government subsidy to human capital formation or schooling could result in a substantial economic growth.

2.4 Foreign Direct Investment and Multinational Corporations

Foreign direct investment has emerged as one of the key policy issues for most developing countries in pursuit of industrialisation. With a few exceptions, most of them welcomed FDI on the ground that FDI enabled them to gain access to both resources and market as well as an opportunity to restructure their economies. FDI is mainly by the MNCs which conduct a wide variety of economic activities from global perspectives with proven efficiency. As noted in the previous chapter, the past decade has shown that MNCs is the most important mechanism for international integration. With improvements in transportation and information technologies, FDI and MNCs have become preconditions for much deeper economic integration.

Reviewing MNCs from an international trade perspective is important as it broadens the conclusions of the new trade theory, which are basically limited to the notion of clearly defined national firms competing with the national champions of other countries. The inclusion of MNCs extends the framework to multiplant and multiproduct production which is also subject to scale economies, market imperfection, and

36. He also provided some empirical evidence regarding fertility rates, government expenditure, and so on. See Robert J. Barro, "Economic Growth in a Cross Section of Countries," *Quarterly Journal of Economics*, 1991, pp. 407-443.

other externalities. Thus, MNCs can be treated as a special case in a broader framework of trade and technology theories.

As a matter of fact, MNCs can be in non-FDI forms, such as joint-venture, subcontracting, licensing, and franchising. Despite the uniqueness of each activity, most studies have centred around FDI and MNCs.³⁷ Since multinationals are defined as firms that engage in direct foreign investment either by acquiring a substantial controlling interest in a foreign firm or setting up a subsidiary in a foreign country,³⁸ it is difficult to separate FDI and MNCs in any analysis.

Analysis of FDI by MNCs should be approached from two different perspectives: MNC itself and host countries. For the former, Dunning's Ownership, Location and Internationalization (OLI) framework well describes the rationale behind FDI by MNCs. The ownership refers to a firm's advantage in a product or a production process which other firms do not have. It could also be something intangible, like a trademark or reputation for quality. The concept of knowledge-based firm-specific assets or knowledge capital is another expression of the ownership advantages. It follows that FDI by MNCs is noticeable in particular industries which require firm-specific assets.³⁹ A location advantage refers to such factors as tariffs and quotas, transportation costs, cheap factor prices, and access to customers, which makes it more profitable to produce the products in the foreign country rather than at home and subsequently export them. Internationalisation advantage, in spite of its ambiguity, is based on the argument that the product or process is better exploited within a firm than farming it out to outsiders through licensing or selling the blueprints.⁴⁰

37. Caves (1971) contributed much to incorporating MNCs explicitly in the discussion of direct foreign investment.

38. James R. Markusen, "The boundaries of Multinational Enterprises and the Theory of International Trade," *Journal of Economic Perspectives*, Vol. 9, Spring 1995, p. 170.

39. An analysis on FDI in East and South East Asian developing countries shows that FDI is significant in consumer product industries where international brand name is important and in high-tech industries where the scope for unpackaging the technology is more or less limited, while FDI plays a relatively small role in a range of traditional labour-intensive industries. See Hall Hill and Brian Johns, "The Role of Direct Foreign Investment in Developing East Asian Countries," *Weltwirtschaftliches Archiv*, Vol. 2, 1985, p. 373.

40. John H. Dunning, "International Production and the Multinational Enterprises," London, George Allen and Unwin, 1981.

From the host country's perspective, focus has been put on FDI by MNCs towards developing countries, because decisions of FDI among industrial countries are usually made at firm level while FDI to developing countries is in most cases determined by the government. FDI usually provides a package of wealth-creating assets to host countries, adding to the capital stock and increasing output and employment. It is generally believed that MNCs not only create assets and provide access for the firms belonging to their corporate system, but also provide indigenous firms with access to the resources available in the parent companies, such as capital, innovation, technology, skilled human resources and efficient organisational and managerial practices.⁴¹ Foreign affiliates in developing countries have often acted as conduits for the transfer of these resources, presumably contributing to improved performance of the economy as a whole.

The competitiveness of firms in general depends not only on the access to these assets, but also on their ability to penetrate markets that are large enough to exploit them fully and most efficiently. FDI tends to enhance MNCs' capability to reach international market not only through cross-border trade but also through their foreign affiliates. The latter is very important in the sense that it enables MNCs to secure markets that are otherwise impossible to reach without proximity to customer, to expand markets that are difficult to service from a distance and to respond promptly to changing customer tastes and market conditions. These activities also create market opportunities for other firms in both host and home countries, as long as they are linked to the MNC system. For host countries, and especially developing countries that are striving to industrialise, FDI by MNCs helps directly to raise output, and indirectly through linkages and competition, on condition that MNCs do not overwhelm the indigenous firms in competition.⁴²

The access to various resources and markets provided by MNCs is a direct and first-hand effect on both home and host countries. In the longer run, however, countries need to restructure economic activities

41. However, FDI constitutes a relatively small portion of total domestic investment. See Hill and Johns, *op cit.*, p. 378.

42. "Transnational Corporations and Competitiveness," World Investment Report, 1995, U.N.

to further improve their performances. This must be an ongoing process across sectors, industries or types of activities within an industry. There are a number of successful industrial restructuring experiences as exemplified in Asia, notably in the case of Japan followed by Korea and Taiwan in 1980's and by South East Asian countries more recently.

The recent version of the "flying-geese" paradigm, which incorporated an MNC dimension into the Akamatsu's flying geese paradigm, well explains the significant role of MNCs in the advancement of many developing countries. The basic idea is that MNCs set up foreign production bases at the very beginning of the product cycle without first exploring the host country market through export. When the host country imposes both exports and local content requirements, and if it is successful, both production and exports of producer goods will take place almost simultaneously at the early stage of industrial development without much time-lag after the production of consumer goods.⁴³

Although it is true that MNCs have played a main and essential role in restructuring economies of both home and host countries, we need to be cautious in generalising the results and in constructing a model. One of the reasons is that issues concerning MNCs are more often related to a wide range of policy options that may easily lead to controversy, depending upon the nature of economies and the degree of development as well as national attitude or sentiment towards MNCs. The assessment can become more complex if it is made at the national level.⁴⁴ The issue is whether both home and host countries benefit from the MNCs' improved competitiveness, taking into account that MNCs may invest abroad to maintain or increase their own competitiveness. Does FDI, like trade, create a win-win situation by contributing to an

43. Kiyoshi Kojima and Terutomo Ozawa, "Toward a theory of industrial restructuring and dynamic comparative advantage," *Hitotsubashi Journal of Economics*, Vol. 25, Dec. 1995, pp. 135-145.

44. For the SEACEN countries, some empirical results show that the impact of foreign direct investment on GDP growth, exports, and employment varies across the country with both positive and negative correlations. Moreover, transfer of technology was revealed as disappointing or minimal. See Azizah Talib, ed. "Foreign Direct Investment in the SEACEN Countries," The SEACEN Centre, 1994, pp. 33-48.

increase in global welfare? The answer is partly found in the recent trend of joint ventures. Many companies from countries with significantly different income levels attempt to complement their strengths through strategic alliances, because few companies possess all of the competitive advantages in today's global competition.⁴⁵

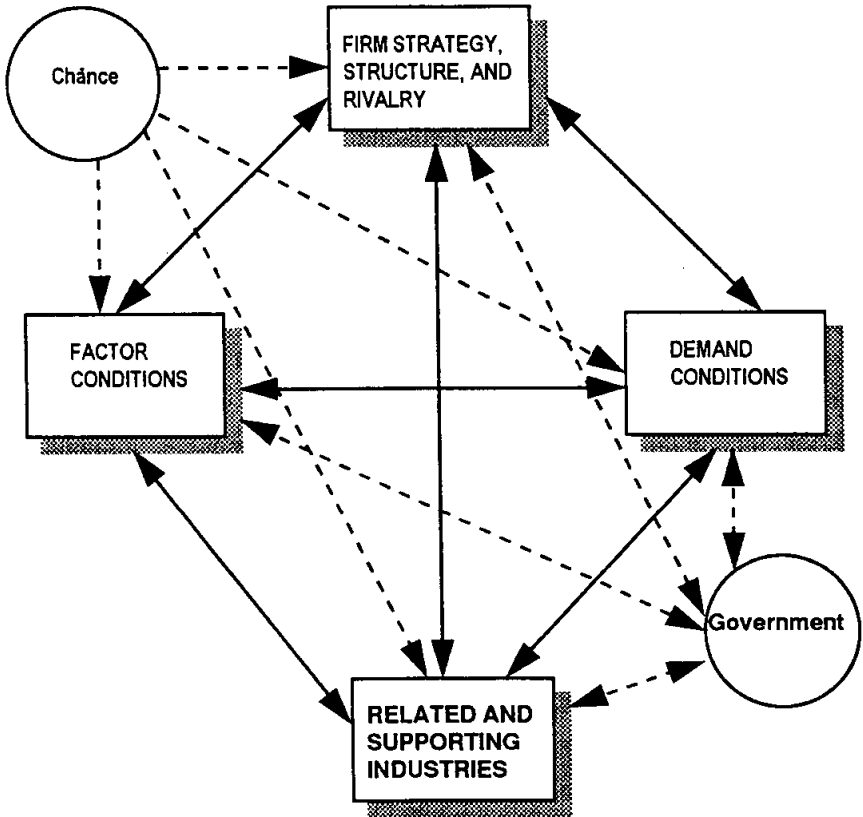
2.5 Business School Approach to Competitiveness

As competitiveness encompasses almost all aspects of activities of firms, industries, and nations, it is also a subject of intensive study in business schools. As mentioned earlier, Porter not only introduced the term competitive advantage, but also conceptualised it as a system. His idea is actually best described as a conceptual framework rather than a testable theory. It is worthy of a review because his framework is so comprehensive as to embrace most of the relevant theories. It has also been widely used in most of the recent studies on international competitiveness, despite certain variations in details. The review here will be focused on a few salient features, which are considered relevant to this study.

As mentioned in the previous section, Porter considers competitive advantage as a system which consists of four major determinants, namely: (i) factor conditions; (ii) demand conditions; (iii) existence of related and supporting industries; and, (iv) firm strategy, structure and rivalry. Two other determinants are also important, namely the role of government and chance (see Figure 2.2.1). While factor conditions are the most important as a single element, the interaction of all the factors in the system is what ultimately pushes firms to innovate and attain world leadership.

45. Robert R. Miller, et al., "International Joint Venture in Developing Countries," International Finance Corporation Discussion Paper No. 29, The World Bank, p. 4.

**FIGURE 2.2.1
NATIONAL DIAMOND SYSTEM**



46. Michael E. Porter, "Competitive Advantage of Nations," Free Press, 1990, p. 127.

Porter's framework is basically a microeconomic approach that focuses on the conditions specific to firms and industries, although he attempts to analyse competitive advantage of industries in a national setting. Arguing that a nation can never be competitive in all industries, he defined a competitive nation as one in which clusters of internationally competitive industries exist. A nation's successful industries are usually linked through vertical or horizontal relationships. In other words, they have a strong tendency of clustering. Once a cluster is formed, the whole group of industries becomes mutually supporting, and eventually challenge its competitor to compete in new ways. The presence of a cluster of industries expands and accelerates the process of factor creation as one competitive industry begets another. As clusters develop, resources in the economy flow toward them and away from isolated industries that cannot deploy the resources productively. Indeed, industry clustering is observed to be a central feature of advanced economies.

It should be noted that his framework, unlike the new trade theory, deemphasises the role of government intervention in promoting industries. Instead, he argued that government policies should be confined to facilitating a conducive environment for innovation and dynamic competition among firms. This includes an efficient educational system, adequate infrastructure, R&D programs, strict enforcement of standards, strong antitrust policies, deregulation of industries, and so forth.

3. Indicators of International Competitiveness

Measuring international competitiveness is the central concern of this research. As a matter of fact, there are as many as or more ways of measuring international competitiveness than those suggested in the current literature.⁴⁷ It is also true that one indicator can capture only a part of the whole picture of competitiveness. Furthermore, many indicators of competitiveness are qualitative. Even with a well-defined conceptual framework, it is very much a matter of choices and com-

47. For example, a number of different measures of competitiveness may be advanced for one and the same definition, say REER, depending upon the components used to construct them, geographical coverage, and the level of aggregation of markets and competitors.

promises after taking into account the availability of data, and trade-offs among different criteria and objectives. It might be tempting to say that none of the existing indicators of competitiveness can be used satisfactorily. However, this does not necessarily mean that no single indicator is adequate for a given purpose. It may not be crucial to take into account all influences that determine competitiveness. One indicator may serve as a good yardstick of competitiveness as long as it is defined and specifically designed for particular purposes.

This section introduces various indicators of competitiveness with a view to providing a reference point for further research. The existing methodologies are grouped into traditional approach and systems approach. The former provides the measurement in a traditional sense of comparative advantage with emphasis on the various aspects at both micro and macro level. The latter which has been developed recently deals with competitive advantage as a system. Since competitiveness is increasingly viewed as a systemic and dynamic phenomenon, the latter is discussed in detail.

At the outset, one should note that competitiveness is a dynamic and evolving self-reinforcing system. As creative factors are structured and utilised to enhance economic performances, the performances are feedbacked to reinforce creative factors. Thus, causes and effects become inseparable, making it difficult to distinguish one from the other in practice. Nevertheless, it is useful to make a distinction between competitiveness as a result of economic activities as a whole and the determinants or factors of competitiveness. An analogy is that the symptoms determine the diagnosis, but the causes are what the prescription is based on. The appropriate prescription can only be made out of accurate diagnosis and prudent tracking of the relationship between causes and symptoms. As such, the economic performances should be the point of departure, with one caveat that wealthy countries are not necessarily competitive.

3.1 Traditional Approach

The most popular indicators of competitiveness are: the rate of GDP growth, productivity growth, trade performance, and changes in relative prices. In fact, GDP growth and trade performance are the two most commonly used indicators. It can be argued that GDP growth is the ultimate indicator of a country's overall competitiveness if competi-

tiveness is defined to mean an ability to increase national welfare. It is also a broad summary measure as it already includes trade balance. However, competitiveness in the international setting is better and more directly represented by trade performances. Meanwhile, productivity growth is one of the major explanatory variables underlying GDP growth as well as trade performance. Similarly, changes in relative prices also influence trade performance and GDP growth eventually.

3.1.1 Productivity

Productivity measures the amount of inputs that are needed to produce a given level of output, and thus reflects the efficiency with which inputs are used. Depending upon the type of inputs, the most common measures of a single factor productivity are labour productivity and capital productivity. The former refers to output per unit of labour input, whereas the latter is output per unit of capital. In the simplest measurement, labour productivity is calculated as GDP per total employment, and capital productivity is calculated as GDP per gross capital stock. According to the Ricardian model, productivity growth can also be interpreted as a source of changes in comparative advantage as specialisation of production and thus export of goods depend upon relative productivity of labour between trading partners.

These measures concentrate on one of the two factors of production, reflecting changes in the amount of capital stock used by each worker, i.e., capital-labour ratio, as well as changes in each factor's productive efficiency. Hence, it is often the case that increased labour productivity has come about through increases in the capital-labour ratio. This substitution effect may simultaneously result in slower increases, and even declines, in the productivity of capital.⁴⁸

In reality, however, the measurement of productivity is extremely complicated because of the multiplicity and varying quality of inputs and outputs.⁴⁹ When comparing across countries, differences in price and quality of inputs and outputs as well as in measurement convention will further complicate the measurement problem, and often undermine the validity of the study.

48. "World Economic and Social Survey 1995," United Nations, 1995, p. 228.

49. Irfan ul Haque, *op cit.*, 1995, p. 24.

On the other hand, total factor productivity (TFP) uses a set of weights to aggregate multiple inputs and outputs into a single measure. Although there are many ways to measure TFP, its growth is generally estimated as the difference between the rate of growth in output and the average rate of growth of inputs with each input being weighted by its share of factor income.⁵⁰ In the neoclassical growth theory, TFP is interpreted as the rate of technological change. Under the assumption of a constant return to scale, the increase in output which is greater than what is projected by the constant return to scale represents technological progress. In fact, TFP reflects not only technological innovation but also improvements in skills and/or motivation of workforce, in management and organisation, and the presence of increasing returns to scale. In addition, TFP also reflects productivity changes due to exposure to foreign technology through exports or FDI inflows.

However, TFP is open to criticism not only for its extremely restrictive assumptions but also for using residual as a proxy as it contains all other measurement errors.⁵¹ It is also argued that TFP shows only the weighted average of the increase in factor rewards.⁵² Even so, considerable empirical evidence showed that there is a close and statistically significant positive correlation between productivity growth and per capita income growth, especially for industrial countries. The same relationship has been found in a cross-section analysis of industrialising developing countries especially with regard to the productivity growth in the manufacturing sector.⁵³

3.1.2 Relative Price

The price competitiveness indicators act as a yardstick of price competition between producers located in different countries. To com-

50. This holds under standard neoclassical assumptions as proposed by Solow.

51. See J.W. Kendrick, "Total Factor Productivity - what it does and does not measure," *Technology and Productivity: The Challenge for Economic Policy*, Paris, OECD, 1991, pp. 133-148.

52. Irfan ul Haque, *op cit.*, 1995, p. 26.

53. For the regression results of developing countries, see Irfan ul Haque (1995), p. 20. However, Alwyn Young provided contrasting results showing that the East Asian Miracle was achieved simply by the continuously increased inputs instead of improved total factor productivity, which attracted a lot of debate. See Alwyn Young, "The Tyranny of Numbers: Confronting the Statistical Realities of the East Asian Growth Experience," NBER Working Paper No. 4680, March 1994.

pute these indicators, one has to clearly specify each of the elements of competition, namely, the products, the markets and the countries. In addition, as these indicators are defined as a weighted average of price differentials, it is important to use an appropriate weighting scheme, depending on the aspect of competition and trade performance in focus. For example, the real effective exchange rate (REER) index is designed to measure price competitiveness from an overall perspective while the import competitiveness index and export competitiveness index measure competitiveness from a narrower and more specific point of view. There are also some other indicators which measure changes in profitability of producing goods for exports, compared with producing for the domestic market.⁵⁴

The REER index is one of the most popular indicators of price competitiveness as it is designed to capture the whole picture of price competition. It is assumed that movements in the REER are associated with changes in a country's balance of trade in goods and non-factor services.⁵⁵ The nominal effective exchange rate (NEER) is a weighted average of various bilateral rates, the choice and weights of which reflect their relative importance to the economic issue being analysed. The REER is obtained by deflating the nominal rate by a similarly weighted average of foreign prices or costs⁵⁶ relative to those at home. The choice of the weighting scheme, the base period, and the currencies and prices to be included in their respective baskets, has generated a large volume of literature. Despite this, the REER is widely used among policy-makers as well as prominent international organisations because it is easy to calculate and obtain data.⁵⁷

54. For detailed comparison of various indicators, see Philip Turner and Jozef Van 't dack (1993). For import and export competitiveness index, see Martine Durand, et al. (1992). For details of indicators based on profitability, see Leslie Lipschitz and Donogh McDonald (1991).

55. Ian W. Marsh and Stephen P. Tokarick, "Competitiveness Indicators: A Theoretical and Empirical Assessment", IMF Working Paper, No. 29, 1994, p. 2.

56. Traditionally, a distinction is drawn between REER defined in terms of relative price and that defined in terms of relative costs. Turner and Van't dack, op cit., 1993, p. 26.

57. For the REER indices of the SEACEN countries, see Y.M.W.B. Weerasekera, "Nominal and Real Effective Exchange Rates for the SEACEN Countries," Staff Papers No. 42, The SEACEN Centre, Feb. 1992.

3.1.3 Trade Performance

Trade performance may include all aspects of international trade, e.g., growth rate of exports and/or imports, export market share and its changes, ratio of exports to imports, trade balance, etc. Methodologies used to measure competitiveness based on trade performance follow either the Ricardian or neoclassical trade theory. As mentioned earlier, a country has comparative advantage in a particular product when it can produce the product more efficiently relative to others. Thus, the country will eventually dominate the market share of that product, implying that a country's competitive position can be measured by its trade performance, especially exports market share.

It should be noted, however, that the trade performance criterion represents the realised competitive position, unlike the criteria of changes in relative prices and productivity which indicate the underlying factors of competitiveness.

A trade deficit is treated, at least in part, as a sign of losing competitive edge and corrections are normally made by trade and exchange rate policies. In many cases, however, such policy measures achieve the trade balance objective at the expense of the country's living standards, an argument which is based on price competitiveness which was discussed above. Moreover, it is generally accepted that a trade deficit is not a problem as long as it is sustainable, in other words, if it can be sustainably financed.

Indices based on export market share has been the most commonly used indicator of a country's competitiveness. While many types of indices are advocated, this paper will focus on the revealed comparative advantage (RCA) index and the constant market share (CMS) analysis.

The RCA Index

The RCA index broadens the traditional framework that deals only with relative cost to include differences in non-price factors as determinants of trade pattern. It also postulates that comparative advantage determines the structure of exports.⁵⁸ As the notion implies, export

58. Bela Balassa, "Trade Liberalization and 'Revealed' Comparative Advantage," Manchester School, May 1965.

performance is regarded as a revelation of a nation's comparative advantage as a whole.

Although the RCA index can be either the export-import ratio or export performance index, we will only focus on the latter. This is because the export-import ratio which includes both exports and imports data may distort the actual export performance especially when there is substantial domestic market protection.⁵⁹

The export performance index compares the relative shares of a country in the world exports of commodities and indicates changes in relative shares over time. Specifically, it expresses the share of country *i*'s export of commodity *j* in total world exports of that commodity, as a ratio of the share of country *i*'s total exports of manufactures in the world total exports of manufactures.⁶⁰ In symbols,

$$RCA_{ij} = \frac{X_{ij}}{X_{wj}} \bigg/ \frac{X_i}{X_w}$$

where X denotes exports, subscript *i* denotes country, subscript *j* denotes commodity, and subscript *w* denotes the world, respectively.

Through appropriate normalisation and transformation to an index form, the RCA will take the value between zero and infinity. An index of 1.1 means that the country's share in this commodity's exports is 10 percent higher than its share in the total exports of manufactured goods, and thus implies that the country has comparative advantage in the commodity. An index number below 1 indicates that the country does not have comparative advantage in that commodity. Clearly, the index uses the country's total exports market share as a benchmark. A rise in the index value over time would suggest that a country's competitiveness in a specific commodity in terms of revealed comparative advantage has strengthened.

59. Mohamed Ariff and Hall Hill, "Export-oriented Industrialisation: The ASEAN Experience," 1985, p. 223.

60. The reasons for the coverage of commodity being confined to manufactured goods in Balassa's study were mainly because a large number of primary products were believed to be subject to subsidies, quotas and special arrangement so that the trade pattern could hardly reflect comparative advantage under free trade regime, and partly because these provided the lion's share in trade among industrial countries. See Balassa (1965), pp. 47-48.

The CMS Analysis

The CMS analysis starts with the question of why exports of a country fails to grow as rapidly as the world average. Among the possible reasons are: (i) exports may be concentrated on commodities for which demand is growing relatively slow; (ii) exports may be mainly directed to relatively stagnant regions; and, (iii) the country in question may have been unable or unwilling to compete. Assuming that a country's share in the world export markets should remain unchanged over time unless relative price changes, the difference between the export growth under this constant market share assumption and the actual export performance is attributed to the effect of competitiveness.⁶¹

In the CMS methodology, changes in a country's exports are decomposed into structural and competitive components. According to Leamer and Stern's formula, the increase in exports of a country is attributed to: (i) the general rise in world exports; (ii) the commodity composition of the country's exports; (iii) the market distribution of the country's exports; and (iv) a residual.⁶² In symbols,

$$\begin{aligned} \Delta X &\equiv \sum_i r \cdot X_i && \dots\dots\dots (1) \\ &+ \sum_i r_i \cdot X_i - \sum_i r \cdot X_i && \dots\dots\dots (2) \\ &+ \sum_i \sum_j r_{ij} \cdot X_{ij} - \sum_i r_i \cdot X_i && \dots\dots\dots (3) \\ &+ \Delta X - \sum_i \sum_j r_{ij} \cdot X_{ij} && \dots\dots\dots (4) \end{aligned}$$

where X denotes exports of a country and subsequently the changes in exports, r denotes the growth rate of exports in the world market, subscript i denotes commodity i, and subscript j denotes the country of destination, respectively. The residual is a competitiveness component which reflects the difference between the actual export growth

61. Edward E. Leamer and Robert M. Stern, "Constant-Market-Share Analysis of Export Growth," *Quantitative International Economics*, Allyn and Bacon, Inc., 1970, p. 171.

62. *ibid.*, pp. 172-174.

and the growth that would have occurred if the country had maintained its share of the exports of each commodity to each country.

The commodity composition term (2) will be positive if the country's exports consists mainly of commodities whose import demand has been particularly strong. The market distribution term (3) will also be positive if the country exports mainly to the most rapidly growing destination. The residual term (4) will be positive if there is a net gain in the country's export share in the destination in focus relative to the standard. It should be noted that the market distribution term is relevant only when the destination refers to a region rather than a country.

Although one should be cautious in interpreting the results,⁶³ the CMS analysis is useful in providing important information such as the extent to which a country is exporting to growing or stagnant markets. It is also useful as a general index of export performance because the competitiveness effects can be isolated from the other effects.

3.2 Systems Approach

Inspired by Porter's concept of competitive advantage, most researches in the 1990s use the systems or holistic approach. The system includes a number of factors influencing competitiveness as well as the outcomes of it, and organises both factors and outcomes in such a way that explain the relationships among them.

63. The technique has several problems. First of all, the estimates of each of the above-mentioned effects depend on how to define the 'standard' used in computation. For instance, if the analysis uses the world total as the standard, commodity composition will bear little relationship to the country's exports. Next, the analysis only includes the demand side. Thus, it discards the fact that the actual value of residual result from the interaction of both demand and supply. And lastly, since it assumes the market share will remain unchanged over time, it is inevitable to set a base year for comparison, and therefore, subsequent changes during the interval of investigation may not be taken into account.

3.2.1 IMD/WEF Approach

The World Competitiveness Report, which is published annually and used to be an outcome of a joint study⁶⁴ by the Institute of International Management Development (IMD) and the World Economic Forum (WEF), is probably one of the most well-known publications in the field. The report ranks the competitiveness of fifty countries consisting mostly of developed countries and some developing countries of growing importance.

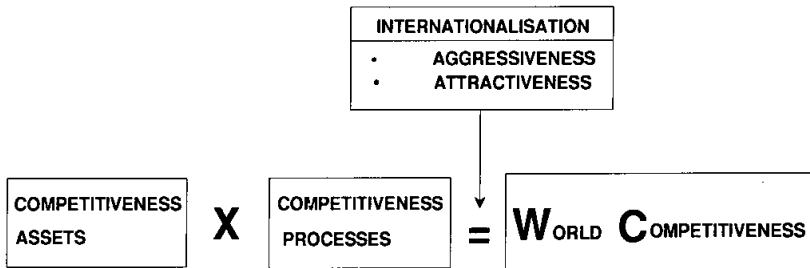
Although the criteria vary from year to year, the basic framework - what they termed *formula* - of competitiveness remains unchanged. The formula is based on three fundamental components, viz., *competitiveness assets* such as infrastructure, finance, technology, and human resources, which are transformed into *competitiveness* through *competitiveness process*. An additional factor, *internationalisation*, plays a catalytic role in reinforcing competitiveness. *Competitiveness assets* are the sources or factors that create competitiveness. *Competitiveness* as a performance comprises four major aspects, namely, market share, profitability, growth, and duration, which are the outcome of the *competitiveness process*. The process is driven by the government at a national level and the management at a corporate level. This process of transformation is crucial since *competitiveness assets* will only be a potential unless processed. *Internationalisation* refers to a degree of globality versus proximity of one economy, a dilemma which can be solved by finding the right balance in attractiveness, and aggressiveness.⁶⁵ This relation is illustrated in Figure 2.3.1.

In practice, each country's score is derived by evaluating numerous criteria which belong to one of the eight perspectives or factors: domestic economic strength, internationalisation, government, finance, infrastructure, management, science and technology, and human resource. The first factor refers to the strength of the overall domestic

64. From 1996 onwards, IMD and WEF began to publish separately, reflecting their differences over how to revise the index. The WEF launched a new index under the guidance of Jeffrey Sachs with several changes. They are: (i) the index focuses more upon the ability to achieve sustained growth; (ii) a number of criteria has been significantly trimmed down; and (iii) the openness, the role of government, the efficiency of financial sector and the labor market are given more weight than other factors.

65. "The World Competitiveness Yearbook, 1996," IMD, 1996, pp. 6-17.

FIGURE 2.3.1
THE WORLD COMPETITIVENESS FORMULA



economic condition. Internationalisation describes the extent to which a country participates in international trade and investment flows. Under the government perspective, the extent to which government policies are conducive to competitiveness is evaluated. Finance refers to performance of capital markets and the quality of financial services. Infrastructure represents the extent to which resources and systems are adequate to serve the basic needs of business. Management refers to the extent to which enterprises are managed in an innovative, profitable and prudent manner. Science and technology evaluates scientific and technological capacity together with the degree of proficiency in basic and applied research, which includes availability and qualification of human resources.⁶⁶

Following the amendment made in the 1996 Yearbook edition, the rankings are made for each of the four different facets: assets, processes, attractiveness, and aggressiveness. Assets represents a country's past accumulated wealth, which may be inherited or accumulated from the past processes, and thus are treated as given in the present time. Processes turn assets into economic results, that is, the creation of added wealth. The government, the firms, or the households of the economy are responsible for these processes. Attractiveness explains the willingness of the rest of the world to trade with or invest in a certain country, which depends on the culture of openness, labour costs, fiscal policies, etc. Meanwhile, aggressiveness explains the international presence of a country in terms of exports, outward FDIs, internationalisation of management, etc. Even with the problem of assigning a criterion to an appropriate category, the new rankings are certainly better than the previously calculated overall ranking which arbitrarily combined all the factors.

All the criteria are based on both hard and soft data. The former represents statistical indicators obtained from international and regional organisations, private institutions, and national institutes while part of the data gathered are used in the calculation of the ranking, the unused part are also included in the Report as relevant information. The soft data, on the other hand, are based on opinions of the worldwide executives in the Executive Opinion Survey.

66. "The World Competitiveness Report, 1995," IMD and WEF, 1995, pp. 36-38.

The rankings are constructed as a sum of a country's score in each criterion. A country that showed the highest score is ranked first, while the country that recorded the lowest score is ranked last. The ranking of each factor is based on the weighted average of the criteria's standard deviation values for each country. Since each criterion has an equal weight, the weight of each factor of competitiveness depends on the number of criteria in that factor.⁶⁷ These criteria are reviewed every year with the content and number being adjusted according to the rapid change of economic environment.

Relying significantly, say, one third,⁶⁸ on survey data is considered both as an advantage and a disadvantage. The major advantage is that the survey provides reasonable numbers to fill up the gaps in hard data. However, its weakness is the subjectivity nature of the answers. On the whole, the major shortcoming of the ranking approach is that it does not distinguish determinants of competitiveness from the results of revealed competitiveness. Nevertheless, this approach provides linkages among the key factors such as macroeconomic fundamentals, management, public policies, and other socio-economic factors, thereby merging both tangible and non-tangible factors. An excerpt of the overall rankings of concerned countries is provided in Table 2.3.1 while Table 2.3.2 shows the results from the different approaches taken by the IMD and the WEF.

3.2.2 An Alternative

An alternative approach was developed in a World Bank research by Alavi.⁶⁹ It places firms and the manufacturing process at the center of a competitiveness system, and analyses how national environments affect the firms' competitiveness both domestically and internationally.

67. This is one of the major differences in 1996 rankings of countries between the IMD and the WEF. The weight can be adjusted and modified by adding or deleting some of the criteria.

68. All the hard data have the same weight of 1, while the weight of total survey data is computed in such a way that the total weight of survey data represents one-third of an overall weight.

69. The idea was first introduced in Hamid Alavi, "International Competitiveness: Determinants and Indicators," Industry Working Paper Series No. 29, The World Bank, 1990. The framework was further developed and applied to the case of Morocco in "International Competitiveness of the Private Industry and the Constraints to its Development," The World Bank, 1993.

**TABLE 2.3.1
WORLD COMPETITIVENESS SCOREBOARD**

Country	Overall Ranking				
	1992	1993	1994	1995	1996
Indonesia	37	38	36	34	41
Korea	29	28	32	26	27
Malaysia	14	14	18	23	23
Philippines	33	35	37	36	31
Singapore	2	3	2	2	2
Taiwan	11	11	22	14	18
Thailand	26	26	26	27	30

Source: The World Competitiveness Yearbook 1996

**TABLE 2.3.2
RIVAL RANKERS**

1996 Ranking by:	World Economic Forum	IMD *
Korea	20	27
Malaysia	10	23
Singapore	1	2
Taiwan	9	18
Thailand	14	30
<i>Memorandum:</i>		
Germany	22	10
Hong Kong	2	3
Japan	13	4
US	4	1

* International Institute for Management Development.

Source: Excerpt from The Economist, 1 June 1996.

This methodology reveals the sources of competitiveness in different dimensions.⁷⁰ It puts the human factors - especially management - as critical causes of competitiveness, which are as important, if not more so, as the macroeconomic and industrial factors. They are marked as "causes behind causes."⁷¹

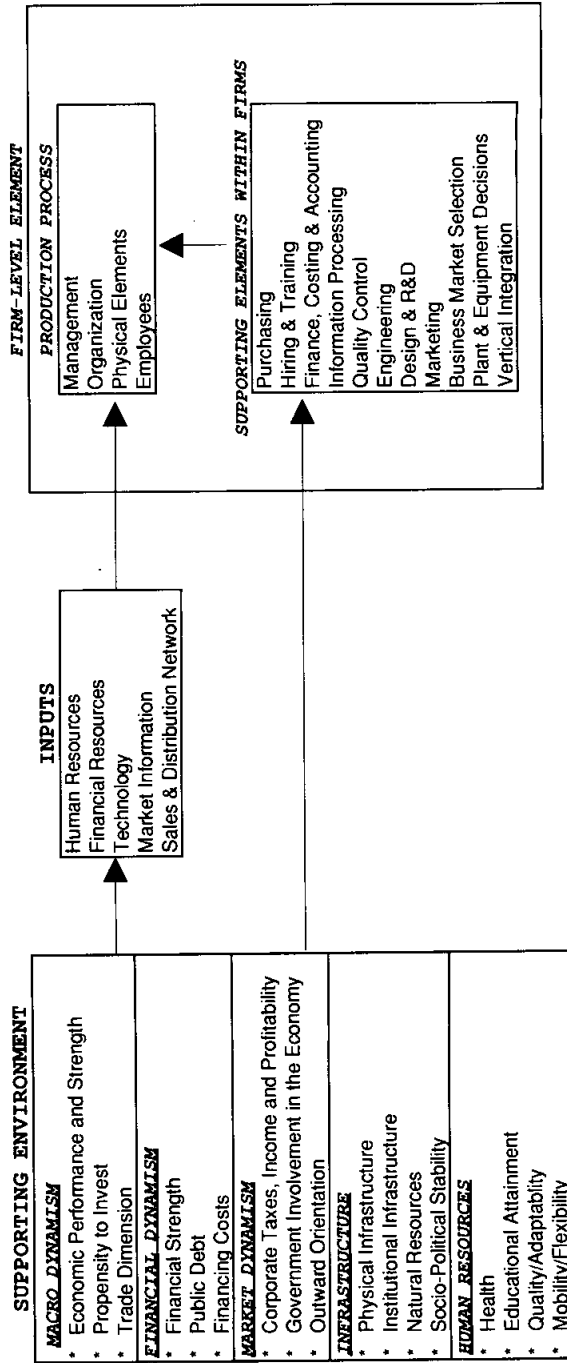
The approach suggests that no single factor is responsible for shaping a country's international competitiveness. There is no one-to-one relationship between true competitive position and the factors considered to influence competitiveness. What is more important is the interaction among the multiplicity of these factors. The principal factors which constitute different dimensions of a competitiveness system are: (i) macroeconomic dynamism; (ii) financial dynamism; (iii) market dynamism; (iv) infrastructure elements; (v) human resources; and, (vi) firm-level elements. The first two factors represent the traditional components of competitiveness. The third factor signifies a comprehensive market orientation and structure as well as government involvement and technological aspects. The fourth factor incorporates physical and institutional infrastructure that crucially influences productive performance. The fifth factor shows the competitive advantage in the skills, motivation, flexibility, and the health of a country's human resources. The sixth factor considers production process and supporting elements within firms. Figure 2.3.2 illustrates the system.

Since the main objective of the indicator is to assess the long-term ability of a nation to compete as opposed to a competitive standing, the system incorporates both quantitative and qualitative indicators. The qualitative data are obtained from survey data provided by the IMD and the WEF. As such, its technical features such as normalisation of data, weighting scheme, and tabulation both by each factor and at a consolidated level are not much different from the World Competitiveness Report. The major difference is in the grouping of countries. In contrast to the Report which ranks each country individually, this approach categorises countries into four groups depending on their relative ranking, i.e., high, medium-high, medium-low, and low perfor-

70. In this respect, it shares the view with Porter's conceptual framework.

71. Hamid Alavi, *op cit.*, 1990, p. 23.

**FIGURE 2.3.2
THE COMPETITIVENESS SYSTEM**



mance, on the ground that what counts more is the relative position of the nation in the sample under survey.⁷²

3.2.3 Competitiveness of Today vs. Tomorrow

In one of their publications,⁷³ the Union Bank of Switzerland suggested two broad competitiveness indices, one to measure competitiveness of today, and the other to predict competitiveness of tomorrow. Sharing the view with the IMD, the method defined competitiveness in the broadest sense as the ability of a country to attract and retain enterprises that develop better products and produce, market, and service these products more cost-effectively in world market.

The methodology took note of recent econometric studies which have found that only a few key variables are needed to measure the differences among countries. The index was constructed based on the selected variables which have been found significant in these studies, such as the model of endogenous growth by Lucas (1988) and the work of Barro(1991).

The competitiveness of today, by nature, is a static measure. The index gauges the present level of competitiveness and considers why some nations are more successful than others. It consists of two sub-indices, namely resource endowment and efficiency. The endowment part is a combination of natural resources endowment (physical capital and human capital) and infrastructure (transportation and communication). The efficiency part which measures how resources are used, however, can only be measured indirectly by taking a difference between the output predicted by the resource endowment and what are actually produced as measured by national output. The index for resource endowment is composed of five criteria, namely capital to labour ratio, education, health, communications, and transportation.

72. Values for individual indicators at each sub-factor are calculated first to generate relevant rankings by weight-averaging them. Taking the absolute difference between the values of the first and the last ranked countries and dividing it by four yields an interval of each group. Each country is assigned to a group accordingly depending on their values. See Hamid Alavi(1993), pp. 7-8.

73. "Competition Among Nations," UBS International Finance, Union Bank of Switzerland, Autumn 1993.

Each criterion is calculated from hard data such as cumulative investment, cumulative annual primary and secondary enrolment levels per capita, premature death per capita, telephone per inhabitant, and rail freight per land area respectively. The index for efficiency is derived from per capita GDP based on purchasing power comparison compiled by the World Bank less the GDP predicted by available resource endowments.

The future competitiveness index which indicates how competitiveness is likely to change in the future is also composed of two sub-indices, namely resource growth and momentum. Resource growth is viewed from three dimensions: fixed asset growth, human capital growth, and technology growth. Fixed asset growth is computed as a ratio of gross fixed investment to GDP. Human capital growth consists of two indices: public and private spending on education relative to GDP and an average of primary and secondary school enrolment rates per capita. Technology growth is measured by R&D expenditure relative to GDP. The momentum of efficiency comprises income growth, industry growth, productivity growth, and export growth, which are proxied by per capita GDP growth rate, industrial production growth rate, productivity growth rate in the manufacturing sector, and merchandise and services export growth rate respectively.

Several salient features of this approach stand out. It considers competitiveness in two separate dimensions, a static one which tells the current status and a dynamic one which predicts the future. It also attempts to carry out a simulation to see when developing countries can catch up with the industrial countries by projecting the future competitiveness index. In addition, it should be noted that it distinguishes efficiency of utilising resources from resource endowment and evaluates them individually. Table 2.3.3 is an excerpt of the computation results.

3.2.4 Competitiveness of Industry Clusters

Although he advocated the systems approach, Porter's methodology of evaluating competitive advantage basically depends upon the traditional RCA index. He modified the RCA method by taking into account direct foreign investment flows in addition to trade flows. As a first step, each country's RCA index by industry is calculated to identify competitive industries. However, the method excludes indus-

tries with trade deficits although they may be competitive when the index is based on export figures alone.

Selected industries are then grouped into a so-called cluster chart categorised by end-use application: upstream sectors, broad end-use sectors involving industrial or supporting functions, and final consumption goods and services sectors. The grouping is based on his theory highlighting the roles of demand conditions and the vertical relationships among industries in stimulating competitive advantage. The cluster chart within each broad sector is also constructed in a way that industries are grouped into primary goods, machinery for production, specialised inputs to goods, and associated services. Figure 2.3.3 illustrates this.⁷⁴

The cluster chart is a key to analysing a country's competitive advantage for the reason that the systemic nature of the National Diamond promotes the clustering of a nation's competitive industries. As mentioned earlier, a nation's successful industries are usually linked either vertically or horizontally and have a strong tendency of clustering. One advantage of the cluster chart is that it makes possible the analysis of how industries in a country are systemically forming and enhancing international competitiveness, whereas a simple analysis based on the RCA alone does not show the systemic relationship among industries. However, the cluster chart approach requires detailed data and rigorous studies on firms and industries, including the socio-economic environments both in depth and width.

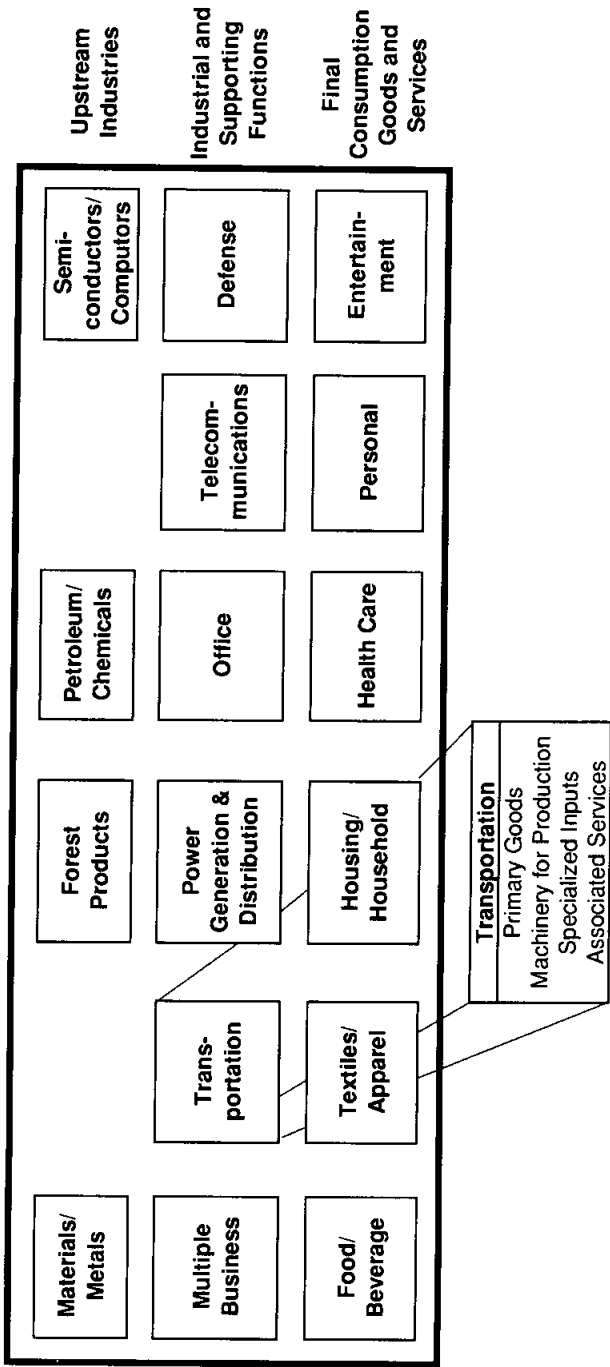
74. Michael E. Porter, *op cit.*, 1990, pp. 282-294.

TABLE 2.3.3.
COMPETITIVENESS TODAY AND TOMORROW

Competitiveness Today					Competitiveness Tomorrow						
country	resource base	efficiency (gdp/capita)	overall index	country	resource base	efficiency (gdp/capita)	overall index	country	resource base	efficiency (gdp/capita)	overall index
Indonesia	5	12	5	Indonesia	48	70	54				
Korea	59	37	48	Korea	99	98	100				
Malaysia	29	33	29	Malaysia	60	76	65				
Singapore	75	71	75	Singapore	87	70	77				
Thailand	21	24	20	Thailand	43	83	59				
<i>*Memorandum:</i>											
China	49	7	26	China	64	100	81				
Germany	87	89	91	Germany	84	48	64				
Hong Kong	70	84	79	Hong Kong	80	68	71				
Japan	92	88	93	Japan	98	58	76				
U.S.	92	100	100	U.S.	82	50	62				

Source: UBS International Finance, Autumn 1993.

FIGURE 2.3.3
THE CLUSTER CHART



CHAPTER III

ASSESSMENT OF INTERNATIONAL COMPETITIVENESS

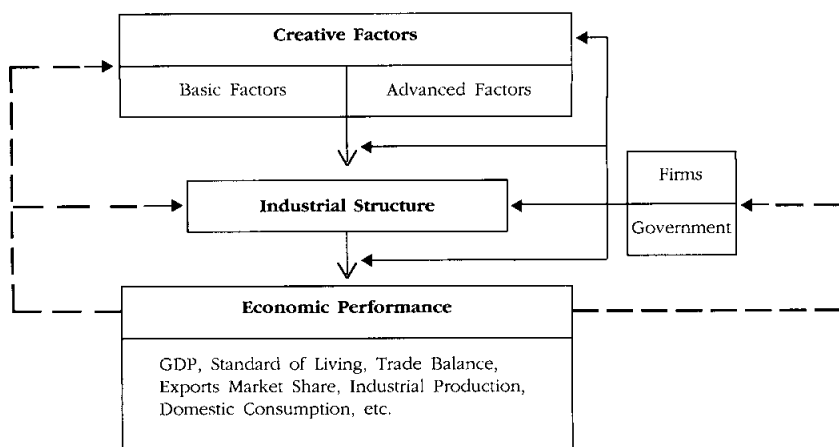
1. Analytical Framework

1.1 Competitiveness System

As seen in the previous chapters, international competitiveness is neither a simple and straightforward concept to be monolithically defined nor an easy phenomenon to be assessed by simply aggregating a handful of relevant indicators. Against this background, the best way to analyse international competitiveness is to view it as a system which consists of three elements: factors that create competitiveness; a structure that systematically organises and utilises these factors; and competitiveness results that are demonstrated by economic and social performance. The system is completed with a series of procedures in which creative factors are structured and utilised to improve economic performances and the performances are feedbacked to enhance creative factors. The system is illustrated in Figure 3.1.1.

Figure 3.1.1

A COMPETITIVENESS SYSTEM



Numerous socio-economic variables can be viewed as creative factors, and their respective influences on the outcome of competitiveness are diverse. Hence, it is not possible to take into account all these variables and to relate each one of them to the structure.

The structure is an environment which governs interactive factors which influence and are being influenced by one another to foster a competitiveness standing. It encompasses a demand structure, an industrial structure with both horizontal and vertical linkages, and business climate such as a corporate culture, a domestic rivalry and institutional development. Without the structure, the creative factors cannot generate a desired economic performance.

Competitiveness ought to be addressed in terms of both economic and social results which are then feedbacked into the system and influence both the factors and structure and vice versa. Since competitiveness is in nature a dynamic concept that evolves over time, a good performance at one particular moment does not promise a future prosperity. Unless reinforced and improved continuously, competitiveness can never be sustained.

This idea is not different from the composite measure used in the World Competitiveness Report as the assets, the internationalisation and the processes in the Report are equivalent to the creative factors and the structure respectively. It is also compatible with both Porter's National Diamond model and the World Bank's approach, in the sense that it is an interactive and self-reinforcing system, or process. The most useful feature of this approach is that factors of competitiveness are distinguished from the results of competitiveness so that the cause and effect can be better assessed and the areas of focus in terms of policy implications can be sorted out easily.

1.2 Methodology of Assessment

Having defined international competitiveness as a system composed of numerous interacting factors and processes, we still have a long way to go in terms of assessment due mainly to its complexity. Indeed, while it is true that a country cannot be competitive in all aspects, it is tempting to suggest that we can take an average of the various performance criteria, rank individual country in order, and then simply conclude, based on the ranking, that country A, for instance, is

more competitive than country B. In general, even if we can somehow conclude that this country is more competitive than the other country, it does not necessarily mean that the country is superior to the other in every sense. We need to be more careful and specific in making such a statement. It is therefore more appropriate to say that a country is competitive only in certain aspects, sectors or industries.

In this context, the assessment of competitiveness should not be treated like a beauty contest which ranks each contestant according to certain criteria in each round of competition, and finally picks the winner by aggregating all the scores. Rather, it should try to identify the areas in which countries have shown their strength or seem to have a great potential. More importantly, it must be recognised that each country is unique in terms of socio-economic setting such as physical and human resources, culture and social values, location and history, which form the basis for its past and present performances. Thus, it is meaningless to assign competitive ranking to countries which are vastly different. Instead, one should respect each country's uniqueness and the diversity should be highlighted as a point of departure for competitiveness.

This study assesses each country's competitiveness in the following manner. Firstly, we will review selected creative factors that are critical in creating competitiveness. Following Porter's approach,⁷⁵ we will divide them into basic factors and advanced factors. We will then assess which factors determine a competitive advantage of the country. Secondly, the structural aspect will be analysed in conjunction with the results of competitiveness since a separate and comprehensive analysis is beyond the scope of the study. Specifically, we will evaluate the export performance by industry, which enables us to assess both the structure and the performance. The structure of an exports industry will be analysed in terms of factor intensity and position in the world export market. Export performance is proxied by the Revealed Comparative Advantage (RCA) Index, and competitive industries will be identified accordingly.

1.3 Factors Creating Competitiveness

Factors creating competitive advantage are classified into basic factors and advanced factors. The basic factors include natural re-

75. See M.E. Porter, op cit., 1990, pp. 77-78.

sources, climate, location, unskilled and semi-skilled labour, and infrastructure, which are mostly endowed. These factors are generally suitable for agriculture, mining, and industries which require modest and commonly available technology and skill. Meanwhile, the advanced factors include modern digital data communication infrastructure, highly educated personnel, and research institutes in sophisticated disciplines. They are necessary to achieve higher-order competitive advantages such as differentiated products and proprietary production technology. They are often scarce and more difficult to procure because the development of these factors often requires sustained investments in both human and physical capital. The importance of these factors are especially emphasised in the new growth theory. It should, however, be reminded that the advanced factors are often built upon basic factors. The pool of basic factors must be sufficiently large and of good quality to generate the related advanced factors. More importantly, possessing factor advantage at one point in time is unsustainable because most factors deteriorate over time and become obsolete unless continually upgraded.

Due to the limited availability of relevant data, however, only selected factors are reviewed in this study. The advanced factors are represented by indicators which underline technological capability such as supply of highly educated human resources, educational environment, and socio-economic infrastructure. For technological capability, the indicators used are the ratio of R&D expenditure to GDP and the number of patents granted per 100,000 residents. The supply of highly educated human resources is proxied by the ratios of enrolment in secondary and tertiary education for the relevant age group. The pupil-teacher ratio at the secondary level of education is chosen to represent the general educational environment. Energy consumption, telecommunication lines, and the share of worldwide computers in use are added as socio-economic factors as well as technological infrastructure. Basic factors include basic factors of production such as population and the land area, using the ratio of labour force to population, hourly wages and arable land as proxies. The ratio of fixed capital formation to GDP and domestic savings rate represent existing physical capital stock as well as a future potential. The long-term interest rate and the changes in the wholesale price index stand for economic fundamentals which will strongly influence the future business climate. These factors basically capture the cost aspects of competitiveness through their influence on inputs of industrial production. For comparison purpose, each indicator is normalised.

1.4 Export Structure and Competitiveness

The ultimate goal to enhance competitiveness is to achieve socio-economic well-being of a country, normally reflected in per capita GNP, GDP growth rate, and productivity. Nevertheless, the primary result of competitiveness is revealed by trade performance, especially export performance. We are going to focus on export performance not because import is less important but because it is widely accepted that export is considered as the most important source of growth, as evidenced in the increasing shift towards export-oriented industrialisation in most developing countries.⁷⁶ More importantly, GDP growth can be generated entirely by domestic demand expansion in isolation from the international market. Thus, export performance is a more direct and better indicator of international competition.

A country's competitiveness is assessed by the Constant Market Share (CMS) method and the Revealed Comparative Advantage (RCA) index. As discussed in the previous chapter, the CMS shows a direct contribution of the competitive factor as export growth is decomposed into four factors, namely a general increase in world exports, changes in commodity composition, changes in market distribution, and competitiveness. The OECD countries as a group is proxied as the "world" because they are the only available aggregate data. The analysis is divided into three sub-periods of 1985-1987, 1988-1990, and 1991-1993 so as to be able to analyse the trend of changes in competitiveness. Calculation is made for all commodities at the SITC 5-digit level.

The RCA index identifies the industry that is competitive in the world exports market. The index is slightly modified from Balassa's in that any commodity that records a trade deficit is excluded even if it is greater than the cut-off ratio, i.e., greater than 1. Foreign direct investment included in Porter's study is also excluded due to the lack of data, especially for the detailed industry segment. Although the index is originally designed to indicate comparative advantage of manufactured products, it is also calculated for the primary products because of the fact that some SEACEN countries' exports depend sig-

76. For further discussion, see Delano Villanueva, "Exports and Economic Development," Staff Paper No. 58, The SEACEN Centre, 1997.

nificantly upon them.⁷⁷ All data are sourced from various U.N. Trade Statistics Yearbooks.⁷⁸ All commodities are calculated at each SITC level depending upon the scope of analysis. The periods under consideration are the same as in the CMS analysis.

As for the export structure, industries are examined according to both factor intensity and characteristics in the world exports market. For the former, all industries are basically grouped into four categories: natural resource intensive, unskilled labour intensive, technology intensive, and human capital intensive. Natural resource intensive goods are sub-divided into agricultural resource intensive and mineral resource intensive goods. This classification followed Ariff and Hill (1985) which adopted Krause (1982) and modified by Tyers and Phillips (1984). In addition to manufactured goods (SITC 5-8), all other commodities of SITC 0-4, and 9 are reclassified. A detailed list is provided in the Appendix Table A.6. The changes in factor intensity composition of exports will provide at the outset an implication of dynamic changes in a country's competitiveness orientation as predicted by the traditional trade theory.

The OECD classification of manufacturing industries could have been an alternative. It categorises manufacturing industries into resource-intensive industries, labour-intensive industries, scale-intensive industries, differentiated goods, and science-based industries. Scale-intensive industries include paper and printing industry, manufacture of industrial chemicals, rubber products, and plastic products. Differentiated goods include engines, industrial machinery, electrical appliances and supplies, photographic and optical goods, watches and clocks. Science-based industries include other chemical products, office, computing and accounting machinery, scientific measuring equipment, and aircraft.⁷⁹ However, the study did not use this classification because it is based on the ISIC for which a code-matching table with the SITC classification is not readily available.

77. It is, therefore, assumed that there is no export subsidy on both manufactured goods and non-manufactured commodities. Otherwise, the validity of the index is questionable.

78. Since Comtrade data which are more comprehensive are not available, the indices are subject to inconsistency to a certain degree.

79. OECD, "Structural Adjustment and Economic Performance," OECD, Paris, 1987, p. 283.

With regard to the characteristics of industry in the world exports market, industries are firstly grouped into three categories according to their market share, namely large (1 percent and above), medium (between 0.5 percent and 1 percent), and small (less than 0.5 percent). Each category is further classified according to its corresponding rate of growth as fast (not less than 12 percent per annum), medium (between 6 percent and 12 percent), and slow (less than 6 percent). Benchmarks for both the market share and the growth rate are the respective average for the period 1984-1993. Details are provided in the Appendix Table A.7. Even if the classification may seem somewhat arbitrary, it gives an insight into the potential of competitiveness. It can be argued that a country has a greater potential to compete when it has industries that are large and growing fast because this will attract more investment.

Among the 182 industries at the SITC 3-digit level, 12 industries are classified as large and fast (LF), eight as large and medium (LM), and four as large and slow (LS). Interestingly, the first group is represented by the so-called high-tech industries such as computer and telecommunication equipment, electrical and special-purpose machinery, aircraft, new plastic materials and medicines, which accounts for 18.8 percent of the total world exports market. Being competitive in these industries requires sustained investments in R&D and research personnel as well as high standards both in basic and applied scientific technology. It follows that possessing competitive advantage in advanced factors is critical for success. It is not surprising then that these industries are dominated by the major industrial countries such as the U.S., Japan, and Germany. The second group, recording 17 percent of market share, includes automobile, shipbuilding, steel, and paper industries. These are in general mature industries that require standardised technology and skilled labour as well as huge investments in equipment. Upgrading of products and production processes which broadly utilise the latest technology is common in these industries. They also require both advanced and basic factors to a certain degree. The ability to finance investments on a large scale also plays a key role in this group. The third group consists of crude oil and gas industry, which accounts for 11.9 percent of the market share with four industries. This group of industries depends entirely upon natural resources except for shipbuilding.

Most of the developing countries are presumed to have competitive advantage in the industries characterised by medium and small in terms of share but fast in term of growth. They are divided into two categories according to factors of production: industries in which unskilled labour is the most important factor, including textile and clothing, footwear, leather and rubber products, and furniture and wood products; and, industries that require relatively standardised technology and skilled labour, such as electrical and electronic appliances, pumps and machinery, and primary products of iron and steel. A country's competitive advantage tends to shift from the former to the latter as the country becomes more industrialised.

Meanwhile, it should be noted that the so-called light industries are still important to developing countries not only because they have the comparative advantage of cheap labour supply, but also because the industries are in general mature enough to be segregated into detailed sub-industries yielding a number of niche markets and the market size which tends to be underestimated. At the SITC 2-digit level, for example, textile and garment industries (SITC 65 and 84) account for 6.9 percent of the world exports market following transportation equipment (SITC 78 and 79) of 14.6 percent, petroleum and related products (SITC 33) of 10.7 percent. Textile industry alone stands in the seventh place and the garment industry in the ninth place (see Table 3.1.1). More importantly, these industries have room for upgrading towards products of higher value-added which have been dominated by brand holders in the developed countries.

Attempts have been made to compile the RCA index at the SITC 5-digit level and to construct cluster charts. However, meaningful cluster charts could not be constructed because data at disaggregate level were not consistent over time as well as across the country. As a consequence, it is not possible to make extensive use of the cluster chart analysis as in Porter's study which requires in-depth investigation of both the industries and the firms. Nonetheless, cluster charts are provided in the Appendix for future research. The cluster charts of each country are prepared for the two periods, 1985 and 1992, to show each cluster's export share as compared to the country's total exports and as compared to world exports in the cluster (see Tables A.8. through A.15.).

TABLE 3.1.1
WORLD EXPORT SHARE OF SELECTED INDUSTRIES

SITC	TITLE	SHARE OF WORLD EXPORT MARKET, 1992 (In Percent)
33	Petroleum and Products	10.7
78	Road Vehicles	10.4
77	Electric Machinery Nes, etc.	5.8
79	Other Transport Equipment	4.2
75	Office Machines, ADP Equipment	4.1
89	Misc. Manufactured Goods Nes	3.9
65	Textile Yarn, Fabrics, etc.	3.5
67	Iron and Steel	3.4
84	Clothing and Accessories	3.4
76	Telecomm. Sound Equipment	3.3
74	General Industrial Machinery Nes	2.8
72	Machines for Special Industries	2.5
71	Power Generating Equipment	2.3
51	Organic Chemicals	2.1
68	Non-Ferrous Metals	2.1
69	Metal Manufactures Nes	2.1
66	Nonmetal Mineral Manufacturès Nes	2.1
58	Plastic Materials Nes	1.9
87	Precision Instruments Nes	1.7
59	Chemical Materials	1.6
64	Paper, Paperboard and Manufactures	1.6
88	Photo Equipment, Optical Goods, etc.	1.4
34	Gas, Natural	1.3
54	Medicinal, Pharmaceutical Products	1.2
28	Metalliferous Ores, Scrap	1.1
24	Cork and Wood	1.0
82	Furniture	0.9
85	Footwear	0.9
62	Rubber Manufactures Nes	0.8
32	Coal, Coke and Briquettes	0.8
73	Metalworking Machinery	0.7
11	Beverages	0.7
25	Pulp and Waste Paper	0.6
12	Tobacco and Manufactures	0.5
63	Wood, Cork Manufactures Nes	0.5
56	Fertilisers	0.5
29	Crude Animal, Vegetable Materials Nes	0.5
61	Leather, Dressed Fur, etc.	0.4
52	Inorganic Chemicals	0.4
22	Oil Seeds, Oleaginous Fruit	0.4
55	Perfume, Cleaning etc Products	0.4
42	Fixed Vegetable Oil, Fat	0.4
53	Dyes, Tanning, Colour Products	0.4
27	Crude Fertiliser, Minerals Nes	0.3
39	Other Mineral Fuels	0.3
81	Plumbing, Heating, Lighting Equipment	0.3
83	Travel Goods, Handbags	0.3
21	Hides, Skins, Furs Undressed	0.2
23	Rubber, Crude	0.2
26	Textile Fibres and Waste	0.2
43	Processed Animal Vegetable Oil, etc.	0.1
41	Animal Oils and Fats	0.1

Source: Author's computations based on UN Trade Statistics Yearbook, 1995.

2. An Overview of Competitiveness in the SEACEN Countries

2.1 Export-oriented Industrialisation

Before we assess each country's international competitiveness, it is worthwhile to trace the development, particularly of export orientation, in the manufacturing sector. This is because the manufacturing sector has mostly been the engine of growth in the SEACEN countries, forming the backbone of the economy and undergoing a major transformation towards export orientation. The share of manufactured exports in total exports is used as a proxy of the export-output ratio, indicating a degree of export-orientation.⁸⁰

Table 3.2.1 shows a marked increase in manufactured exports as compared with the pace of industrialisation during the 1983-1993 period. The trend is particularly noticeable in the ASEAN countries, as a result of the export-oriented structural reforms in the late 1980s in response to a severe recession in 1985 when oil and commodity prices dropped sharply. Even from an already large base, the share of manufactured exports in Singapore rose by nearly 50 percent. Indonesia also stands out with an almost ten-fold increase, followed by Malaysia, and Thailand with an increase of roughly two and a half times. For the Philippines, while the degree of industrialisation seems to be rather stagnant due partly to the political instability in the mid 1980s, a pronounced growth of manufactured exports was also observed.

For Nepal and Sri Lanka, the rising growth of manufactured exports as a proportion of total exports largely reflects the success of their export-oriented industrialisation policies. However, their manufacturing sector is still relatively small, accounting for under 20 percent of GDP. The scope of exports is also limited by a narrow range of products.

Korea and Taiwan can be distinguished from other SEACEN countries in that over 90 percent of their exports consist of manufactured

80. The export-output ratio can only be calculated by using both the domestic output data and the exports statistics. However, the former is based on the ISIC while the latter is based on the SITC. Since a reliable table for matching ISIC code with SITC code is not available while the code-matching task goes beyond the scope of this project, we used the proxy.

TABLE 3.2.1
SHARE OF MANUFACTURES IN OUTPUT AND EXPORTS
(In Percent)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Manufacturing as a % of GDP											
INDONESIA	12.7	14.5	15.8	16.3	17.2	18.2	18.5	19.4	20.0	20.6	21.1
KOREA	28.2	30.3	25.3	27.1	29.1	29.7	29.1	29.2	29.1	29.1	28.9
MALAYSIA	19.5	20.3	19.7	21.0	22.6	24.4	25.5	26.9	28.2	28.9	30.1
MYANMAR	9.6	9.9	9.9	9.2	9.2	8.7	9.3	9.1	8.8	8.9	9.1
NEPAL	4.9	5.7	6.1	6.1	6.3	5.7	6.0	6.8	8.8	8.8	9.0
PHILIPPINES	26.1	25.3	25.2	24.8	25.1	25.7	25.6	25.5	25.6	25.0	24.7
SINGAPORE	25.4	25.2	23.7	25.1	26.9	28.4	28.4	28.6	28.1	27.1	26.9
SRI LANKA	13.8	14.7	14.8	15.4	16.2	16.5	16.8	17.4	17.7	18.5	19.1
TAIWAN	36.4	37.7	37.1	38.3	38.4	37.1	35.6	33.6	33.3	32.2	31.1
THAILAND	23.8	23.8	22.5	23.4	24.8	25.8	26.7	27.7	28.6	29.4	30.2
Manufactured Exports as a % of Total Exports											
INDONESIA	6.5	8.5	11.0	17.8	22.7	27.9	31.5	35.4	40.7	47.4	52.9
KOREA	N.A.	91.6	91.7	92.2	92.7	93.1	93.1	93.5	91.6	92.8	93.7
MALAYSIA	24.9	26.7	27.3	37.3	39.7	44.0	49.0	54.3	61.0	64.8	60.0
NEPAL	48.7	42.0	59.1	64.8	86.7	63.7	74.1	93.9	N.A.	N.A.	N.A.
PHILIPPINES	25.0	24.3	26.7	31.0	33.4	32.5	N.A.	37.9	N.A.	41.3	41.1
SINGAPORE	50.3	51.3	59.1	65.9	70.1	71.7	71.6	72.8	76.9	78.7	N.A.
SRI LANKA	28.0	27.0	32.1	42.9	46.9	N.A.	51.8	53.2	60.7	70.0	N.A.
THAILAND	30.7	33.5	38.4	44.0	51.8	54.4	56.5	63.4	65.9	66.9	71.2

Source: Author's computations based on UN Trade Statistics Yearbook, Various Issues.

goods and the level of industrialisation as measured by manufacturing products as a percent of GDP is more than 30 percent. This is partly due to the early adoption of export promotion policies which bore results within a short period of time.

2.2 Competitiveness as a Source of Export Growth - The CMS Analysis⁸¹

In our analysis, the OECD is proxied as the world market on account of two factors. Firstly, it is comparatively the most free market where trade takes place in almost perfect competition. Secondly, it has a comprehensive database which enables us to include all the SEACEN countries.

As shown in Table 3.2.2, the competitive factor has been the most prominent factor in explaining export growth, particularly during the 1991-93 period, in nearly all the SEACEN countries. The standard growth effect (demand factors), on the other hand, has been declining significantly. This probably reflects the increasing trend of world competition.

Based on the CMS analysis, Korea and Taiwan have lost their competitive edge in 1991-1993. Korea, in particular, already experienced deteriorating competitiveness since 1988 as reflected in a sharp drop of its exports to the OECD market. On the other hand, the contribution of commodity composition and market distribution effects have been substantial in both countries, reflecting their efforts to diversify commodity as well as destination of exports. On the whole, deterioration in competitiveness resulted in a decline in total exports in Korea, while Taiwan still enjoy a positive growth of exports.

The waning competitiveness of both Korea and Taiwan in the OECD market partly reflects the enhanced competitiveness of their competitors such as Malaysia, Indonesia, Thailand, and the Philippines. In addition, although their market shares are still negligible, Sri Lanka, Nepal, and Myanmar have recorded remarkable growth rates in exports to the OECD countries during the period under review. This growth is mainly explained by the increased competitiveness, regardless of the source of competitiveness.

81. The author is indebted to Ms. Lee, Hyun-Soo, Research Fellow with Korea Institute for Industrial Economics and Trade (KIET), for her assistance in processing data from the OECD database.

TABLE 3.2.2
DECOMPOSITION OF EXPORT CHANGES BASED ON THE CMS ANALYSIS (SITC 5-DIGIT)

COUNTRY	Standard Growth Effect		Commodity Composition Effect		Market Distribution Effect		Competitiveness Effect		Changes In Exports	
	Value (US Mil)	Composition (Percent)	Value (US Mil)	Composition (Percent)	Value (US Mil)	Composition (Percent)	Value (US Mil)	Composition (Percent)	Value (US Mil)	Composition (Percent)
Indonesia										
1985-1987	5622.2	259.6	-7878.6	-363.8	290.0	13.4	-199.4	-9.2	-2165.7	100.0
1988-1990	3975.6	84.4	69.5	1.5	-439.3	-9.3	1104.6	23.4	4710.4	100.0
1991-1993	42892.2	5.3	-90.3	-2.1	218.7	5.1	3927.3	91.7	4282.2	100.0
Korea										
1985-1987	6519.1	38.8	2853.4	17.0	-971.0	-5.8	8381.5	49.9	16783.1	100.0
1988-1990	11404.8	677.5	-13450.4	-799.1	452.1	26.9	-89.7	-5.3	-1683.3	100.0
1991-1993	463.6	53.8	2220.9	257.9	2446.0	284.0	-5991.7	-695.7	-861.2	100.0
Malaysia										
1985-1987	3207.3	168.1	-1418.0	-74.3	-253.0	-13.3	371.6	19.5	1907.9	100.0
1988-1990	3290.0	83.6	-2649.2	-67.3	-674.7	-17.1	3971.4	100.9	3337.5	100.0
1991-1993	209.3	2.8	2617.7	32.4	465.0	5.8	4778.9	59.2	8070.9	100.0
Myanmar										
1985-1987	41.1	131.3	1.1	3.6	4.1	-13.0	-69.5	-221.8	-31.3	100.0
1988-1990	20.6	55.5	-13.9	-37.3	12.9	34.7	17.5	47.1	37.2	100.0
1991-1993	1.3	1.5	2.9	3.4	11.5	13.4	69.7	81.7	85.4	100.0
Nepal										
1985-1987	31.3	120.3	22.4	85.9	-13.6	-52.1	-14.1	-54.2	26.0	100.0
1988-1990	43.7	112.0	-57.4	-146.8	-11.4	-29.1	64.0	164.0	39.1	100.0
1991-1993	2.6	2.1	1.7	1.4	10.5	8.5	109.1	88.1	123.9	100.0
Philippines										
1985-1987	1587.0	228.2	66.1	9.5	-330.1	-47.5	-627.6	-90.2	695.5	100.0
1988-1990	1648.6	149.9	-2481.6	-225.7	189.1	17.2	1743.4	158.5	1699.6	100.0
1991-1993	86.5	4.5	730.4	37.9	276.6	14.4	832.8	43.2	1926.2	100.0
Singapore										
1985-1987	2949.8	79.5	-149.8	-4.0	83.8	2.3	824.3	22.2	3708.1	100.0
1988-1990	3998.9	63.0	-5668.5	-89.4	-260.4	-4.1	8273.4	130.4	8343.3	100.0
1991-1993	240.4	4.7	1931.0	37.6	659.8	12.9	2302.9	44.9	5134.1	100.0
Sri Lanka										
1985-1987	264.1	95.3	-23.8	-8.6	-21.8	-7.9	58.7	21.2	277.2	100.0
1988-1990	280.5	80.8	-284.5	-82.0	21.7	6.2	329.3	94.9	347.0	100.0
1991-1993	17.4	2.3	155.5	20.9	72.8	9.8	499.5	67.0	745.2	100.0
Taiwan										
1985-1987	8775.7	46.6	4778.1	25.4	-2544.3	-13.5	7822.9	41.5	18832.4	100.0
1988-1990	12219.9	24192.0	-15927.1	-31531.3	1728.2	3421.3	1928.5	3818.0	-50.5	100.0
1991-1993	551.0	30.1	3825.3	208.8	3974.5	217.0	-6518.8	-355.8	1832.0	100.0
Thailand										
1985-1987	1535.1	49.1	488.1	15.6	-98.1	-3.1	1200.5	38.4	3125.7	100.0
1988-1990	2624.4	47.5	-2359.2	-42.7	-251.4	-4.6	5509.9	99.7	5523.8	100.0
1991-1993	202.2	4.0	1345.1	26.6	380.6	7.5	3129.1	61.9	5056.9	100.0

Source: Author's computations based on OECD Foreign Trade by Commodities, Various Issues.

The above results must be interpreted with due recognition that in the CMS methodology, the competitive factor is computed as a residual, hence the sources of competitiveness cannot be identified. Nonetheless, it is fair to say that the increased competitiveness has become an important factor in explaining export performance of the SEACEN countries.

2.3 Factors of Competitive Advantage

It can be argued that some of the factors listed in Table 3.2.3 may not be the cause but the outcome of competitiveness. As noted earlier, however, competitiveness should be assessed as a system in which factors and outcomes interact and reinforce each other. While indicators such as the ratios of fixed capital formation to GDP and R&D expenditure are achieved rather than endowed, they clearly show the present status as well as a potential and intention of the economy. As such, in a dynamic system of competitive advantage, they can well be considered as factors of competitive advantage.

In general, Table 3.2.3 demonstrates the different factor conditions in the SEACEN countries. However, the incompleteness of data prevents an in-depth analysis of the underlying factors. It can only be generally concluded that while the basic factors such as capital formation and savings play a significant role in explaining the difference in economic development, the advanced factors such as expenditure on R&D are critical in maintaining the rapid pace of development ahead of the others. In addition, the factor conditions have to be reinforced by effective policy measures. For example, the benefit of a relatively high educational level of the work force in the Philippines is not fully realised due partly to problems in policy implementations.

It is worthwhile to survey the SEACEN country's natural resource endowment which is not presented in the table but can serve as a basis for analysing competitiveness by industry. In the food and live animals category, Indonesia is a major producer of spices, coffee, cocoa, and fish; the Philippines - fish, fruit, and sugar; Sri Lanka - tea; and Thailand - rice, fish, vegetable, and sugar. In the non-fuel crude materials group Indonesia is the second largest producer of natural rubber and the leading exporter of log and timber, copper and nickel; Malaysia is the largest producer of natural rubber (accounting for almost one third of world exports), and also produces lumber from its tropical rain forest

TABLE 3.2.3
FACTORS OF COMPETITIVE ADVANTAGE

	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND	
BASIC									
1. POPULATION (MIL.)	1995	195.28	44.85	20.10	18.49 a/	70.27	2.99	22.00 b/	59.50
2. LABOR FORCE:POPULATION (%)	1990	43.39	43.12	39.30	42.90	39.94	55.24	37.50	55.42
	1995	43.17	46.37	39.10	42.90 b/	40.39	58.54	37.90 b/	56.47
3. HOURLY LABOR COSTS (US\$) 1/	1985	0.22	1.23	1.08	n.a.	0.64	2.47	0.30 c/	0.49
	1995	0.30	7.40	1.59	n.a.	0.71	7.28	0.41b/ c/	0.46
4. LAND AREA (000 SQ KM)	1992	1904.6	99	329.8	140.8	300	0.6	65.6	513.1
5. ARABLE LAND (000 hectares)	1970	4370	1184	282	117	826	n.a.	465	1960
	1990	8177	1345	342	1000	1560	n.a.	520	4300
6. FIXED CAPITAL FORMATION:GDP (%)	1990	28.41	37.08	32.61	19.99 d/	24.00	31.79	20.39	39.05
	1995	29.05	37.01	45.12	20.56 e/	21.95	35.41	22.7 f/	43.82
7. DOMESTIC SAVINGS RATIO (%)	1993	36.93	35.11	38.33	10.12 g/	14.77	47.89	16.86 g/	35.18
8. S4 GAP:GDP (%)	1995	-3.64	-1.29	-8.34	-6.33 e/	-5.20 f/	17.60	-5.45	-8.72
9. LONG-TERM INTEREST RATES (%; n.a.)									
10-YR GOVERNMENT BOND YIELD	1995	n.a.	9.24	8.38 h/	10.50 h/	n.a.	2.75 h/	14.00 h/	10.80
10. WPI (% CHANGE)									
	BASE YEAR	(1983=100)	(1990=100)	(1978=100)		(1978=100)	(1990=100)	(1974=100)	(1985=100)
	1985-90 (AVERAGE)	8.41	1.38	1.23	n.a.	9.98	-1.33	7.37	3.63
	1991-95 (AVERAGE)	6.89	3.21	3.36	n.a.	6.63	-2.69	9.31	1.40
ADVANCED									
1. R&D EXP:GDP (%)	1993	0.17	2.08	0.17	n.a.	n.a.	1.18	n.a.	0.16
	1994	0.16	2.29	0.17	n.a.	n.a.	1.16	n.a.	0.16
2. PATENTS PER 100,000	1992	n.a.	9.25	0.06	n.a.	0.06	n.a.	n.a.	0.09

in East Malaysia; Nepal's leading exports are jute fibres, hides and skins; the Philippines' main exports are iron and copper; Sri Lanka exports charcoal and vegetable fibres; and, Thailand is also a major producer and exporter of natural rubber. Indonesia and Malaysia export crude oil and gas, while Singapore specialises in the downstream products of petroleum. Malaysia, the Philippines, and Indonesia are the main suppliers of palm oil and coconut oil.

2.4 Preview of Competitive Industries - The RCA Index and Factors of Competitiveness

The RCA indices are calculated at the SITC 1-digit level with a view to providing a preview of competitive industries of member countries except for Taiwan and Myanmar for which data are not available in the U.N. trade statistics. Using annual data for 1983-1992, the RCA indices are grouped into 3 sub-periods, each of which is represented by a 3-year average. This will help to identify the pattern of competitiveness. Table 3.2.4 reports the results.

In general, the competitiveness profile by industry in the SEACEN countries seems to conform to both the neo-classical trade theory based on factor proportion and the strategic trade theory based on industrial policy. Most countries that are abundant in natural resources have shown competitiveness in such primary industries as food, crude materials, mineral fuel, and oil and fat.⁸² However, most countries have also pursued import-substitution industrial policies which were later replaced with export-promotion strategy. By and large, every country underwent import-substitution policies albeit at different degrees and durations. To a certain extent, import-substitution policies have been implemented in tandem with export promotion policies.⁸³ Overall, the progression of industrialisation has transformed the economies from resource and unskilled labour based one to capital (both physical and human) and technology based one. Increasing competitiveness in either

82. Singapore is the only exception. As one of the most efficient entreport in the world, the advantage of proximity to neighbouring countries that are abundant in natural resources has been well utilised.

83. For further discussion on the early policies of import-substitution, see Ariff and Hill, "Export-oriented Industrialization: The ASEAN Experience," Allen & Unwin, 1985, pp. 7-23.

TABLE 3.2.3 (Continued)

	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
3. HIGHER EDUCATION ENROLLMENT RATIO (%) (A) Tertiary	1991	40	7	7	28	38	5	16
	1992	42	7	7	28	38	6	19
(B) Secondary	1991	88	58	n.a.	74	70	74	33
	1992	90	58	36	74	n.a.	74	33
4. PUPIL/TEACHER RATIO (%)	1992	24	18	n.a.	32	22	24	18
	1993	23	18	n.a.	34	21	22	19
6. ENERGY CONS. (K joules per cap)	1971	507	436	6	222	1396	80	178
	1993	2863	1529	22	328	5563	110	678
8. TELECOM LINES (per 1000)	1990	310	89	3	10	385	7	24
	1992	357	112	3	10	415	8	31
7. SHARE OF COMPUTERS IN USE (%)	1994	0.99	n.a.	n.a.	0.21	0.21	n.a.	0.37
	1995	1.4	0.27	n.a.	0.24	0.24	n.a.	0.42

1/ Refers to hourly labor costs in the manufacturing sector.

a/ For 1991.

b/ For 1993.

c/ Hourly labor cost are derived from daily wage rates divided by 8.

d/ Refers to fixed capital formation at current prices for fiscal year ending July.

e/ For fiscal year ending July 1994.

f/ For 1994.

g/ For 1992.

h/ Refers to 10-year government securities rate for 1990 for Malaysia, government development bond ceiling rates for Nepal,

5-year government securities yield for Singapore and long-term government securities rate for Sri Lanka

Sources: Key Indicators of Developing Asian and Pacific Countries, Asian Development Bank, 1994.

Monthly Statistical Bulletin, Monetary Authority of Singapore, February 1997.

SEACEN Financial Statistics, 1996

World Competitiveness Report, 1995.

World Competitiveness Yearbook, 1996.

World Development Report, World Bank, Various Issues.

basic manufactures or miscellaneous manufactured goods is observed in most countries, except for Korea and Singapore, which have already advanced to a higher level of industrialisation. There is also a perceptible trend of diminishing competitiveness in primary products and basic materials which are directly influenced by the availability of natural resources.

As for manufactures, the SEACEN countries can be divided into two groups: one that is competitive in the capital (both physical and human) intensive industries and the other in the unskilled or semi-skilled labour-intensive industries.⁸⁴ In our classification of broad industry, only the SITC 7, i.e., machines and transportation equipment, falls into the first group. Countries that show competitiveness in this industry are Korea, Malaysia, and Singapore. Indonesia, Nepal, the Philippines, Sri Lanka, and Thailand on the other hand belong to the second group. This reflects the difference in policy orientation as well as the socio-economic environment.

Among the 3 countries in the first group, Korea is distinguished from Malaysia and Singapore as it is also competitive in unskilled and semi-skilled labour-intensive industries. This is partly due to the fact that Korea started industrialisation with light industry such as textiles and apparels in the 1960s before moving on to a 'Heavy and Chemical Industry (HCI)' drive from the 1970s. Thus, the textiles and apparels industry continue to be fairly competitive although it is on a declining trend. Notwithstanding several critical comments, the HCI has provided a foundation for both the steel industry and the electrical and electronic industry, as reflected in their competitiveness in the SITC 6 and 7 category.

Malaysia's industrial policy started with the extracting and processing of oil and gas followed by an intense drive towards heavy industry in the late 1980s. However, as shown by the RCA index, the competitive gains in the steel and auto industries have not yet been substantial. The inadequate supply of labour due to a smaller population base also explains the relative weakness in the unskilled and semi-skilled inten-

84. It may be argued that this grouping is somewhat ambiguous at the broadest level of industrial classification. However, it is fair to say that this is still helpful as an overview.

Table 3.2.4
COMPETITIVENESS BY BROAD INDUSTRY

SITC Country/Year	0	1	2	3	4	5	6	7	8	9
	FOOD AND LIVE ANIMALS	BEVERAGES AND TOBACCO	CRUDE MATERIALS	MINERAL FUELS	ANIMAL VEGETABLE OIL	CHEMICALS	BASIC MANUFACTRS	MACHINES TRANSPORT EQUIPMT	MISC MANUFACTURED GOODS	GOODS NOT CLASSIFIED BY KIND
INDONESIA										
1983-1985	0.725	0.250	1.933	3.663	1.869	0.107	0.487	0.025	0.210	0.163
1986-1989	1.282	0.432	2.884	4.347	4.499	0.209	1.183	0.017	0.517	0.250
1990-1992	1.092	0.468	2.259	4.078	4.865	0.288	1.413	0.073	1.127	0.135
KOREA										
1984-1986	0.476	0.374	0.264	0.154		0.379	1.474	1.136	3.403	0.010
1987-1989	0.498	0.061	0.275	0.120		0.344	1.329	1.077	2.671	0.050
1990-1992	0.387	0.000	0.410	0.197		0.523	1.409	1.126	1.963	0.208
MALAYSIA										
1983-1985	0.464		5.391	1.518	20.320	0.136	0.505	0.616	0.999	0.014
1986-1989	0.641		5.260	1.746	22.750	0.209	0.492	0.809	0.582	0.064
1990-1992	0.519		3.488	1.652	17.010	0.204	0.500	1.108	0.858	0.124
NEPAL										
1983-1985	3.265	0.493	2.733		3.753	0.569	2.283		1.134	1.875
1986-1988	1.989	0.017	1.586		3.767	0.226	2.418		2.802	0.774
1989-1990	0.670	0.000	1.450		1.886	0.008	3.227		2.603	0.923
PHILIPPINES										
1983-1985	2.106	0.743	2.844	0.080	15.490	0.300	0.513	0.224	1.421	6.785
1986-1988	1.973	0.511	2.482	0.164	15.640	0.501	0.545	0.283	1.193	6.251
1990-1992	1.691	0.616	1.715	0.259	11.020	0.352	0.524	0.529	1.727	5.965
SINGAPORE										
1984-1986	0.598	0.564	1.456	1.471	4.210	0.699	0.441	1.104	0.841	1.573
1987-1989	0.511	0.755	1.126	1.471	2.855	0.734	0.489	1.353	0.778	0.830
1990-1992	0.382	1.421	0.736	1.707	1.871	0.720	0.429	1.434	0.735	0.395
SRI LANKA										
1983-1985	5.256	0.000	3.127	0.515	2.869	0.080	0.310	0.060	2.732	0.000
1986-1989*	4.250	0.299	2.756	0.392	3.242	0.127	0.731	0.062	2.922	0.686
1990-1992	3.590	0.745	1.773	0.117	0.484	0.114	0.838	0.073	3.522	0.831
THAILAND										
1983-1985	5.483	1.119	2.672	0.043	0.389	0.138	1.056	0.244	1.580	0.336
1986-1989	4.543	0.476	2.076	0.072	0.260	0.189	0.917	0.405	1.940	0.201
1990-1992	3.512	0.379	1.482	0.101	0.000	0.264	0.786	0.665	2.110	0.328

* Refers to the average for the period 1986, 1987 and 1989.

Source: Author's compilations based on UN Trade Statistics Yearbook, Various Issues.

sive industry. On the other hand, competitive strength in the machines, transport equipment (SITC 7) is mainly due to the successful development in the electrical and electronic industry, brought about by the massive inflows of foreign investments following the establishment of the Export Promotion Zones (EPZs) in the 1970s. Malaysian exports of transistors and microchips accounted for 7 percent of the world total exports during 1990-1992.

Equipped with a well-educated and skilled labour force as well as good infrastructure, Singapore went into the electronic industry much earlier than Malaysia. During 1990-1992, exports from the city state accounted for more than 10 percent of the world exports of automatic data processing equipment, 7 percent of transistors and microchips, and 7 to 11 percent of TV, VCR and audio receivers.

The other SEACEN countries have generally shown competitiveness in the miscellaneous manufactured goods (SITC 8), mostly in the garments industry. For Indonesia, however, the RCA index also indicates competitiveness in the basic manufactures (SITC 6) consisting of textiles, wood products and mineral products. The competitive gain in both garments and textiles industries promises a more sustainable competitive position because textiles and garments industries form a cluster that expedites the upgrading of competitiveness. Competitiveness based solely on downstream industries without upstream linkages cannot be sustained, especially in the ordinary garments industry in which cheap labour cost is the most decisive factor of competition.

It is interesting to note that none of the member countries has shown competitiveness in petro-chemical industry even though a few countries are rich in oil and gas fields. This is probably because the petro-chemical industry is generally technology intensive as well as capital intensive, the requirements of which are beyond reach of most of the developing countries. Even for Singapore and Korea which are the most advanced in technology among the SEACEN countries and have invested heavily in this industry, such as the HCI drive by Korea, the competitive gain has not been sufficient to raise the competitiveness of the broad industry category.⁸⁵

85. However, several countries have shown competitiveness in basic chemicals and fertilisers at a more disaggregate level. Korea and Singapore have recorded competitiveness in polymerised plastics such as polyethylene, polypropylene, and polystyrene.

3. Country Analysis

This section reports an in-depth analysis of the competitiveness of each SEACEN country from different perspectives. It begins by examining the changing composition of exports in terms of factor intensity to see whether the experiences in the SEACEN countries conform to the neo-classical explanation of growth and trade patterns based on comparative advantage. A deviation from the comparative advantage prediction can be analysed from the perspectives of strategic trade theory and technology theory of trade with the implication of endogenous growth theory. For example, departures from the predicted pattern of changes in export structure based on factor endowment can be explained by institutional and policy factors as the new trade theory suggests.

The section then proceeds to assess the competitiveness of the individual industry by examining the RCA indices at the SITC 3-digit level. Calculations were done in the same manner and for the same period as in the previous section. We will investigate how the pattern of competitive industries has changed over time. We will further analyse the RCA index in view of the nature of the individual industry according to its position in the world export market as well as factor intensity. Policy implications for future challenges are then discussed with an emphasis on upgrading factors from basic to advanced.

3.1 Indonesia

3.1.1 Changes in Competitive Position

Indonesia's large size and geographic diversity give it a rich agricultural base and an abundance of mineral resources. Producing a diversity of crops, agriculture has been an important source of export earnings as well as employment and output. It not only has a substantial forestry base which covers approximately 59 percent of total land area, but also has a significant potential for animal husbandry and fishery resources, the rapidly expanding industries in recent years. Mineral resources include petroleum and natural gas, coal, tin, copper, nickel, bauxite, gold, silver and iron ore. For the past three decades, agriculture has dominated economic activity. The mining sector, led by crude oil and natural gas, has significantly contributed to the improvement of the country's balance of payments.

On the other hand, the manufacturing sector had a slow start, despite the implementation of industrialisation programmes since the mid-1960s. The share of manufacturing exports to total exports had been less than 10 percent until 1985. As a proportion of GDP, its share only reached 20 percent in 1990.⁸⁶ This is mainly because Indonesia's industrialisation strategy had been almost exclusively an import-substituting one until the early 1980s.⁸⁷ It is also pointed out that the abundant natural resources often induces complacency which hinders a country's industrialisation drive.

A concerted push towards export-oriented industrialisation took place after a decline in the world petroleum prices in 1983. This led to a remarkable increase in the exports of unskilled labour-intensive goods as illustrated in Figure 3.3.1. As a result of a policy shift, a dramatic transition from a predominant export of natural resource based goods to unskilled labour-intensive manufactured goods has taken place. The share of the former dropped sharply from 93 percent to 46 percent during 1983-1993, mainly on account of the reduction in mineral resource intensive goods. In the meantime, agricultural resource intensive goods have maintained their share. Although the share reached only 11 percent in 1993, the increase in the share of human-capital intensive industries is also noteworthy.

Table 3.3.1 lists competitive industries as identified by the RCA index. Classified by the 3-digit SITC commodity group, the competitive industries have been steadily increasing from 20 in 1983-1985, to 36 in 1986-1989 and 41 industries in 1990-1992. This indicates that the country's competitiveness has been strengthening with the formation of a broader industry base, even though the country's exports share in the world market did not change much during the period.

86. Since 1991, the output of the manufacturing sector has caught up with the agricultural sector, and has since surpassed agricultural output by more than 50 percent.

87. Although economists are generally sceptical of infant industry arguments, it is fair to say that import substitution helps pave the way for export-oriented industrialisation by building up infrastructure, labour, and entrepreneurial skills through learning by doing. At issue is the timing of the transition from import substitution to export orientation. See Ariff and Hill, *op cit.*, pp. 17-37.

Half of the competitive industries falls into the manufacturing sector, i.e., SITC 5-8 excluding SITC 68. They include wood products, textiles and garments, footwear, basic chemical products such as resinoid and fertiliser, glassware, and cement, most of which are unskilled labour-intensive products. However, their share represents only one-third of the total exports, while total manufactures account for more than half of total exports in 1993 (see Table 3.2.1). This implies that a large segment of the manufacturing sector is not competitive yet. Although another half of competitive industries belong to the non-manufacturing sector, they also involve a certain degree of processing. This is typical for an early stage of industrialisation. These processing activities will subsequently form a basis for further industrialisation.

By and large, Indonesia's competitiveness still rests on natural resource intensive industries, most of which comprise the non-manufactured goods industry. Except for plywood, textiles and garments, and footwear, the top twenty competitive industries are natural resource intensive such as natural rubber, vegetable oil, natural gas and crude petroleum, tin as well as primary commodities like spices, coffee, tea, and cocoa. As shown in Table 3.2.4, the vegetable oil industry is the most competitive at an aggregate level, while veneer and plywood tops at the disaggregate level. On the whole, however, the unskilled labour-intensive manufacturing industries show increasing competitiveness, in line with the rising share of these industries in total exports.

With reference to the industry's position in the world exports market, Indonesia has no competitive industry in the large and fast-growing industry group in which the advanced factors are the prerequisites. Instead, Indonesia's competitive advantage lies in industries which are small and medium in size, medium to fast in growth, and depend mostly on basic factors. Figure 3.3.2 illustrates this.

The growth of manufactured exports is closely related to both the country's resource endowment and industrial policy. For example, the strength in wood products basically stems from the abundant forestry base. However, the progress from log and sawn timber to plywood and furniture was due to the government's policy to encourage exports of processed wood while banning the log exports in the 1980s. The growing importance of the fertiliser industry is not unrelated to the country's substantial dependence upon the agricultural industry, in which

the government implemented the expansion programme of rice production and also encouraged investment in the tree crop sub-sectors, namely rubber, palm oil, and coconut.

Manufacturing activities in Indonesia were mostly undertaken by state enterprises which once accounted for 20 percent of manufacturing firms and more than 60 percent of the manufacturing output. They dominated oil refinery, petrochemicals, fertilisers, steel, aluminum, cement, basic chemicals, capital-goods manufacturing and shipbuilding.⁸⁸ However, these shares have fallen over time due to the government's structural adjustment policies to improve efficiency and productivity, rather than merely to change ownership.

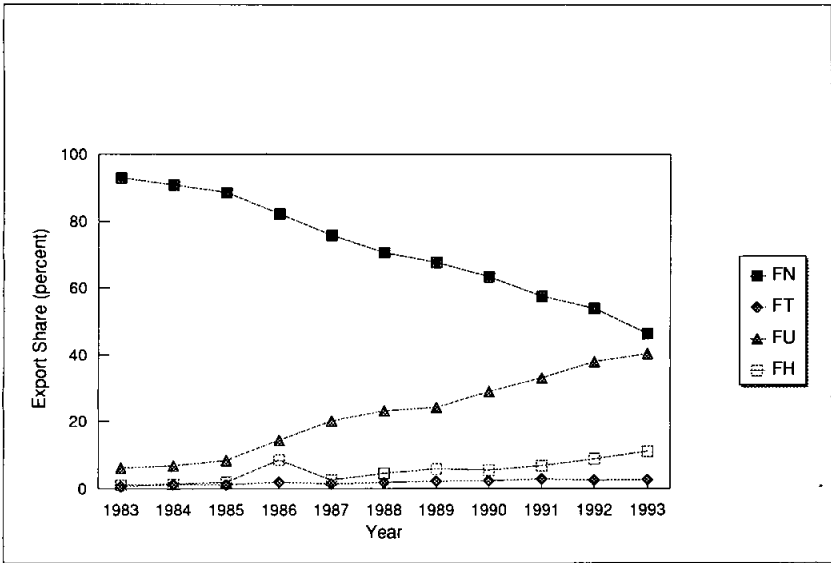
In pursuing technology development, the Indonesian government has been using both functional and selective interventions under a series of ambitious five-year development plans (REPELITA). The former is to promote the use of technology through functional interventions such as maintaining competitive and open product markets; allowing unrestricted imports of machinery, technology and services; providing incentives for private investment in technology R&D; developing human resources; helping to establish industrial standards and testing services; and providing extension and information services. Selective intervention, on the other hand, promotes technological development through selective strategic interventions such as providing import protection for selected technology-intensive industries, direct public investment or subsidies to induce private investment in such industries; and developing highly trained manpower for such industries.⁸⁹

The functional intervention explains Indonesia's progress in the textiles industry. The textiles and garments industry was initially developed as a heavily protected producer of import substitutes on the basis of cheap and abundant unskilled labour force. It eventually grew to become the second largest foreign exchange earner after petroleum. The major export drive of the industry occurred in the mid-1980s through a deregulation of trade and investment under the functional intervention scheme, which considerably enhanced technology develop-

88. Marcus Noland, "Pacific Basin Developing Countries: Prospects for Future," 1990, p. 100.

89. The World Bank, "Indonesia: Sustaining Development," A World Bank Country Study, 1994, p.87.

FIGURE 3.3.1
SHARE OF EXPORTS BY FACTOR INTENSITY
(INDONESIA)



FN : Natural resource intensive FT: Technology intensive FU: Unskilled labor intensive FH: Human capital intensive

FIGURE 3.3.2
COMPETITIVE INDUSTRIES' POSITION IN THE WORLD MARKET
(INDONESIA)

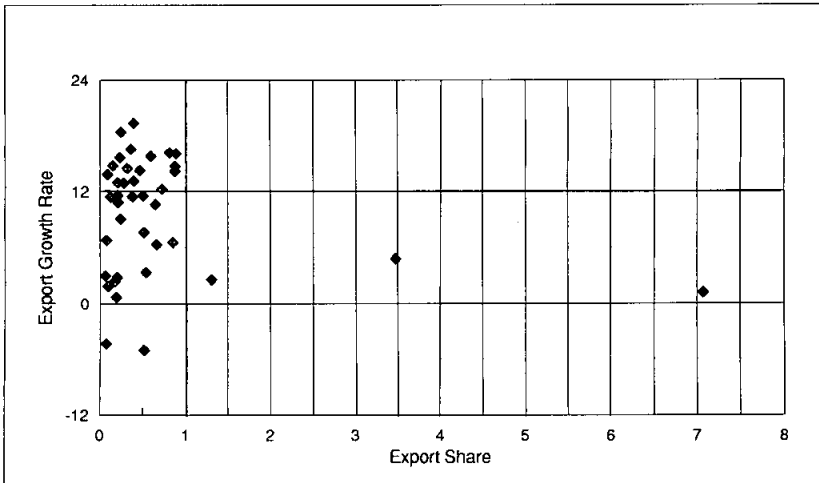


TABLE 3.3.1
COMPETITIVE INDUSTRIES BASED ON THE RCA INDEX
(INDONESIA)

SITC	TITLE	FACTOR INTENSITY	WORLD MARKET	1983-1985	1986-1989	1990-1992
634	VENEERS, PLYWOOD, ETC	FU	SF	18.369	28.649	37.077
232	NATURAL RUBBER, GUMS	FA	SS	19.114	29.656	26.128
499	PROCESD ANML VEG OIL, ETC	FA	SS	3.404	27.660	20.075
687	TIN	FM	SN	11.264	17.316	13.864
424	FIXED VEG OILS NONSOFT	FA	SS	4.972	12.531	13.524
341	GAS, NATURAL AND MANUFCT	FM	LS	10.231	14.151	12.918
075	SPICES	FA	SS	9.491	19.949	12.781
656	LACE, RIBBONS, TULLE, ETC	FU	SF	0.000	2.622	10.591
074	TEA AND MATE	FA	SS	8.426	9.133	7.395
287	BASE METAL ORES, CONC NES	FM	MS	2.392	5.382	6.379
071	COFFEE AND SUBSTITUTES	FA	MN	2.822	6.827	4.810
431	PROCESD ANML VEG OIL, ETC	FA	SM	3.532	4.222	4.740
299	CRUDE VEG MATERIALS NES	FA	SM	1.449	1.480	4.700
653	WOVN MAN-MADE FIB FABRIC	FU	MF	0.842	1.830	4.130
635	WOOD MANUFACTURES NES	FU	SF	0.000	1.183	4.022
072	COCOA	FA	SS	0.000	2.372	3.744
851	FOOTWEAR	FU	MF	0.000	0.492	3.668
333	CRUDE PETROLEUM	FM	LS	5.314	4.897	3.643
842	MENS OUTERWEAR NON KNIT	FU	MF	0.916	1.491	2.935
899	OTHER MANUFACTURED GOODS	FU	SF	2.285	2.577	2.703
844	UNDERGARMENT NON KNIT	FU	SF	1.947	2.747	2.643
843	WOMENS OUTERWEAR NON KNIT	FU	MF	0.796	1.805	2.600
846	UNDERGARMENTS KNITTED	FU	SF	0.552	1.901	2.506
322	COAL, LIGNITE AND PEAT	FM	MM	0.000	0.000	2.127
652	COTTON FABRICS, WOVEN	FU	MM	0.375	1.654	2.077
551	ESSENTL OILS, PERFUME, ETC	FH	SM	0.000	0.000	1.984
845	OUTERWEAR KNIT NONELASTIC	FU	MF	0.140	1.006	1.979
248	WOOD SHAPED, SLEEPERS	FA	MM	1.634	4.610	1.889
562	FERTILIZERS, MANUFACTURE	FT	MM	0.677	1.477	1.740
034	FISH, FRESH, CHILLED, FROZEN	FA	MF	0.000	0.802	1.724
658	TEXTILE ARTICLES ETC	FU	SF	0.000	0.000	1.534
665	GLASSWARE	FU	SM	0.000	0.000	1.474
334	PETROLEUM PRODUCTS, REFIN	FM	LS	0.986	1.426	1.446
821	FURNITURE, PARTS THEREOF	FU	MF	0.000	0.394	1.437
847	TEXTILE CLTHNG ACCES NES	FU	SF	0.000	0.000	1.386
661	LIME, CEMENT, BLDG PRODS	FM	SM	0.000	1.925	1.335
037	FISH ETC PREPD, PRSVD NES	FA	SF	0.000	0.000	1.215
697	BASE MTL HOUSEHOLD EQUIP	FU	SM	0.000	0.000	1.168
036	SHELL FISH FRESH, FROZEN	FA	SF	3.787	6.562	1.021
651	TEXTILE YARN	FU	MM	0.000	0.526	1.005
Memorandum						
672	IRON, STEEL PRIMARY FORMS	FH	MF	0.000	1.001	0.732
292	CRUDE VEG MATERIALS NES	FA	SM	1.853	1.929	N.A.
121	TOBACCO UNMNFCTRD, REFUSE	FA	SS	0.808	1.818	N.A.
659	FLOOR COVERINGS, ETC	FU	SM	0.000	1.036	N.A.
247	OTH WOOD ROUGH, SQUARED	FA	SM	3.245	N.A.	N.A.

Note: -

L : Large (1.0%)

M : Medium (0.5 - 1.0%)

S : Small (below 0.5%)

F : Fast (12%)

M : Medium (6 - 12%)

S : Slow, negative (below 6%)

FA : Agricultural resource intensive

FM : Mineral resource intensive

FU : Unskilled labor intensive

FH : Human capital intensive

FT : Technology intensive

ment by allowing larger flows of foreign direct investment and foreign technical experts.

In contrast to this, the selective intervention scheme seems to have been less effective. Supported by heavy protection, domestic producers in the targeted technology-intensive industries, such as steel, engineering, shipbuilding, telecommunications, and aerospace, supply the small protected markets at relatively higher cost. Few linkages have developed between these industries and the rest of the Indonesian manufacturing sector. They also absorbed scarce technical and professional manpower and public resources to train such manpower that could have been used for more productive purposes if deployed in the private sector.

Foreign direct investment seems to have played a less significant role in Indonesia than in the neighbouring countries such as Malaysia, the Philippines, and Thailand, mainly due to the government's rather restrictive approach. For example, with the aim to develop domestic companies, foreign investments have to be in the form of joint-ventures with Indonesian partners. After realising the positive contribution of FDI in the textile industry, however, the government began to welcome more FDI.⁹⁰ There was also an increasing awareness of the importance of FDI as a source of financing as compared with the already high dependence on foreign debt financing. It is generally accepted that FDI provides resources for investment without creating debt in addition to an access to new ideas, technology, and managerial skills.

3.1.2 Challenge for the Future

Thanks to the rich natural resource endowments in variety as well as in quantity, Indonesia has a highly diversified manufacturing base which includes iron and steel, petroleum refining, petro-chemicals, cement, pulp and paper, and textiles and garments. It has also made some headway into automobile assembly, and aircraft industry owing much to the governments' ambitious vision. Although the progress has been somewhat mixed, the potential and possibility remains. When a critical mass of better educated human resources is achieved to match

90. Azizah Talib, ed., "Foreign Direct Investment in the SEACEN Countries," The SEACEN Centre, 1994, pp. 104-105.

the abundant natural resources, Indonesia will surely realise its potential to become a leading economic power in the South-East Asian region. As the income level increases in line with robust economic growth in recent years, the huge domestic market will further enhance the country's competitiveness.

Although the structural reforms helped to diversify the economy by expanding the private sector's role and reducing the reliance on oil, competitive industries have been basically formed around the abundant factors of production. Raising the efficiency and productivity will be the key to sustaining the dynamism of non-oil exports. The entry of new competitors to Indonesia's key export products in recent years has intensified this requirement, resulting in a strategic shift from basic cost advantages to productivity gains. This involves a wide-ranging policy agenda such as maintenance of macroeconomic stability, incentives to raise efficiency and productivity, and substantial investment in both human and physical capital. These policies can only be implemented through institutional development and reform. Given that each item in the agenda is broad enough to be a research topic by itself, we shall confine the discussion to the issues concerning technology and the role of the government.

In general, the acquisition and assimilation of technology are best achieved by maintaining an open regime for trade, investment, and technology licensing, as well as by emphasising on education and training. Supporting infrastructure, such as R&D facilities, standard setting and quality control, that is well-focused and responsive to the private sector needs will undoubtedly quicken this achievement. Thus, the policy measures that enhance the supply of better educated and skilled workers while promoting the flexibility in the labour market stand a good chance of being successful. In contrast, the selective intervention scheme or a so-called "technological-leapfrogging" strategy has proven costly and ineffective in most countries.

In this context, the importance of investment in human resource development cannot be overemphasised. For this task, the public sector is best suited. While provision for basic education will continue to be a major part of public spending, more resources are needed to improve the quality of education, particularly at a higher level and vocational training. Moving up the technology ladder and success in high-technology industries cannot be achieved without high-quality

human capital. Setting up a factory which manufactures - or strictly speaking, assembles or packs - high-tech electronic products with imported machinery under the foreign supervisor will not take the industry far in the road to competitiveness, unless supported by a large pool of indigenous qualified engineers and technicians as well as semi-skilled workers.

In addition, the government should provide a competitive environment for the private sector to raise efficiency and productivity. With the private sector leading in productive capacity, the government's role is to ensure an efficient functioning of the markets and to provide public services effectively and transparently. Fostering competition both at home and abroad is critical to this, and any industrial targeting should be pursued more cautiously. In addition, although the long-run perspective of structural reforms may point toward more downstream processing and higher value-added activities, labour-intensive industries will still continue to be competitive as long as the labour supply is in abundance. The ability to attract more FDI will depend on the attractiveness of investment incentives, capital market regulations, availability of infrastructure, and reforms in the legal framework and accounting system.

3.2 Korea

3.2.1 Changes in Competitive Position

Compared with the other SEACEN countries, Korea is poorly endowed with natural resources. Except for some raw materials such as tungsten and limestone as well as some modest fishing ground, it lacks significant reserves of minerals and forest. Its arable land is also limited because almost 70 percent of the country is mountainous terrain. Moreover, the country suffered from a devastating civil war and is still divided by difference in political ideology.

Due to the Korean War, Korea only began to industrialise in the early 1960s, relying mainly on imported materials, cheap and fairly abundant domestic labour, and foreign capital. After a series of successful Five-Year Plans, Korea has emerged as one of the Asian NIEs and the industrialisation process seemed to have matured by the mid-1980s, with the share of manufacturing to GDP peaking at 30.3 percent in 1984 and being maintained around 30 percent since. Manufactured

exports have accounted for more than 90 percent of the total exports since the early 1980s (see Table 3.2.1).

The most distinguished feature of Korea as a developing country is the high average level of education on account of the commitment of Koreans to education. The higher education system is extensive, including numerous technical colleges, universities and graduate schools. Both major companies and the government invest heavily to enhance technical capability not only through supporting students to overseas study and training but also through encouraging joint research with university and specialised research institutes. This supplements the general education level which is already of a relatively high standard for a developing country.

Korean companies have also made conscious efforts to develop their own technology and product models since the early stage of industrialisation. Although many companies still depend on original equipment manufacturing (OEM) sales for most of their business, others, especially the conglomerates, are less OEM-oriented and more willing to invest in international marketing and in-house technology than companies in other NIEs. They are also well known for their willingness to take risk in investments and compete among themselves. The competitive spirit is perhaps the single greatest source of advantage that they have.⁹¹ Besides domestic rivalry, they always aim high, benchmarking against the world leaders in strategic industries. Lagging behind the developed countries by more than a decade in terms of technological capability, they have strived to overcome technological gaps with aggressive investments in the R&D, shift from licensing to technological alliance with the market leaders, and acquisition of foreign firms.

Unlike other SEACEN countries, human resource intensive industry has had the lion's share in Korea's export structure since the 1980s due to the success in the exports of electronic and steel products. As shown in Figure 3.3.3, its share of exports still continue to show a

91. The rivalry among Korean companies has often been so intense that the government has intervened to prevent "destructive" competition. However, the tendency to intervene in rivalry is a dangerous one. See Michael E. Porter, *op cit.*, 1991, pp. 464-474.

moderate increasing trend. In contrast, the unskilled labour-intensive industry which has the second largest share shows a declining trend mainly because of the waning textiles and apparel industry. Although the textiles/apparel industry still accounts for 22.8 percent of the country's export as of 1992, making up the top single export earner, its share has dropped sharply from 48.6 percent in 1985 (see Table A.9 in the Appendix). Also noticeable is a moderate but increasing share of technology-intensive industry that includes chemical products and machinery.

A common feature of industries which have gained a higher share is that they are capital intensive requiring a certain level of technology. This was financed by domestic savings which rose rapidly in the 1980s as well as foreign savings. The dependence on foreign loans marks a significant difference in financing strategy from other NIEs which depend largely on foreign direct investment. High real interest rates seem to have contributed much to the rapid increase in domestic savings in the 1980s. However, since the propensity to consume tends to increase as the income level grows, domestic savings have not grown in parallel with the income level. Thus, the high real interest rates not only constrain the investment required to deepen and broaden the economy, but also further increase the dependency on foreign capital.

In terms of the RCA index as shown in Table 3.3.2, Korea has 49 competitive industries for the 1990-1992 period average, slightly lower than the 51 industries in the 1987-1989 period. Conforming to our findings based on the CMS analysis in the previous section, competitiveness is observed to be weakening in the majority of the competitive industries, except for transistors and memory chips, synthetic fibres, knitted fabrics, special fabrics, leather and fur products, telecommunication equipment and parts, and polymerised plastics. Increasing strength in special fabrics indicates the country's efforts to improve competitiveness even in the so-called 'sunset' industry, and the aim to survive by finding niche markets. On the other hand, watches and clocks, optical goods, and fertilisers have lost competitiveness recently. Based on the RCA index, passenger cars and other road motor vehicle industries

one. See Michael E. Porter, *op cit.*, 1991, pp. 464-474.

have not shown competitiveness except for 1987 and 1988, while non-motor vehicle trailer has maintained its competitiveness.

Factor intensity alone cannot fully explain Korea's waning competitiveness, since most of the industries were experiencing it regardless of their factor intensity. For example, human resource intensive industries like TV receivers and VCRs have been losing their export share to a certain degree although they remain competitive at the moment. One explanation for declining competitiveness is that Korean manufactures which have been facing increasing production costs at home, have moved their production sites abroad to serve the regional market closer to the host country. Exports from the overseas subsidiaries are not counted as Korean exports, although they have become an important source of earnings.⁹² Another reason is that Korea's competitiveness in these industries lies in 'medium-quality low-price' products using standardised technology that are mostly licensed from developed countries. Although they are classified as human resource industry, they are also capital intensive. As most of the multinational corporations operating in the so-called new NIEs, China, Latin America, and Eastern Europe using similar production technology but at much cheaper costs in terms of labour, land, and capital, Korea is at a competitive disadvantage in the same market segments.

As shown in Figure 3.3.4, four competitive industries are identified in the large and fast-growing industry category, namely, memory chips, telecommunication equipment, polymerisation products, and automatic data processing equipment. The presence of competitiveness in these industries suggests that Korea has thus far been adapting to changes in the world export structure successfully. It also shows Korea's ability to keep up with the trend. This is not only because of the newness of the industries, which often requires risk-taking, and advanced competitive factors such as investments in R&D and higher education, but also because of the entrepreneurship of Korean companies.

By and large, Korea's competitive advantage used to lie in its low-cost positions in various industry segments, which have been created by a combination of skilled and productive labour and aggressive

92. If the outward FDI had been included as in Porter's study, these industries could have shown strengthening competitiveness. Due to data constraints, however, the FDI factor was not taken into consideration.

investment to acquire technology to build modern, large-scale facilities. Of equal importance, however, is the government's role in developing the Korean economy. This role includes sound macroeconomic management, provision of appropriate incentives and regulatory environment as well as a wide spectrum of infrastructure, and direct intervention in individual industry, the so-called targeting strategy, either through protection or subsidy.

As a numerous number of literature pointed out, the success of the government's role has been mixed. While the interventionist strategy has brought much benefits, declining competitiveness is counted as one of its side-effects.⁹³ Industrial targeting policy works best when the economy is at a developing stage, but it often causes distortion when the economy matures. Thus, targeting policy could be wrong as well as right. It often leads to an underestimation of the significance of market mechanism while overestimating its ability⁹⁴ to address market failure. Experiences in the past couple of years show that such a belief is not well founded in a rapidly changing economic environment.

Economic concentration on the conglomerates, the *chabeol*, made the problems more complicated. While it is true that the breakthrough of almost all Korean products in the international market was attributed to them, their competitive base has been diluted through the expansion of business beyond the areas of their expertise. The rapid expansion of their business was made possible by support both in terms of financial and initial entry into the business. The *chabeol* is often compared to the Japanese *keiretsu* with a significant difference that the members of *chabeol* are managed with a high degree of central control.⁹⁵ This results in horizontal expansion of the *chabeol* which prevented the small and medium size firms from developing material and parts industries which are critical to deepening the industrial structure.

93. It is argued that less government in trade is linked to higher productivity growth and in fact industrial and trade policies have little correlation with trade performance. See Lee, Jong-Wha, "Government Interventions and Productivity Growth," *Journal of Economic Growth*, September 1996, p. 392.

94. This partly stems from the traditional preference of civil service as profession. Most of the first echelon university graduates in social science discipline have preferred a career as elite government officials until recently.

95. M.E. Porter, op cit., 1990, p. 472.

TABLE 3.3.2
COMPETITIVE INDUSTRIES BASED ON THE RCA INDEX
(KOREA)

SITC	TITLE	FACTOR INTENSITY	WORLD MARKET	1984-1986	1987-1989	1990-1992
848	HEADGEAR, NONTXL CLOTHING	FU	SF	12.049	10.826	9.279
653	WOVN MAN-MADE FIB FABRIC	FU	MF	8.030	6.241	7.223
786	TRAILERS, NONMOTR VEH, NES	FH	SM	7.855	7.978	7.096
851	FOOTWEAR	FU	MF	8.786	7.074	6.062
793	SHIPS AND BOATS ETC	FH	LS	12.829	3.634	5.928
831	TRAVEL GOODS, HANDBAGS	FU	SF	12.462	7.415	5.495
761	TELEVISION RECEIVERS	FH	MF	7.442	6.024	4.715
847	TEXTILE CLTHNG ACCES NES	FU	SF	5.808	4.799	4.620
776	TRANSISTORS, VALVES, ETC	FH	LF	3.382	3.483	4.569
266	SYNTHETIC FIBRES TO SPIN	FA	SS	0.000	2.512	4.445
762	RADIO BROADCAST RECEIVERS	FH	SF	5.698	5.942	4.379
763	SOUND RECORDRS, PHONOGRPH	FH	MM	2.037	4.972	4.374
696	CUTLERY	FU	SM	5.992	5.049	4.337
655	KNITTED, ETC FABRICS	FU	SF	0.000	1.716	3.555
844	UNDERGARMENT NON KNIT	FU	SF	11.713	6.009	3.495
656	LACE, RIBBONS, TULLE, ETC	FU	SF	5.449	2.087	3.061
693	WIRE PRODUCTS NON ELECTR	FH	SM	5.435	3.327	2.952
697	BASE MTL HOUSEHOLD EQUIP	FU	SM	4.308	3.645	2.943
611	LEATHER	FU	SF	0.000	0.899	2.867
625	RUBBER TYRES, TUBES ECT	FH	MM	3.815	2.710	2.814
898	MUSICAL INSTRUMENTS, PTS	FH	MF	3.162	3.324	2.728
657	SPECIAL TXTL FABRC, PRODS	FU	SF	1.882	2.208	2.677
845	OUTERWEAR KNIT NONELASTIC	FU	MF	6.377	4.109	2.664
654	OTH WOVEN TEXTILE FABRIC	FU	SF	3.013	2.321	2.561
846	UNDERGARMENTS KNITTED	FU	SF	6.639	4.192	2.376
674	IRN, STL UNIV, PLATÉ SHEET	FH	LM	1.943	1.425	2.372
842	MENS OUTERWEAR NON KNIT	FU	MF	7.519	4.748	2.357
037	FISH ETC PREPD, PRSVD NES	FA	SF	3.392	2.667	2.310
899	OTHER MANUFACTURED GOODS	FU	SF	2.706	2.183	2.150
894	TOYS, SPORTING GOODS, ETC	FU	MF	5.936	3.711	2.129
034	FISH, FRESH, CHILLED, FROZEN	FA	MF	4.768	3.188	2.106
775	HOUSEHOLD TYPE EQUIP NES	FH	MF	2.581	3.023	2.059
661	LIME, CEMENT, BLDG PRODS	FM	SM	2.844	2.782	1.980
764	TELECOM EQPT, PTS, ACC NES	FH	LF	1.456	1.677	1.958
843	WOMENS OUTERWEAR NON KNIT	FU	MF	4.552	3.163	1.956
651	TEXTILE YARN	FU	MM	2.729	1.770	1.893
658	TEXTILE ARTICLES ETC	FU	SF	3.516	2.123	1.802
583	POLYMERIZATION ETC PRODS	FT	LF	0.000	0.527	1.746
691	STRUCTURES AND PARTS NES	FH	SM	6.102	2.391	1.616
771	ELECTRIC POWER MACHY NES	FT	SF	2.161	1.770	1.557
036	SHELL FISH FRESH, FROZEN	FA	SF	2.974	2.205	1.487
299	CRUDE VEG MATERIALS NES	FA	SM	2.451	1.503	1.444
752	AUTOMTIC DATA PROC EQUIP	FH	LF	1.008	1.439	1.375
678	IRON, STL TUBES,,PIPES, ETC	FH	MS	2.044	1.526	1.311
292	CRUDE VEG MATERIALS NES	FA	SM	1.234	1.228	1.249
673	IRON, STEEL SHAPES ETC	FH	MM	2.168	1.362	1.240
652	COTTON FABRICS, WOVEN	FU	MM	1.702	1.069	1.106
897	GOLD, SILVERWARE, JEWELRY	FH	MM	0.000	1.067	1.086
Memorandum						
895	WATCHES AND CLOCKS	FH	MF	1.669	1.066	0.616
562	FERTILIZERS, MANUFACTURE	FT	MM	1.747	0.425	N.A.
884	OPTICAL GOODS	FT	SM	1.867	1.645	N.A.
781	PASSENGER MOTOR VEHICLES	FH	LM	0.440	0.971	0.602
783	ROAD MOTOR VEHICLES	FH	SF	0.000	0.000	0.439

Note: -

L : Large (1.0%)

M : Medium (0.5 - 1.0%)

S : Small (below 0.5%)

F : Fast (12%)

M : Medium (6 - 12%)

S : Slow, negative (below 6%)

FA : Agricultural resource intensive

FM : Mineral resource intensive

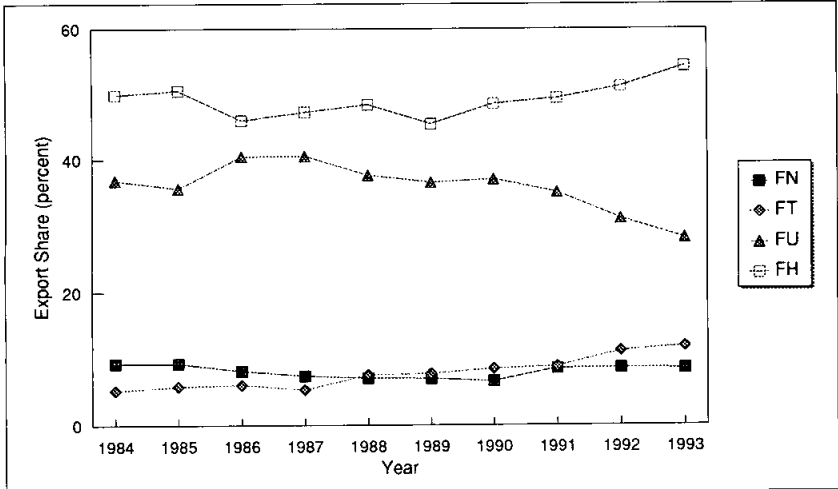
FU : Unskilled labor intensive

FH : Human capital intensive

FT : Technology intensive

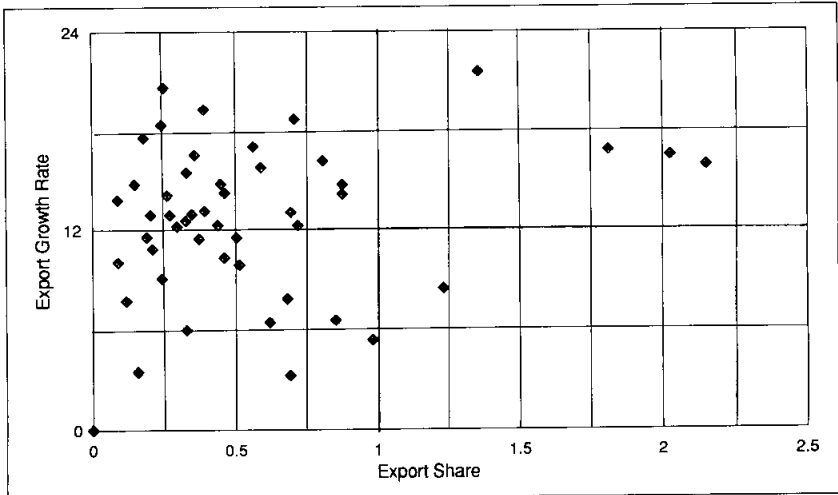
Source: Author's computations based on UN Trade Statistics Yearbook, Various Issues.

FIGURE 3.3.3
SHARE OF EXPORTS BY FACTOR INTENSITY
(KOREA)



FN : Natural resource intensive FT: Technology intensive FU: Unskilled labor intensive FH: Human capital intensive

FIGURE 3.3.4
COMPETITIVE INDUSTRIES' POSITION IN THE WORLD MARKET
(KOREA)



Overall, the present economic structure of Korea is characterised as high-cost and low-efficiency. On the cost side several factors are at work. Nominal wages have increased well over the corresponding productivity growth. High real interest rates have burdened most firms which depend heavily on debt financing. Increase in the land price for industrial use has even exceeded that for residential and commercial purposes. Lastly, complicated distribution channels and saturated logistics infrastructure have added to the costs. On the efficiency side, the major factors are: per capita labour productivity remains one-third of Japan's; high dependency on imports of intermediate inputs and low linkages between industries, which result in a low level of value added to output ratio; and, less efficient use of energy compared to its competitors.

3.2.2 Challenge for the Future

The persistent current account deficit in recent years casts a shadow on the future competitiveness of Korea. Most of the sunset industries like textiles and apparel are losing ground to competitors abroad despite efforts to create a niche market. In this respect, Korea has to compete with developed countries in terms of quality and design, as well as developing countries in term of price. The situation is quite similar in the present core industries, namely electronic and mechanical equipment, steel, and petro-chemicals, due to competition from China and the South-East Asian NIEs which have cost advantages over Korea. Likewise, strategic industries such as micro-electronics, new materials, bio-technology, and renewable energies in which the country has made extensive efforts and made progress to a certain degree, are still struggling to catch up in the face of intensifying protectionism in technology from developed countries.

The task of restructuring from a high-cost, low-efficiency economy to a low-cost, high-efficiency one requires a wide range of policy measures. Obviously, both macro- and micro-economic measures are needed. On the macroeconomic front, top priority should be given to price stability through aggregate demand management of tight fiscal policy and flexible monetary policy. Although this may require sacrificing short-term economic growth, price stability is a prerequisite. It must be remembered that growth cannot be sustained unless it is consistent with its long-term potential that can only be achieved through price stability as well as efficiency gained across the economy.

The micro-economic front should also be given equal or more emphasis, since it is more difficult and takes longer for the economy to upgrade, deepen, and broaden its activities. It should include continuous investment in R&D with more focus on basic science and processing technology, reforms of the higher education system, enhancement of organic linkages in terms of both inter- and intra-industry, increased efficiency in the factor markets such as labour, financial, and land market, sufficient infrastructure under efficient management, innovative and forward-looking entrepreneurship, and the balanced role of the government with respect to the private sector's increasing importance.

For developing countries' standard, Korea has achieved a remarkable economic growth led by export drive. However, since its admission as a new member of the OECD countries, it can no longer be evaluated by such a standard. In this context, promoting an open and competitive business environment which is transparent with a clear set of the rules of the game as well as information disclosure requirement is urgently needed, because this factor is often cited as the weakest factor in the competitive position of Korea.

3.3 Malaysia

3.3.1 Changes in Competitive Position

Relatively well-endowed with natural resources, Malaysia's industrialisation progress is unique and remarkable. The manufacturing sector accounted for 33.1 percent of GDP in 1995, the highest among the SEACEN countries, and more than 60 percent of exports in 1993. This achievement is mainly attributable to successful industrial policies which focused on export promotion in tandem with attracting foreign direct investments.

Like other developing countries, Malaysia pursued import-substituting industrial policy at the early stage of development. With the launching of the New Economic Policy (NEP) in 1971, the strategy was shifted towards combining import substitution with export promotion with more emphasis on the latter. Export-processing zones (EPZ), free trade zones, and licensed manufacturing warehouses were established to support the policy. MNCs from the U.S. and Japan began to invest in the manufacturing industries, particularly the electronic and household electrical equipment.

FDI inflows have witnessed a record high in the late 1980s onwards, when the economy regained rapid growth after a brief recession in the mid 1980s caused by the decline in the prices of oil and other primary products. FDIs from the Asian NIEs, especially from Taiwan, as well as Japan and the U.S., made important contributions. Rising production cost, i.e., soaring land price and wage, pushed many of the unskilled or semi-skilled labour-intensive industries in these countries to relocate abroad where land and labour are in ample supply. The yen's appreciation after the Plaza Accord also compelled the Japanese firms to move their production bases overseas. Malaysia is well placed to take advantage of these developments as it has sound macroeconomic management, political stability, well-developed infrastructure, and cheap but relatively well-educated labour force. Most of the FDIs to Malaysia are export oriented, reflecting its focus on promoting manufactured exports and the fact that it has a small domestic market size.

Figure 3.3.5 well demonstrates the structural changes in Malaysian exports according to factor intensity. The export share of human resource intensive industry, dominated by electrical and electronic products, has more than doubled during the period 1983-1992 and took the leading position in 1992. On the other hand, the natural resource intensive industry, whose share used to be more than twice as much, has halved. The unskilled labour-intensive industry has kept a low profile, accounting for only 10 percent in 1992. Unlike neighbouring countries with larger population, Malaysia is not abundant in labour force. Most of the demand for unskilled labour is met by cheap labour imported from neighbouring countries.⁹⁶ However, the share of labour-intensive industry has shown a steady growth mainly due to the wood products industry such as plywood, wood manufactures, and furniture. The shortage in unskilled labour supply also accounts for a decline in natural resource intensive industries such as rubber and tin which critically require a large unskilled labour supply.

Competitiveness measured by the RCA in Table 3.3.3 reveals that Malaysia is gaining competitiveness with the competitive industry increasing from 21 industries in 1983-1985 to 34 industries in 1990-1992. However, the most competitive industries are still natural resources

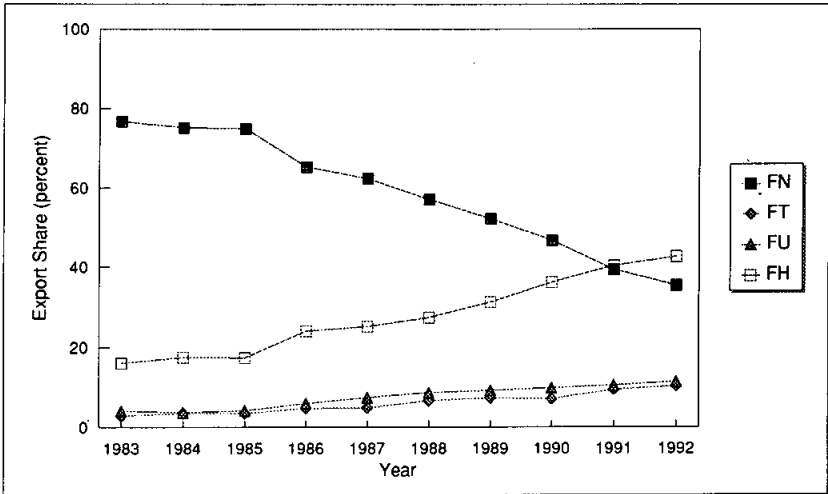
96. At the height of economic growth, about two million immigrant unskilled labour force are reportedly estimated to work in Malaysia.

base, which conforms to the H-O prediction. This finding is not surprising because these industries are nation-specific by nature. Since Malaysia is the world's largest producer of palm oil, palm oil related industries topped the competitiveness scoreboard accounting for three out of the top five industries. The continued efforts to increase the processing activities of the primary materials domestically is exemplified in the outstanding gain in competitiveness for the processed vegetable oil during the late 1980s.

Despite this static competitiveness strength in natural resource based industries, dynamic competitive advantage gains have been led by electronic-related products, namely audio receivers, TV, telecommunication equipment, office machines, and computer parts. Recent gains to a lesser degree are also recorded in other manufactures such as lumber, plywood, furniture, and garments. On the other hand, most of the natural resource based industries including the top five, namely palm oil, natural rubber, and tin, have recorded a sharp drop in competitiveness. This is also the case for some manufactured goods such as transistors and microchips industry which showed a slight decline in competitiveness, although they still topped the country's exports share accounting for an average of 14 percent in 1990-1992 and had a share of 6.9 percent in the world export market. This is partly because of the increasing competition from neighbouring countries. The Philippines, for example, also produces the Intel microchips although it still has a more moderate market share. As mentioned earlier, this industry generally benefits from the inflows of the FDI either in the form of joint-ventures or wholly owned foreign subsidiaries that are in principle required to export all the products they manufactured. However, the fact that foreign investors may move their manufacturing sites to other countries whenever the environment becomes less attractive may leave the host country in a vulnerable position.⁹⁷

97. In early 1996, Quantum of Japan, Hewlett-Packard of the USA, and Grundig of Netherlands either transferred their factories from Penang, one of the most prominent industrial states in Malaysia, to other countries or shut them completely. A severe shortage of skilled workers as well as wage increases partly accounts for this. See "The Economist," Sept. 21, 1996, p. 72.

FIGURE 3.3.5
SHARE OF EXPORTS BY FACTOR INTENSITY
(MALAYSIA)



FN : Natural resource intensive FT: Technology intensive FU: Unskilled labor intensive FH: Human capital intensive

FIGURE 3.3.6
COMPETITIVE INDUSTRIES' POSITION IN THE WORLD MARKET
(MALAYSIA)

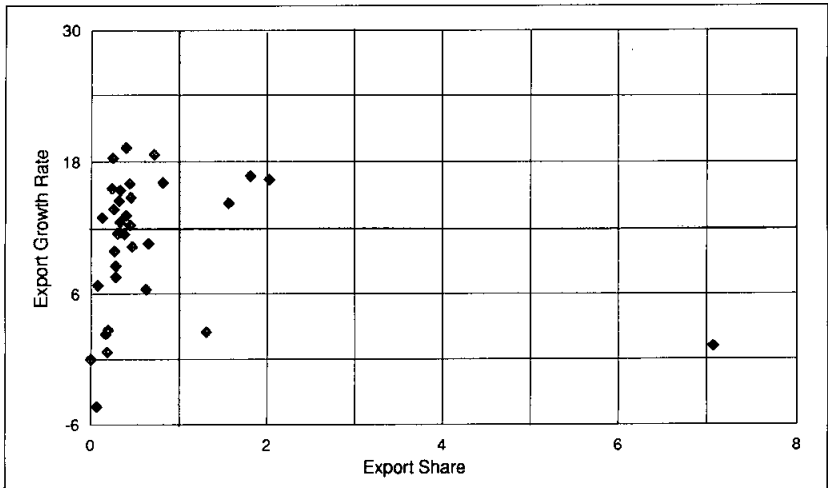


TABLE 3.3.3
COMPETITIVE INDUSTRIES BASED ON THE RCA INDEX
(MALAYSIA)

SITC	TITLE	FACTOR INTENSITY	WORLD MARKET	1983-1985	1986-1989	1990-1992
424	FIXED VEG OILS NONSOFT	FA	SS	59.729	66.824	46.539
499	PROCESD ANML VEG OIL, ETC	FA	SS	2.990	150.518	31.577
232	NATURAL RUBBER, GUMS	FA	SS	43.612	45.720	23.887
687	TIN	FM	SN	35.827	31.146	21.731
431	PROCESD ANML VEG OIL, ETC	FA	SM	8.847	21.714	21.643
247	OTH WOOD ROUGH, SQUARED	FA	SM	34.947	28.080	17.351
762	RADIO BROADCAST RECEIVRS	FH	SF	2.885	7.016	9.953
248	WOOD SHAPED, SLEEPERS	FA	MM	6.785	6.971	7.189
776	TRANSISTORS, VALVES, ETC	FH	LF	10.459	9.475	7.045
072	COCOA	FA	SS	4.938	9.122	5.926
634	VENEERS, PLYWOOD, ETC	FU	SF	4.423	5.021	5.447
761	TELEVISION RECEIVRS	FH	MF	0.891	2.460	4.283
763	SOUND RECORDRS, PHONOGRPH	FH	MM	0.000	1.261	4.282
948	HEADGEAR, NONTXL CLOTHING	FU	SF	0.000	2.799	4.249
621	MATERIALS OF RUBBER	FH	SF	0.000	2.873	3.582
897	GOLD, SILVERWARE, JEWELRY	FH	MM	0.000	0.887	3.299
341	GAS, NATURAL AND MANUFCT	FM	LS	2.690	3.939	3.104
764	TELECOM EQPT, PTS, ACC NES	FH	LF	0.686	1.198	2.702
771	ELECTRIC POWER MACHY NES	FT	SF	1.555	2.702	2.662
881	PHOTO APPARAT, EQUIP NES	FT	SM	0.000	0.533	2.256
759	OFFICE, ADP MCH PTS, ACCES	FH	LF	0.000	0.348	2.188
333	CRUDE PETROLEUM	FM	LS	2.427	2.414	2.025
001	LIVE ANIMALS FOR FOOD	FA	SM	N.A.	1.535	1.869
512	ALCOHOLS, PHENOLS ETC	FT	SM	0.426	1.303	1.718
844	UNDERGARMENT NON KNIT	FU	SF	2.084	2.070	1.693
299	CRUDE VEG MATERIALS NES	FA	SM	2.799	2.397	1.578
671	PIG IRON ETC	FM	SF	0.000	0.992	1.474
635	WOOD MANUFACTURES NES	FU	SF	0.000	0.657	1.466
845	OUTERWEAR KNIT NONELASTIC	FU	MF	0.561	1.071	1.329
846	UNDERGARMENTS KNITTED	FU	SF	1.292	1.314	1.183
894	TOYS, SPORTING GOODS, ETC	FU	MF	0.572	0.745	1.057
036	SHELL FISH FRESH, FROZEN	FA	SF	1.389	1.203	1.050
Memorandum						
075	SPICES	FA	SS	5.256	5.963	N.A.
037	FISH ETC PREPD, PRSVD NES	FA	SF	2.277	1.941	N.A.
781	PASSENGER MOTOR VEHICLES	FH	LM	0.000	0.000	0.055

Note: -

L : Large (1.0%)

M : Medium (0.5 - 1.0%)

S : Small (below 0.5%)

F : Fast (12%)

M : Medium (6 - 12%)

S : Slow, negative (below 6%)

FA : Agricultural resource intensive

FM : Mineral resource intensive

FU : Unskilled labor intensive

FH : Human capital intensive

FT : Technology intensive

Source: Author's computations based on UN Trade Statistics Yearbook, Various Issues.

3.3.2 Challenge for the Future

More recently, Malaysia has emerged as the most prosperous development hub in the South East Asian region owing not only to the economic dynamism but also to its leadership in the international political scene. Behind its unprecedented economic growth at an average of 8.5 percent per annum during 1991-1995, the fastest in the region, has been the investment in export-oriented manufactures and the rapid growth in export earnings of these industries. Malaysia has been able to take advantage of the FDI waves as companies in the developed countries relocate their production bases to low-cost areas. Its ability to attract FDI through its well-developed infrastructure, fairly efficient administration, and a reasonable pool of semi-skilled workforce has reduced its requirement to rely on debt financing either domestically or abroad. FDI has also made it easier to penetrate into new markets through the existing worldwide network of the investing companies.

As mentioned earlier, rising labour costs and exchange rates in Japan and the Asian NIEs led to offshore investment in Malaysia, particularly for the industries that require higher skilled labour not easily available in the other Asia's low-wage countries. However, as competition to induce FDI becomes stiffer, coupled with its limited pool of skilled labour, Malaysia is challenged with the possibility of FDI flowing to other more attractive locations. In fact, the inflow of FDI has been stagnant since 1993 when there was a surge of FDI in China. Besides competing for FDI, it is likely that Malaysia will soon face the same difficulties in sustaining competitiveness in the export market as the Asian NIEs, namely, increasing price competition from the cheaper cost neighbours on the one hand, and the limited ability to upgrade quality on their own on the other.

As the country tries to become a fully developed country by the year 2020, the task of widening and deepening the industrial base has been given high priority. As for the manufacturing sector, a potential weakness lies in its heavy concentration on the electrical and electronic industry. This industry has been heavily dependent on import technology as well as raw materials while the R&D activities has been largely insignificant, leading to limited product development and design capabilities. In addition, the small domestic market and unsophisticated consumer demand have hindered the upgrading of product quality.

The national car project, despite its dominance in the domestic market due mainly to the high import tariff barrier, has yet to show competitiveness in the world export market. In any case, it still relies on the foreign partner's technology and imported core parts.

A chronic and large deficit on the service account coupled with a heavy dependence on imported machinery and parts are the main causes of Malaysia's growing concern over the widening current account deficit despite its strong performance in exports and economic growth. The local content requirements of FDI is often aimed at mitigating this problem. In the medium to long term, it is crucial to promote the small- and medium-scale industries which are expected to play a pivotal role in developing the local parts industry. It will not be achieved overnight, however, because this requires an educational and business environment that will produce innovative and competitive entrepreneurs as well as effective training facilities that will enhance the skill of workers for new business.

An ambitious Multimedia Super Corridor (MSC),⁹⁸ which is often dubbed as Malaysian Silicon Valley and will provide a regional launch site for international companies to develop or to use leading multimedia technologies, seems to grow out of the efforts to make up for the sluggish assembly-oriented FDIs as well as to step up a technology ladder based on the country's strength in the electronic and electrical industry. It is too soon to assess the success of this initiative because it has just begun. It is also a fact that the latest and most crucial information technology are not likely to be released or transferred easily but instead tend to be kept close to the chest. Moreover, Singapore's recent declaration to transform the country into an Intelligent Island, or another Silicon Valley in the region, may be a threat to the MSC. However, Malaysia can still benefit from the project as at least it will function as a testing field for the high-tech information industries, which will eventually spill over to the entire economy.

98. Seven multimedia industries are designated as "Flagship Applications," namely electronic government, smart school, telemedicine, R&D clusters, national multipurpose card, borderless marketing centres, and worldwide manufacturing webs. Only the companies awarded MSC status will be able to apply for these contracts and other incentives such as tax holidays.

Given the country's abundant natural resources, there is still a lot of room for exploitation. The introduction of new labour saving technologies and the intensified R&D in both upstream and downstream products would be crucial to maintain and upgrade its competitive advantage. In this respect, wood products and palm oil have the highest growth potential. The greater expansion of resource-based industries will help to widen and deepen the manufacturing sector.

3.4 Nepal

3.4.1 Changes in Competitive Position

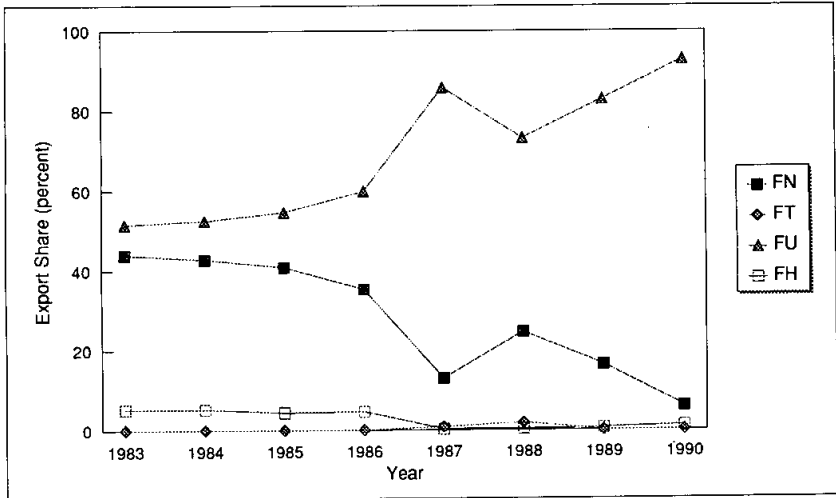
Nepal's economic structure is predominantly agricultural. The agricultural sector accounts for more than 40 percent of GDP as well as 90 percent of employment while the manufacturing sector contributes less than 10 percent to GDP. The country is not well-endowed with natural resources. Productivity in the agricultural sector is relatively low due mainly to the predominantly weather-dependent method of farming and moderately efficient irrigation system. Development in manufactures has also been constrained by the small domestic market, strong Indian competition, the country's landlocked position, and the lack of infrastructure, skilled manpower and capital.⁹⁹

Major export items are carpets and garments, which account for more than 85 percent of total exports in 1990. Leather, vegetable materials and jute are also important items of exports. The industrialisation strategy has been to encourage private investment, especially for labour-intensive exports, import substitutes, and cottage industries. As illustrated in Figure 3.3.7, exports of labour-intensive industry represented by carpets and garments has picked up since the mid-1980s with its share in total exports rising steadily to above 90 percent in 1990. Meanwhile, the export share of food and live animals as well as non-fuel crude materials declined steadily.

Competitiveness measured by the RCA index in Table 3.3.4 reveals that, despite having a small share in the country's exports, jute topped the competitiveness list because of its relatively large share in the world

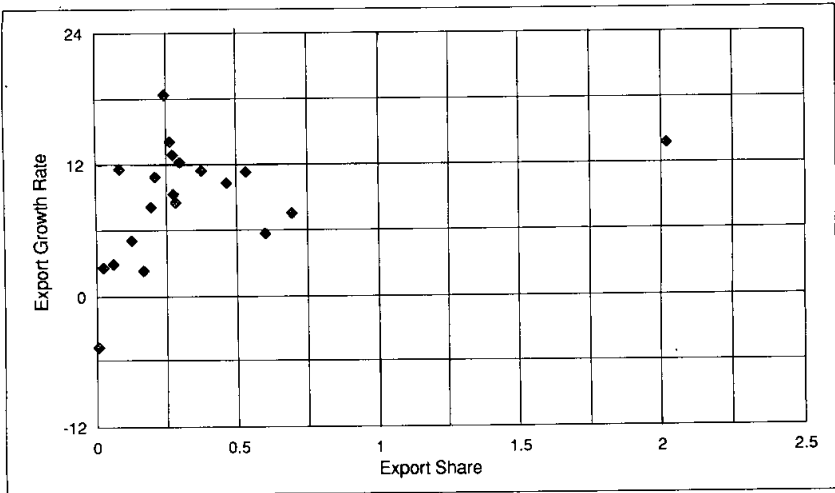
99. EIU, "Country Profile: Nepal, 1996-1997," The Economist Intelligence Unit Ltd., 1996, p. 90.

FIGURE 3.3.7
SHARE OF EXPORTS BY FACTOR INTENSITY
 (NEPAL)



FN : Natural resource intensive FT: Technology intensive FU: Unskilled labor intensive FH: Human capital intensive

FIGURE 3.3.8
COMPETITIVE INDUSTRIES' POSITION IN THE WORLD MARKET
 (NEPAL)



export market. It is followed by carpets (floor coverings) and undergarments whose index values exceed 1. While carpets and undergarments have steadily increased their competitive strength, the other industries show inconsistent trend. Metal handicraft (SITC 697), hides and skins, and gold, silverware, and ornaments have also shown increasing competitiveness.

3.4.2 Challenge for the Future

Export promotion policies pursued so far have not been much different from other developing countries. They include a wide range of tax and financial incentives, establishment of Export Promotion Zones, privatisation of state enterprises, and so on. However, these policies have had limited success due mainly to some structural constraints. To begin with, its land-locked position raises a number of difficulties in transporting its exports and imports. The transit of these goods through India not only raises cost but also subject the country to a treaty with India which may not always be to its advantage. It is also difficult, if not impossible, for Nepal to benefit from economy of scale in view of its small population base and consequently narrow industrial base. This inevitably leads to a concentration of industrial activities on labour intensive, small-scale industries such as carpets, garments and handicrafts. In fact, these factors have also been responsible for the relatively small FDI inflows to Nepal and further limit the country's industrialisation efforts.

Since industrial development is at an infant stage, it can be argued that import substitution is as important as export promotion in the short run so that the essential consumer goods imported to meet domestic demand can be substituted by local products.¹⁰⁰ It should be kept in mind, however, that the success of import-substitution policies, as experienced by other countries, depends critically on the availability of abundant natural resources or well educated human resources. Since Nepal has limited natural resources, it needs to improve the quality of its workforce by emphasising education in the longer run.

Although the landlocked position is a major obstacle, this problem is not insurmountable. Notwithstanding the limitation of the contagion

100. Azizah Talib, *op cit.*, p. 227.

TABLE 3.3.4
COMPETITIVE INDUSTRIES BASED ON THE RCA INDEX
(NEPAL)

SITC	TITLE	FACTOR INTENSITY	WORLD MARKET	1983-1985	1986-1988	1989-1990
264	JUTE, OTH TEX BAST FIBRES	FA	SN	585.540	302.669	242.032
659	FLOOR COVERINGS, ETC	FU	SM	69.351	103.246	182.210
844	UNDERGARMENT NON KNIT	FU	SF	3.276	39.843	130.625
075	SPICES	FA	SS	54.428	39.626	35.602
223	SEEDS FOR OTH FIXED OILS	FA	SS	96.358	119.622	30.467
611	LEATHER	FU	SF	30.473	24.628	18.927
292	CRUDE VEG MATERIALS NES	FA	SM	6.010	3.111	9.757
424	FIXED VEG OILS NONSOFT	FA	SS	11.220	13.369	6.358
273	STONE, SAND AND GRAVEL	FM	SM	5.781	1.297	5.705
023	BUTTER	FA	SS	14.825	6.892	5.155
081	FEEDING STUFF FOR ANIMALS	FA	MS	6.639	3.906	4.470
697	BASE MTL HOUSEHOLD EQUIP	FU	SM	0.000	2.176	3.662
211	HIDES, SKINS, EXC FURS, RAW	FA	SM	0.000	0.674	3.085
054	VEG ETC FRSH, SMPLY PRSVD	FA	MM	14.214	14.658	2.964
057	FRUIT, NUTS, FRESH, DRIED	FA	MM	0.155	0.247	2.493
001	LIVE ANIMALS FOR FOOD	FA	SM	24.607	10.061	2.238
897	GOLD, SILVERWARE, JEWELRY	FH	MM	0.000	0.350	2.119
654	OTH WOVEN TEXTILE FABRIC	FU	SF	32.962	10.779	1.928
931	SPECIAL TRANSACTIONS	FU	LF	6.824	1.731	1.874
658	TEXTILE ARTICLES ETC	FU	SF	35.726	6.355	1.660
Memorandum						
657	SPECIAL TXTL FARBC, PRODS	FU	SF	8.048	1.982	0.395
896	WORKS OF ART ETC	FH	SM	2.976	2.302	N.A.
843	WOMENS OUTERWEAR NON KNIT	FU	MF	13.133	14.024	N.A.
532	DYES NES, TANNING PROD	FH	SM	234.685	58.545	N.A.

Note: -

L : Large (1.0%)

M : Medium (0.5 - 1.0%)

S : Small (below 0.5%)

F : Fast (12%)

M : Medium (6 - 12%)

S : Slow, negative (below 6%)

FA : Agricultural resource intensive

FM : Mineral resource intensive

FU : Unskilled labor intensive

FH : Human capital intensive

FT : Technology intensive

Sources: Author's computations based on UN Trade Statistics Yearbook, Various Issues.

hypothesis,¹⁰¹ it may be worthwhile to study how Switzerland which itself is a land-locked country with poor resource endowment and multiple cultures, became one of the world's richest countries.¹⁰²

3.5 The Philippines

3.5.1 Changes in Competitive Position

The Philippines is endowed with relatively moderate natural resources, not as abundant as Indonesia and Malaysia but much better than Korea and Nepal. The tropical climate brings occasional devastating typhoons on the one hand, but provides sources for agriculture, fishery, and forestry on the other. The 68 million population which are relatively well-educated provide a pool of both skilled and unskilled low-cost workforce, of which some 3.3 millions are reported to work abroad as overseas contract workers remitting foreign exchange earnings back home.

An assessment of the Philippines' export structure during 1983-1992 reveals that the exports of unskilled labour-intensive products, notably garments, have been gaining importance with its share in total exports rising steadily to be the top export earner. The export share of natural resource intensive products, on the other hand, has been declining. For the human resource intensive products, their export share is increasing due to rapid growth in the electronic industry. The change, however, is not as dramatic as in the case of Indonesia because industrialisation in the Philippines began much earlier with less abundant natural resources. It is also different from Malaysia in that the Philippines' manufacturing sector has been more evenly distributed between garments and electronic components while in Malaysia, it has been heavily concentrated on electronic and electrical products.

The Philippines has shown competitiveness in 35 SITC 3-digit industries during 1990-1992 (Table 3.3.5). The top 20 industries are:

101. Individual economies might have been more successful together than they would have been in isolation through the imitation of each other's policies, technologies, and business strategies as well as expedited international trade. The contagion hypothesis has some aspects in common with the "flying geese" model. See Peter Petri, "The Lessons of East Asia," The World Bank, 1993, pp. 7-8.

102. For details, see Michael E. Porter, *op cit.*, 1990, pp. 307-331.

copra and coconut (copra) oil which topped its competitiveness list; metal ores such as copper, iron, and chrome; shrimps and prawns; banana and pineapples; various garments; prefabricated wood products; and SITC 931 consisting of all the export items from the EPZs¹⁰³ which is the single biggest industry in terms of export share accounting for more than 20 percent of the country's exports and mainly consists of garments and electronic components.

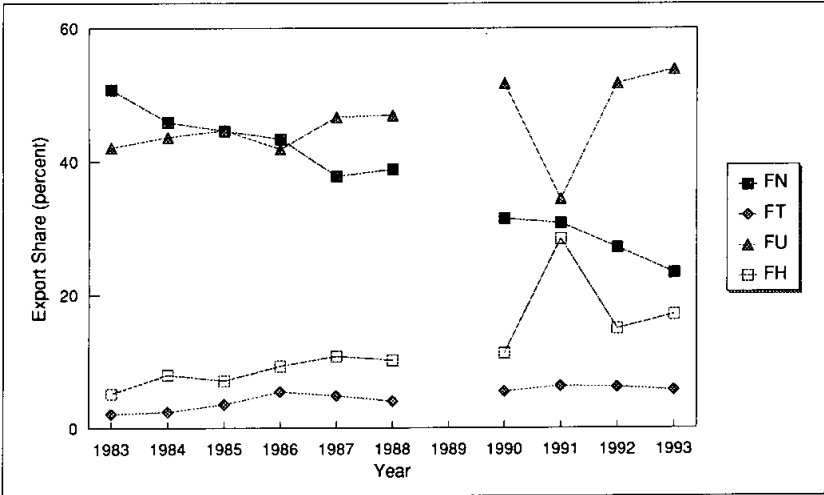
The electrical and electronic industry, excluding the EPZ portion, accounts for about 20 percent of total exports during 1991-1993. Competitive products are electrical distributing equipment such as insulated wire and cable (SITC 77310); telecommunication equipment such as microphone, transmitter, and radar apparatus; and audio receivers (see Table A.2). Although the transistors and microcircuit industry (SITC 776) accounts for 9.6 percent of total exports and seems to be competitive with the RCA index greater than 1, they are excluded because their imports exceeded the exports. As is often the case in developing countries, most of the companies in the electronic sector are foreign owned or related.

The Philippines economy had suffered some setbacks caused by economic mismanagement during the 1970s and the early 1980s as well as frequent changes in economic and industrial policies due partly to political instability in the late 1980s. Industrialisation through import-substitution strategy prevailed until the mid-1960s, before switching to export promotion policies giving a wide range of subsidies and duty exemption as well as establishing the EPZs in 1972 only to be reversed soon after the declaration of the martial law.

Despite the efforts to develop labour-intensive manufactured exports through the EPZs, the manufacturing sector in general has been oriented towards the domestic consumer goods market until the mid-1980s. The sector remains largely inefficient due to the complacency induced by a long experience in protection under the import-substitution era. In addition, the export sector industries have had little linkages to the rest of the economy because the garment and electronic industries are mainly based on highly labour-intensive assembly and

103. Exports from the Export Processing Zones are classified as SITC 931 in the Philippines, which are also classified as unskilled labour intensive in this study.

FIGURE 3.3.9
SHARE OF EXPORTS BY FACTOR INTENSITY
(THE PHILIPPINES)



FN : Natural resource intensive FT: Technology intensive FU: Unskilled labor intensive FH: Human capital intensive

FIGURE 3.3.10
COMPETITIVE INDUSTRIES' POSITION IN THE WORLD MARKET
(THE PHILIPPINES)

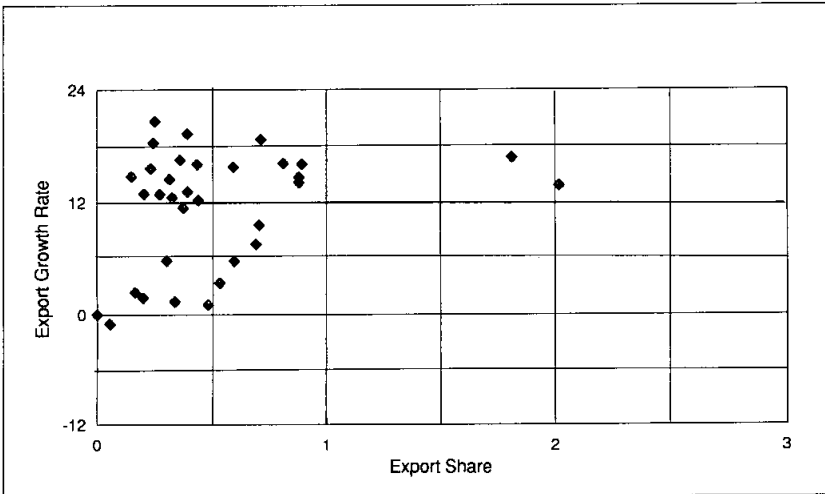


TABLE 3.3.5
COMPETITIVE INDUSTRIES BASED ON THE RCA INDEX
(THE PHILIPPINES)

SITC	TITLE	FACTOR INTENSITY	WORLD MARKET	1983-1985	1986-1988	1990-1992
424	FIXED VEG OILS NONSOFT	FA	SS	45.743	53.775	36.682
499	PROCESD ANML VEG OIL, ETC	FA	SS	-9.261	9.286	35.908
289	PREC MTAL ORES, WASTE NES	FM	SN	30.021	40.375	27.073
931	SPECIAL TRANSACTIONS	FU	LF	24.738	17.274	10.290
036	SHELL FISH FRESH, FROZEN	FA	SF	4.224	8.501	8.576
058	FRUIT PRESERVED, PREPARED	FA	SS	8.963	9.422	7.056
846	UNDERGARMENTS KNITTED	FU	SF	6.404	5.116	6.550
037	FISH ETC PREPD, PRSVD NES	FA	SF	7.430	6.149	6.484
635	WOOD MANUFACTURES NES	FU	SF	6.369	5.579	6.279
899	OTHER MANUFACTURED GOODS	FU	SF	8.698	8.026	6.088
287	BASE METAL ORES, CONC NES	FM	MS	6.719	6.274	5.848
057	FRUIT, NUTS, FRESH, DRIED	FA	MM	7.350	6.739	5.402
773	ELECTR DISTRIBUTNG EQUIP	FT	SF	0.000	0.000	5.250
682	COPPER EXC CEMENT COPPER	FM	MM	3.829	6.425	4.134
845	OUTERWEAR KNIT NONELASTIC	FU	MF	2.912	3.055	4.030
061	SUGAR AND HONEY	FA	MS	9.283	3.352	3.989
299	CRUDE VEG MATERIALS NES	FA	SM	3.777	4.968	3.868
843	WOMENS OUTERWEAR NON KNIT	FU	MF	2.309	1.412	3.402
848	HEADGEAR, NONTXL CLOTHING	FU	SF	0.000	0.000	2.904
842	MENS OUTERWEAR NON KNIT	FU	MF	3.456	1.776	2.890
844	UNDERGARMENT NON KNIT	FU	SF	1.870	1.324	2.584
634	VENEERS, PLYWOOD, ETC	FU	SF	7.796	5.602	2.295
821	FURNITURE, PARTS THEREOF	FU	MF	3.312	2.851	2.291
121	TOBACCO UNMNFCTRD, REFUSE	FA	SS	2.432	2.173	2.219
831	TRAVEL GOODS, HANDBAGS	FU	SF	0.000	0.785	2.142
764	TELECOM EOPT, PTS, ACC NES	FH	LF	0.000	0.175	1.940
847	TEXTILE CLTHNG ACCES NES	FU	SF	0.000	0.000	1.714
658	TEXTILE ARTICLES ETC	FU	SF	0.000	0.822	1.627
292	CRUDE VEG MATERIALS NES	FA	SM	1.265	1.414	1.613
894	TOYS, SPORTING GOODS, ETC	FU	MF	0.998	0.687	1.599
851	FOOTWEAR	FU	MF	1.675	0.805	1.430
081	FEEDING STUFF FOR ANIMALS	FA	MS	1.710	2.377	1.376
762	RADIO BROADCAST RECEIVRS	FH	SF	0.600	0.104	1.127
281	IRON ORE, CONCENTRATES	FM	SS	0.000	0.000	1.039
Memorandum						
671	PIG IRON ETC	FM	SF	2.937	2.640	0.990
799	SHIPS AND BOATS ETC	FH	LM	1.183	0.882	0.515
072	COCOA	FA	SS	1.172	0.359	N.A.
683	NICKEL	FM	SF	9.894	1.382	N.A.
071	COFFEE AND SUBSTITUTES	FA	MN	1.839	2.063	N.A.
431	PROCESD ANML VEG OIL, ETC	FA	SM	4.031	3.216	N.A.
265	VEG FIBRE, EXCL COTN JUTE	FA	SS	29.737	33.975	N.A.
248	WOOD SHAPED, SLEEPERS	FA	MM	4.612	2.603	N.A.

Note: -

L : Large (1.0%)

M : Medium (0.5 - 1.0%)

S : Small (below 0.5%)

F : Fast (12%)

M : Medium (6 - 12%)

S : Slow, negative (below 6%)

FA : Agricultural resource intensive

FM : Mineral resource intensive

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FH : Human capital intensive

FT : Technology intensive

Source: Author's computations based on UN Trade Statistics Yearbook, Various Issues.

packaging activities and operated by the foreign firms on consignment basis. They also have very high import content. The import components accounted for 70 percent of the value of electronic exports. For garment, the inputs are entirely imported duty-free, hence virtually no integration of the textile and garment industries to the rest of the economy has occurred.¹⁰⁴ Judging from the relatively small share of manufactured exports in total exports, its role has not been as significant as in other countries (see Table 3.2.1).

The government's extensive ownership in productive activities such as airlines, steel, oil, sugar and coconut also, to some extent, retarded the productivity growth in the manufacturing sector in general. In fact, the pervasive role of government peaked during the financial crisis in 1983, when it took control of private firms engaging in the mining, textile factories, construction companies, and hotels which were suffering from financial difficulty. The heavy involvement of government in major industries were often blamed for further compounding the problem of inefficiency.

The current government's industrialisation policy which encourages exports and competitiveness seems to bear fruit. Under the economic reform package under the IMF stand-by agreement and the rescheduling of external debt, the measures have been focusing on improving productivity in the agricultural sector, as well as enhancing efficiency by privatising state-owned companies and liberalising trade. The privatisation programme has been extensive and impressive, involving big government owned institutions such as the Philippines National Bank and the National Power Corporation.

Despite a long history of industrialisation dating back to the early 1950s, the primary sector including agriculture, forestry and fishery had been a major factor contributing to both output and exports until recently. The recent policy emphasis seems, in a sense, to underestimate the importance of this sector which absorbs more than 40 percent of total employment. Like many other low- and middle-income developing countries, there are great scope and benefits to obtain from enhancing the productivity of the primary sector.

104. Marcus Noland, "Pacific Basin Developing Countries," Institute for International Economics, 1990, p. 82.

3.5.2 Challenge for the Future

The severe economic crisis in 1983 coupled with political instability caused a major setback in the country's economic development. However, the Philippines' potential in terms of both natural and human resources has not been fully realised. In this respect, enhancing efficiency is crucial in overcoming economic and political crisis. There are, however, a few obstacles that need to be overcome to gain efficiency. Long beset by external debt problems, the country is just beginning to be able to compete with other countries in attracting FDI which offers the best available short-cut to industrialisation. Besides the external debt problem, infrastructure bottleneck is another impediment to improving competitiveness as well as attracting FDI. The key areas of concern here are the transportation network and the electrical generating capacity. Not only should the capacity be expanded, but also the tariff structure be revised so that Philippines' exporters can be placed on the same competitive footing as their competitors in other countries.¹⁰⁵ While it is true that upgrading infrastructure requires huge investment, mostly through public investment, the private sector should be encouraged to participate. As for electricity, geothermal power generation seems to have the greatest potential, as it is time-tested to be cost effective. In fact, it has been commercialised in the Philippines, and become the second largest source of energy.

The Philippines' education system is relatively strong and the overall educational level of the workforce can be comparable to the Asian NIEs and reportedly exceeds several ASEAN countries. However, it has been pointed out that the indigenous capacity to adapt new technology, which is critical to technological advancement, does not seem to match its general education level reported in Table 3.2.3. This is partly because the universities traditionally have produced more lawyers than engineers, and partly because private firms have paid little attention to technical training or upgrading of staff. In order to step up on a higher technology ladder, greater emphasis should be on engineering training in the formal tertiary level, while more technical training facilities should be established in cooperation with private firms.

As for the FDI, there were many reasons why the Philippines lagged behind the other developing countries in the region in attracting

105. Marcus Noland, *op cit.*, 1990, p. 69.

FDI (see Table A.5). These are, among others, political instability, poor macroeconomic performance and inability to adapt existing technologies to local conditions. However, thanks to the country's improved political profile, the inflow of FDI has been increasing substantially in the recent years. The economy should gain momentum further with stronger macroeconomic achievement, and make use of every sources of competitiveness for greater efficiency.

Lastly, the Philippines' competitiveness thus far has been heavily dependent on natural resources and cheap labour cost. Its relative strength in cheap labour cost, however, has not been fully realised yet. Labour-intensive industries can be further developed to promote industrial clustering, for instance, by deepening and widening the textile and garment industry. With regard to the agricultural sector where most of the population are involved in and most of the poverty exist, it really requires improvement in productivity. The government's policy should focus more on developing the local processing industry even if trade barriers of developed countries to processed products are increasingly high.

3.6 Singapore

3.6.1 Changes in Competitive Position

As a city-state virtually without any natural resources, what distinguishes Singapore from other SEACEN countries is its openness and the major role played by the foreign firms in the economy. Foreign companies, defined as firms with more than 50 percent foreign equity, produced 76 percent of Singapore's total output and accounted for 74 percent of value added and 86 percent of direct exports in 1989.¹⁰⁶ However, it is the human resources that turned Singapore into a high-income industrialised country as well as attracted foreign firms to maintain their operations. For all this, the government's role has been instrumental.

Singapore has developed from an entrepot into a manufacturer, and subsequently a provider of services. A relatively high share of natural resource intensive exports demonstrates its traditional entrepot

106. Azizah Talib, op cit., 1994, p. 363.

status. As globalisation proceeds, however, the importance of entrepot trade decreases, and the share of natural resource intensive exports declines correspondingly.¹⁰⁷ A rapidly increasing share of human resource intensive exports is a reflection of Singapore's growing electronic industry, which is at a more advanced level than the neighbouring countries. While the electronic industry in those countries is still characterised by assembling and packaging, Singapore has moved towards high-value-added and more sophisticated products. Technology intensive industry also recorded relatively high shares, averaging 17.4 percent during 1983-1992, which reflects its strength in the petro-chemical industry. Figure 3.3.11 illustrates this.

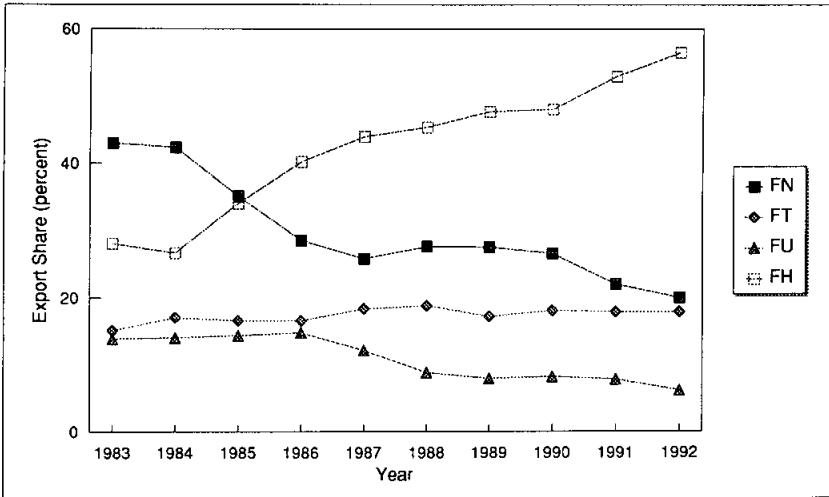
The number of industries identified as competitive in terms of the RCA index adjusted for trade deficit is relatively small. This is mainly due to the country's heavy reliance on imported inputs. Interestingly, natural rubber and tin topped the competitiveness list even after the adjustment, reflecting mainly entrepot trade with Malaysia. However, on account that these industries form only 1 percent of total exports and the fact that detailed re-exports data by industry are not readily available, we will disregard them in our analysis.

Thus, it is fair to say that Singapore's competitiveness is led by electronic industry which includes audio receivers, computers and peripherals, TV receivers, VCRs, and office machines. Singapore is the world leading producer of computer disk-drive, mostly by foreign MNCs. It is noteworthy that some domestic firms have carved out niches in the manufactures of certain computer peripherals, among which PC sound card stands out. However, efforts to develop advanced integrated circuits (SITC 77640) do not seem to bear fruit yet (see Table A.2).

Several sub-sectors in the petro-chemical industry, which has been targeted for promotion by the government, also have shown competitiveness. Despite the decreasing share in exports, from 22.3 percent during 1984-1986 to 13.8 percent during 1990-1992, they remain among

107. The share of re-exports, which are defined as exports without undergoing the process of transformation, in total exports has remained at around 16 percent during the period under study. See Danda Pani Paudel, ed., "Export Promotion Strategies of the SEACEN Countries," The SEACEN Centre, 1994, pp. 255-259.

FIGURE 3.3.11
SHARE OF EXPORTS BY FACTOR INTENSITY
(SINGAPORE)



FN : Natural resource intensive FT: Technology intensive FU: Unskilled labor intensive FH: Human capital intensive

FIGURE 3.3.12
COMPETITIVE INDUSTRIES' POSITION IN THE WORLD MARKET
(SINGAPORE)

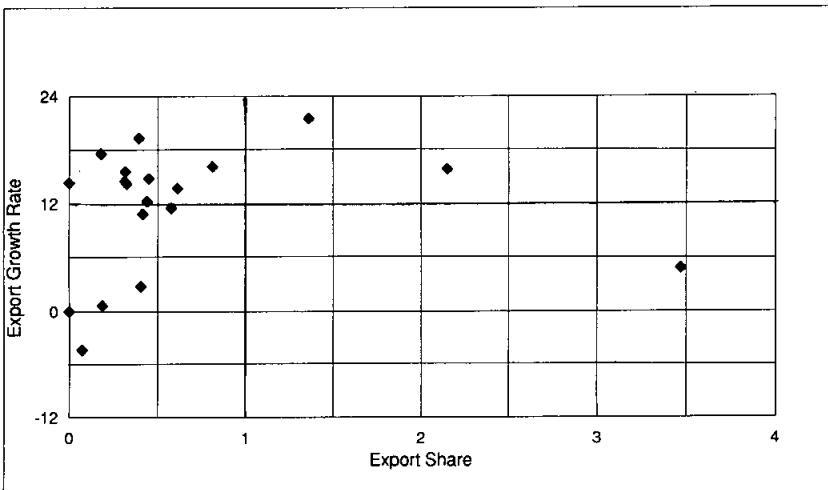


TABLE 3.3.6
COMPETITIVE INDUSTRIES BASED ON THE RCA INDEX
(SINGAPORE)

SITC	TITLE	FACTOR INTENSITY	WORLD MARKET	1983-1985	1986-1989	1990-1992
232	NATURAL RUBBER, GUMS	FA	SS	17.240	13.444	9.323
687	TIN	FM	SN	11.443	9.749	8.717
762	RADIO BROADCAST RECEIVRS	FH	SF	7.122	8.162	7.016
752	AUTOMTIC DATA PROC EQUIP	FH	LF	2.889	4.715	6.491
334	PETROLEUM PRODUCTS, REFIN	FM	LS	6.798	4.373	5.803
761	TELEVISION RECEIVRS	FH	MF	4.779	5.633	4.965
515	ORG-INORG COMPOUNDS ETC	FT	SM	2.186	2.298	3.295
759	OFFICE, ADP MCH PTS, ACCES	FH	LF	2.012	2.407	2.662
072	COCOA	FA	SS	2.423	3.291	2.537
751	OFFICE MACHINES	FH	SM	1.221	1.588	1.814
845	OUTERWEAR KNIT.NONELASTIC	FU	MF	1.782	1.639	1.464
785	CYCLES, ETC MOTRZD OR NOT	FH	SF	0.000	0.000	1.389
655	KNITTED, ETC FABRICS	FU	SF	0.000	0.000	1.360
743	PUMPS NES, CENTRFUGES ETC	FT	MF	1.550	1.498	1.341
634	VENEERS, PLYWOOD, ETC	FU	SF	3.872	2.434	1.328
846	UNDERGARMENTS KNITTED	FU	SF	1.260	1.404	1.298
583	POLYMERIZATION ETC PRODS	FT	LF	1.088	1.241	1.287
872	MEDICAL INSTRUMENTS NES	FT	SF	0.000	0.000	1.180
892	PRINTED MATTER	FH	MM	0.871	0.991	1.076

Note: -

L : Large (1.0%)

M : Medium (0.5 - 1.0%)

S : Small (below 0.5%)

F : Fast (12%)

M : Medium (6 - 12%)

S : Slow, negative (below 6%)

FA : Agricultural resource intensive

FM : Mineral resource intensive

FU : Unskilled labor intensive

FH : Human capital intensive

FT : Technology intensive

Source: Author's computations based on UN Trade Statistics Yearbook, Various Issues.

the top ten competitive industries. While petroleum refinery products such as gasoline and lubricant have shown stagnant competitiveness, chemical products such as compounds and polymerised plastics have strengthened in competitiveness in recent years.

Printed matter deserves a special mention, not only because it has emerged as a competitive industry, but also because extensive computerisation is a major source behind its competitiveness. In addition, the ability to produce high-quality printing requires highly educated and skilled human resources, which is in line with Singapore's underlining competitive strength.

In general, Singapore's competitiveness profile does not conform to a traditional explanation of a comparative advantage based on factor endowment. Rather, it is better explained by a strategic trade policy of strong government intervention.

As mentioned above, Singapore is practically a free-trade economy, with minimal import duties since 1981 and virtually without any physical trade restrictions. Except for a short import-substitution period in the early 1960s, trade policy has been directed toward export promotion, which includes export subsidies and the development of overseas marketing services. Policy measures to attract FDI have been extensive with tax incentives and no restrictions on the establishment, equity participation, profit repatriation, and local-content requirements. Moreover, the labour law was revised in 1969 to enhance the attractiveness of Singapore as a place to invest. Among others, the law allowed for the extension of the standard work week, reduction in the number of holidays, tightening of labour union's power, and restrictions on various fringe benefits.¹⁰⁸

It is foreign investment that initially drove the manufacturing sector, mainly in the form of assembly and packaging of electronic products and components. However, the government successfully guided the manufacturing sector to become more sophisticated using high-technology. In order to develop higher-value-added industries that are producing human capital intensive engineering products, the govern-

108. Marcus Noland, *op cit.*, pp. 23-24.

ment encouraged and invested in education, training, automation, and R&D through appropriate financial and other incentives. Being aware of its resource limitation, particularly the acute shortage of labour, the labour-intensive industries are encouraged to be relocated to neighbouring countries where labour costs are still cheap. This not only force the domestic industry up in the higher technology ladder, but also maintain its cost competitiveness.

Well-developed infrastructure is another important factor that attracts FDI to Singapore. In choosing Singapore as a manufacturing base, the MNCs recognised the benefits from excellent transportation and telecommunication facilities that were initially developed to facilitate its role as entrepot and financial center. However, shortage of land and labour supply have raised production cost in Singapore, giving rise to a cost disadvantage which may offset other financial and tax incentives.¹⁰⁹

3.6.2 Challenge for the Future

Labour and land constraints have been the key issues on the government's agenda for maintaining competitiveness. Consequently, since late 1980s, the government has turned its attention to expanding Singapore's investment abroad. Local firms have been encouraged to invest across the Asia-Pacific region, especially to bid for developing major industrial park projects which Singapore seems to have expertise from its long experience of planning and implementing infrastructure. Manufacturing companies are also urged to invest abroad either as a joint venture or a consortium with MNCs and local companies in the host country.

On the other hand, sustained inward FDI remains crucial because the country's heavy dependence on it cannot be reversed overnight. Most of the FDIs are concentrated on the electrical and electronic industry which is subject to frequent technological changes and has become more human capital intensive. On the whole, the FDIs to Singapore have been increasing steadily except for 1985 and 1989.

109. In fact, the government once implemented a high-wage policy as a means of industrial upgrading, which was reversed eventually realising that the policy simply pushed the existing industries to price themselves out of the world market.

Thanks to the recent boom in microelectronics, FDIs in electronics have increased from S\$1.1 billion in 1990 to S\$1.5 billion S\$ in 1994. However, the share of FDIs to petroleum and industrial chemicals industries outpaced that of electronics in 1994. This can be interpreted either as a good sign for diversification or as a warning of a possible slowdown in the electronic industry. Another concern is that despite the government's efforts to raise technological adaptability as well as to develop indigenous technology, the current FDIs are still characterised by low- and medium-level technology. A plan to make Singapore an Intelligent Island is part of its strategy to remain competitive in attracting FDIs.

In this context, it is hard to predict the future export profile of Singapore. The best guess is an eclectic one, resulting from a simultaneous promotion of both outward investment and inward FDI. However, there are a few areas of concern in the overseas investment by private companies. Firstly, the Singaporean investors seem to lack exposure in the competitive manufacturing industry which has so far been dominated either by MNCs or the state enterprises. Moreover, till now much of the overseas investment by Singaporeans are reportedly in residential property, not commercial facilities or manufactures.

Notwithstanding criticism by some academics, notably Young and Krugman,¹¹⁰ Singapore's success thus far can generally be attributable to the government's deliberate and extensive involvement. Beyond this point, however, it is doubtful whether the interventionist approach will be as effective as before on the ground that high-value-added industries which require more creativity will operate better in a more free-wheeling environment. This makes it imperative to nurture free-thinking and creative entrepreneurship.

110. They argued that Singapore's growth can be explained by increases in measured inputs, not by increased efficiency. See Alwyn Young, "A Tale of Two Cities: Factor Accumulation and Technical Change in Hong Kong and Singapore," NBER Macroeconomics Annual 1992, MIT Press, and Paul Krugman, "The Myth of Asia's Miracle," *Foreign Affairs*, Vol. 73, No. 6, Nov. 1994.

3.7 Sri Lanka

3.7.1 Changes in Competitive Position¹¹¹

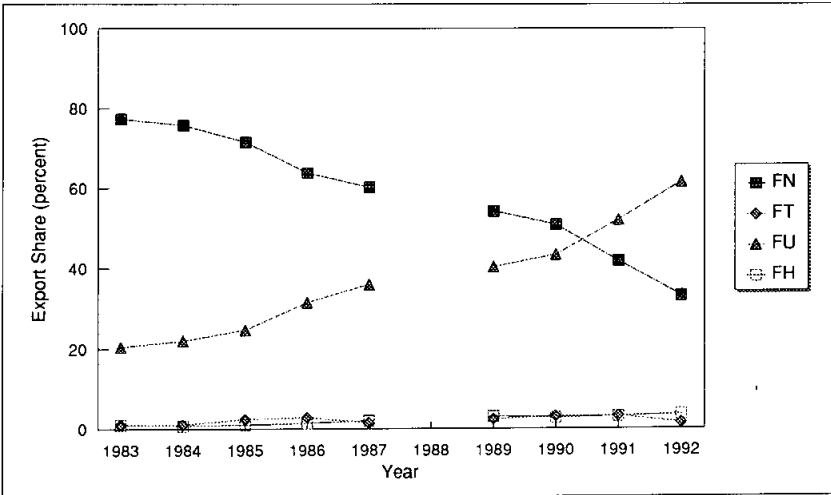
Sri Lanka is moderately endowed with natural resources. Its agriculture sector depends largely on weather and traditional method of cultivation. Tea, rubber, and coconut are the major agricultural products. Sri Lanka is the world's top tea exporter with a market share of 15.7 percent. In terms of mineral, Sri Lanka is blessed with a high concentration of gem-bearing rocks and sediments, producing a wide range of precious stones, such as rubies, sapphires, quartz. It also has fairly abundant deposits of iron ore. One-fourth of the land is covered by forests and the seas around the Islands provide abundance of fish.

Industrialisation in Sri Lanka started as early as 1970, when 94 percent of exports consisted of primary agricultural products. However, it was not until the 1980s that the industrialisation process was in earnest. Like many other developing countries, Sri Lanka also pursued inward-looking trade policies at the early stage of development. Further set back occurred during 1970-1977 when large parts of the economy were nationalised, including much of the plantation sector. The policy has been reversed since late 1977 as economic reforms based on a liberal, open policy were implemented and further strengthened with a new and rigorous liberalisation programme in 1989. On the whole, Sri Lanka's economy is still largely agricultural with agriculture and mining accounting for 25 percent of GDP, compared with the manufacturing sector's share of 20 percent.

Evaluated by factor intensity, the export structure of Sri Lanka has undergone a dramatic shift from natural resources to unskilled labour, with negligible development in human capital-intensive and technology-intensive industry (see Figure 3.3.13). The share of unskilled labour-intensive industry total exports has grown from 20 percent to 62 percent during 1983-1992, while the share of natural resource intensive industry has been halved from 77 percent to 33 percent. The former

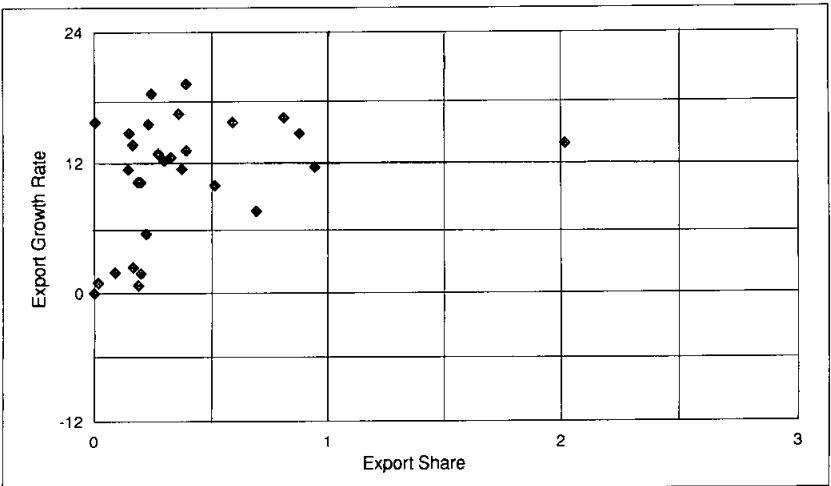
111. Due to data constraints, the competitive industries in terms of the RCA index are not adjusted for trade deficit. In other word, only the export performance is considered.

FIGURE 3.3.13
SHARE OF EXPORTS BY FACTOR INTENSITY
(SRI LANKA)



FN : Natural resource intensive FT: Technology intensive FU: Unskilled labor intensive FH: Human capital intensive

FIGURE 3.3.14
COMPETITIVE INDUSTRIES POSITION IN THE WORLD MARKET
(SRI LANKA)



is dominated by miscellaneous manufactured products (SITC 8), mainly textiles and garments, accounting for 48 percent of total exports.

Sri Lanka's competitiveness profile seems to depend mostly on natural resource endowment as shown in Table 3.3.7. There is no wonder tea and mate topped the competitiveness list, because Sri Lanka is one of the world's largest tea exporters. However, its RCA index has been declining revealing a decreased competitive strength as its export share in the world market eroded from 35 percent during 1984-1986 to 18 percent during 1991-1992. This could partly reflect a shift in demand from the traditional tea to the CTC (cut, torn, and curled) and LTP (Lawrie Tea Processor) tea which accounts for only 3 percent of Sri Lanka's tea production. Jute fiber is the second most competitive product with increasing competitiveness because the country has around 5 percent of the world market share. In spite of its small share relative to Thailand, Malaysia and Indonesia, natural rubber has been one of Sri Lanka's main export items based on comparative advantage. It should be noted that rubber products are gaining importance in competitiveness profile while natural rubber has shown a decreasing trend.

As noted earlier, the textiles and garments industry, especially for garments, has emerged as the single most important manufacturing industry. Its sub-sectors not only occupied half of the top 15 competitive industries, but also showed increasing competitiveness. However, a majority of the garments industry is operated by foreign investment companies which are mostly located in the Investment Promotion Zones and heavily dependent upon imported materials.¹¹² The presence of these foreign companies has not resulted in significant backward linkages with the domestic textile industry which, in general, does not produce the type of materials required by the garments industry.

A rapid growth in the precious stone industry, diamond cutting in particular, is noticeable. Cheap but skilled workforce with a strong tradition of handling gems has attracted international diamond companies to start joint-ventures with local companies. The industry accounted for 6 percent of the country's export, emerging as the third largest export industry.

112. Subsequently, the net foreign exchange earnings are lowered by 30 percent against gross earnings. See Danda Pani Paudel, *op cit.*, 1994, p. 322.

TABLE 3.3.7
COMPETITIVE INDUSTRIES BASED ON THE RCA INDEX
(SRI LANKA)

SITC	TITLE	FACTOR INTENSITY	WORLD MARKET	1983-1985	1986, 1987-1989	1990-1992
074	TEA AND MATE	FA	SS	388.749	351.868	278.360
265	VEG FIBRE, EXCL COTN JUTE	FA	SS	64.190	68.256	77.800
232	NATURAL RUBBER, GUMS	FA	SS	42.512	41.125	26.745
245	FUEL WOOD NES, CHARCOAL	FA	SF	87.996	71.095	21.132
844	UNDERGARMENT NON KNIT	FU	SF	19.131	16.856	18.149
843	WOMENS OUTERWEAR NON KNIT	FU	MF	17.997	18.614	17.246
842	MENS OUTERWEAR NON KNIT	FU	MF	14.806	13.288	11.612
846	UNDERGARMENTS KNITTED	FU	SF	2.614	4.568	11.290
847	TEXTILE CLTHNG ACCES NES	FU	SF	7.033	9.541	9.973
667	PEARL, PREC., SEMI-P STONES	FM	MM	3.977	7.949	7.957
845	OUTERWEAR KNIT NONELASTIC	FU	MF	2.632	3.835	6.844
666	POTTERY	FU	SM	2.813	3.056	5.628
848	HEADGEAR, NONTXL CLOTHING	FU	SF	1.878	2.117	5.468
057	FRUIT, NUTS, FRESH, DRIED	FA	MM	6.308	5.102	4.410
121	TOBACCO UNMNFCTRD, REFUSE	FA	SS	0.000	0.930	4.360
658	TEXTILE ARTICLES ETC	FU	SF	1.467	4.767	3.963
499	PROCESD ANML VEG OIL, ETC	FA	SS	-0.744	15.413	3.656
635	WOOD MANUFACTURES NES	FU	SF	0.000	2.255	2.719
628	RUBBER ARTICLES NES	FH	SF	0.000	3.017	2.490
899	OTHER MANUFACTURED GOODS	FU	SF	1.524	2.893	2.401
036	SHELL FISH FRESH, FROZEN	FA	SF	5.240	4.081	2.359
299	CRUDE VEG MATERIALS NES	FA	SM	1.732	1.657	2.314
694	STL, COPPR NAILS, NUTS, ETC	FH	SM	0.000	3.851	2.297
611	LEATHER	FU	SF	0.000	0.292	1.964
282	IRON AND STEEL SCRAP	FM	SM	0.000	1.451	1.748
424	FIXED VEG OILS NONSOFT	FA	SS	9.215	11.803	1.617
292	CRUDE VEG MATERIALS NES	FA	SM	1.066	1.832	1.530
931	SPECIAL TRANSACTIONS	FA	SM	N.A.	1.202	1.525
625	RUBBER TYRES, TUBES ECT	FH	MM	0.000	1.368	1.522
278	OTHER CRUDE MINERALS	FM	SS	1.753	1.784	1.270
Memorandum						
662	CLAY, REFRACTORY BLDG PROD	FM	SM	1.656	1.564	N.A.
075	SPICES	FA	SS	37.051	21.461	N.A.

Note: -

L : Large (1.0%)

M : Medium (0.5 - 1.0%)

S : Small (below 0.5%)

F : Fast (12%)

M : Medium (6 - 12%)

S : Slow, negative (below 6%)

FA : Agricultural resource intensive

FM : Mineral resource intensive

FU : Unskilled labor intensive

FH : Human capital intensive

FT : Technology intensive

Source: Author's computations based on UN Trade Statistics Yearbook, Various Issues.

3.7.2 Challenge for the Future

The 1990s have witnessed a remarkable advancement in liberalising and further opening of Sri Lanka's economy. The government lifted most of the exchange control measures and accepted the IMF Article VIII status. Export-oriented FDI is actively sought with generous investment incentives and simplified procedures. Recently, an incentive package was introduced with a view to encouraging foreign investment in the electronic industry. In this particular regard, an important issue concerning human resource may arise. Although Sri Lanka has been well-known to have fairly well-educated population with secondary school enrolment rate reaching 74 percent (see Table 3.2.3), the standard of education, however, has been reportedly declining, which led the government to declare 1997 the year of education reform and to overhaul the education system. Although the FDI in the electronic industry tends to be in assembling or packaging activities to exploit the abundant cheap labour, the host country should be equipped with well-educated skilled labour to take advantage of technology transfer.

In the meantime, FDIs have been encouraged not only for export promotion, but also for a wide range of activities including infrastructure, services, agriculture, tourism, and education. Some foreign investments are engaged in import-substitution products such as sugar, electrical appliances, plastic items, and the assembly of motor vehicles, which have helped the country to save foreign exchange.¹¹³ Being heavily dependent on the imported inputs in the textile and garment industry, the government plans to promote FDIs in industries which have high local contents. Despite the country's potential, however, the size of domestic market is not sufficient to attract substantial amount of FDI. Given its current internal conflict, the country is also unlikely to be selected by the MNCs to be a production base to serve regional demand.

Efforts to encourage the processing of traditional agricultural products may also be affected by the increasing protectionism from developed countries, which impose higher tariff on processed primary commodities. In the short run, however, this strategy is still a worthwhile effort because there is a lot of scope for further development in those industries. This includes improvement in production efficiency as well

113. *Ibid.*, p. 409.

as quality of products, and continued efforts to privatise inefficient state corporations.

3.8 Thailand

3.8.1 Changes in Competitive Position

The economic growth of Thailand for the past three decades was very impressive. Despite being heavily dependent on oil, it weathered the oil crisis successfully. The industrialisation policy began relatively early, focusing on import substitution at first in the 1960s, then shifted to export promotion later in the 1970s. Traditionally, the agricultural sector has contributed significantly to output, export, and employment, although its share has been decreasing. As of 1993, it accounted for almost 60 percent of employment and a quarter of total exports. The strength of the agriculture sector reflects its rich fertile land which accounts for at least 38 percent of total land. Fifty-two percent of the arable land are devoted to paddy, 25 percent under field crops, and 15 percent under tree crops.¹¹⁴ Meanwhile, it has few mineral deposit, with the exception of a small amount of natural gas and oil, and tin.

The success of Thailand's industrialisation is well demonstrated in the impressive growth of the manufacturing sector which accounted for 32.2 percent of the GDP in 1995 and 71.2 percent of total exports in 1993. The manufacturing sector is relatively broad-based, including a wide range of products such as textiles, electronic and electrical equipment, automobile, and such basic industries as cement, steel, petro-chemicals, and fertiliser to a limited degree. Like other developing countries, however, only a few industries have turned out to be successful in the world export market, notably the labour-intensive industries such as textiles, garments, and footwear, as well as some electronics and parts which generally take the form of assembly and packaging.

The pattern of changes in the export structure in terms of factor intensity appears to be similar to that of Indonesia, except that the human resource intensive industry has been growing faster than

114. The Economist Intelligence Unit, "EIU Country Profile: Thailand, 1995-1996," 1996, p. 29.

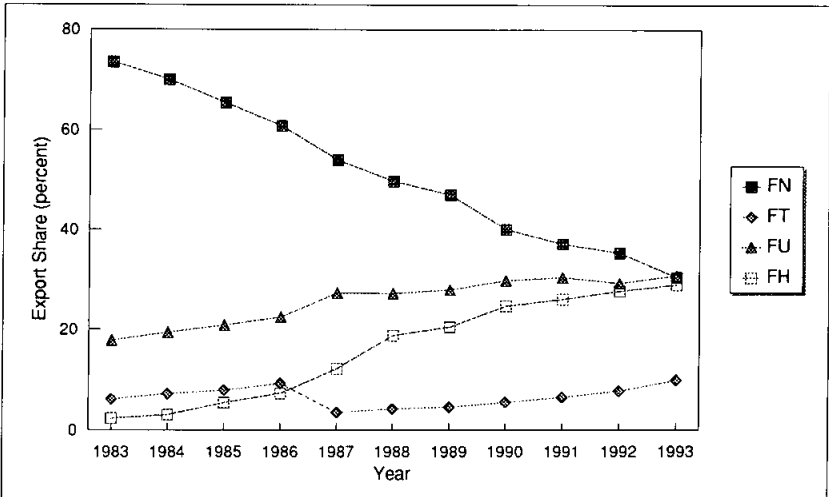
Indonesia's. As of 1992, all the three industry categories, namely natural resource intensive, human resource intensive, and unskilled labour intensive, have an almost equal share of around 30 percent of the country's total exports. Individually, the share of natural resource intensive industries reveals a sharp drop while the increase in unskilled labour-intensive industries is rather moderate. Due mainly to an increase of FDIs in the electrical and electronic sector, human resource intensive industries have shown an impressive 14-fold increase in the export share during 1983-1992. These trends are illustrated in Figure 3.3.15.

Thailand has long been one of the world's principal exporters of rice. It has also been a leading exporter of other primary commodities such as fish and prawns, rubber, and to a lesser degree sugar and fruits. For the 1991-1993 average, Thailand accounted for around 30 percent of world rice export market, 29 percent of fish and prawns combined, and 25 percent of natural rubber, outpacing Indonesia and Malaysia. As a result, these industries topped the RCA-based competitiveness list as shown in Table 3.3.8.

However, the share of these commodities in the country's total exports represented by broad classification, namely food and basic materials (SITC 0) combined with basic materials excluding fuel (SITC 2), has almost been halved from an average of 55.6 percent in 1984-1986 to 29.1 percent in 1991-1993. Machines and transportation equipment (SITC 7) and miscellaneous manufactured goods (SITC 8), on the other hand, have increased remarkably, from 9 percent to 26.7 percent, and from 14.4 percent to 26.4 percent, respectively. This shows that all the primary commodities have shown either stagnant or declining competitiveness, while industrial products have shown improvement in competitiveness.

Among the competitive industries, improved competitiveness is observed in most of the garments and footwear industries as well as electrical and electronic industries. Electrical products are represented by insulated wire and cable, and refrigerator. The furniture industry is also gaining strength in terms of both world market share and competitiveness. The textile industry, on the other hand, has been losing its competitiveness as shown in the declining RCA index during the period under study.

FIGURE 3.3.15
SHARE OF EXPORTS BY FACTOR INTENSITY
(THAILAND)



FN : Natural resource intensive FT: Technology intensive FU: Unskilled labor intensive FH: Human capital intensive

FIGURE 3.3.16
COMPETITIVE INDUSTRIES' POSITION IN THE WORLD MARKET
(THAILAND)

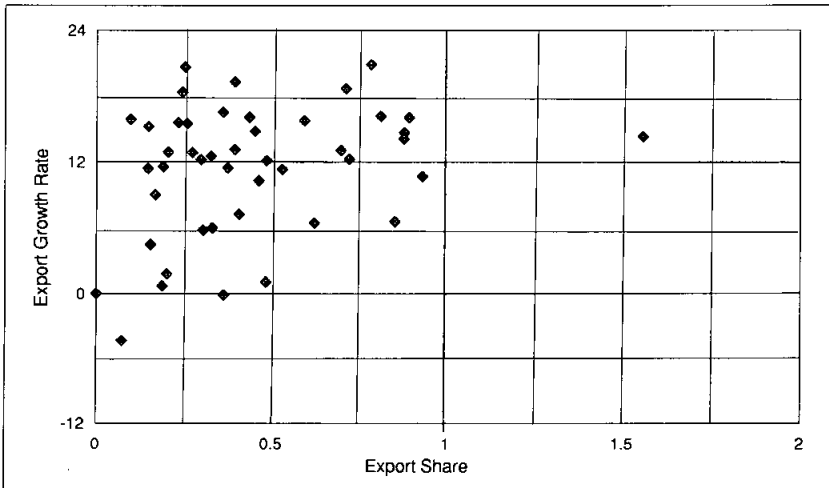


TABLE 3.3.8
COMPETITIVE INDUSTRIES BASED ON THE RCA INDEX
(THAILAND)

SITC	TITLE	FACTOR INTENSITY	WORLD MARKET	1983-1985	1986-1989	1990-1992
042	RICE	FA	SS	80.114	62.798	37.722
232	NATURAL RUBBER, GUMS	FA	SS	35.100	35.117	29.424
037	FISH ETC PREPD, PRSVD NES	FA	SF	25.674	25.154	21.676
036	SHELL FISH FRESH, FROZEN	FA	SF	14.337	12.187	13.027
061	SUGAR AND HONEY	FA	MS	6.815	7.764	7.396
058	FRUIT PRESERVED, PREPARED	FA	SS	7.271	7.065	6.764
054	VEG ETC FRSH, SMPLY PRSVD	FA	MM	24.803	14.099	6.583
612	LEATHER ETC MANUFACTURES	FU	SF	3.805	7.792	5.914
897	GOLD, SILVERWARE, JEWELRY	FH	MM	2.581	6.711	5.207
056	VEGTBLES ETC PRVSD, PREPD	FA	SM	10.028	6.593	4.798
687	TIN	FM	SN	27.982	13.757	4.658
842	MENS OUTERWEAR NON KNIT	FU	MF	3.234	4.297	4.500
846	UNDERGARMENTS KNITTED	FU	SF	2.617	3.771	4.440
843	WOMENS OUTERWEAR NON KNIT	FU	MF	5.307	5.321	3.810
831	TRAVEL GOODS, HANDBAGS	FU	SF	2.385	3.024	3.693
844	UNDERGARMENT NON KNIT	FU	SF	8.460	6.908	3.629
851	FOOTWEAR	FU	MF	2.085	2.523	3.628
761	TELEVISION RECEIVRS	FH	MF	0.000	0.511	3.501
299	CRUDE VEG MATERIALS NES	FA	SM	5.883	4.317	3.422
592	STARCH, INULIN, GLUTEN, ETC	FT	SF	0.000	0.000	3.240
759	OFFICE, ADP MCH PTS, ACCES	FH	LF	0.273	1.328	3.234
845	OUTERWEAR KNIT NONELASTIC	FU	MF	2.703	2.532	3.016
894	TOYS, SPORTING GOODS, ETC	FU	MF	0.460	1.281	2.920
763	SOUND RECORDRS, PHONOGRPH	FH	MM	0.000	0.797	2.599
121	TOBACCO UNMNFCTRD, REFUSE	FA	SS	2.130	2.541	2.382
899	OTHER MANUFACTURED GOODS	FU	SF	2.551	2.519	2.325
666	POTTERY	FU	SM	0.000	1.589	2.319
848	HEADGEAR, NONTXL CLOTHING	FU	SF	1.027	1.723	2.264
635	WOOD MANUFACTURES NES	FU	SF	4.547	3.693	2.187
786	TRAILERS, NONMOTR VEH, NES	FH	SM	0.000	0.936	2.112
653	WOVN MAN-MADE FIB FABRIC	FU	MF	4.361	2.796	2.041
658	TEXTILE ARTICLES ETC	FU	SF	3.365	2.576	2.034
773	ELECTR DISTRIBUTING EQUIP	FT	SF	0.306	1.259	1.886
775	HOUSEHOLD TYPE EQUIP NES	FH	MF	0.000	1.354	1.813
044	MAIZE, UNMILLED	FA	SN	10.515	6.272	1.601
821	FURNITURE, PARTS THEREOF	FU	MF	1.261	1.486	1.588
011	MEAT, FRESH, CHILLED, FROZEN	FA	MM	1.105	1.685	1.573
611	LEATHER	FU	SF	1.097	1.351	1.540
098	EDIBLE PRODUCTS, PREPS NES	FA	SF	2.506	1.471	1.430
893	ARTICLES OF PLASTIC NES	FU	MF	1.644	1.166	1.321
651	TEXTILE YARN	FU	MM	1.633	1.507	1.287
652	COTTON FABRICS, WOVEN	FU	MM	2.704	1.986	1.265
751	OFFICE MACHINES	FH	SM	0.000	0.145	1.245
691	STRUCTURES AND PARTS NES	FH	SM	0.000	0.865	1.168
Memorandum						
657	SPECIAL TXTL FARBC, PRODS	FU	SF	1.254	1.038	N.A.
045	CEREALS NES UNMILLED	FA	SS	6.118	4.473	N.A.
047	OTHER CEREAL MEALS, FLOUR	FA	SS	20.546	20.603	N.A.
634	ENEERS, PLYWOOD, ETC	FU	SF	1.286	1.141	N.A.
291	CRUDE ANIMAL MTRIALS NES	FA	SM	5.643	3.420	N.A.

Note: -

L : Large (1.0%)

M : Medium (0.5 - 1.0%)

S : Small (below 0.5%)

F : Fast (12%)

M : Medium (6 - 12%)

S : Slow, negative (below 6%)

FA : Agricultural resource intensive

FM : Mineral resource intensive

FU : Unskilled labor intensive

FH : Human capital intensive

FT : Technology intensive

Source: Author's computations based on UN Trade Statistics Yearbook, Various Issues.

After more than two decades of import-substitution policies, Thailand has shifted to an export promotion strategy as early as 1970s. The measures were intensified in the late 1980s with the implementation of the Fifth National Economic and Social Development Plan (1982-1986).¹¹⁵ Among the institutions set up to facilitate industrialisation, the Board of Investment (BOI) which was established in 1959 has had the most profound impact. The BOI has been responsible for designing and administering incentives to encourage industrial development by both local and foreign investors in line with the government policy. Indeed, the BOI has been credited for successfully attracting strong FDI inflows. Another positive institutional factor is the country's ability to restrain the public enterprises from dominating economic activities and retarding the private sector's growth. Consequently, the private sector is relatively more well-developed.

Increasing significance of electronic and electrical goods in both the industrial and the export structure of Thailand is attributable to the role of FDI. Specifically, export-oriented FDI, with 80 percent or more of production being for exports, has increased sharply, from 10 percent in 1984 to 68 percent in 1989. Most of the FDIs came from Japan and the Asian NIEs, accounting for more than 70 percent of total FDI.¹¹⁶ Inward FDI has significantly decreased during 1991-1993, due mainly to infrastructure constraints.

3.8.2 Challenge for the Future

The export structure of Thailand is skewed towards manufactures which account for more than 70 percent of total exports and mainly consist of either unskilled labour or human resource intensive industries. In the meantime, 60 percent of the labour force is employed in the agricultural sector. From the macroeconomic point of view, there is no significant unemployment problem as the unemployment rate has declined considerably from 6 percent in 1985 to 2.6 percent in 1995. At the micro level, however, the issue of human resource development

115. The major goals of the plan were: to reduce rural poverty and maintain balance between development and conservation; to improve the balance of payments through the intensified promotion of exports by enhancing the competitiveness of manufacturing; to intensify energy conservation and develop alternative sources; and to reduce the fiscal deficit.

116. Azizah Talib, *op cit.*, 1994, p. 440

seems to be pressing. Thailand has successfully provided for basic education, with universal enrolment in primary school and high adult literacy rate of 93 percent. Yet higher education is reportedly tilted towards the social science disciplines and away from technical training such as engineering. This has become one of the constraints in Thailand's ability to progress along the technological ladder. For example, electronic and electrical machinery industries, which used to be concentrated on assembly and packaging activities and enjoy the advantage of abundant semi-skilled labour, have undergone transformation with limited success into capital intensive with more skilled labour. The emphasis of education, therefore, should be on training more skilled labour and the ability to adapt higher technology.

It is also observed that increasing cheap unskilled labour is being released from the agricultural sector due mainly to land constraints and the modernisation of farming. However, the ability of the industrial sector to absorb them may be limited. The textiles and garments industry which has been employing a large portion of unskilled labour force may not be able to continue to generate sufficiently new jobs as it has encountered stiff competition from lower-cost producers as well as increasing protectionist measures in the major export market.

In addition, the problem of infrastructure constraints should be addressed immediately. Particularly, telecommunication and transportation facilities need substantial improvement. The infrastructure issue is closely related to the priority of economic development, particularly the provision of infrastructure in the Bangkok area, which in turn widens the gap in regional income distribution.

Most of the primary commodities such as rice, fish and prawns have also been vulnerable to agricultural protectionism in the export markets. As noted above, competitiveness in those industries has weakened considerably despite the increasing shares in the world export market for the past decades, implying that the rate of export growth in these industries falls behind the country's total export growth.

CHAPTER IV

SUMMARY AND SUGGESTIONS

1. Characteristics of Competitiveness in the SEACEN Countries

According to Porter's framework, competitiveness can be characterised into four stages of competitive development, namely factor-driven, investment-driven, innovation-driven, and wealth-driven.¹¹⁷ It is obvious that these stages are closely linked with the stage of economic development of a country. The SEACEN countries' competitive advantage can be categorised into the factor-driven and investment-driven stages. It is also true that government policy has played a key role in promoting competitiveness in these countries. Since the following review is confined to the SEACEN countries, only the first two stages in Porter's framework will be discussed.

At the factor-driven stage, which is a common characteristic of most developing countries, the basic factors which provide the source of advantage are, among others, natural resources, natural conditions suitable for growing certain crops, and an abundant and inexpensive semi-skilled labour force. Thus, the range of competitive industries are limited by these conditions, and the competition is mainly on the basis of price while technology is sourced from developed countries. At this stage, technology used is widely inexpensive. More advanced technologies can only be obtained through passive investments in turnkey plants or OEM arrangements. As a consequence, the competitiveness is vulnerable to both changes in relative prices caused by either the product cycles in the world market or exchange rates, and the loss of factor advantage. In addition, domestic demand are generally too modest to encourage local firms to upgrade technology to produce more sophisticated products. They also have limited access to foreign markets even if their exports may grow fairly rapidly, because major export industries are wholly or jointly owned by foreign multinationals which often operate overseas production sites to serve specific market segments out of their established worldwide network.

117. See Michael E. Porter, *op cit.*, 1990, pp. 545-565.

At the investment-driven stage, competitive advantage is achieved mainly through aggressive investment in modern facilities and technology. The principal condition for reaching this stage is the ability and willingness to invest. At this stage, firms strive to acquire, absorb, master, and improve foreign technology so as to begin developing their own refinements including their own product models. However, the level of technology acquired is not well-advanced and typically a generation behind the leader because the providers are naturally unwilling to sell or transfer the latest technology. Factor conditions still play an important role, but these basic factors are increasingly upgraded and improved to advanced factors through education and research. Home demand may not be substantially increased and sophisticated. However, the domestic demand condition is crucial to some industry segments which require significant economies of scale and capital with a relatively large labour component, standardised products, and readily transferable technology. These industries, such as shipbuilding and electrical home appliances, are the most plausible at this stage. Domestic rivalry emerges and competition becomes more intense. Thus, firms and individuals are highly motivated to develop their own technology, brand and marketing channels. What makes this stage distinct from the factor-driven stage is whether indigenous firms are capable of improving product and process technology, as well as creating their own international marketing channels. In addition, there must be a pool of sufficient advanced factors, and the presence of domestic rivalry. Among the SEACEN countries only Korea appears to have satisfied these conditions although Singapore and, to a lesser degree, Malaysia are moving closer to this stage. While creation of such advanced factors as education, local capability of technological development, an information base, and modern infrastructure are prerequisites, demand-side advantage and the clustering of related and supporting industries are more important for continued development.

A common feature of the two competitive stages discussed above and of all the SEACEN countries is the substantial role of the government. As discussed in the previous chapter, virtually all the SEACEN countries' governments were significantly involved in the industrialisation process at the early stage. The government influenced the changes in the industrial structure through both a general approach of providing basic infrastructure and general education, and selective approach of promoting certain industries. The role of the government continues to be important at the investment-driven stage in ensuring that scarce

capital are channelled into target industries, with sufficient investment to upgrade the basic factors. It should also stimulate competitive environment among domestic firms, and encourage the acquisition of foreign technology. It should be noted, however, that the success of these policies depends critically on the macroeconomic policy which affects the overall economic environment. Although the relationships among economic stability, economic growth, and international competitiveness are not straightforward, it is generally believed that efforts to stimulate growth will be futile unless there is stability. Thus, policies must first be aimed at achieving economic stability before moving on to tackle the problems of growth and competitiveness.¹¹⁸ This argument is well demonstrated by the experience of the Asian NIEs and the new NIEs, which in general has tried to ensure sound and strong macroeconomic fundamentals through prudent macroeconomic management.

2. Issues and Suggestions

As mentioned earlier, gaining and sustaining competitive advantage is not an easy task for a country regardless of its level of economic development. There are a number of reasons for this. Firstly, it is difficult to make a clear and precise definition of competitiveness, both theoretically and empirically. Competitiveness at the firm level is quite different from that at the national level both in nature and aspects. The controversy over this matter has not been resolved yet. Although we employed an eclectic approach focusing on industry, we are far from arriving at a satisfactory solution to this problem. Secondly, even if there is one universally acceptable definition of competitiveness, it will include a wide range of factors that cover all of the social, economic, and cultural aspects, which are interacting with one another in a complicated system. Thirdly, it is not easy to reach a consensus on the extent of cost and sacrifice that is needed from each economic agent or group to achieve the goal of economic prosperity through enhanced competitiveness. This issue might even be shelved at the early stage of development when everyone is caught up in the attempts to increase the economic pie. However, as national income grows, the issues of

118. Irfanul Haque, "The Macroeconomic Environment and Competitiveness," Trade, Technology, and International Competitiveness, Irfanul Haque, et al., The World Bank, 1995, p. 49.

fair distribution of income, social safety net, and a more even regional development become increasingly pressing. Fourthly, the controversy over the role of the government vis-à-vis the private sector and market mechanism is far from being settled. This stands out especially when the government attempts to coordinate at a micro level to improve competitiveness, which affect the distribution of human and physical capital across industries through support and regulation in favour of certain industries.

Nevertheless, most governments have already expressed their utmost concern about competitiveness by placing it at the top of the national agenda¹¹⁹ and begun to make efforts to improve their competitive advantage. The major task for the developing countries in particular has centered around the issues of creating and upgrading the factor conditions, establishing an appropriate development priority which will eventually change and strengthen the industrial structure, and encourage technological development. However, without macroeconomic stability, none of these tasks can lead to a real and sustained competitive advantage.

2.1 Macroeconomic Stability

As evidenced from the success of the so-called the East Asian “Miracle” economies, the positive effects of a stable macroeconomic environment are widely recognised. Except for a few cases, this stable environment includes the ability to reduce budget and trade deficits to manageable levels, maintain competitive exchange rates, and eliminate distortions in the financial sector and consequently the resource allocations. In addition, the governments have been proactive in managing the problems promptly.

It can be argued, however, that many developing countries have failed to achieve sustained rapid growth in spite of successful management of inflation. Indeed, some policies aimed at economic stability may be in conflict with growth. However, this issue will not be dealt

119. The United States has a long history on this. It originated from the President's Commission on Industrial Competitiveness which investigated and raised the issue of competitiveness in 1985. Currently, the Competitiveness Policy Council serves as a national commission which is actively advising the President and the Congress on a wide range of issues related to competitiveness.

with because it goes beyond the scope of the study, and also because extensive research has already been done on the subject. In addition, purely macroeconomic stabilisation policy measures may be incapable of achieving the dual goals of stability and growth. Rather, they have to be supplemented by other measures designed to encourage real investment, promote industry, and develop human resources as evidenced by the experience of the successful countries. For example, a wide variety of pro-export policies have been used in addition to stabilisation measures.

Overall, it is fair to say that macroeconomic stability is a prerequisite to sustained growth and competitiveness, notably through its impact on real interest rates and real value of financial assets, resulting in increased private investment as well as financial savings. More important is the implementation of macroeconomic policies that are prudent and pragmatic.

2.2 Factor Condition

Competitive advantage in many SEACEN countries is derived mostly from the ownership of certain valuable natural resources, cheap labour, strategic location and other basic factors. Natural resources dependent industries are large in size but slow in growth, while labour-intensive industries, notably textiles and garments, are small and medium in size but relatively fast in growth. These industries are generally sensitive to price and subject to protectionist sentiment and measures in the developed countries.

In the case of more advanced industries such as electronic and electrical equipments, the level of sophistication of technology is still generally low. They are basically concentrated on assembly and packaging activities drawing on the inexpensive domestic labour force and cheap land price while importing some raw materials, machines, and other equipments. The presence of these industries does not indicate a country's technical ability, particularly when most of the intermediate goods and capital have to be imported. A lot of work needs to be done to upgrade factor conditions before they can be technologically independent. The long-held notion that competitiveness can be attained by acquiring technology may have to be re-examined as competitiveness can only be achieved by generally or selectively accumulating numerous relevant factors.

Factors creating competitiveness are industry-specific in the sense that the mix of factors employed differs widely among industries. Therefore, factor-upgrading ought to be carefully planned so that relevant factors are appropriately deployed. In the meantime, the upgrading of factors in general is also of equal importance, especially when the definition of factors is not confined to just factors of production. It should include socio-economic factors such as human resources, physical resources, knowledge resources, capital resources, and infrastructure.¹²⁰ Each of the basic factors must be improved quality-wise as well as quantity-wise.¹²¹ Human resource development, especially the improvement of education at both the basic and the advanced level, has to be accorded high priority since technological development does not automatically follow the acquisition of capital goods no matter how advanced and up-to-date the machines are. Instead, it depends critically upon indigenous capabilities to adapt and innovate. At the initial phase, developing countries can adopt technologies developed elsewhere. As they progress, however, more domestic innovation must take place. Competitive advantage gain can only be sustained by continuous upgrading of factor conditions because the advantage based on basic factors and adopted technologies will soon disappear.

With regard to a hierarchy of factors, it is important to recognise that advanced factors are built upon basic factors. The prevailing shallow and narrow coverage of secondary and tertiary education cannot be expected to produce scientists and engineers in particular disciplines. The pools of basic factor must be of sufficient quantity and quality to allow the creation of other related advanced factors. This is particularly important to developing countries.

As mentioned earlier, specific factors are the basis for sustained competitive edge at the industry level. However, it should be noted that such factor advantage also evolves over time, and today's specialised factors may become tomorrow's generalised factors. The tendency for factors to lose its competitive speciality over time is true not only in the science-based factors but also in the human resources, the infra-

120. See Michael E. Porter, *op cit.*, 1990, pp. 74-75.

121. As is often the case, developing countries tend to improve factors in an unbalanced manner, emphasising one at the expense of another. For instance, even though Korea presumably has more university students per population than Malaysia, the student per professor ratio in Korea appears to be much higher than in Malaysia.

structure, and even the source of capital. In particular, skilled human resources and knowledge resources, which are perhaps the most important factors for upgrading competitive advantage, noticeably diminish over time. To sum up, accumulating relevant factors is fundamental to the formation of competitiveness, but continuous upgrading and specialising them is more important to sustain competitiveness.

2.3 Development Priority

Although it may be useful for analytical purpose, one should not attempt to rigidly dichotomise industry into high-tech and low-tech, sunrise and sunset, growing and mature, and labour intensive and knowledge intensive. The reason is that such distinctions may give rise to a misleading implication that some categories are superior to others regardless of a country's potential competitive advantage.

In prioritising development, the choice between import-substitution and export-promotion is no longer an issue as long as the import-substitution phase does not last too long to hamper an ultimate goal of outward-looking competition. Rather, the important issue is how flexible and pragmatic industrial policies can be towards achieving sustained growth.

A sound development strategy should start from identifying the industries whose factor advantage today can be enhanced to become competitive advantage later, in line with the presence of other determinants of advantage such as demand condition, related industries, and domestic rivalry. It then moves on to encourage the development of clusters of related industries both horizontally and vertically. Competitive advantage at one point of time can hardly be sustained without industry clustering, because competitiveness is best viewed as an evolving and self-reinforcing system.

For developing countries that desire to shift their economic structure from resource-based to capital- and knowledge-based, development of upstream industries such as parts and materials seems to foster the long-term competitiveness better than downstream industries that concentrate on assembly and packaging activities, mostly by foreign multinationals. Several reasons can be pointed out. Firstly, most downstream industries require a huge sum of capital investment but rather simple and standardised technology which is readily available

and has less spill-over effect. Secondly, parts and materials industries by nature are suitable to small and medium sized firms, the development of which is often emphasised because of their resilience and quick adaptability to changes in the economic environment. They also tend to be creative and innovative, which is critical to technological development. Thirdly, depending too much on foreign sources may cause balance of payments problems as we have seen in many developing countries.

2.4 Technological Development

Every nation is eager to move up the ladder of higher technology. As recommended by the new growth theorists, investment in human capital and R&D has been given top priority now more than ever. However, there is an argument that developing countries can achieve high productivity growth by accumulating the physical capital that embodies new technologies and then train workers in the necessary operating skills. Consequently, a question arises as to which is more efficient: purchasing or importing foreign technology vis-à-vis developing indigenous technology. As briefly mentioned above, another question arises whether technological progress can be achieved through investment in education and R&D. These questions basically address the issues of transfer of technology and indigenous capability of technological innovation.

It should be reminded, however, that technology is neither readily transferable or easily innovated because it embodies codified and tacit information as well as physical capital. In addition, transfer of technology incurs high cost for a number of reasons.¹²² Such a transfer also depends on the recipients' ability to adopt new technology. As technological knowledge is cumulative and builds on itself, the existing knowledge conditions the level of technology to be acquired. For technological innovation, the success is even more difficult because it requires capability beyond the passive acquisition of technological *know-how*. Rather, it is a question of *know-why*. Moreover, the sources of technological change also differ across industries. For instance, in supplier-dominated industries such as agriculture and textiles, techno-

122. For details, see Irfan ul Haque, op cit., 1995, p. 39.

logical change comes mainly from production inputs and operation skill. On the other hand, the main source of technological improvement in science-based industries such as chemicals and electronics is the extensive basic research for product and associated process development, which requires strong R&D and design activities. Technological capabilities should be distinguished from basic production capabilities, since the former refers to capabilities to generate and manage technical changes while the latter refers to capacities to use existing production techniques.¹²³ Indeed, technological capabilities means more than just learning-by-doing.

Foreign direct investment has long been viewed as one of the most effective and efficient vehicle of technological development by many developing countries that want to benefit from the transfer of technology as well as a spillover effect for technological innovation. It has also been welcomed as a major source of capital to help fill the savings-investment gap. As to the question of whether to build up indigenous firms capable of developing own technology or to depend on foreign multinationals for advanced technology, it is suggested that they are not substitutable, but complementary. Firms should not choose between imported and local technology. Instead, they should include both with one caveat that technological innovation cannot be achieved without domestic accumulation of technological capability. Ideally, countries should aim at making the nation a home base for core technologies in certain industries.

Thus, priority in terms of technological development can be summarised as follows. First, a broad-based technological capability should be encouraged by opening technology markets and investing in quality education. Second, local firms should be encouraged to move up the technology ladder as they gradually acquire technological capability. Third, investments should be left largely to the private sector because public sector's investments directed towards technological development have in most cases proven costly and ineffective. This is commonly the case in most developing countries. However, empirical

123. Martin Bell and Keith Pavitt, "The Development of Technological Capabilities," Trade, Technology, and International Competitiveness, Irfanul Haque, et al., 1995, pp. 83-91.

evidences show that the gains from these strategies vary widely, depending on the degree of intensity with which firms accumulate their own capabilities and the success of public policy to assist firms in acquiring advanced technologies at a competitive cost.

2.5 Role of the Government

The government's involvement is often justified in the face of market failures. A great deal of government involvement is also required at least up to a certain stage of industrial development. As a matter of fact, the issues listed above may provide a good case for active public policy interventions to the extent that they reveal failures in both the product and factor market. With regard to the industrial policy of most developing countries, a more urgent problem is not one of setting up new industries but the restructuring of the existing inefficient and technologically stagnant industries. Having stated that, it should be cautioned that the risk of failure from government intervention is equally important, as seen in many cases of irrational and inefficient policy measures.

As a general rule, the government must play a significant but subtle role in creating a competitive environment which encourages entrepreneurial development. This cannot be achieved through direct intervention measures but through efforts to raise the firms' aspirations and enhance their creativity by providing constant competition.

As mentioned earlier, an active government role may work as intended especially at the early stage of industrialisation. However, if this role is overplayed, the government would have unwittingly created an economy which is dependent and backward-looking. While an active government is immensely beneficial, it should not suppress the creative and competent activities in the private sector.

3. Concluding Remarks

International competitiveness of a country is indeed a very complex concept encompassing not only economic but also social, political and cultural aspects. Accordingly, it is difficult to come up with an appropriate measure of competitiveness. Even when one uses economic growth, which is supposed to be the single most comprehensive indicator, it measures only a small fraction of a country's competitive

potential. This is why most of the recent studies tend to rely more on the holistic approaches.

Economic success depends on the dynamism and self-reinforcing interaction of factors of a competitiveness system as described in Chapter III. The notable characteristics common in the NIEs which have successfully raised their competitive edge are a national commitment to economic development, and the pragmatic policies and strategies which include aggressive export promotion after the temporary measures of protection for domestic industries at the early stage. Although it is true that the economic success of these countries has mainly been based on the increased inputs rather than the efficiency gains, it cannot be denied that they have made inroads to build local technological capabilities needed for new, more advanced industries. Notwithstanding the less-than promising outcome so far, technological enhancement is not an easy task to accomplish in a short period of time. It may take generations to come, hopefully, because at the moment the technological gap between the NIEs and the industrial countries does not seem to be narrowing.

Competing in the world market requires the knowledge of a country's existing strengths, while searching for new areas of competence. The latter cannot be a passive pursuit. It needs a deliberate strategy to keep abreast, if not ahead, of technological developments elsewhere. Once attained, competitive advantage can be sustained only through further improvement and innovation. The country needs to broaden and upgrade the sources of competitive advantage by enhancing the product quality, the production process, marketing methods, and services.

Competitive advantage flourishes in a nation that signal, channel, or steer its firms to perceive opportunities for improvement and innovation and to move early in the proper directions to capitalise on them. Competitive advantage often emerges from pressure and adversity which are the most powerful motivation for change and innovation. It rarely results from an easy life. Selective factor disadvantages, powerful local buyers, stringent local needs, early saturation, capable and international suppliers, and intense local rivalry are all essential to creating and sustaining competitive advantages.

With reference to foreign direct investment, it will be wrong to perceive it as a panacea to break out from the vicious circle of under-development. The fact is that only when development is under way do investment opportunities really emerge to attract foreign investors. FDI should be seen as a catalyst to quicken the development process. In any case, foreign investors will not be attracted to locations with only few advantages.

The standard of comparison of competitiveness in term of the RCA index is set to the world export market share and not the domestic export share. Thus, even if a country succeeds in encouraging a range of industries that may account for most of its domestic export share, these industries may still be uncompetitive unless their export shares exceed certain levels according to the world market criteria. One advantage of adopting the RCA index as a measure of competitiveness is its ability to enable analysis at industry level. Moreover, it leaves room for future studies to take into account the flows of FDI at equivalent industry level as well as to look into relationships among industries to see if they tend to form clusters which reinforce competitiveness of industries concerned.

Finally, there is no jump-start or short-cut but only a long and winding road to achieve competitiveness. Thus, one has to be patient and resilient to overcome the setbacks that bound to occur along the way. One also has to keep aiming high, prepare meticulously and proceed step by step while maintaining high spirit and strength in the arduous task to achieve the ultimate objective of raising the living standards of the entire nation.

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TABLE A.1
SUMMARY OF RCA INDICES FOR 1990-1992 AVERAGE (SITC 3-DIGIT)

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
0	FOOD and LIVE ANIMALS	1.09	0.94	0.61	0.00	0.52	0.81	0.26	3.31
1	LIVE ANIMALS FOR FOOD			2.20	0.02				
11	MEAT, FRESH, CHILLED, FROZEN								1.48
23	BUTTER				0.04				
34	FISH, FRESH, CHILLED, FROZEN	1.72	5.10		0.00	0.24	1.68		2.01
36	SHELL FISH FRESH, FROZEN	1.02	3.61	1.23		2.61	1.84	0.17	12.28
37	FISH ETC PREPD, PRSVD NES	1.22	5.60	0.00		1.97			20.40
42	RICE	0.00			0.00	0.00			35.46
43	BARLEY UNMILLED						0.00		
44	MAIZE, UNMILLED				0.00				1.50
45	CEREALS NES UNMILLED								0.00
46	WHEAT ETC MEAL, OR FLOUR				0.00				
47	OTHER CEREAL MEALS, FLOUR								0.00
48	CEREAL ETC PREPARATIONS				0.00				
54	VEG ETC FRSH, SIMPLY PRSVD	0.98			0.01			0.06	6.19
56	VEGETABLES ETC PRSVD, PREPD								4.53
57	FRUIT, NUTS, FRESH, DRIED			0.00	0.01	1.64		0.32	0.00
58	FRUIT PRESERVED, PREPARED					2.15			6.38
61	SUGAR AND HONEY			0.77		1.21		0.00	6.95
71	COFFEE AND SUBSTITUTES	4.81				0.00	0.00	0.00	0.00
72	COCOA	3.74		6.93		0.00	5.37		
74	TEA AND MATE	7.40							20.05
75	SPICES	12.78		0.00	0.13		0.00	0.00	
81	FEEDING STUFF FOR ANIMALS	0.77		0.76	0.02	0.42		0.00	1.26
98	EDIBLE PRODUCTS, PREPS NES							0.07	1.35
100	BEVERAGES and TOBACCO	0.47	0.00		0.00	0.19	3.49	0.05	0.36
111	NON-ALCOHL BEVERAGES NES								
112	ALCOHOLIC BEVERAGES								
121	TOBACCO UNMNFCTRD, REFUSE	0.00	0.00		0.00	0.67		0.32	2.25
122	TOBACCO, MANUFACTURED	0.79			0.00	0.20	3.89	0.04	
200	CRUDE MATERIALS, excl. FUELS	2.26	0.99	4.09	0.01	0.52	1.36	0.13	1.40
211	HIDES, SKINS, EXC FURS, RAW				0.02				
222	SEEDS FOR 'SOFT' FIXED OIL				0.00			0.00	
223	SEEDS FOR OTH FIXED OILS				0.19	0.00		0.00	
232	NATURAL RUBBER, GUMS	26.13		27.97			15.78	1.93	27.69
245	FUEL WOOD NES, CHARCOAL							1.51	
247	OTH WOOD ROUGH, SQUARED	0.00		20.37	0.00	0.00			
248	WOOD SHAPED, SLEEPERS	1.89		8.44	0.00	0.00	1.38		
251	PULP AND WASTE PAPER	0.48				0.19			
264	JUTE, OTH TEX BAST FIBRES				1.73				
265	VEG FIBRE, EXCL COTN JUTE					0.00		5.61	
266	SYNTHETIC FIBRES TO SPIN		10.68						
273	STONE, SAND AND GRAVEL				0.04				
278	OTHER CRUDE MINERALS							0.09	0.00
281	IRON ORE, CONCENTRATES					0.32		0.00	
282	IRON AND STEEL SCRAP							0.13	
287	BASE METAL ORES, CONC NES	6.38		0.70		1.78	0.00	0.03	0.00
289	PREC MTAL ORES, WASTE NES					8.17			
291	CRUDE ANIMAL MTRIALS NES				0.00				0.00

TABLE A.1 (Cont'd)

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
292	CRUDE VEG MATERIALS NES	0.00	3.03		0.06	0.49	0.00	0.11	0.90
300	MINERAL FUELS, W/C	4.08	0.47	1.94		0.08	3.33	0.01	0.10
322	COAL, LIGNITE AND PEAT	2.13							
323	BRIQUETS, COKE, SEMI-COKE								
333	CRUDE PETROLEUM	3.64		2.38		0.01	0.00		
334	PETROLEUM PRODUCTS, REFIN	1.45	1.54	0.55		0.18	11.39	0.01	0.17
335	RESIDUAL PETRLM PROD NES	0.00					3.04	0.38	
341	GAS, NATURAL AND MANUFCT	12.92		3.64		0.20	0.00		0.43
400	ANIMAL, VEGETABLE OIL, FAT	4.86		19.97	0.01	3.35	3.62	0.04	0.00
411	ANIMAL OILS AND FATS								
423	FIXED VEG OILS, SOFT								
424	FIXED VEG OILS NONSOFT	13.52		54.58	0.05	11.17	0.00	0.12	
431	PROCESD ANML VEG OIL, ETC	4.74		25.39		0.00	14.51		
500	CHEMICALS, RELATED PRODUCTS, NE	0.29	1.26	0.24	0.00	0.11	1.61		0.25
511	HYDROCARBONS NES, DERIVS		3.10				0.00		
512	ALCOHOLS, PHENOLS ETC			2.02		0.68	0.00		
513	CARBOXYLIC ACIDS ECT		1.85						
514	NITROGEN-FUNCTN COMPOUNDS	0.45	1.49						
515	ORG-INORG COMPOUNDS ETC						7.65		
522	INORG ELEMENTS, OXIDES ETC					0.31			
532	DYES NES, TANNING PROD				0.00				
533	PIGMENTS, PAINTS, ETC						2.01		
541	MEDICINAL, PHARM PRODUCT						0.66		0.11
551	ESSENTL OILS, PERFUME, ETC	1.98							
553	PERFUMERY, COSMETICS, ETC						1.94		
562	FERTILIZERS, MANUFACTURE	1.74	0.00			0.71	0.00		
582	PROD OF CONDENSATION ETC		2.68				1.83		
583	POLYMERIZATION ETC PRODS		4.07			0.09	2.64		0.61
592	STARCH, INULIN, GLUTEN, ETC								3.05
598	MISCEL CHEM PRODUCTS NES			0.00	0.00	0.14	3.34	0.07	
600	BASIC MANUFACTURES	1.41	3.40	0.59	0.02	0.16	0.93		0.74
611	LEATHER	0.00	6.84		0.12			0.13	1.46
612	LEATHER ETC MANUFACTURES				0.00				5.55
613	FUR SKINS TANNED, DRESSED				0.00				
621	MATERIALS OF RUBBER			4.21					
625	RUBBER TYRES, TUBES ECT		6.80					0.11	0.79
628	RUBBER ARTICLES NES							0.18	
634	VENEERS, PLYWOOD, ETC	37.08		6.42		0.71	2.84		0.00
635	WOOD MANUFACTURES NES	4.02		1.72	0.00	1.91		0.19	2.06
641	PAPER, PAPERBOARD AND MFR	0.47	0.77	0.19			0.53		
651	TEXTILE YARN	1.01	4.57	0.57			0.86	0.05	1.21
652	COTTON FABRICS, WOVEN	2.08	2.67	0.00	0.00	0.00	0.00	0.02	1.19
653	WOYN MAN-MADE FIB FABRIC	4.13	17.43	0.63	0.00		2.16	0.02	1.92
654	OTH WOVEN TEXTILE FABRIC		6.18		0.01				
655	KNITTED, ETC FABRICS		8.50				3.12		
656	LACE, RIBBONS, TULLE, ETC	10.59	7.37						
657	SPECIAL TXTL FABRC, PRODS		6.44		0.00	0.00			0.00
658	TEXTILE ARTICLES ETC	1.53	4.37		0.01	0.50		0.28	1.92
659	FLOOR COVERINGS, ETC	0.00			1.18				
661	LIME, CEMENT, BLDG PRODS	1.34	4.81						
662	CLAY, REFRACTORY BLDG PROD							0.00	
664	GLASS								0.60

TABLE A.1 (Cont'd)

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
665	GLASSWARE	1.47							
666	POTTERY							0.40	2.19
667	PEARL, PREC., SEMI-P STONES							0.58	3.43
671	PIG IRON ETC			1.74		0.31			
672	IRON, STEEL PRIMARY FORMS	0.73	6.81						
673	IRON, STEEL SHAPES ETC	0.41	2.96	0.00					
674	IRM, STL UNIV. PLATE SHEET	0.00	5.71						
678	IRON, STL TUBES, PIPES, ETC		3.18				1.32		0.80
681	SILVER, PLATINUM, ETC								0.00
682	COPPER EXC CEMENT COPPER	0.00	0.99	0.00		1.26	1.52		
683	NICKEL					0.00			
684	ALUMINIUM	0.82					0.00		
687	TIN	13.86		25.46			16.61		4.33
691	STRUCTURES AND PARTS NES		3.87			0.05			1.10
693	WIRE PRODUCTS NON ELECTR		7.14						
694	STL, COPPR NAILS, NUTS, ETC		0.00					0.17	
695	TOOLS								
696	CUTLERY		10.51						
697	BASE MTL HOUSEHOLD EQUIP	1.17	7.14		0.02				
699	BASE METAL MFPS NES		1.30	0.47			1.36		0.48
700	MACHINES, TRANSPORT EQUIPMENTS	0.07	2.72	1.30		0.16	3.34		0.63
713	INTRNL COMBUS PSTN ENGIN		0.00	0.42			1.25		
714	ENGINES AND MOTORS NES		1.61				1.08		
716	ROTATING ELECTRIC PLANT			0.70			3.98		0.89
723	CIVIL ENGINEERG EQUIP ETC			0.00			3.06	0.02	0.00
724	TEXTILE, LEATHER MACHNRY		0.00						
726	OTH MACHY FOR SPCL INDUS		0.81				1.38		
736	METALWORKING MACH-TOOLS						1.01		
741	HEATING, COOLING EQUIPMENT		1.08	1.81			2.12		0.94
742	PUMPS FOR LIQUIDS ETC						0.00		
743	PUMPS NES, CENTRIFUGES ETC		0.84				2.90		0.43
744	MECHANICAL HANDLING EQJ		2.01				1.08	0.02	
749	NONMECH MACH PTS, ACC NES	0.00	0.96				2.30		0.83
751	OFFICE MACHINES			1.08			4.05		1.19
752	AUTOMTIC DATA PROC EQUIP	0.06	3.33	0.20		0.21	15.45		0.73
759	OFFICE, ADP MCH PTS, ACCES		1.54	2.59		0.13	6.67	0.02	3.04
761	TELEVISION RECEIVERS	0.32	11.39	5.04			9.90		3.32
762	RADIO BROADCAST RECEIVERS	0.71	10.64	11.71		0.34	14.78		
763	SOUND RECORDRS, PHONOGRPH	0.18	10.60	5.05			9.97		2.45
764	TELECOM EQPT, PTS, ACC NES	0.27	4.77	3.16		0.59	6.83		1.44
771	ELECTRIC POWER MACHY NES		3.77	3.13			4.83		0.71
772	SWITCHGEAR ETC., PARTS NES		1.10	1.40		0.10	3.19	0.02	0.52
773	ELECTR DISTRIBUTING EQUIP		2.05	1.21		1.59	1.84		1.78
775	HOUSEHOLD TYPE EQUIP NES		4.98	0.45			2.09		1.71
776	TRANSISTORS, VALVES, ETC	0.00	11.03	8.27		1.31	9.41		1.87
778	ELECTRICAL MACHINERY NES	0.34	1.89	0.71		0.08	2.72	0.02	0.54
781	PASS MOTOR VEH EXC BUSES		1.45	0.06			0.00		0.00
782	LORRIES, SPCL, MTR VEH NES		0.30						
783	ROAD MOTOR VEHICLES NES		1.03						
784	MOTOR VEH PARTS, ACCES NES		0.38			0.05	0.30		0.06
785	CYCLES, ETC MOTRZD OR NOT	0.57					3.37		0.73
786	TRAILERS, NONMOTR VEH, NES		16.71			0.24			1.99
792	AIRCRAFT ETC		0.37	0.73			0.51	0.03	0.05
793	SHIPS AND BOATS ETC	0.27	14.27	1.81			2.17		
800	MISC. MANUFACTURED GOODS	1.13	4.78	1.01	0.02	0.52	1.59		1.99
812	PLUMBG, HEATING, LGHTNG EQ								
821	FURNITURE, PARTS THEREOF	1.44	0.79	1.02		0.70	0.85		1.50
831	TRAVEL GOODS, HANDBAGS		13.39			0.65		0.04	3.48

TABLE A.1 (Cont'd)

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
842	MENS OUTERWEAR NON KNIT	2.94	5.75	0.93	0.00	0.88	1.11	0.84	4.24
843	WOMENS OUTERWEAR NON KNIT	2.60	4.77	0.91	0.00	1.03	1.09	1.24	3.59
844	UNDERGARMENT NON KNIT	2.64	8.52	1.99	0.85	0.78	0.00	1.31	3.42
845	OUTERWEAR KNIT NONELASTIC	1.98	6.48	1.56	0.00	1.22	3.30	0.49	2.84
846	UNDERGARMENTS KNITTED	2.51	5.81	1.39		1.99	2.72	0.81	4.18
847	TEXTILE CLTHNG ACCES NES	1.39	11.15			0.52		0.72	
848	HEADGEAR, NONTXL CLOTHING		22.60	5.00		0.88		0.39	2.13
851	FOOTWEAR	3.67	14.79	0.43		0.43		0.05	3.42
871	OPTICAL INSTRUMENTS								
872	MEDICAL INSTRUMENTS NES			1.09			3.01		
873	METERS AND COUNTERS NES								
874	MEASURING, CONTROLING INSTR		0.76				1.53		0.00
881	PHOTO APPARAT, EQUIP NES	0.75		2.66					
882	PHOTO, CINEMA SUPPLIES						2.96		
883	DEVELOPED CINEMA FILM								
884	OPTICAL GOODS NES		0.00						
885	WATCHES AMD CLOCKS		1.49	0.69		0.15	2.81		1.89
892	PRINTED MATTER						2.29		
893	ARTICLES OF PLASTIC NES	0.30	2.35	0.96		0.13	1.67	0.05	1.25
894	TOYS, SPORTING GOODS, ETC	0.45	5.19	1.24		0.48	1.46	0.05	2.76
895	OFFICE SUPPLIES NES								
896	WORKS OF ART ETC				0.00				
897	GOLD, SILVERWARE, JEWELRY	0.49	2.63	3.88	0.01	0.30	0.00	0.06	4.89
898	MUSICAL INSTRUMENTS, PTS		6.63		0.00		2.56		
899	OTHER MANUFACTURED GOODS	2.70	5.21		0.00	1.86		0.17	2.19
900	GOODS NOT CLASSIFIED BY KIND	0.14	0.51	0.15	0.01	1.81	0.95		0.31
931	SPECIAL TRANSACTIONS	0.00	0.45	0.23	0.01	3.13	1.63	0.10	0.52
971	GOLD, NON MONETARY NES	0.95	1.40			0.08	0.00		

Source: Author's computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.2
SUMMARY OF RCA INDICES FOR 1992 (SITC 5-DIGIT)

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
11230	BEER, ALE, STOUT, PORTER						1.0		
11240	DISTILLED ALCOHOLIC BEVERAGES						2.3		
11242	DISTILLED WINE, GRAPE MARC						7.3		
11249	DISTILLED ALCOHOLIC BEVERAGES, others						0.2		
12110	TOBACCO, NOT STRIPPED	4.9							2.1
12111	VIRGI TYPE, FLUE-CURED	53.8				21.9			5.2
12119	TOBACCO, NOT STRIPPED, others	0.0							2.3
12120	TOBACCO STRIPPED OR PART					2.7			3.7
12121	VIRGI TYPE, FLUE-CURED		0.0			0.0			
12129	TOBACCO STRIPPED OR PART, others					2.7			
12220	CIGARETTES	1.1					2.7		
22210	GROUNDNUTS, GRESS								
22310	COPRA	3.0		6.1		31.2	3.6		
23201	NATURAL RUBBER LATEX	10.5		41.6			3.8	9.1	16.0
24602	PULPWOOD CHIPS, PARTICLES	1.1							1.3
24710	SAW-, VENEER-LOGS CONIFER								
24711	SAW-, VENEER-LOGS CONIFER, ROUGH								
24719	SAW-, VENEER-LOGS CONIFER, others								
24720	SAW-, VENEER-LOGS NON- CONIFER			43.3					
24721	SAW-, VENEER-LOGS NON-CONIFER, ROUGH			43.3					
24729	SAW-, VENEER-LOGS NON- CONIFER, others			0.0					
24830	LUMBER SHAPED NON- CONIFER	6.1							
24831	LUMBER SAWN ETC. NON-CONIFER	2.0		27.5		0.8	2.4		
24839	LUMBER SHAPED NON- CONIFER, others	30.0							
26650	DISCONTINUED SYN. FIBER UNCOMBED		6.5	1.5					
26710	REGENERATED FIBER TO SPIN								3.6
26711	DISCON. REGENERATED FIBER UNCOMBED								7.4
26719	REGENERATED FIBER TO SPIN, others								0.1
28160	IRON ORE AGGLOMERATES					15.0			
28201	IRON ORE OF PKG OR CAST IRON						8.5		
28710	COPPER ORE ETC. CEMENT COPPER	20.7		1.5		13.1			
28711	COPPER ORES, EXCLUDING MATTE	21.0		1.5		13.1			
28719	COPPER ORE ETC. CEMENT COPPER, others	0.0		0.0		0.0			
28720	NICKEL ORES, CONCENTRATES	16.1				4.9			
28722	NICKEL MATTE, SINTERS, ETC	14.8							
28729	NICKEL ORES, CONCENTRATES, others	26.4							
28730	ALUMINUM ORES, ALUMINA	0.4							
28731	ALUMINUM ORE, CONCENTRATE	1.4							
28739	ALUMINUM ORES, ALUMINA, others	0.0							
28750	ZINC ORES, CONCENTRATES								
28770	MANGANESE ORE, CONCENTRATE								
28791	CHROMIUM ORE, CONCENTRATE					18.7			
28792	TUNGSTEN ORE, CONCENTRATE						3.8		2.6
28793	MOLYBDEN, NIOBIUM ETC ORES			3.4				4.9	0.5
28821	COPPER WASTE AND SCRAP			1.4		1.1	1.6		
29250	SEEDS, ETC FOR PLANTING								2.2
29260	LIVE PLANTS, BULBS, ETC							1.4	
29270	CUT FLOWERS AND FOLIAGE							1.2	2.4
32210	ANTHRACITE, NOT AGGLOMERATED	4.9							
33410	GASOLINE, OTHER LIGHT OILS	4.8					10.4		
33411	MOTOR, AVIATION SPIRIT						6.0		
33419	GASOLINE, OTHER LIGHT OILS, others						13.0		
33420	KEROSENE, OTHER MEDIUM OILS						1.3		
33421	KEROSENE INCLUDING JET FUEL			1.3			1.9		
33429	KEROSENE, OTHER MEDIUM OILS, others						0.4		
33430	GAS OILS						9.0		
33440	FUEL OILS, NES	0.0							
33450	LUBS, PETROLEUM OILS NES						3.3		

TABLE A.2 (Cont'd)

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
33451	LUBS(HIGH PETROLEUM CONTENT) ETC						3.8		
33459	LUBS, PETROLEUM OILS NES, others						0.6		
33520	MINERAL TAR AND PRODUCTS						1.4	11.4	
33540	PETROLEUM BITUMEN, COKE ETC						2.5		
33542	PETROLEUM COKE	1.3							
33549	PETROLEUM BITUMEN, COKE ETC, others								
34130	PETROLEUM GASES, LIQUEFIED	29.1		7.1					0.0
34131	LIQUEFIED PROPANE, BUTANE	5.8							
34139	PETROLEUM GASES, LIQUEFIED, others	45.4							
42220	SOYA BEAN OIL			2.0					
42420	PALM OIL	17.9		58.1					
42430	COCONUT(COPRA) OIL	24.2		3.3		207.3	2.2	4.2	
51110	ACYCLIC HYDROCARBONS		1.6						
51120	CYCLIC HYDROCARBONS		2.8						
51210	ACYCLIC ALCOHOLS, DERIVATIVES			2.6			1.2		
51380	POLYACIDS AND DERIVATIVES		2.9						
51460	OXYGEN-FUNCTION AMINO-COMPOUNDS		1.3				1.3		
51560	HETEROCYCLIC COMPOUNDS ETC						5.0		
52220	INORGANIC ACIDS ETC					2.6			
52251	AMMONIA, ANHYDROUS ETC	3.9							
52322	PHOSPHITES, PHOSPHATES								1.3
53340	VARNISHES, DISTEMPERS ETC						1.3		
55130	ESSENTIAL OIL, RESINOID, ETC	2.9						4.2	2.6
55420	WASHING PREPARATIONS ETC					1.2			
56210	CHEMICAL NITROGENOUS FERTILIZER	5.1		1.9					
56216	UREA	10.7		4.0					
56219	CHEMICAL NITROGENOUS FERTILIZER others	0.3		0.0					
56290	FERTILIZERS NES		1.5			6.7			
56291	NITRO-PHOSPHATE-POT FERTILIZER NES		2.0			12.0			
56292	NITRO-PHOSPHATE FERTILIZER NES		1.5			4.7			
56299	NITRO-PHOSPHATE-POT FERT., others		0.1			0.0			
58230	ALKYDS, OTHER POLYESTERS			2.3					
58231	ALKYDS, OTH POLYESTERS-PRIMARY FORMS			1.8					
58239	ALKYDS, OTHER POLYESTERS, others			3.7					
58310	POLYETHYLENE			2.2			1.5		
58311	POLYETHYLENE-N PRIMARY FORMS			2.7			1.8		0.3
58319	POLYETHYLENE, others			0.3			0.7		
58320	POLYPROPYLENE			3.4			1.4		
58330	POLYSTYRENE, ITS COPOLYMER			2.7	0.0				
58331	POLYSTYRENE, COPOLYMER-PRIMARY FORMS			3.0	0.0				
58339	POLYSTYRENE, ITS COPOLYMER, others			0.4	0.0				
58343	POLYVINYL CHLORIDE-PLATES, STRIP, NES					2.0			1.7
59110	INSECTICIDES, FOR RETAIL						1.0		
59220	ALBUMINOID SUBSTANCE, GLUES								2.1
59620	ANTI-KNOCK PREPARATIONS ETC						3.7		
61140	LEATHER BOVINE NES, EQUINE		4.0						
61230	PREPARED PARTS OF FOOTWEAR		2.4						2.1
62510	TYRES NEW FOR MOTOR CARS			2.3					
62520	TYRES, NEW, BUS OR LORRY			3.8					
63410	VENEER SHEETS ETC	1.7		7.8		1.9			
63420	PLYWOOD OF WOOD SHEETS	61.1		6.7		1.9	1.9		
63430	IMPROVED, RECONSTITUTED WOOD	10.8							
63530	BUILDERS WOODWORK, PREFABS	4.9		2.1		4.6			
64120	PRINTING, WRITING PAPERS NES		1.3						
64122	PRINTING, WRITING PAPERS NES-UNCOATED, IMP		1.5						
64129	PRINTING, WRITING PAPERS NES, others		0.1						
65120	WOOL HAIR YARN, INCLUDING TOPS			1.3					
65121	WOOL TOPS			1.8					2.1
65129	WOOL HAIR YARN, INCLUDING TOPS, others			1.0					
65130	COTTON YARN	2.9							1.5
65133	COTTON YARN-40 TO 80 KM PER KG	24.7							
65139	COTTON YARN, others	0.3							

TABLE A.2 (Cont'd)

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
65140	SYNTHETIC FIBRE YARN, BULK, MONOFIL		2.8						
65141	SYN. FIB.YARN-TEXTURED, CONT POLYAMIDE					1.7			
65142	SYNTHETIC FIBRE YARN-NONTEXTURED, ETC CON		4.9						
65148	SYN. FIBRE YARN-OF DISCONT SYN. FABS	3.8	3.4						4.9
65149	SYN. FIBRE YARN, BULK, MONOFIL, others		0.7						
65160	DISCONT SYNTHETIC FIBRE BLEND YARN	4.3	3.2						2.7
65170	REGENERATED FIBRE YARN, MONOFIL	2.4							
65210	GREY WOVEN COTTON FABRIC	8.1		1.2					4.2
65220	WOVEN COTTON BLEACHED, ETC		1.2						
65223	PILE ETC COTTON FABRICS		1.5						
65226	WOVEN COTTON BLEACHED, ETC, others		1.2						
65310	CONT SYNTHETIC WEAVES NONPILE	9.0	13.7						
65350	CONT REGENERATED WEAVES NONPILE	2.3	4.3						
65390	MAN-MADE PILE ETC FABRIC		9.2						
65410	SILK FABRICS WOVEN		6.3						1.1
65732	PLASTIC COATED TEXTILES		6.3						
65840	LINENS ETC	2.6						5.9	1.7
66120	CEMENT	3.7							
66130	BUILDING STONE ETC WORKED		3.1						
66240	BRICKS ETC NONREFRACTORY								1.1
66245	GLAZED CERAMIC SETTS ETC					1.6		2.1	
66440	GLASS SURFACE-GROUND ETC	1.1				2.1			
66520	HOUSEHOLD, HOTEL ETC GLASS	3.3							
66640	PORCELAIN, CHINA HOUSE WARE	1.6				2.4			1.6
66690	COARSE CERAMIC HOUSEWARE	1.9	1.5			1.5			6.1
66690	CERAMIC ORNAMENTS ETC			1.9		5.5		13.6	4.5
66720	DIAMONDS NONINDUS., UNSET							6.2	
66721	DIAMONDS NONINDUS.-ROUGH, UNSORTED							0.0	
66722	DIAMONDS NONINDUS.-SORTED, ROUGH, SIMPLY							2.6	
66729	DIAMONDS NONINDUS.-CUT ETC NON SET							9.6	2.8
66730	PRECIOUS, SEMIPRECIOUS STONES NES							33.9	23.1
67160	FERRO-ALLOYS	1.1							
67270	IRON, STEEL COIL, FR REROLLING		5.0						
67271	IRON, SIMPLE STEEL COILS		5.9						
67279	IRON, STEEL COIL, FR REROLLING, others		1.7						
67310	IRON, STEEL WIRE ROD	1.3	1.6	1.0					
67311	IRON, SIMPLE STEEL WIRE ROD	2.4	1.5						
67319	IRON, STEEL WIRE ROD, others	0.0	1.7						
67320	IRON, STEEL BARS ETC		1.9						
67326	IRON, OTHER STEEL BARS HOTROLLED								
67333	OTHER PROFILES HOTROLLED ETC		4.9						
67441	IRON, STEEL HEAVY PLATE, ROLLED, OF IRON OR S		2.8						
67451	IRON, STEEL MEDIUM PLATE, ROLLED, OF IRON OR S		1.1						
67460	IRON, STEEL THIN PLATE, ROLLED		3.3						
67461	IRON, STEEL THIN PLATE, ROLLED, OF IRON OR S		3.8						
67463	IRON, STEEL THIN PLATE, ROLLED, OF STAINLESS S		2.8						
67469	IRON, STEEL THIN PLATE, ROLLED, others		0.0						
67470	TINTED PLATES, SHEETS		1.4						
67701	IRON, SIMPLE STEEL WIRE		1.5						
67830	IRON, STEEL TUBES, PIPES NES		2.6						
67850	IRON, STEEL TUBE FITTINGS								1.8
68210	COPPER NES, ALLOYS, UNWROUGHT					6.7			
68212	COPPER REFINED, UNWROUGHT					7.6			
68219	COPPER NES, ALLOYS, UNWROUGHT, others					0.0			
68222	COPPER PLATE, SHEET, STRIP		1.9						
68410	ALUMINUM, ALLOYS, UNWROUGHT	1.8							
68423	ALUMINUM FOIL		1.4						
68610	ZINC, ALLOYS UNWROUGHT		1.0						
68710	TIN, ALLOYS UNWROUGHT	15.6		16.0			9.9		4.1
69110	STRUCTURES, PARTS IRON, STEEL		2.6						
69120	STRUCTURES, PARTS ALUMINUM								4.5
69210	METAL STORAGE TANKS ETC		2.7						
69211	STEEL STORAGE TANKS ETC		2.9						
69219	METAL STORAGE TANKS ETC, others		0.0						

TABLE A.2 (Cont'd)

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
69310	WIRE CABLES, ROPES ETC		4.4						
69311	IRON, STEEL CABLE, ROPE ETC		5.4						
69319	WIRE CABLES, ROPES ETC, others		1.3						
69402	IRON, STEEL NUTS, BOLTS, ETC							3.1	
69530	OTHER HAND TOOLS							1.9	
71621	AC MOTORS, GENERATORS, GEN SETS								2.2
72430	SEWING MACHINES, NEEDLES ETC		1.1						
72431	SEWING MACHINES		1.1						
72439	SEWING MACHINES, NEEDLES ETC, others		1.1						
74141	REFRIGERATING EQUIPMENT NONDOMESTIC								2.6
74150	AIR CONDITIONING MACHINERY		1.0	5.5					3.0
74310	PUMPS FOR GASES ETC						3.0		
74340	FANS, BLOWERS, ETC, PARTS								3.3
74410	FORK LIFT TRUCKS, ETC, PARTS		2.2						
74411	FORK LIFT TRUCKS ETC		2.2						
74419	FORK LIFT TRUCKS, ETC, PARTS, others		0.5						
74910	BALL, ROLLER, ETC BEARINGS								3.5
74991	FOUNDRY MOUNDS ETC NES		1.2						
75110	TYPEWRITERS, CHEQUE-WRITERS	1.6	3.1				10.7		
75111	ELECTRIC TYPEWRITERS-NORMAL	1.9	2.6				12.3		
75119	TYPEWRITERS, CHEQUE-WRITERS, others		6.5				1.0		
75120	CALCULATING, ACCOUNTING, ETC MACHINES			5.3			3.1		9.4
75121	CALCULATING MACHINES			8.2			4.5		15.6
75129	CALCULATING, ACCOUNTING, ETC MACHINES, other			0.9			1.2		0.0
75220	DIGITAL COMPUTERS		1.3				9.9		
75250	ADP PERIPHERAL UNITS		2.7	1.7		2.3	15.3		1.6
75280	OFF-LINE DATA PROCESSING EQUIPMENTS		1.2	1.8			1.7		1.9
76110	COLOUR TV RECEIVERS		4.8	5.5			5.2		5.4
76120	MONOCHROME TV RECEIVERS		6.7	2.7		1.6			
76210	MOTOR VEHICLE RADIO RECEIVERS	1.9	5.4	5.7		1.8	3.1		
76220	PORTABLE RADIO RECEIVERS		1.3	18.5			10.4		
76280	OTHER RADIO RECEIVERS	1.1	4.7	13.8		2.1	6.3		
76310	ELECTRIC GRAMOPHONES ETC		12.2	14.5		4.2			
76319	OTHER ELECTRIC GRAMOPHONES ETC		13.4	16.4		1.8			
76319	ELECTRIC GRAMOPHONES ETC, others		3.6	0.1		21.6			
76360	OTHER SOUND APPARATUS ETC		3.8	6.6			4.5		2.8
76391	TV IMAGE, SOUND RECORDERS ETC		5.2	6.2			4.5		3.8
76398	DICTATING MACHINES ETC		1.5	7.4		1.3	4.3		1.2
76399	TV IMAGE, SOUND RECORDERS ETC, others		0.0	0.0			0.0		0.0
76410	LINE TELEPHONE, ETC EQUIPMENTS		1.5	3.3					2.7
76420	MICROPHONE, LOUDSPEAKER, AMPLIFIER	1.0	3.6	3.7		1.1			1.8
76430	TV, RADIO TRANSMITTERS ETC			2.7		5.5			
76483	RADAR APPARATUS ETC			2.5		4.0			
77110	TRANSFORMER, ELECTRICAL		2.4	3.7					
77111	LIQUID DIELECTRICAL TRANSFORMERS		1.4						
77119	TRANSFORMER, ELECTRICAL, others		2.9						
77121	STATIC CONVERTERS ETC			3.3			1.6		1.0
77230	FIXED, VARIABLE RESISTORS							1.2	
77310	INSULATED WIRE, CABLE ETC		1.2			7.2			2.1
77510	HOUSEHOLD LAUNDRY EQUIPMENTS NES		1.2			1.9			
77511	DOMESTIC WASHING MACHINES		1.4			2.2			
77519	HOUSEHOLD LAUNDRY EQUIP. NES, others		0.0			0.0			
77520	DOMESTIC REFRIGERATORS, FREEZERS		3.0						2.2
77521	DOMESTIC REFRIGERATORS		4.0						2.7
77529	DOMESTIC REFRIGERATORS, FREEZERS, others		0.1						0.4
77610	TV PICTURE TUBES		9.7				5.3		
77630	DIODES, TRANSISTORS, ETC		2.6	8.5		8.7			
77640	ELECTRONIC MICROCIRCUITS		5.4	6.8		2.6			2.2
77810	BATTERIES, ACCUMULATORS	2.1	1.2				1.5		
77811	PRIMARY BATTERIES, CELLS	3.3					2.4		
77812	ELECTRIC ACCUMULATORS	1.5	2.0						
77819	BATTERIES, ACCUMULATORS, others	0.2	0.3				1.0		
77820	ELECTRIC LAMPS, BULBS		1.3						
77821	ELECTRIC FILAMENT LAMPS NES		2.6						1.3

TABLE A.2 (Cont'd)

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
77829	ELECTRIC LAMPS, BULBS, others		0.4						
78310	BUSES		1.9						
78539	PARTS, ACCESSORIES, NES OF MOTORCYCLES						3.5		
78610	TRAILERS, TRANSPORT CONTAINERS		11.4						
78613	CONTAINERS INCLUDING ROAD-RAIL	2.2	25.7						
78619	TRAILERS, TRANSPORT CONTAINERS, others		0.0						
79320	SHIPS AND BOATS NES		7.8						
79322	TANKERS OF ALL KINDS		11.2						
79323	OTHER CARGO VESSELS		7.3						
79328	SHIPS AND BOATS NES, others		0.3						
79360	TUGS, SPECIAL VESSELS ETC						10.0		
79362	SPECIAL PURPOSE VESSELS ETC		0.0				12.4		
79369	TUGS, SPECIAL VESSELS ETC, others						3.2		
82110	CHAIRS, SEATS AND PARTS	2.4		1.1		1.4			2.4
82111	CHAIRS AND OTHER SEATS	3.1		1.4		1.9			2.7
82119	CHAIRS, SEATS AND PARTS, others	0.5		0.3		0.1			1.4
82190	FURNITURE AND PARTS NES	1.7				2.9			1.9
82191	METAL FURNITURE NES								1.0
82192	WOOD FURNITURE NES	1.2							1.8
82199	FURNITURE AND PARTS NES, others	2.6							2.8
83101	HANDBAGS NES		3.5						2.5
84220	SUITS	4.1	2.9					2.8	
84230	TROUSERS, BREECHES ETC	2.1				2.0		11.2	1.4
84232	TROUSERS, BREECHES ETC-OF COTTON	4.9		1.8		4.1	1.4	26.6	3.1
84239	TROUSERS, BREECHES ETC, others	0.1				0.5		0.0	0.1
84240	JACKETS, BLAZERS ETC	1.5	2.7			3.1		29.7	0.7
84310	COATS AND JACKETS	1.7	2.4			1.8		20.7	2.1
84313	COATS AND JACKETS- OF MAN-MADE FIBRE	5.9	0.0				0.0		0.0
84319	COATS AND JACKETS, others	1.1	2.8						2.4
84330	DRESSES	5.8	2.4			2.8		29.2	2.5
84333	DRESSES-OF MAN-MADE FIBRES	4.9	0.0	3.6				0.0	0.0
84339	DRESSES, others	6.0	3.0						3.1
84340	SKIRTS	2.2	1.2			1.5		22.6	1.6
84350	BLOUSES	4.0	1.8	2.0	29.3			37.3	1.8
84352	BLOUSES-OF MAN-MADE FIBRES	1.6	9.1			0.0		0.0	0.0
84359	BLOUSES, others	4.4	0.5						2.1
84363	OF COTTON	6.4				1.2	1.2		5.4
84364	OF MAN-MADE FIBRES	1.5	2.9					0.0	2.1
84410	MENS SHIRTS	3.1	3.1	2.2	24.8		1.1	19.9	1.7
84411	MENS SHIRTS-OF COTTON	2.8	2.3	3.6	33.1	1.4	1.7	25.1	1.9
84412	MENS SHIRTS-OF SYNTHETIC FIBRES	3.5	4.1		14.2			13.1	1.5
84419	MENS SHIRTS, others	0.0	0.0		0.0		0.3	0.0	1.8
84510	JERSEYS, PULLOVERS ETC	1.6	2.5			1.4		3.2	2.7
84511	JERSEYS, PULLOVERS ETC-OF WOOL, FINE HAIR		1.7					0.0	1.0
84513	JERSEYS, PULLOVERS ETC-OF SYNTHETIC FIBRES	0.0	22.9	0.0				0.0	0.6
84519	JERSEYS, PULLOVERS ETC, others	1.7	0.0					4.8	3.7
84520	WOMENS DRESSES ETC	3.9	1.1	4.0		4.4	2.6	15.0	1.7
84523	WOMENS DRESSES ETC-OF SYNTHETIC FIBRES	0.0	0.0				0.0		0.0
84529	WOMENS DRESSES ETC, others	4.1	1.1				2.8		1.8
84620	OF COTTON NON ELASTIC	2.1	1.1	1.0		4.9	1.2	7.2	2.0
84720	CLOTHING ACCESSORIES ETC KNIT	1.9	6.0	1.3		1.0		20.6	2.4
84810	LEATHER CLOTHES, ACCESSORIES	2.0	11.5			2.5		3.1	1.4
84830	FUR ETC, CLOTHES, PRODUCTS		2.1						
84831	ARTICLES OF FUR SKIN, NES		2.2						
84839	FUR ETC, CLOTHES, PRODUCTS, others		0.1						
85101	FOOTWEAR RUBBER, PLASTIC	4.9	2.9						2.7
85102	FOOTWEAR LEATHER	5.0	5.3			1.3			3.5
87430	GAS, LIQUID CONTROL INSTRUMENTS						1.3		

Continued
TABLE A.2

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
88110	CAMERAS STILL, FLASH APP	1.6		4.6					1.8
88410	OPTICAL ELEMENTS								1.9
88412	OPTICAL ELEMENTS MOUNTED			1.7			1.1		
88420	SPECTACLES AND FRAMES		2.4						
88421	SPECTACLE FRAMES		3.0						
88429	SPECTACLES AND FRAMES, others		1.3						
88511	WATCHES						0.0		1.1
89210	PRINTED BOOKS, GLOBES, ETC						1.8		
89211	PRINTED BOOKS, PAMPHLETS						1.6		
89310	PLASTIC PACKAGE CONTAINERS, LIDS			1.4				1.3	2.0
89420	TOYS, INDOOR GAMES ETC		1.1	1.5		1.9			3.5
89424	INDOOR GAME EQUIPMENT								1.5
89429	TOYS, INDOOR GAMES ETC, others								4.1
89520	PENS, PENCILS, FOUNTAIN PENS		1.1						
89521	FOUNTAIN PENS, ETC		1.2						
89529	PENS, PENCILS, FOUNTAIN PENS, others		0.9						
89720	IMITATION JEWELLERY		8.0			8.5			4.4
89730	PRECIOUS JEWELLERY, GOLD-SILVERWARE								7.2
89731	PRECIOUS METAL JEWELLERY								3.3
89739	PRECIOUS JEWELLERY, GOLD-SILVERWARE, others								
89830	SOUND RECORDING TAPE, DISCS		2.1						
89831	PREPD SOUND RECORDING MEDIA		4.1						
89832	RECORDED DISCS, TAPES, ETC						1.6		
89839	SOUND RECORDING TAPE, DISCS, others		0.1						
89930	COMBUSTIBLE PRODUCTS ETC		2.3			3.8			2.3
89970	BASKETWORK, BROOMS ETC	1.7	2.3			22.4		14.2	1.6
89980	SMALLWARES, TOILETRIES ETC		2.2						1.6

Source: Author's computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.3
CHANGES IN THE EXPORT SHARE
BY BROAD INDUSTRY (SITC 1-DIGIT)
(In Percent)

COUNTRY	SITC	TITLE	1984-1986	1987-1990 a/	1991-1993 b/
INDONESIA	0	FOOD and LIVE ANIMALS	8.6	9.6	8.0
	1	BEVERAGES and TOBACCO	0.3	0.5	0.6
	2	CRUDE MATERIALS, excl. FUELS	8.5	11.3	7.6
	3	MINERAL FUELS, etc	66.0	43.5	33.2
	4	ANIMAL, VEGETABLE OIL, FAT	1.4	2.1	2.2
	5	CHEMICALS, RELATED PRODUCTS, NES	1.2	2.0	2.5
	6	BASIC MANUFACTURES	10.1	21.7	24.6
	7	MACHINES, TRANSPORT EQUIPMENTS	0.7	0.8	4.2
	8	MISC. MANUFACTURED GOODS	2.9	7.4	16.7
9	GOODS NOT CLASSIFIED BY KIND	0.4	1.2	0.5	
KOREA	0	FOOD and LIVE ANIMALS	4.1	3.7	2.7
	1	BEVERAGES and TOBACCO	0.3	0.0	0.0
	2	CRUDE MATERIALS, excl. FUELS	1.0	1.3	1.4
	3	MINERAL FUELS, etc	2.6	1.2	2.2
	5	CHEMICALS, RELATED PRODUCTS, NES	3.0	3.2	5.3
	6	BASIC MANUFACTURES	24.1	21.8	24.1
	7	MACHINES, TRANSPORT EQUIPMENTS	35.6	37.9	42.7
	8	MISC. MANUFACTURED GOODS	29.1	30.5	20.8
	9	GOODS NOT CLASSIFIED BY KIND	0.0	0.3	0.8
MALAYSIA	0	FOOD and LIVE ANIMALS	4.6	5.1	3.9
	2	CRUDE MATERIALS, excl. FUELS	20.8	21.4	12.2
	3	MINERAL FUELS, etc	28.1	17.3	15.6
	4	ANIMAL, VEGETABLE OIL, FAT	12.7	9.6	6.8
	5	CHEMICALS, RELATED PRODUCTS, NES	1.3	1.9	1.8
	6	BASIC MANUFACTURES	7.4	8.4	8.2
	7	MACHINES, TRANSPORT EQUIPMENTS	21.0	28.9	40.2
	8	MISC. MANUFACTURED GOODS	3.9	7.0	10.7
	9	GOODS NOT CLASSIFIED BY KIND	0.1	0.3	0.4
NEPAL	0	FOOD and LIVE ANIMALS	29.2	11.3	0.2
	1	BEVERAGES and TOBACCO	0.0	0.0	0.0
	2	CRUDE MATERIALS, excl. FUELS	8.1	5.9	5.8
	4	ANIMAL, VEGETABLE OIL, FAT	2.1	1.4	0.2
	5	CHEMICALS, RELATED PRODUCTS, NES	3.7	0.9	0.1
	6	BASIC MANUFACTURES	32.8	44.7	59.9
	8	MISC. MANUFACTURED GOODS	18.9	29.3	33.9
	9	GOODS NOT CLASSIFIED BY KIND	5.2	6.5	0.0

TABLE A.3 (Cont'd)

COUNTRY	SITC	TITLE	1984-1986	1987-1990	1991-1993
PHILIPPINES	0	FOOD and LIVE ANIMALS	18.1	14.5	12.4
	1	BEVERAGES and TOBACCO	0.6	0.6	0.6
	2	CRUDE MATERIALS, excl. FUELS	10.5	8.7	4.9
	3	MINERAL FUELS, etc	1.3	2.0	2.4
	4	ANIMAL, VEGETABLE OIL, FAT	8.8	5.8	3.9
	5	CHEMICALS, RELATED PRODUCTS, NES	3.4	3.7	2.8
	6	BASIC MANUFACTURES	8.7	9.1	7.9
	7	MACHINES, TRANSPORT EQUIPMENTS	7.9	10.9	21.3
	8	MISC. MANUFACTURED GOODS	11.2	14.4	21.2
9	GOODS NOT CLASSIFIED BY KIND	29.5	30.2	22.6	
SINGAPORE	0	FOOD and LIVE ANIMALS	5.1	3.8	2.8
	1	BEVERAGES and TOBACCO	0.5	1.0	1.9
	2	CRUDE MATERIALS, excl. FUELS	5.7	4.4	2.2
	3	MINERAL FUELS, etc	24.5	15.7	14.1
	4	ANIMAL, VEGETABLE OIL, FAT	2.6	1.1	0.6
	5	CHEMICALS, RELATED PRODUCTS, NES	5.3	6.4	6.4
	6	BASIC MANUFACTURES	7.2	7.7	6.9
	7	MACHINES, TRANSPORT EQUIPMENTS	34.8	47.8	54.7
	8	MISC. MANUFACTURED GOODS	7.2	9.0	8.9
9	GOODS NOT CLASSIFIED BY KIND	7.0	3.2	1.5	
SRI LANKA	0	FOOD and LIVE ANIMALS	43.2	33.5	24.5
	1	BEVERAGES and TOBACCO	0.0	0.2	1.2
	2	CRUDE MATERIALS, excl. FUELS	11.7	9.6	5.5
	3	MINERAL FUELS, etc	8.9	2.8	1.0
	4	ANIMAL, VEGETABLE OIL, FAT	1.9	0.8	0.1
	5	CHEMICALS, RELATED PRODUCTS, NES	0.7	1.1	1.0
	6	BASIC MANUFACTURES	6.1	13.4	13.9
	7	MACHINES, TRANSPORT EQUIPMENTS	2.4	2.0	2.5
	8	MISC. MANUFACTURED GOODS	24.8	34.1	47.9
9	GOODS NOT CLASSIFIED BY KIND	0.0	2.4	2.4	
THAILAND	0	FOOD and LIVE ANIMALS	45.6	33.0	24.4
	1	BEVERAGES and TOBACCO	0.8	0.4	0.5
	2	CRUDE MATERIALS, excl. FUELS	10.0	7.7	4.7
	3	MINERAL FUELS, etc	1.0	0.8	1.0
	4	ANIMAL, VEGETABLE OIL, FAT	0.2	0.0	0.0
	5	CHEMICALS, RELATED PRODUCTS, NES	1.3	1.7	2.6
	6	BASIC MANUFACTURES	16.5	14.5	12.4
	7	MACHINES, TRANSPORT EQUIPMENTS	9.0	16.8	26.7
	8	MISC. MANUFACTURED GOODS	14.3	24.0	26.4
9	GOODS NOT CLASSIFIED BY KIND	1.2	1.0	1.3	

Note

a/ Malaysia : 1987-1989

b/ Malaysia : 1990-1992, Sri Lanka: 1991-1992

Source: UN Trade Statistics Yearbook, Various Issues.

TABLE A.4
EXPORT SHARE IN THE WORLD MARKET FOR 1991-1993 (SITC 3-DIGIT)
(In Percent)

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
		1991-93	1991-93	1990-92	1990	1991-93	1990-92	1991-92	1991-93
0	FOOD and LIVE ANIMALS			0.51	0.00		0.63	0.20	
1	LIVE ANIMALS FOR FOOD			1.84	0.00				
11	MEAT, FRESH, CHILLED, FROZEN								1.28
23	BUTTER				0.00				
34	FISH, FRESH, CHILLED, FROZEN	1.87	4.12		0.00	0.24	1.38		1.99
36	SHELL FISH FRESH, FROZEN	2.72	2.76	1.03		2.13	1.43	0.14	11.73
37	FISH ETC PREPD, PRSVD NES	1.03	4.66	0.00		1.74			17.50
42	RICE	0.00			0.00	0.00			29.74
43	BARLEY UNMILLED						0.00		
44	MAIZE, UNMILLED				0.00				0.77
45	CEREALS NES UNMILLED								0.00
46	WHEAT ETC MEAL OR FLOUR				0.00				
47	OTHER CEREAL MEALS, FLOUR								0.00
48	CEREAL ETC PREPARATIONS				0.00				
54	VEG ETC FRSH, SIMPLY PRSVD	0.76			0.00			0.05	4.95
56	VEGETABLES ETC PRSVD, PREPD								3.93
57	FRUIT, NUTS, FRESH, DRIED			0.00	0.00	1.49		0.27	0.00
58	FRUIT PRESERVED, PREPARED					1.92			5.82
61	SUGAR AND HONEY			0.64		1.04		0.00	5.40
71	COFFEE AND SUBSTITUTES	3.92				0.00	0.00	0.00	0.00
72	COCOA	3.41		5.71		0.00	4.22		
74	TEA AND MATE	6.28							15.73
75	SPICES	10.47		0.00	0.00		0.00	0.00	
81	FEEDING STUFF FOR ANIMALS	0.68		0.63	0.00	0.33		0.00	1.11
98	EDIBLE PRODUCTS, PREPS NES							0.05	1.31
99	EDIBLE PRODUCTS, PREPS NES	1.31	0.83	1.27	0.00	0.10	2.23	0.12	0.38
100	BEVERAGES and TOBACCO				0.00		2.36	0.06	
111	NON-ALCOHL BEVERAGES NES								
112	ALCOHOLIC BEVERAGES								
121	TOBACCO UNMNFCTD, REFUSE	0.00	0.00		0.00	0.60		0.39	2.11
122	TOBACCO, MANUFACTURED	0.74			0.00	0.11	2.67	0.04	
200	CRUDE MATERIALS, excl. FUELS			3.42	0.01		1.21	0.10	
211	HIDES, SKINS, EXC FURS, RAW				0.00				
222	SEEDS FOR SOFT FIXED OIL				0.00			0.00	
223	SEEDS FOR OTH FIXED OILS				0.17	0.00		0.00	
232	NATURAL RUBBER, GUMS	23.39		23.13			15.31	1.51	25.62
245	FUEL WOOD NES, CHARCOAL							1.26	
247	OTH WOOD ROUGH, SQUARED	0.00		17.05	0.00	0.00			
248	WOOD SHAPED, SLEEPERS	1.74		7.08	0.00	0.00	1.21		
251	PULP AND WASTE PAPER	0.37				0.20			
264	JUTE, OTH TEX BAST FIBRES				0.26				
265	VEG FIBRE, EXCL COTN JUTE					0.00		4.80	
266	SYNTHETIC FIBRES TO SPIN		11.24						
273	STONE, SAND AND GRAVEL				0.00				
278	OTHER CRUDE MINERALS							0.06	0.00
281	IRON ORE, CONCENTRATES					0.27		0.00	
282	IRON AND STEEL SCRAP							0.07	
287	BASE METAL ORES, CONC NES	6.35		0.59		1.29	0.00	0.01	0.00
289	PREC METAL ORES, WASTE NES					6.33			

TABLE A.4 (Cont'd)

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
		1991-93	1991-93	1990-92	1990	1991-93	1990-92	1991-92	1991-93
291	CRUDE ANIMAL MATERIALS NES				0.00				0.00
292	CRUDE VEG MATERIALS NES	0.00	2.34		0.06	0.37	0.00	0.09	0.77
300	MINERAL FUELS, etc			1.62			2.82	0.01	
322	COAL, LIGNITE AND PEAT	2.67							
323	BRIQUETS, COKE, SEMI-COKE								
332	BRIQUETS, COKE, SEMI-COKE								
333	CRUDE PETROLEUM	2.68		1.98		0.01	0.00		
334	PETROLEUM PRODUCTS, REFIN	1.18	1.81	0.46		0.15	9.61	0.00	0.23
335	RESIDUAL PETROLEUM PRODUCTS NES	0.00					3.34	0.34	
341	GAS, NATURAL AND MANUFACT	11.22		3.04		0.21	0.00		0.37
399	GAS, NATURAL AND MANUFACT	0.09	12.77	0.15		0.00	0.50	0.00	0.01
400	ANIMAL, VEGETABLE OIL, FAT			16.72	0.00		3.09	0.01	
411	ANIMAL OILS AND FATS								
423	FIXED VEG OILS, SOFT								
424	FIXED VEG OILS NONSOFT	13.27		45.47	0.01	8.41	0.00	0.04	
431	PROCESSED ANIMAL VEG OIL, ETC	4.30		21.19		0.00	11.76		
499	PROCESSED ANIMAL VEG OIL, ETC	14.60		31.20	0.00	7.75	142.61	0.29	
500	CHEMICALS, RELATED PRODUCTS			0.00	0.00		1.19	0.01	
511	HYDROCARBONS NES, DERIVS		3.82				0.00		
512	ALCOHOLS, PHENOLS ETC			1.72		0.50	0.00		
513	CARBOXYLIC ACIDS ETC		1.91						
514	NITROGEN-FUNCTION COMPOUNDS	0.52	1.38						
515	ORGANIC COMPOUNDS ETC						5.48		
522	INORGANIC ELEMENTS, OXIDES ETC					0.20			
532	DYES NES, TANNING PRODUCTS				0.00				
533	PIGMENTS, PAINTS, ETC						1.56		
541	MEDICINAL, PHARMACEUTICAL PRODUCT						0.53		0.15
551	ESSENTIAL OILS, PERFUME, ETC	1.37							
553	PERFUMERY, COSMETICS, ETC						1.17		
562	FERTILIZERS, MANUFACTURED	1.48	0.00			0.69	0.00		
582	PRODUCT OF CONDENSATION ETC		2.66				1.31		
583	POLYMERIZATION ETC PRODUCTS		4.30			0.09	2.15		0.61
592	STARCH, INULIN, GLUTEN, ETC								2.62
598	MISCELLANEOUS CHEMICAL PRODUCTS NES			0.00	0.00	0.12	2.41	0.06	
599	MISCELLANEOUS CHEMICAL PRODUCTS NES	0.42	1.16	0.87	0.00	0.05	1.68	0.01	0.36
600	BASIC MANUFACTURES			0.49	0.02		0.71	0.05	
611	LEATHER	0.00	7.80		0.10			0.16	1.46
612	LEATHER ETC MANUFACTURES				0.00				4.42
613	FUR SKINS TANNED, DRESSED				0.00				
621	MATERIALS OF RUBBER			3.53					
625	RUBBER TYRES, TUBES ETC		6.08					0.09	0.81
628	RUBBER ARTICLES NES							0.16	
634	VENEERS, PLYWOOD, ETC	33.85		5.44		0.38	2.20		0.00
635	WOOD MANUFACTURES NES	4.14		1.45	0.00	1.47		0.19	1.85
641	PAPER, PAPERBOARD AND MISCELLANEOUS	0.60	0.73	0.16			0.42		
651	TEXTILE YARN	1.28	4.03	0.48			0.63	0.06	1.20
652	COTTON FABRICS, WOVEN	2.06	2.34	0.00	0.00	0.00	0.00	0.03	1.12
653	WOVEN MAN-MADE FIBRE FABRIC	4.37	16.51	0.53	0.00		1.63	0.03	1.80
654	OTHER WOVEN TEXTILE FABRIC		5.44		0.00				
655	KNITTED, ETC FABRICS		9.46				2.26		
656	LACE, RIBBONS, TULLE, ETC	10.08		7.17					
657	SPECIAL TEXTILE FABRIC PRODUCTS		6.37		0.00	0.00			0.00
658	TEXTILE ARTICLES ETC	1.74	3.60		0.00	0.38		0.29	1.73
659	FLOOR COVERINGS, ETC	0.00			0.92				
661	LIME, CEMENT, CEMENT PRODUCTS	0.99	4.10						
662	CLAY, REFRACTORY PRODUCT							0.00	
664	GLASS								0.80
665	GLASSWARE	1.44							
666	POTTERY							0.42	2.47

TABLE A.4 (Cont'd)

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
		1991-93	1991-93	1990-92	1990	1991-93	1990-92	1991-92	1991-93
667	PEARL, PREC., SEMI-P STONES								
671	PIG IRON ETC			1.48		0.16		0.46	2.93
672	IRON, STEEL PRIMARY FORMS	0.57	6.13						
673	IRON, STEEL SHAPES ETC	0.47	2.88	0.00					
674	IRON, STL UNIV. PLATE SHEET	0.00	5.44						
678	IRON, STL TUBES, PIPES, ETC		2.80				1.02		0.84
681	SILVER, PLATINUM, ETC								0.00
682	COPPER EXC CEMENT COPPER	0.00	0.98	0.00		1.05	1.08		
683	NICKEL					0.00			
684	ALUMINIUM	0.64					0.00		
687	TIN	10.06		21.09			14.45		2.35
691	STRUCTURES AND PARTS NES		5.73			0.19			0.84
693	WIRE PRODUCTS NON ELECTR		5.91						
694	STL, COPPR NAILS, NUTS, ETC		0.00					0.15	
695	TOOLS								
696	CUTLERY		8.25						
697	BASE MTL HOUSEHOLD EQUIP	1.38	5.96		0.02				
699	BASE METAL MFRS NES		1.12	0.40			1.05		0.46
700	MACHINES, TRANSPORT EQUIP.			1.10			2.38	0.00	
713	INTRNL COMBUS PSTN ENGIN		0.00	0.36			0.93		
714	ENGINES AND MOTORS NES		1.46				0.74		
716	ROTATING ELECTRIC PLANT			0.61			2.65		0.89
723	CIVIL ENGINEERG EQUIP ETC			0.00			2.34	0.00	0.00
724	TEXTILE, LEATHER MACHNRY		0.00						
728	OTH MACHY FOR SPCL INDUS		0.78				0.99		
736	METAL WORKING MACH-TOOLS						0.78		
741	HEATING, COOLING EQUIPMENT		1.27	1.54			1.41		1.15
742	PUMPS FOR LIQUIDS ETC						0.00		
743	PUMPS NES, CENTRIFUGES ETC		0.91				2.22		0.44
744	MECHANICAL HANDLING EOU		1.87				0.82	0.02	
749	NONELEC MACH PTS, ACC NES	0.00	0.89				1.72		0.98
751	OFFICE MACHINES			0.92			3.00		1.80
752	AUTOMATIC DATA PROC EQUIP	0.09	2.85	0.17		0.22	10.77		0.82
759	OFFICE, ADP MCH PTS, ACCES		1.31	2.23		0.13	4.41	0.02	2.67
761	TELEVISION RECEIERS	0.50	9.26	4.28			8.20		3.74
762	RADIO BROADCAST RECEIERS	0.99	7.58	9.87		0.35	11.99		1.16
763	SOUND RECORDRS, PHONOGRPH	0.79	8.79	4.32			7.17		2.13
764	TELECOM EQPT, PTS, ACC NES	0.29	3.47	2.62		0.50	4.75		1.04
771	ELECTRIC POWER MACHY NES		3.04	2.63			3.43		1.64
772	SWITCHGEAR ETC, PARTS NES		1.02	1.19		0.12	2.29	0.02	0.68
773	ELECTR DISTRIBUTING EQUIP		2.05	1.02		1.50	1.31		1.78
775	HOUSEHOLD TYPE EQUIP NES		4.47	0.38			1.59		1.73
776	TRANSISTORS, VALVES, ETC	0.00	9.35	6.90		1.19	6.41		1.71
778	ELECTRICAL MACHINERY NES	0.39	2.19	0.60		0.05	1.90	0.02	0.67
781	PASS MOTOR VEH EXC BUSES		1.55	0.05			0.00		0.00
782	LORRIES, SPCL MTR VEH NES		0.52						
783	ROAD MOTOR VEHICLES NES		1.78						
784	MOTOR VEH PRTS, ACCES NES		0.36			0.07	0.24		0.10
785	CYCLES, ETC MOTRZD OR NOT	1.03					2.30		0.96
786	TRAILERS, NONMOTR VEH, NES		13.83			0.05			1.95
792	AIRCRAFT ETC		0.35	0.62			0.50	0.01	0.14
793	SHIPS AND BOATS ETC	0.27	13.26	1.53			1.48		
799	SHIPS AND BOATS ETC	0.21	1.15	0.57		0.10	0.77	0.01	0.28
800	MISC. MANUFACTURED GOODS			0.85	0.01		1.22	0.24	
812	PLUMB, HEATING, LGHTNG EQ								
821	FURNITURE, PARTS THEREOF	1.57	0.56	0.87		0.57	0.66		1.51
831	TRAVEL GOODS, HANDBAGS		9.29			0.55		0.06	3.12
842	MENS OUTERWEAR NON KNIT	3.03	3.76	0.77	0.00	0.68	0.94	0.71	3.82
843	WOMENS OUTERWEAR NON KNIT	2.59	3.40	0.75	0.00	0.87	0.97	1.16	2.90
844	UNDERGARMENT NON KNIT	2.53	6.08	1.66	0.61	0.70	0.00	1.18	3.05
845	OUTERWEAR KNIT NONELASTIC	2.00	5.03	1.31	0.00	1.10	2.42	0.45	2.57

TABLE A.4 (Cont'd)

SITC	TITLE	INDONESIA	KOREA	MALAYSIA	NEPAL	PHILIPPINES	SINGAPORE	SRI LANKA	THAILAND
		1991-93	1991-93	1990-92	1990	1991-93	1990-92	1991-92	1991-93
846	UNDERGARMENTS KNITTED	2.40	4.11	1.16		1.65	2.15	0.76	3.57
847	TEXTILE CLTHNG ACCES NES	1.45	10.14			0.48		0.70	
848	HEADGEAR, NONTXL CLOTHING		15.22	4.24		0.79		0.41	2.78
851	FOOTWEAR	4.13	9.52	0.36		0.42		0.04	3.06
871	OPTICAL INSTRUMENTS								
872	MEDICAL INSTRUMENTS NES			0.91			1.96		
873	METERS AND COUNTERS NES								
874	MEASURING, CONTROLING INSTR		0.66				1.16		0.00
881	PHOTO APPARAT, EQUIP NES	1.08		2.26					
882	PHOTO, CINEMA SUPPLIES						2.20		
883	DEVELOPED CINEMA FILM								
884	OPTICAL GOODS NES		0.00						
885	WATCHES AND CLOCKS		1.28	0.58		0.13	2.03		1.73
892	PRINTED MATTER						1.78		
893	ARTICLES OF PLASTIC NES	0.33	1.78	0.81		0.12	1.29	0.04	1.78
894	TOYS, SPORTING GOODS, ETC	0.58	3.49	1.05		0.47	1.17	0.07	2.38
895	OFFICE SUPPLIES NES								
896	WORKS OF ART ETC				0.00				
897	GOLD, SILVERWARE, JEWELRY	0.75	2.12	3.26	0.01	0.28	0.00	0.06	4.30
898	MUSICAL INSTRUMENTS, PTS		5.12		0.00		1.69		
899	OTHER MANUFACTURED GOODS	3.04	4.15		0.00	1.49		0.17	1.97
900	GOODS NOT CLASSIFIED BY KIND			0.12	0.00		0.66	0.04	
931	SPECIAL TRANSACTIONS	0.00	0.39	0.19	0.00	3.63	1.13	0.07	0.63
971	GOLD, NON MONETARY NES	0.81	1.24			0.31	0.00		
999	OTHERS	0.01	0.09	0.04	0.00	0.00	0.00	0.00	0.02

Source: Author's computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.5
FOREIGN DIRECT INVESTMENT INFLOWS
(In US \$ Million)

Year Country	1983 - 1989 a/	1989	1990	1991	1992	1993	1994
Indonesia	341	682	1093	1482	1777	2004	3000
Korea	387	758	715	1116	550	516	791
Malaysia	731	1668	2332	3998	5183	5206	4500
Myanmar		8	161	56	75	98	76
Nepal	1		6	2			1
Philippines	249	563	530	544	228	763	1500
Singapore	1947	2887	5575	4888	6730	6829	7900
Sri Lanka	39	20	43	48	123	195	122
Taiwan	448	1604	1330	1271	879	917	1350
Thailand	439	1775	2444	2014	2116	2700	1350

a/ Period average.

Source: World Investment Report 1995.

TABLE A.6
CLASSIFICATION OF INDUSTRY BY FACTOR INTENSITY

Code	Products by classification
	(1) Agricultural resource intensive
0	Food and live animals
1	Beverages and tobacco
2	Crude materials, excluding fuels
4	Animal vegetable oil, fat
61	Leather, dressed fur, etc
63	Wood, cork manufactures
	(2) Mineral resource intensive
3	Mineral fuels etc
661-3	Non-metal building products and minerals
667	Pearls, precious, semiprecious stones
671	Pig iron etc.
	(3) Unskilled labour intensive
54	Medical etc, products
65	Textile, yarn, fabric etc
664-6	Glass, glassware, pottery
695-7	Tools, cutlery, base metal household equipment
729	Electrical machinery nes
793	Ship and boats
81-5	Plumbing, heating, lighting, etc equipment; office supplies, nes
893-5	Articles of plastic nes; toys; sporting goods; office supplies, nes
899	Other manufactured goods
931	Special transactions
951	War firearms, ammunition
	(4) Technology intensive
51	Organic chemicals
52	Inorganic chemicals
56-9	Fertilizers, explosives, plastics, chemicals, nes
71	Power generating equipment
771-2	Electrical powered machinery; switchgear
773	Electrical distributing machinery
726	Electro-medical, X-ray machinery
792	Aircraft
882-3	Photo, cinema supplies; developed cinema film
	(5) Human capital intensive
53	Dyes, tanning, colour products
55	Perfume, cleaning etc. products
62	Rubber manufactures nes
64	Paper, paperboard and manufacturing
672-9	Iron and steel in primary forms, excluding 670-1
691-4	Metal manufactures
698-9	Metal manufactures nes
764	Telecommunications equipment, parts, accessories, nes
778	Electrical machinery nes
78	Road vehicles
791	Railway vehicles
885	Watches and clocks
763	Sound recorders, phonographs
892	Printed matter
896	Works of art, etc
897	Gold, silverware, jewelry

Source: Modified from Ariff and Hill (1985)

TABLE A.7
CLASSIFICATION OF INDUSTRY BY THE WORLD MARKET
POSITION AND BY FACTOR INTENSITY
(In Percent)

SITC	TITLE	Share (1984-1993) Average	Increase (1985-1993) Average	World Market Position	Factor Intensity
011	MEAT, FRESH, CHILLED, FROZEN	0.9	10.7	MM	FA
023	BUTTER	0.1	5.1	SS	FA
034	FISH, FRESH, CHILLED, FROZEN	0.5	14.2	MF	FA
036	SHELL FISH FRESH, FROZEN	0.4	13.1	SF	FA
037	FISH ETC PREPD, PRSVD NES	0.2	12.9	SF	FA
042	RICE	0.2	4.5	SS	FA
043	BARLEY UNMILLED	0.1	-2.6	SS	FA
044	MAIZE, UNMILLED	0.4	-0.1	SS	FA
045	CEREALS NES UNMILLED	0.1	0.5	SS	FA
046	WHEAT ETC MEAL OR FLOUR	0.1	4.7	SS	FA
047	OTHER CEREAL MEALS, FLOUR	0.0	2.7	SS	FA
048	CEREAL ETC PREPARATIONS	0.3	16.4	SF	FA
054	VEG ETC FRSH, SMPLY PRSVD	0.5	11.3	MM	FA
056	VEGTBLES ETC PRVSD, PREPD	0.2	9.0	SM	FA
057	FRUIT, NUTS, FRESH, DRIED	0.7	7.5	MM	FA
058	FRUIT PRESERVED, PREPARED	0.3	5.8	SS	FA
061	SUGAR AND HONEY	0.5	1.0	MS	FA
071	COFFEE AND SUBSTITUTES	0.5	-5.0	MS	FA
072	COCOA	0.2	2.8	SS	FA
074	TEA AND MATE	0.1	1.9	SS	FA
075	SPICES	0.1	3.0	SS	FA
081	FEEDING STUFF FOR ANIMALS	0.6	5.7	MS	FA
098	EDIBLE PRODUCTS, PREPS NES	0.3	15.5	SF	FA
1	EDIBLE PRODUCTS, PREPS NES	0.3	8.5	SM	FU
111	NON-ALCOHL BEVERAGES NES	0.1	16.6	SF	FA
112	ALCOHOLIC BEVERAGES	0.6	11.7	MM	FA
121	TOBACCO UNMNFCTRD, REFUSE	0.2	1.8	SS	FA
122	TOBACCO, MANUFACTURED	0.3	17.6	SF	FA
211	HIDES, SKINS, EXC FURS, RAW	0.2	8.1	SM	FA
222	SEEDS FOR "SOFT" FIXED OIL	0.4	0.6	SS	FA
223	SEEDS FOR OTH FIXED OILS	0.0	2.6	SS	FA
232	NATURAL RUBBER, GUMS	0.2	0.7	SS	FA
245	FUEL WOOD NES, CHARCOAL	0.0	15.8	SF	FA
247	OTH WOOD ROUGH, SQUARED	0.3	11.5	SM	FA
248	WOOD SHAPED, SLEEPERS	0.6	10.6	MM	FA
251	PULP AND WASTE PAPER	0.6	4.1	MS	FA
264	JUTE, OTH TEX BAST FIBRES	0.0	-4.7	SS	FA
265	VEG FIBRE, EXCL COTN JUTE	0.0	0.9	SS	FA
266	SYNTHETIC FIBRES TO SPIN	0.2	3.5	SS	FA
273	STONE, SAND AND GRAVEL	0.1	11.6	SM	FM
278	OTHER CRUDE MINERALS	0.2	5.4	SS	FM
281	IRON ORE, CONCENTRATES	0.3	1.4	SS	FM
282	IRON AND STEEL SCRAP	0.2	10.2	SM	FM
287	BASE METAL ORES, CONC NES	0.5	3.4	MS	FM
289	PREC MTAL ORES, WASTE NES	0.1	-1.0	SS	FM
291	CRUDE ANIMAL MTRIALS NES	0.1	11.1	SM	FA
292	CRUDE VEG MATERIALS NES	0.4	11.4	SM	FA
322	COAL, LIGNITE AND PEAT	0.7	6.3	MM	FM
323	BRIQUETS, COKE, SEMI-COKE	0.1	-2.0	SS	FM
333	CRUDE PETROLEUM	7.1	1.2	LS	FM
334	PETROLEUM PRODUCTS, REFIN	3.5	4.8	LS	FM
341	GAS, NATURAL AND MANUFCT	1.3	2.6	LS	FM
399	GAS, NATURAL AND MANUFCT	0.3	-0.0	SS	FM
411	ANIMAL OILS AND FATS	0.1	-1.9	SS	FA
423	FIXED VEG OILS, SOFT	0.2	2.1	SS	FM

TABLE A.7 (Cont'd)

SITC	TITLE	Share	Increase	World Market Position	Factor Intensity
424	FIXED VEG OILS NONSOFT	0.2	2.4	SS	FM
431	PROCESD ANML VEG OIL, ETC	0.1	6.8	SM	FM
499	PROCESD ANML VEG OIL, ETC	0.0	2.7	SS	FM
511	HYDROCARBONS NES, DERIVS	0.6	3.0	MS	FT
512	ALCOHOLS, PHENOLS ETC	0.3	7.6	SM	FT
513	CARBOXYLIC ACIDS ECT	0.4	10.9	SM	FT
514	NITROGEN-FNCTN COMPOUNDS	0.5	13.8	MF	FT
515	ORG-INORG COMPOUNDS ETC	0.4	10.8	SM	FT
522	INORG ELEMNTS, OXIDES ETC	0.4	5.7	SS	FT
532	DYES NES, TANNING PROD	0.0	8.7	SM	FH
533	PIGMENTS, PAINTS, ETC	0.4	13.2	SF	FH
541	MEDICINAL, PHARM PRODUCT	1.2	15.3	LF	FU
551	ESSENTL OILS, PERFUME, ETC	0.1	11.4	SM	FH
553	PERFUMERY, COSMETICS, ETC	0.3	17.4	SF	FH
562	FERTILIZERS, MANUFACTURE	0.5	7.6	MM	FT
582	PROD OF CONDENSATION ETC	0.5	10.4	MM	FT
583	POLYMERIZATION ETC PRODS	1.4	21.5	LF	FT
592	STARCH, INULIN, GLUTEN, ETC	0.1	15.2	SF	FT
598	MISCEL CHEM PRODUCTS NES	0.7	11.4	MM	FT
599	MISCEL CHEM PRODUCTS NES	0.8	1.3	MS	FT
611	LEATHER	0.3	12.2	SF	FA
612	LEATHER ETC MANUFACTURES	0.1	15.9	SF	FA
613	FUR SKINS TANNED, DRESSED	0.1	1.4	SS	FA
621	MATERIALS OF RUBBER	0.1	12.9	SF	FH
625	RUBBER TYRES, TUBES ECT	0.5	9.9	MM	FH
628	RUBBER ARTICLES NES	0.2	13.7	SF	FH
634	VEENEERS, PLYWOOD, ETC	0.3	14.5	SF	FA
635	WOOD MANUFACTURES NES	0.2	15.6	SF	FA
641	PAPER, PAPERBOARD AND MFR	1.6	9.8	LM	FH
651	TEXTILE YARN	0.9	6.5	MM	FU
652	COTTON FABRICS, WOVEN	0.5	11.5	MM	FU
653	WOVN MAN-MADE FIB FABRIC	0.7	12.2	MF	FU
654	OTH WOVEN TEXTILE FABRIC	0.3	14.1	SF	FU
655	KNITTED, ETC FABRICS	0.2	17.6	SF	FU
656	LACE, RIBBONS, TULLE, ETC	0.1	13.8	SF	FU
657	SPECIAL TXTL FARBC, PRODS	0.3	12.9	SF	FU
658	TEXTILE ARTICLES ETC	0.3	12.9	SF	FU
659	FLOOR COVERINGS, ETC	0.3	9.3	SM	FU
661	LIME, CEMENT, BLDG PRODS	0.2	9.0	SM	FA
662	CLAY, REFRACTORY BLDG PROD	0.2	10.6	SM	FA
664	GLASS	0.3	12.5	SF	FU
665	GLASSWARE	0.2	11.5	SM	FU
666	POTTERY	0.1	11.4	SM	FU
667	PEARL, PREC-, SEMI-P STONES	0.9	11.6	MM	FA
671	PIG IRON ETC	0.3	13.7	SF	FA
672	IRON, STEEL PRIMARY FORMS	0.6	13.2	MF	FH
673	IRON, STEEL SHAPES ETC	0.7	7.8	MM	FH
674	IRN, STL UNIV, PLATE SHEET	1.2	8.4	LM	FH
678	IRON, STL TUBES, PIPES, ETC	0.7	3.2	MS	FH
681	SILVER, PLATINUM, ETC	0.3	14.1	SF	FM
682	COPPER EXC CEMENT COPPER	0.7	9.6	MM	FM
683	NICKEL	0.1	12.0	SF	FM
684	ALUMINIUM	0.9	9.0	MM	FM
687	TIN	0.1	-4.4	SS	FM
691	STRUCTURES AND PARTS NES	0.3	6.0	SM	FH
693	WIRE PRODUCTS NON ELECTR	0.1	7.7	SM	FH
694	STL, COPPR NAILS, NUTS, ETC	0.2	10.2	SM	FH
695	TOOLS	0.4	10.0	SM	FU
696	CUTLERY	0.1	10.0	SM	FU
697	BASE MTL HOUSEHOLD EQUIP	0.2	10.8	SM	FU
699	BASE METAL MFRS NES	0.7	11.0	MM	FH

TABLE A.7 (Cont'd)

SITC	TITLE	Share	Increase	World Market Position	Factor Intensity
713	INTRNL CONBUS PSTN ENGIN	1.2	9.6	LM	FT
714	ENGINES AND MOTORS NES	0.7	12.4	MF	FT
716	ROTATING ELECTRIC PLANT	0.5	14.0	MF	FT
723	CIVIL ENGINEERG EQUIP ETC	0.7	5.3	MS	FT
724	TEXTILE, LEATHER MACHNRY	0.7	13.5	MF	FT
728	OTH MACHY FOR SPCL INDUS	1.2	13.0	LF	FT
736	METALWORKING MACH-TOOLS	0.7	10.7	MM	FT
741	HEATING, COOLING EQUIPMENT	0.7	12.2	MF	FT
742	PUMPS FOR LIQUIDS ETC	0.4	12.3	SF	FT
743	PUMPS NES, CENTRFUGES ETC	0.6	13.7	MF	FT
744	MECHANICAL HANDLING EQU	0.7	12.7	MF	FT
749	NONELEC MACH PTS, ACC NES	1.1	13.3	LF	FT
751	OFFICE MACHINES	0.4	7.2	SM	FH
752	AUTOMTIC DATA PROC EQUIP	2.2	15.8	LF	FH
759	OFFICE, ADP MCH PTS, ACCES	1.6	14.3	LF	FH
761	TELEVISION RECEIVRS	0.5	14.8	MF	FH
762	RADIO BROADCAST RECEIVRS	0.4	12.2	SF	FH
763	SOUND RECORDRS, PHONOGRPH	0.6	6.4	MM	FH
764	TELECOM EQPT, PTS, ACC NES	1.8	16.8	LF	FH
771	ELECTRIC POWER MACHY NES	0.3	15.5	SF	FT
772	SWITCHGEAR ETC, PARTS NES	1.1	12.7	LF	FT
773	ELECTR DISTRIBUTNG EQUIP	0.4	16.1	SF	FT
775	HOUSEHOLD TYPE EQUIP NES	0.7	13.0	MF	FH
776	TRANSISTORS, VALVES, ETC	2.0	16.4	LF	FH
778	ELECTRICAL MACHINERY NES	1.2	14.9	LF	FU
781	PASS MOTOR VEH EXC BUSES	5.5	11.4	LM	FH
782	LORRIES, SPCL, MTR VEH NES	1.3	7.0	LM	FH
783	ROAD MOTOR VEHICLES NES	0.2	14.9	SF	FH
784	MOTOR VEH PRTS, ACCES NES	2.8	10.1	LM	FH
785	CYCLES, ETC MOTRZD OR NOT	0.3	14.2	SF	FH
786	TRAILERS, NONMOTR VEH, NES	0.2	11.5	SM	FH
792	AIRCRAFT ETC	2.0	12.7	LF	FT
793	SHIPS AND BOATS ETC	1.0	5.3	LS	FU
799	SHIPS AND BOATS ETC	1.2	8.5	LM	FU
812	PLUMBG, HEATING, LGHTNG EQ	0.3	17.3	SF	FU
821	FURNITURE, PARTS THEREOF	0.9	16.0	MF	FU
831	TRAVEL GOODS, HANDBAGS	0.3	20.6	SF	FU
842	MENS OUTERWEAR NON KNIT	0.6	15.7	MF	FU
843	WOMENS OUTERWEAR NON KNIT	0.9	14.7	MF	FU
844	UNDERGARMENT NON KNIT	0.2	18.3	SF	FU
845	OUTERWEAR KNIT NONELASTIC	0.8	16.1	MF	FU
846	UNDERGARMENTS KNITTED	0.4	19.3	SF	FU
847	TEXTILE CLTHNG ACCES NES	0.1	14.7	SF	FU
848	HEADGEAR, NONTXL CLOTHING	0.3	12.5	SF	FU
851	FOOTWEAR	0.9	14.1	MF	FU
871	OPTICAL INSTRUMENTS	0.1	15.7	SF	FT
872	MEDICAL INSTRUMENTS NES	0.3	15.6	SF	FT
873	METERS AND COUNTERS NES	0.0	17.6	SF	FT
874	MEASURING, CONTROLNG INSTR	1.2	10.3	LM	FT
881	PHOTO APPARAT, EQUIP NES	0.3	9.9	SM	FT

TABLE A.7 (Cont'd)

SITC	TITLE	Share	Increase	World Market Position	Factor Intensity
882	PHOTO, CINEMA SUPPLIES	0.4	8.9	SM	FT
883	DEVELOPED CINEMA FILM	0.0	7.9	SM	FT
884	OPTICAL GOODS NES	0.2	9.6	SM	FT
885	WATCHES AMD CLOCKS	0.5	12.1	MF	FH
892	PRINTED MATTER	0.6	11.5	MM	FH
893	ARTICLES OF PLASTIC NES	0.8	20.8	MF	FU
894	TOYS, SPORTING GOODS, ETC	0.7	18.7	MF	FU
895	OFFICE SUPPLIES NES	0.1	13.5	SF	FU
896	WORKS OF ART ETC	0.3	11.2	SM	FH
897	GOLD, SILVERWARE, JEWELRY	0.5	10.3	MM	FH
898	MUSICAL INSTRUMENTS, PTS	0.6	17.0	MF	FT
899	OTHER MANUFACTURED GOODS	0.4	16.5	SF	FU
931	SPECIAL TRANSACTIONS	2.0	13.8	LF	FU
971	GOLD, NON MONETARY NES	0.6	15.5	MF	FU

Note:

L: Large (1.0%)

M: Medium (0.5 - 1.0%)

S: Small (below 0.5%)

F: Fast (12%)

M: Medium (6-12%)

S: Slow, negative (below 6%)

FA : Agricultural resource intensive

FM : Mineral resource intensive

FU : Unskilled labor intensive

FH : Human capital intensive

FT : Technology intensive

Source: Author's computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.8
THE CLUSTER CHART (INDONESIA, 1985)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers	
Share of Country Exports : 6.7	Share of Country Exports : 16.4	Share of Country Exports : 44.3	Share of Country Exports : 0.4	Share of Country Exports : 44.3	Share of Country Exports : 0.4	Share of Country Exports : 0.03	Share of Country Exports : 0.03
Share of World Cluster Exports : 0.9	Share of World Cluster Exports : 3.7	Share of World Cluster Exports : 3.2	Share of World Cluster Exports : 0.03	Share of World Cluster Exports : 3.2	Share of World Cluster Exports : 0.03	Share of World Cluster Exports : 0.03	Share of World Cluster Exports : 0.03
Multiple Business		Power Generation & Distribution		Office		Defense	
Share of Country Exports : 0.02	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0
Share of World Cluster Exports : 0.005	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.00	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0
Food/Beverage		Transportation		Health Care		Personal	
Share of Country Exports : 10.6	Share of Country Exports : 3.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.2	Share of Country Exports : 0.0	Share of Country Exports : 0.0
Share of World Cluster Exports : 1.3	Share of World Cluster Exports : 0.3	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.07	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0

Source: Author's Computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.8 (Cont'd)
THE CLUSTER CHART (INDONESIA, 1992)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers					
Share of Country Exports : 7.6 (0.8)	Share of Country Exports : 13.0 (-3.4)	Share of Country Exports : 32.3 (12.0)	Share of Country Exports : 0.0 (-0.4)	Share of Country Exports : 3.0 (-0.2)	Share of Country Exports : 0.0 (-0.03)	Share of Country Exports : 0.0 (-0.4)	Share of Country Exports : 0.0 (-0.03)				
Share of World Cluster Exports : 1.0 (0.1)	Share of World Cluster Exports : 2.9 (-0.8)	Share of World Cluster Exports : 0.0 (-0.2)	Share of World Cluster Exports : 0.0 (-0.03)	Share of World Cluster Exports : 0.0 (-0.2)	Share of World Cluster Exports : 0.0 (-0.03)	Share of World Cluster Exports : 0.0 (-0.4)	Share of World Cluster Exports : 0.0 (-0.03)				
Multiple Business		Power Generation & Distribution		Office		Telecommunications		Defense			
Share of Country Exports : 0.4 (0.3)	Share of Country Exports : 0.3 (0.3)	Share of Country Exports : 0.0	Share of Country Exports : 0.1 (0.1)	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0		
Share of World Cluster Exports : 0.1 (0.1)	Share of World Cluster Exports : 0.05 (0.05)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.02 (0.02)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0		
Food/Beverage		Textiles/Apparel		Housing/Household		Health Care		Personal		Entertainment/Leisure	
Share of Country Exports : 4.5 (-6.1)	Share of Country Exports : 17.1 (14.1)	Share of Country Exports : 3.1 (3.1)	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.8 (0.6)	Share of Country Exports : 0.9 (0.9)	Share of Country Exports : 0.8 (0.6)	Share of Country Exports : 0.9 (0.9)	Share of Country Exports : 0.2 (0.5)	Share of Country Exports : 0.2 (0.2)	Share of Country Exports : 0.2 (0.2)
Share of World Cluster Exports : 0.6 (-0.7)	Share of World Cluster Exports : 1.5 (1.2)	Share of World Cluster Exports : 0.8 (0.8)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.2 (0.5)	Share of World Cluster Exports : 0.2 (0.2)	Share of World Cluster Exports : 0.2 (0.5)	Share of World Cluster Exports : 0.2 (0.2)	Share of World Cluster Exports : 0.2 (0.2)	Share of World Cluster Exports : 0.2 (0.2)	Share of World Cluster Exports : 0.2 (0.2)

Note: Figures in parenthesis are changes between 1985 and 1992.
Source: Author's Computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.9
THE CLUSTER CHART (KOREA, 1985)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers					
Share of Country Exports : 9.0	Share of Country Exports : 0.2	Share of Country Exports : 4.8	Share of Country Exports : 3.8	Share of Country Exports : 0.6	Share of Country Exports : 0.6	Share of Country Exports : 0.4	Share of Country Exports : 0.0				
Share of World Cluster Exports : 1.9	Share of World Cluster Exports : 0.07	Share of World Cluster Exports : 0.6	Share of World Cluster Exports : 0.6	Share of World Cluster Exports : 0.1	Share of World Cluster Exports : 0.1	Share of World Cluster Exports : 0.1	Share of World Cluster Exports : 0.0				
Multiple Business		Power Generation & Distribution		Office		Telecommunications		Defense			
Share of Country Exports : 4.5	Share of Country Exports : 37.1	Share of Country Exports : 1.6	Share of Country Exports : 0.9	Share of Country Exports : 0.9	Share of Country Exports : 0.9	Share of Country Exports : 0.4	Share of Country Exports : 0.4	Share of Country Exports : 0.0	Share of Country Exports : 0.0		
Share of World Cluster Exports : 1.8	Share of World Cluster Exports : 12.2	Share of World Cluster Exports : 0.1	Share of World Cluster Exports : 0.2	Share of World Cluster Exports : 0.2	Share of World Cluster Exports : 0.2	Share of World Cluster Exports : 0.1	Share of World Cluster Exports : 0.1	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0		
Food/Beverage		Textiles/Apparel		Housing/Household		Health Care		Personal		Entertainment/Leisure	
Share of Country Exports : 1.6	Share of Country Exports : 48.6	Share of Country Exports : 5.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 1.2	Share of Country Exports : 1.2	Share of Country Exports : 12.7	Share of Country Exports : 12.7	Share of Country Exports : 12.7	Share of Country Exports : 12.7
Share of World Cluster Exports : 0.3	Share of World Cluster Exports : 9.1	Share of World Cluster Exports : 3.6	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.7	Share of World Cluster Exports : 0.7	Share of World Cluster Exports : 4.7	Share of World Cluster Exports : 4.7	Share of World Cluster Exports : 4.7	Share of World Cluster Exports : 4.7

Source: Author's Computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.9 (Cont'd)
THE CLUSTER CHART (KOREA, 1992)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers					
Share of Country : Exports	7.9 (-1.1)	Share of Country : Exports	0.8 (0.6)	Share of Country : Exports	5.6 (0.8)	Share of Country : Exports	11.3 (7.5)				
Share of World Cluster : Exports	2.1 (0.2)	Share of World Cluster : Exports	3.7 (3.6)	Share of World Cluster : Exports	1.1 (0.5)	Share of World Cluster : Exports	6.8 (6.2)				
Multiple Business		Transportation		Power Generation & Distribution		Office		Telecommunications		Defense	
Share of Country : Exports	1.7 (-2.8)	Share of Country : Exports	15.7 (-21.4)	Share of Country : Exports	0.9 (-0.7)	Share of Country : Exports	0.4 (-0.5)	Share of Country : Exports	0.6 (0.2)	Share of Country : Exports	0.0
Share of World Cluster : Exports	0.7 (-1.1)	Share of World Cluster : Exports	5.2 (-7.0)	Share of World Cluster : Exports	0.7 (0.6)	Share of World Cluster : Exports	1.6 (1.4)	Share of World Cluster : Exports	0.2 (0.1)	Share of World Cluster : Exports	0.0
Food/Beverage		Textiles/Apparel		Housing/Household		Health Care		Personal		Entertainment/Leisure	
Share of Country : Exports	0.0 (-1.6)	Share of Country : Exports	22.8 (-25.8)	Share of Country : Exports	1.6 (-3.3)	Share of Country : Exports	0.0	Share of Country : Exports	1.1 (-0.1)	Share of Country : Exports	11.5 (-1.2)
Share of World Cluster : Exports	0.00 (-0.3)	Share of World Cluster : Exports	18.7 (9.6)	Share of World Cluster : Exports	0.8 (-2.8)	Share of World Cluster : Exports	0.0	Share of World Cluster : Exports	0.6 (-0.1)	Share of World Cluster : Exports	4.5 (-0.2)

Note: Figures in parentheses are changes between 1985 and 1992.

Source: Author's Computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.10
THE CLUSTER CHART (MALAYSIA, 1985)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers			
Share of Country Exports : 5.1	Share of World Cluster Exports : 0.6	Share of Country Exports : 37.1	Share of World Cluster Exports : 7.0	Share of Country Exports : 19.5	Share of World Cluster Exports : 1.2	Share of Country Exports : 22.1	Share of World Cluster Exports : 1.8		
Multiple Business		Power Generation & Distribution		Office		Telecommunications		Defense	
Share of Country Exports : 0.5	Share of World Cluster Exports : 0.01	Share of Country Exports : 0.6	Share of World Cluster Exports : 0.1	Share of Country Exports : 0.3	Share of World Cluster Exports : 0.01	Share of Country Exports : 0.9	Share of World Cluster Exports : 0.02	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0
Food/Beverage		Transportation		Health Care		Personal		Entertainment/Leisure	
Share of Country Exports : 27.4	Share of World Cluster Exports : 2.7	Share of Country Exports : 0.6	Share of World Cluster Exports : 0.1	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0	Share of Country Exports : 1.6	Share of World Cluster Exports : 0.3

Source: Author's Computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.10 (Cont'd)
THE CLUSTER CHART (MALAYSIA, 1992)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers	
Share of Country Exports : 1.2 (-3.9)	Share of Country Exports : 16.5 (-20.5)	Share of Country Exports : 4.0 (-15.4)	Share of Country Exports : 13.6 (-8.5)	Share of World Cluster Exports : 0.2 (-0.1)	Share of World Cluster Exports : 4.1 (-2.9)	Share of World Cluster Exports : 0.4 (-0.8)	Share of World Cluster Exports : 4.4 (2.6)
Share of World Cluster Exports : 0.3 (0.3)	Share of World Cluster Exports : 0.0 (-0.1)	Share of World Cluster Exports : 0.3 (0.3)	Share of World Cluster Exports : 0.3 (0.3)	Share of World Cluster Exports : 0.3 (0.3)	Share of World Cluster Exports : 0.3 (0.3)	Share of World Cluster Exports : 0.3 (0.3)	Share of World Cluster Exports : 0.0
Multiple Business	Transportation	Power Generation & Distribution	Office	Telecommunications	Defense		
Share of Country Exports : 1.2 (0.7)	Share of Country Exports : 0.0 (-0.6)	Share of Country Exports : 0.8 (0.5)	Share of Country Exports : 2.0 (2.0)	Share of Country Exports : 2.1 (1.2)	Share of Country Exports : 0.0		
Share of World Cluster Exports : 0.3 (0.3)	Share of World Cluster Exports : 0.0 (-0.1)	Share of World Cluster Exports : 0.3 (0.3)	Share of World Cluster Exports : 0.4 (0.4)	Share of World Cluster Exports : 0.3 (0.3)	Share of World Cluster Exports : 0.0		
Food/Beverage	Textiles/Apparel	Housing/Household	Health Care	Personal	Entertainment/Leisure		
Share of Country Exports : 3.8 (-23.5)	Share of Country Exports : 2.7 (1.6)	Share of Country Exports : 1.0 (1.0)	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 14.8 (13.2)		
Share of World Cluster Exports : 0.6 (-2.1)	Share of World Cluster Exports : 0.3 (0.2)	Share of World Cluster Exports : 0.3 (0.3)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 3.1 (2.8)		

Note: Figures in parenthesis are changes between 1985 and 1992.

Source: Author's Computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A. 11
THE CLUSTER CHART (NEPAL, 1985)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers					
Share of Country Exports : 0.2	Share of World Cluster Exports : 0.0002	Share of Country Exports : 0.7	Share of World Cluster Exports : 0.001	Share of Country Exports : 2.4	Share of World Cluster Exports : 0.001	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0				
Multiple Business		Transportation		Power Generation & Distribution		Office		Telecommunications		Defense	
Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0
Food/Beverage		Textiles/Apparel		Housing/Household		Health Care		Personal		Entertainment/Leisure	
Share of Country Exports : 36.4	Share of World Cluster Exports : 0.03	Share of Country Exports : 59.6	Share of World Cluster Exports : 0.05	Share of Country Exports : 0.01	Share of World Cluster Exports : 0.0	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0	Share of Country Exports : 0.6	Share of World Cluster Exports : 0.001	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0

Source: Author's Computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.11 (Cont'd)
THE CLUSTER CHART (NEPAL, 1992)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers					
Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.				
Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.				
Multiple Business		Transportation		Power Generation & Distribution		Office		Telecommunications		Defense	
Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.
Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.
Food/Beverage		Textiles/Apparel		Housing/Household		Health Care		Personal		Entertainment/Leisure	
Share of Country Exports : 2.2	Share of Country Exports : 15.7	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : n.a.	Share of Country Exports : 0.3	Share of Country Exports : 0.3	Share of Country Exports : n.a.	Share of Country Exports : n.a.
Share of World Cluster Exports : 0.001 (-0.03)	Share of World Cluster Exports : 0.01 (-0.04)	Share of World Cluster Exports : 0.01 (-0.04)	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : 0.0003 (-0.0001)	Share of World Cluster Exports : 0.0003 (-0.0001)	Share of World Cluster Exports : n.a.	Share of World Cluster Exports : n.a.

Note: Figures in parentheses are changes between 1985 and 1992.
Source: Author's Computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.12
THE CLUSTER CHART (PHILIPPINES, 1985)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers			
Share of Country Exports : 18.9	Share of Country Exports : 9.7	Share of Country Exports : 3.1	Share of Country Exports : 10.2	Share of Country Exports : 0.1	Share of World Cluster Exports : 2.4				
Share of World Cluster Exports : 0.6	Share of World Cluster Exports : 0.5								
Multiple Business		Power Generation & Distribution		Office		Telecommunications		Defense	
Share of Country Exports : 2.6	Share of Country Exports : 0.5	Share of Country Exports : 0.2	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0		
Share of World Cluster Exports : 0.02	Share of World Cluster Exports : 0.03	Share of World Cluster Exports : 0.02	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0		
Food/Beverage		Transportation		Health Care		Personal		Entertainment/Leisure	
Share of Country Exports : 31.6	Share of Country Exports : 12.1	Share of Country Exports : 3.4	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.3	Share of Country Exports : 0.03	Share of Country Exports : 0.03	Share of Country Exports : 0.002	
Share of World Cluster Exports : 0.9	Share of World Cluster Exports : 0.3	Share of World Cluster Exports : 0.4	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.03	Share of World Cluster Exports : 0.03	Share of World Cluster Exports : 0.002		

Source: Author's Computations based on UN Trade Statistics's Yearbook, Various Issues.

TABLE A.12 (Cont'd)
THE CLUSTER CHART (PHILIPPINES, 1992)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers					
Share of Country Exports : 8.9 (-10.1)	Share of Country Exports : 1.2 (-8.6)	Share of Country Exports : 2.2 (-0.9)	Share of Country Exports : 7.4 (-2.8)	Share of World Cluster Exports : 0.8 (0.2)	Share of World Cluster Exports : 0.02 (-0.5)	Share of World Cluster Exports : 0.01 (-0.1)	Share of World Cluster Exports : 0.1 (-2.3)				
Multiple Business		Power Generation & Distribution		Office		Telecommunications		Defense			
Share of Country Exports : 0.0 (-2.6)	Share of Country Exports : 0.0 (-0.5)	Share of Country Exports : 2.7 (2.5)	Share of Country Exports : 0.2 (0.2)	Share of Country Exports : 0.2 (0.2)	Share of Country Exports : 1.7 (1.7)	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0 (-0.02)	Share of World Cluster Exports : 0.2 (0.2)		
Share of World Cluster Exports : 0.0 (-0.02)	Share of World Cluster Exports : 0.0 (-0.03)	Share of World Cluster Exports : 0.1 (0.1)	Share of World Cluster Exports : 0.02 (0.02)	Share of World Cluster Exports : 0.02 (0.02)	Share of World Cluster Exports : 0.2 (0.2)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0				
Food/Beverage		Textiles/Apparel		Housing/Household		Health Care		Personal		Entertainment/Leisure	
Share of Country Exports : 12.9 (-18.7)	Share of Country Exports : 6.2 (-5.9)	Share of Country Exports : 4.3 (1.0)	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.9 (0.6)	Share of Country Exports : 1.9 (1.8)	Share of Country Exports : 0.0	Share of Country Exports : 0.9 (0.6)	Share of Country Exports : 1.9 (1.8)	Share of World Cluster Exports : 0.1 (-0.8)	Share of World Cluster Exports : 0.03 (-0.3)
Share of World Cluster Exports : 0.1 (-0.8)	Share of World Cluster Exports : 0.03 (-0.3)	Share of World Cluster Exports : 0.1 (-0.3)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.01 (-0.02)	Share of World Cluster Exports : 1.2 (1.2)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.01 (-0.02)	Share of World Cluster Exports : 1.2 (1.2)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0

Note: Figures in parenthesis are changes between 1985 and 1992.
Source: Author's Computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.13
THE CLUSTER CHART (SINGAPORE, 1985)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers					
Share of Country Exports : 1.5	Share of World Cluster Exports : 0.2	Share of Country Exports : 4.2	Share of World Cluster Exports : 1.2	Share of Country Exports : 44.4	Share of World Cluster Exports : 4.0	Share of Country Exports : 7.3	Share of World Cluster Exports : 0.9				
Multiple Business		Transportation		Power Generation & Distribution		Office		Telecommunications		Defense	
Share of Country Exports : 2.1	Share of World Cluster Exports : 0.1	Share of Country Exports : 0.9	Share of World Cluster Exports : 0.2	Share of Country Exports : 5.4	Share of World Cluster Exports : 0.3	Share of Country Exports : 4.6	Share of World Cluster Exports : 0.1	Share of Country Exports : 2.2	Share of World Cluster Exports : 0.6	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.0
Food/Beverage		Textiles/Apparel		Housing/Household		Health Care		Personal		Entertainment/Leisure	
Share of Country Exports : 4.4	Share of World Cluster Exports : 0.6	Share of Country Exports : 1.9	Share of World Cluster Exports : 0.3	Share of Country Exports : 1.7	Share of World Cluster Exports : 0.9	Share of Country Exports : 0.5	Share of World Cluster Exports : 0.1	Share of Country Exports : 0.3	Share of World Cluster Exports : 0.1	Share of Country Exports : 4.8	Share of World Cluster Exports : 1.4

Source: Author's Computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.13 (Cont'd)
THE CLUSTER CHART (SINGAPORE, 1992)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers			
Share of Country Exports : 0.5 (-0.1)	Share of Country Exports : 0.7 (-3.5)	Share of Country Exports : 25.6 (-18.8)	Share of Country Exports : 1.4 (7.9)	Share of World Cluster Exports : 0.1 (-0.1)	Share of World Cluster Exports : 0.3 (-0.8)	Share of World Cluster Exports : 4.1 (0.1)	Share of World Cluster Exports : 7.4 (6.5)		
Multiple Business		Power Generation & Distribution		Office		Telecommunications		Defense	
Share of Country Exports : 1.3 (-0.7)	Share of Country Exports : 1.4 (0.4)	Share of Country Exports : 0.2 (-5.2)	Share of Country Exports : 1.7 (-2.9)	Share of Country Exports : 1.7 (-2.2)	Share of Country Exports : 0.6 (0.5)	Share of Country Exports : 0.0 (-0.6)	Share of Country Exports : 0.0 (-0.6)	Share of World Cluster Exports : 0.4 (0.3)	Share of World Cluster Exports : 0.0
Food/Beverage		Transportation		Health Care		Personal		Entertainment/Leisure	
Share of Country Exports : 1.3 (-3.1)	Share of Country Exports : 1.5 (-0.3)	Share of Country Exports : 0.0 (-1.7)	Share of Country Exports : 0.0 (-0.5)	Share of Country Exports : 0.0 (-0.1)	Share of Country Exports : 0.0 (-0.1)	Share of Country Exports : 1.6 (1.3)	Share of Country Exports : 10.5 (5.6)	Share of World Cluster Exports : 0.3 (-0.3)	Share of World Cluster Exports : 3.3 (1.9)

Note: Figures in parentheses are changes between 1985 and 1992.
Source: Author's Computations based on UN Trade Statistics Yearbooks, Various Issues.

TABLE A.14
THE CLUSTER CHART (SRI LANKA, 1985)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers					
Share of Country Exports : 0.9	Share of Country Exports : 1.7	Share of Country Exports : 13.1	Share of Country Exports : 0.0	Share of Country Exports : 13.1	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0				
Share of World Cluster Exports : 0.01	Share of World Cluster Exports : 0.03	Share of World Cluster Exports : 0.1	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.1	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0				
Multiple Business		Transportation		Power Generation & Distribution		Office		Telecommunications		Defense	
Share of Country Exports : 0.0	Share of Country Exports : 1.2	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0
Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.02	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0
Food/Beverage		Textiles/Apparel		Housing/Household		Health Care		Personal		Entertainment/Leisure	
Share of Country Exports : 43.7	Share of Country Exports : 44.9	Share of Country Exports : 0.8	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 3.3	Share of Country Exports : 0.0	Share of Country Exports : 3.3	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0
Share of World Cluster Exports : 0.4	Share of World Cluster Exports : 0.4	Share of World Cluster Exports : 0.02	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.02	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.1	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.1	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0

Source: Author's Computations based on UN Trade Statistics: Yearbook, Various Issues.

TABLE A.14 (Cont'd)
THE CLUSTER CHART (SRI LANKA, 1992)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers					
Share of Country Exports : 0.4 (-0.5)	Share of Country Exports : 0.1 (-1.6)	Share of Country Exports : 0.6 (-12.5)	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0				
Share of World Cluster Exports : 0.003 (-0.01)	Share of World Cluster Exports : 0.002 (-0.03)	Share of World Cluster Exports : 0.003 (-0.1)	Share of World Cluster Exports : 0.003 (-0.1)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0				
Multiple Business		Power Generation & Distribution		Office		Telecommunications		Defense			
Share of Country Exports : 0.7 (0.7)	Share of Country Exports : 0.0 (-0.2)	Share of Country Exports : 0.1 (0.1)	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0		
Share of World Cluster Exports : 0.01 (0.01)	Share of World Cluster Exports : 0.0 (-0.02)	Share of World Cluster Exports : 0.002 (0.002)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0		
Food/Beverage		Textiles/Apparel		Housing/Household		Health Care		Personal		Entertainment/Leisure	
Share of Country Exports : 19.0 (-24.7)	Share of Country Exports : 39.2 (-5.6)	Share of Country Exports : 1.7 (0.9)	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 10.6 (7.4)	Share of Country Exports : 0.1 (0.1)	Share of Country Exports : 0.1 (0.1)	Share of Country Exports : 0.1 (0.1)	Share of Country Exports : 0.1 (0.1)	Share of Country Exports : 0.1 (0.1)
Share of World Cluster Exports : 0.2 (-0.2)	Share of World Cluster Exports : 0.2 (-0.20)	Share of World Cluster Exports : 0.03 (0.01)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.2 (0.1)	Share of World Cluster Exports : 0.2 (0.1)	Share of World Cluster Exports : 0.001 (0.001)	Share of World Cluster Exports : 0.001 (0.001)	Share of World Cluster Exports : 0.001 (0.001)	Share of World Cluster Exports : 0.001 (0.001)

Note: Figures in parenthesis are changes between 1985 and 1992.
Source: Author's Computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.15
THE CLUSTER CHART (THAILAND, 1985)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers					
Share of Country Exports : 6.6	Share of Country Exports : 9.4	Share of Country Exports : 1.4	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0				
Share of World Cluster Exports : 0.3	Share of World Cluster Exports : 0.8	Share of World Cluster Exports : 0.04	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0				
Multiple Business		Power Generation & Distribution		Office		Telecommunications		Defense			
Share of Country Exports : 3.1	Share of Country Exports : 0.0	Share of Country Exports : 9.2	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0		
Share of World Cluster Exports : 0.03	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 1.5	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0		
Food/Beverage		Textiles/Apparel		Housing/Household		Health Care		Personal		Entertainment/Leisure	
Share of Country Exports : 62.0	Share of Country Exports : 26.1	Share of Country Exports : 1.2	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 6.3	Share of Country Exports : 0.2	Share of Country Exports : 0.2	Share of Country Exports : 0.2	Share of Country Exports : 0.2	Share of Country Exports : 0.2
Share of World Cluster Exports : 2.8	Share of World Cluster Exports : 1.1	Share of World Cluster Exports : 0.2	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.9	Share of World Cluster Exports : 0.02	Share of World Cluster Exports : 0.02	Share of World Cluster Exports : 0.02	Share of World Cluster Exports : 0.02	Share of World Cluster Exports : 0.02

Source: Author's Computations based on UN Trade Statistics Yearbook, Various Issues.

TABLE A.15 (Cont'd)
THE CLUSTER CHART (THAILAND, 1992)

Materials/Metals		Forest Products		Petroleum/Chemicals		Semiconductors/Computers					
Share of Country Exports : 0.5 (-6.1)	Share of Country Exports : 0.2 (-9.2)	Share of Country Exports : 0.6 (-0.8)	Share of Country Exports : 4.7 (4.7)	Share of World Cluster Exports : 0.05 (-0.03)	Share of World Cluster Exports : 0.03 (-0.8)	Share of World Cluster Exports : 0.04 (0.0)	Share of World Cluster Exports : 1.1 (1.1)				
Multiple Business		Power Generation & Distribution		Office		Telecommunications		Defense			
Share of Country Exports : 2.0 (-1.1)	Share of Country Exports : 0.0	Share of Country Exports : 1.3 (-7.9)	Share of Country Exports : 1.4 (1.4)	Share of Country Exports : 1.0 (1.0)	Share of Country Exports : 0.0	Share of Country Exports : 1.0 (1.0)	Share of Country Exports : 0.0	Share of World Cluster Exports : 0.3 (0.3)	Share of World Cluster Exports : 0.0		
Share of World Cluster Exports : 0.3 (0.3)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.01 (-1.5)	Share of World Cluster Exports : 0.2 (0.2)	Share of World Cluster Exports : 0.1 (0.1)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.1 (0.1)	Share of World Cluster Exports : 0.0				
Food/Beverage		Textiles/Apparel		Housing/Household		Health Care		Personal		Entertainment/Leisure	
Share of Country Exports : 20.0 (-41.9)	Share of Country Exports : 11.6 (-14.5)	Share of Country Exports : 4.9 (3.6)	Share of Country Exports : 0.0	Share of Country Exports : 0.0	Share of Country Exports : 8.9 (2.6)	Share of Country Exports : 0.0	Share of Country Exports : 9.3 (9.1)	Share of World Cluster Exports : 2.1 (-0.7)	Share of World Cluster Exports : 0.8 (-0.3)	Share of World Cluster Exports : 0.9 (0.7)	Share of World Cluster Exports : 1.7 (0.8)
Share of World Cluster Exports : 2.1 (-0.7)	Share of World Cluster Exports : 0.8 (-0.3)	Share of World Cluster Exports : 0.9 (0.7)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 1.7 (0.8)	Share of World Cluster Exports : 0.0	Share of World Cluster Exports : 1.3 (1.3)				

Note: Figures in parenthesis are changes between 1985 and 1992.

Source: Author's Computations based on UN Trade Statistics Yearbook, Various Issues.