

THE RELATIONSHIP BETWEEN THE VARIATION IN PROTECTION WITHIN MANUFACTURING INDUSTRIES AND INTRA-INDUSTRY TRADE IN KOREA: A PRELIMINARY ANALYSIS

H. DON B. H. GUNASEKERA

I. INTRODUCTION

THE past three decades have seen industrialization playing an important role in the growth and development of many developing countries. During this period a few developing countries have built up a fully industrialized structure while several have become semi-industrialized [18]. The countries in the semi-industrialized group (commonly known as newly industrializing countries) have followed differing macroeconomic and sectoral policies. This has resulted in differing industrial structures in these countries. Some of these newly industrializing countries have shown significant changes in the commodity composition of exports and imports in the process of their industrialization-led economic growth. For instance, in the East Asian newly industrializing countries (the Republic of Korea, Hong Kong, Singapore, and Taiwan), with economic growth, the relative importance of human capital and technology in their exports has increased. Furthermore, the imports of these countries have also shown a significant increase in the shares of mineral-resource-based goods and technology-intensive goods [26] [6].

Recognizing these shifts in the commodity composition of exports and imports of East Asian newly industrializing countries, Gunasekera [14] has recently developed a conceptual framework to illustrate that, when the industrialization-led economic growth and development of these countries progresses, and as they move along the development path towards the economic structure of industrial countries, their pattern of production (in terms of commodity composition) and trade specialization in certain manufacturing industries tends to resemble that of the industrial countries.¹ The output of several of these manufacturing industries in newly

This study was undertaken while the author was at the National Centre for Development Studies, Australian National University, Canberra. The author appreciates the valuable comments and suggestions provided by Helen Hughes, Rodney Tyers, Rodney Falvery, Peter Drysdale, and an anonymous referee. Responsibility for the views expressed rests with the author.

¹ Among industrial countries, the pattern of trade specialization is predominantly intra-industry in character (simultaneous export and import of differentiated products) due to increased specialization within manufacturing industries resulting from greater use of economies of scale in producing differentiated products. A substantial amount of evidence now exists to suggest that intra-industry trade has increased in importance to the point

TABLE
RANGE OF PROTECTION LEVELS WITHIN KOREAN MANUFACTURING

Industry	Range of Nominal Rate of Production			Range
	1968	1978	1982	1968
1. Food (16)	-13 to 24	0 to 47	0 to 54	-43 to 154
2. Textiles (18)	0 to 79	0 to 42	0 to 43	-27 to 1,872
3. Lumber (5)	0 to 10	0 to 23	0 to 15	-11 to 35
4. Paper (4)	0 to 15	4 to 26	1 to 24	-21 to 22
5. Chemicals (18)	-27 to 76	0 to 58	0 to 45	-67 to 564
6. Nonmetal (6)	0 to 50	0 to 41	5 to 55	-19 to 180
7. Basic metal (7)	9 to 56	0 to 50	9 to 26	-24 to 1,665

Sources: [27] [28].

Note: Values within brackets are the number of activities or sub-industries in each

industrializing countries will encompass a range of differentiated products. As such, intra-industry specialization in production and trade will play an increasingly important role in these countries as they develop further.

Using 1970 and 1980 statistics—SITC 5–8, four- and five-digit and ISIC 3, four-digit—for the four East Asian newly industrializing countries (Korea, Hong Kong, Singapore, and Taiwan), Gunasekera [14] has shown that the share of intra-industry trade in total trade in these countries has expanded substantially in those manufacturing industries (e.g., chemicals and metal products) where factors such as increasing returns to scale and indivisibilities in the production process play an increasingly important role.² He has argued that as these countries develop further, the importance of intra-industry trade in total trade will increase, and that comparative advantage as explained by the conventional factor proportions theory will determine the net trade, while the Chamberlin-type approach to economies of scale, product differentiation, and monopolistic competition will determine the intra-industry trade in these countries.

There are several factors which affect the level of intra-industry trade. These include product differentiation, economies of scale, level of tariff and non-tariff barriers, technological factors, distance factors, taste similarity, and stage of economic development.³

The main focus in the present study is the effect of industry protection on intra-industry trade. The empirical literature on intra-industry trade contains few studies on the possible impact of changes in industry protection on intra-industry

where it may account for more than 60 per cent of total trade in most industrial countries [12]. This has been substantiated by the work of Grubel and Lloyd [13] who examined the period 1959–67; Hesse [16] for the period 1953–70; Hufbauer and Chilas [17] for the period 1929–69; and Aquino [1] for the period 1951–74.

² Other studies which examine the level of intra-industry trade in Asian newly industrializing countries include [19] [24] [15] [10] [20].

³ Greenaway and Milner [12] have provided an excellent survey of empirical literature on the determinants of intra-industry trade.

I
INDUSTRIES IN 1968, 1978, AND 1982

of Effective Rate of Protection (Balassa Method)		Range of Effective Rate of Protection (Corden Method)		
1978	1982	1968	1978	1982
-782 to 35,499	-3,072 to 13,789	-38 to 74	-374 to 73	-491 to 89
-38 to 230	-19 to 1,418	-18 to 198	-68 to 158	-71 to 213
-25 to 80	-21 to 70	-8 to 16	-18 to 47	-14 to 45
-1 to 396	-15 to 126	-16 to 15	-1 to 55	-11 to 45
-611 to 520	-17 to 5,294	-63 to 144	-27 to 198	-6,525 to 414
-3 to 4,930	-545 to 146	-14 to 97	-3 to 98	-1 to 241
-80 to 299	-65 to 134	-13 to 136	-60 to 150	-42 to 79

industry.

trade. Moreover those few studies are concerned with only one aspect of industry protection, namely, the level of protection.⁴ Another important but neglected aspect of industry protection is the variation in protection around the average.

The purpose of this study is to undertaken a preliminary analysis of the relationship between the changes in variation in protection within manufacturing industries and intra-industry trade, in one of the East Asian newly industrializing countries, Korea.

The format of the paper is as follows: in the next section the basic theoretical argument underlying the relationship between the changes in variation in protection within industries and intra-industry trade is spelled out. The relationship between the changes in variation in protection within the Korean manufacturing industries and their intra-industry trade is analyzed in Section III. Section IV discusses the results of the analysis while the final section provides some remarks on policy implications.

II. THE BASIC ARGUMENT

There is probably considerable variation in the level and structure of protection for producers of various commodities within the manufacturing industries of many countries. Rhee [23] noted a large variation in protection among manufacturing industries in each of the South and East Asian countries. As evidenced from Table I, a distinguishing feature of the Korean tariff structure is the wide variation within industries. For instance, within the basic metal manufacturing industry group, the nominal rates of protection in 1982 ranged from 26.1 per cent on plated steel down to 9.8 per cent on nonferrous primary products. The variation in protection within this industry group has been much larger in the 1960s and 1970s (see Table II). The notion that a complex and highly variable structure of protection should be replaced with a uniform structure of protection was prevalent in

⁴ These studies include [22] [7] [25] [5].

TABLE II
 NOMINAL PROTECTION RATES WITHIN THE BASIC METAL
 MANUFACTURING INDUSTRY GROUP IN KOREA

Sub-industries within the Basic Metal Manufacturing Industry Group	Nominal Rate of Protection (%)		
	1968	1978	1982
1. Pig iron	14.4	18.4	16.0
2. Steel ingots	11.8	19.8	9.9
3. Steel sheets	29.7	11.8	17.5
4. Plated steel	56.0	40.7	26.1
5. Cast and forged steel	10.5	0.0	11.8
6. Nonferrous ingots	28.2	50.6	24.4
7. Nonferrous primary products	9.7	11.2	9.8
Coefficient of variation of nominal rates of production	73.3	81.4	40.4

Sources: [27] [28].

several countries [8] [21]. A uniform protective structure is of practical importance to many countries.

Corden [9] has discussed in detail the concept of uniform protective structures with special reference to uniform tariffs. He has argued that, given a country wants to protect its import competing industries, and where there is no particular reason for fostering one type of industry more than another, a uniform tariff would be optimal. Furthermore, a uniform tariff would provide the same degree of protection for each industry, leaving it to the price mechanism to determine precisely which import-competing industries would be expanded. An important implication of reducing the variation in protection between industries is that it can facilitate inter-industry adjustments through improved resource allocation and utilization among industries.

One could argue that the concept of a uniform level of structure of protection between industries and its implications can also be applied to the level and structure of protection within industries. The implication of reducing the variation in protection within industries is that it can facilitate intra-industry adjustments through improved resource allocation and utilization among activities within industries. In certain manufacturing industries these intra-industry adjustments can be associated with greater use of economies of scale and product differentiation.

According to Grubel and Lloyd [13, p. 127] a high variation in protection within manufacturing industries is, as with the observed levels of intra-industry trade, a reflection of the obvious but usually neglected fact that manufacturing industries typically have a comparative advantage in some of the products they produce and a comparative disadvantage in others. A high variation in protection within industries also has an impact on intra-industry trade. The relatively high level of protection for some products within an industry reduces the exports as well as the imports of these highly protected products, since they compete directly with unprotected or lightly protected products within the same industry for scarce resources. Consequently, a reduction in the relatively high level of variation in

protection within such industries will facilitate intra-industry adjustments and reduce the number of products in each industry. This will encourage the production and export of a small range of productions, but the production of each on a larger scale or with longer production runs with lower average costs of production, and the importation of the balance. This will lead to increased intra-industry trade.

The relationship that emerges from the foregoing discussion is as follows: a reduction in the variation of a country's levels of protection within its manufacturing industries will lead to an increase in the intra-industry trade in these industries.

III. ANALYSIS

In order to analyze the above relationship, the effect of change in the variation in protection on intra-industry trade in Korean manufacturing industries is examined by using estimates of nominal and effective rates of protection for the years 1968, 1978, and 1982. The effective rate of protection estimates have been calculated by both the Corden method and the Balassa method. The 1968 protection estimates are based on the 1966 Korean input-output tables and are reported for 150 different activities by Westphal and Kim [27]. The 1978 and 1982 protection estimates are based on the 1975 and 1980 input-output tables, respectively, and are reported for 318 different activities in Young et al. [28]. In order to organize the data in a manageable form, the nominal and effective rates of protection estimates have been aggregated, based on the industrial classification given in the Korean input-output tables, into 98 separate activities which fall into 8 major manufacturing industry groups.⁵ Furthermore the corresponding export and import data have been extracted from the 1966, 1975, and 1980 Korean input-output tables [2] [3] [4].

In this analysis the coefficient of variation is used to measure the variation in protection among different activities within each of the eight manufacturing industry groups. The coefficient of variation, defined as the standard deviation expressed as a percentage of the arithmetic mean, has no units. This property of the coefficient of variation statistic enables a comparison of the variation in protection in an industry in different years, as well as the variation in protection in different industries in the same year.

In order to capture the distribution of intra-industry trade in different activities within an industry, the weighted average of intra-industry trade for each of the nine manufacturing industry groups for all three years was calculated by using the following formula proposed by Grubel and Lloyd [13, p. 21]:

$$B = \frac{\sum_i^n (X_i + M_i) - \sum_i^n |X_i - M_i|}{\sum_i^n (X_i + M_i)}$$

where X_i = the value of exports of industry i , M_i = the value of imports of industry

⁵ Food, beverage, and tobacco; textiles; lumber and wood products; paper and printing; chemicals; nonmetallic mineral products; basic metal manufacturing; and metal products.

i , n = number of activities at a chosen level of aggregation, and $0 \leq B \leq 1.0$.

IV. INTERPRETATION OF RESULTS

Table III presents the coefficient of variation in nominal rate of protection, effective rate of protection (Balassa method) and effective rate of protection (Corden method), and the weighted average intra-industry trade index for the eight manufacturing industry groups for 1968, 1978, and 1982. Between 1968 and 1978 the food, textiles, paper, chemicals, basic metal, and metal products industries experienced an expansion in intra-industry trade as a proportion of total trade. An increase in intra-industry trade in these industries coincided with a reduction in the variation in their effective rate of protection (Balassa method). However, in the case of textiles, basic metal, and metal products industries, intra-industry trade increased between 1968 and 1978, despite an increase in the coefficient of variation in the nominal rate of protection (within the textiles, basic metal, and metal products industries) and in the effective rate of protection (Corden method) (within the textiles and basic metal industries). The increase in intra-industry trade between 1968 and 1978 in Korea, particularly in heavy manufacturing industries such as basic metal and metal products industries partly represent vertical intra-industry trade, that is, the exports of finished goods and imports of parts and intermediate goods which fall into the same broadly classified industry groups. During this period in Korea, emphasis was placed upon giving high "priority" to export industries and allowing imports of raw material and intermediate goods required for the production of export goods. Also in the early 1970s the Korean government introduced several laws specifying various tax-cum-financial support schemes for heavy manufacturing industries. Furthermore, there were several attempts to reform the tariff structure in order to reduce overall tariffs [14]. Between 1968 and 1978 support for the inverse relationship between the variation in protection and intra-industry trade comes mainly from the comparison of intra-industry trade with the variation in effective protection (Balassa method).

An increase in the coefficient of variation of the nominal rate of protection, effective rate of protection (Corden method) and effective rate of protection (Balassa method), within the food, textiles, paper, and nonmetal products industries, between 1978 and 1982, indicates that the variation in protection in these industries rose during this period (see Table III). Correspondingly, during the same period, these industries experienced a decline in the volume of intra-industry trade as a percentage of total trade, denoted by a fall in the weighted average intra-industry trade index between 1978 and 1982.

On the other hand, between 1978 and 1982, the lumber, chemicals, basic metal, and metal products industries experienced an expansion in the volume of intra-industry trade as a proportion of total trade. This is shown by an increase in the weighted average intra-industry trade index for these industries during that period. An increase in intra-industry trade in these industries also coincided with a reduction in the coefficient of variation in their nominal protection. However in the case of the lumber, chemicals, and metal products industries, intra-industry trade increased between 1978 and 1982, despite an increase in the coefficient of variation

TABLE III
RELATIONSHIP BETWEEN VARIATION IN PROTECTION AND INTRA-INDUSTRY TRADE IN THE KOREAN
MANUFACTURING INDUSTRIES BETWEEN 1968, 1978, AND 1982

Industry	Coefficient of Variation of Nominal Rate of Protection			Coefficient of Variation of Effective Rate of Protection (Balassa Method)			Coefficient of Variation of Effective Rate of Protection (Corden Method)			Weighted Average of Intra-Industry Trade Index		
	1968	1978	1982	1968	1978	1982	1968	1978	1982	1968	1978	1982
1. Food (16)	174.0	89.7	97.8	438.8	411.3	501.5	859.8	445.0	458.7	0.10	0.46	0.35
2. Textiles (18)	107.2	107.4	116.5	306.0	212.6	335.6	249.6	309.9	324.7	0.23	0.24	0.19
3. Lumber (5)	223.6	144.4	135.9	409.5	397.0	442.6	234.6	436.8	469.7	0.02	0.02	0.16
4. Paper (4)	117.2	58.7	83.0	1,650.2	173.2	181.5	963.5	130.3	193.2	0.20	0.38	0.26
5. Chemicals (18)	149.3	79.2	61.4	419.9	184.6	260.7	956.1	115.6	496.7	0.10	0.28	0.29
6. Nonmetal (6)	146.2	83.5	91.9	343.5	216.3	440.6	401.8	92.4	170.7	0.79	0.45	0.39
7. Basic metal (7)	73.3	81.4	40.4	189.1	144.2	135.2	137.7	171.5	147.5	0.13	0.51	0.55
8. Metal products (24)	74.8	93.6	66.9	515.8	403.7	465.5	204.8	201.9	140.3	0.13	0.50	0.51

Note: Values within brackets are the number of activities or sub-industries in each industry.

TABLE IV
 PERCENTAGE OF CASES WHERE COEFFICIENTS OF VARIATION OF
 NOMINAL AND EFFECTIVE PROTECTION, AND WEIGHTED
 AVERAGE OF INTRA-INDUSTRY TRADE INDICES,
 MOVED AS PREDICTED

	1968-78	1978-82
Per cent cases where coefficients of variation of nominal rate of protection and weighted average intra-industry trade indices moved as predicted.	37	100
Per cent cases where coefficients of variation of effective rate of protection (Balassa method) and weighted average intra-industry trade indices moved as predicted.	75	62
Per cent cases where coefficients of variation of effective rate of protection (Corden method) and weighted average intra-industry trade indices moved as predicted.	50	75

Source: Computed from Table III.

in effective rate of protection (Balassa method) (within the lumber, chemicals, and metal products industries) and in the coefficient of variation in effective rate of protection (Corden method) (within the lumber and chemicals industries). A possible explanation for this could be that the positive effect of the industrialization-led economic growth and development in Korea on intra-industry trade has more than compensated for the negative effect of variation in effective protection on intra-industry trade in these industries. Policy developments since the mid-1970s in Korea have been focussed to reduce the number of incentives given to export industries. For example, the system of prior tariff exemptions on imported inputs used in export production was changed to a drawback or rebate system. Wastage allowances were repeatedly reduced, bringing them closer to real requirements. Furthermore, the wastage allowance components of the tariff exemption were extended to the rebate system. However, the Korean government continued to provide various financial incentives in the form of preferential loans and direct interest rate subsidies to export industries [14].

A comparison of trade data with both nominal and effective protection data for Korea between 1978 and 1982 supports the argument that a reduction in the variation of a country's levels of protection within manufacturing industries will lead to an increase in intra-industry trade in these industries. Support for this inverse relationship arises primarily from the comparison of intra-industry trade with variation in nominal protection, and to a lesser degree from the comparison of intra-industry trade with variation in effective protection, as calculated by the Balassa and Corden methods.

According to Table III, in 1978 and 1982, intra-industry trade as a proportion of total trade is relatively large in the chemicals and heavy manufacturing industries such as nonmetal, basic metal, and metal products. Furthermore, many of these industries experienced an increase in intra-industry trade, with a reduction in the variation of protection within the industries. These are the industries in

which the minimum efficient size of plant and increasing returns to scale are likely to play an increasingly important role in production and trade specialization.

Overall, a comparison of Korean trade and protection data for 1968, 1978, and 1982 provides some support for the argument that a reduction in the variation of a country's level of protection within its manufacturing industries will lead to an increase in intra-industry trade in these industries (see Table IV).

V. CONCLUDING REMARKS

As explained earlier, there are several factors, ranging from stage of economic development to taste similarity, which influence the level of intra-industry trade. Nevertheless, preliminary analysis of the relationship between the variation in protection and intra-industry trade has provided some support for the argument that a reduction in the variation of a country's level of protection within its manufacturing industries will lead to an increase in intra-industry trade in these industries. However, as the finding of this preliminary study suggests, the relationship between the variation in protection and intra-industry trade in a rapidly industrializing economy is more complex than that suggested by the conventional theory, especially when it is analyzed in a dynamic context. As it has been observed in Korea during the early stages of industrialization, intra-industry trade in a number of manufacturing industries has increased, despite an increase in the variation in protection within these industries. This increase in intra-industry trade could partly be due to a possible rise in vertical intra-industry trade, that is, two-way trade, which comprised increased exports of finished manufactured products and imports of parts and intermediate goods. Vertical intra-industry trade tends to increase as the domestic production of manufacturing products develop, import substitution continues, and export expansion begins. On the other hand, during the later stages of industrialization in Korea two-way trade in differentiated products, that is, horizontal intra-industry trade, likely to expand if income levels continue to grow, consumer preference for variety of goods within the same product group expands, and the level and variation in protection within industries fall.

Despite the limitations of the approach followed in this study, the preliminary finding has important policy implications. Firstly, if uniform assistance is given to activities within an industry, then resource movements within that industry will be determined by the relative profitability of different activities in that industry. In the long run, a shift from a highly variable level and structure of protection to a more uniform level and structure of protection (within industries) will lead to intra-industry adjustments (in terms of production specialization) that will result in a reduced number of activities in that industry. The remaining activities (in the presence of internal economies of scale and declining average cost of production) will be able to exploit the unexhausted economies of scale in production and hence produce a larger output at lower average cost. In other words, producers in this industry will be encouraged to produce and export a small range of products, with the balance being imported. This will lead to increased intra-industry trade.

Secondly, the finding of this study provides some justification for reducing or

eliminating the disparities in the level of protection within industries, because a smaller variation in protection within industries is likely to enhance intra-industry trade. Intra-industry production and trade specialization has the advantage that the adjustment costs associated with intra-industry reallocation of resources are relatively lower than that with inter-industry resource shifts.

As the findings of this preliminary analysis seem to suggest, the relationship between intra-industry trade and variation in protection is complex. Therefore additional empirical work which examines the association between protection and intra-industry trade within a dynamic growth context would be a useful extension to the approach followed in this paper.

REFERENCES

1. AQUINO, A. "Intra-Industry Trade and Inter-Industry Specialization as Concurrent Sources of International Trade in Manufactures," *Weltwirtschaftliches Archiv*, Vol. 114, No. 2 (1978).
2. Bank of Korea. *1966 Input-Output Tables* (Seoul, 1968).
3. Bank of Korea. *1975 Input-Output Tables* (Seoul, 1978).
4. Bank of Korea. *1980 Input-Output Tables* (Seoul, 1983).
5. BERGSTRAND, J. H. "Measurement and Determinants of Intra-Industry International Trade," in *Intra-Industry Trade: Empirical and Methodological Aspects*, ed. P. K. M. Tharakan (Amsterdam: North-Holland Publishing, Co., 1983).
6. CAMPBELL, B. O. "Trade Between Asian Developing Countries: Record and Prospects," *Asian Development Review*, Vol. 4, No. 2 (1986).
7. CAVES, R. E. "Intra-Industry Trade and Market Structure in the Industrial Countries," *Oxford Economic Papers*, Vol. 33, No. 2 (July 1981).
8. CORDEN, W. M. "Import Restrictions and Tariffs: A New Look at Australian Policy," *Economic Record*, Vol. 34, No. 69 (December 1958).
9. ————. *The Theory of Protection* (Oxford: Clarendon Press, 1971).
10. ERZAN, R., and LAIRD, S. "Intra-Industry Trade of Developing Countries and Some Policy Issues," Discussion Paper No. 12 (Geneva: UNCTAD, 1984).
11. GREENAWAY, D., and MILNER, C. *The Economics of Intra-Industry Trade* (Oxford: Basil Blackwell, 1986).
12. ————. "On the Measurement of Intra-Industry Trade," *Economic Journal*, Vol. 93, No. 372 (December 1983).
13. GRUBEL, H. G., and LLOYD, P. J. *Intra-Industry Trade* (London: MacMillan, 1975).
14. GUNASEKERA, H. D. B. H. "Trade Policy Distortions and Intra-Industry Trade in East Asian Newly Industrialising Countries, with Special Attention to Korea" (Ph.D. diss., Australian National University, 1987).
15. HAVRYLYSHYN, O., and CIVAN, E. "Intra-Industry Trade and the Stage of Development: A Regression Analysis of Industrial and Developing Countries," in *Intra-Industry Trade: Empirical and Methodological Aspects*, ed. P. K. M. Tharakan (Amsterdam: North-Holland Publishing Co., 1983).
16. HESSE, H. "Hypotheses for the Explanation of Trade between Industrial Countries, 1953-70," in *The International Division of Labor: Problems and Perspectives*, ed. H. Giersch (Tübingen: J. C. B. Mohr (Paul Siebeck), 1974).
17. HUFBAUER, G. C., and CHILAS, J. G. "Specialisation by Industrial Countries: Extent and Consequences," in *The International Division of Labor: Problems and Perspectives*, ed. H. Giersch (Tübingen: J. C. B. Mohr (Paul Siebeck), 1974).
18. HUGHES, H. "Achievements and Objectives of Industrialization," in *Policies for Industrial Progress in Developing Countries*, ed. J. Cody, H. Hughes and D. Wall (New York: Oxford University Press, 1980).

19. LAIRD, S. "Intra-Industry Trade and the Expansion, Diversification and Integration of the Trade of the Developing Countries," in *Trade and Development: An UNCTAD Review*, Vol. 3 (New York: United Nations, 1981).
20. LEE, Y. S. "Intra-Industry Trade in the Pacific Basin," *International Economic Journal*, Vol. 1, No. 1 (Spring 1987).
21. MACARIO, S. "Protectionism and Industrialisation in Latin America," *Economic Bulletin for Latin America*, Vol. 9, No. 1 (March 1964).
22. PAGOULATOS, E., and SORENSEN, R. "Two-Way International Trade: An Econometric Analysis," *Weltwirtschaftliches Archiv*, Vol. 111, No. 3 (1975).
23. RHEE, H. Y. "Protection Structures of the Developing Countries in South and East Asia," Paper presented at the Pacific Co-operation Task Force Workshop on Trade in Manufactured Goods, Seoul (1983).
24. SCHUMACHER, D. "Intra-Industry Trade between the Federal Republic of Germany and Developing Countries: Extent and Some Characteristics," in *Intra-Industry Trade: Empirical and Methodological Aspects*, ed. P. K. M. Tharakan (Amsterdam: North-Holland Publishing Co., 1983).
25. TOH, K. "A Cross-Section Analysis of Intra-Industry Trade in U.S. Manufacturing Industries," *Weltwirtschaftliches Archiv*, Vol. 118, No. 2 (1982).
26. TYERS, R., and PHILLIPS, P. "ASEAN Merchandise Trade with the Pacific Basin: Factor Composition and Performance," Pacific Economic Papers No. 116 (Canberra: Australia-Japan Research Centre, Australian National University, 1984).
27. WESTPHAL, L. E., and KIM, K. S. "Industrial Policy and Development in Korea," World Bank Staff Working Paper No. 263 (Washington, D.C.: World Bank, 1977).
28. YOUNG, S.; JUNGHO, Y.; SEUNGJIN, K.; and JAEWON, K. *Basic Objective of Industrial Policy and Reform: Proposals for Industrial Incentives* (in Korean) Research Report No. 82-9 (Seoul: Korean Development Institute, 1982).