

The Economic Effects of Forming Korea-ASEAN Free Trade Agreements: The Case of IT Industry

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ABSTRACT

This study shows that market size, all distance between any two countries are significant factors for the bilateral trade in the Korea and ASEAN. The intra-Bloc A (Korea-ASEAN) trade is insignificant except 1997 and 2000. But, when we add the Bloc-B dummy (ASEAN plus China, Japan and Korea), Bloc-B dummy becomes significant, indicating that the intra-regional trade of Southeast Asia grow faster than what can be explained by the gravity variables. The possibility of "ASEAN+3" Economic Cooperation region (Bloc-B) eliminates the statistical significance of intra-bloc A trade for 1992. South Korea's role in the ASEAN+ 3's free trade and investment scheme will facilitate its integration into regional and global economies.

This paper investigates the current bilateral trade pattern in IT industry among Korea-ASEAN and examines the economic impact of Korea-ASEAN FTA within the industry level. I find that with respect to the world trade, the export similarity index between Korea-ASEAN shows that Korea and ASEAN are higher competition relationship in electronics industry.

I find that in IT industry, most of the trade is an intra-industry trade and overall IIT (intra-industry trade) index among two countries had risen, reflecting the increasing importance of cooperation in the region. Using gravity model, I find that with the assumption that the proposed Korea-ASEAN FTA will work as with the previous RTAs, the trade creation effect for electronics expected from Korea-ASEAN FTA will be the most significant. The empirical results suggest that Korea-ASEAN FTA increase bilateral trade by 11 percent for IT industry.

Key words: Korea-ASEAN free trade agreements (FTA), IT industries, gravity model, intra-industry trade, trade specialization

JEL Classification: F02

I. Introduction

There remains an ongoing debate between economists and politicians as to whether regional trade agreements (RTAs) represent “building” or “stumbling” blocks (Bhagwati 1991). One of the more influential regional developments was in the Southeast Asian region where members of the Association of Southeast Asian Nations (ASEAN) agreed in 1992 to establish the ASEAN Free Trade Area (AFTA). The tariffs on intra-ASEAN trade of manufactured goods will be lowered to a minimum of 5 % by the year 2008. However, at the summit in September 1994, the plan was accelerated and ASEAN countries will be an FTA by the 2003.

With ASEAN and APEC both moving towards the creation of an FTA, many observers wonder if ASEAN, which is a sunset of APEC, is going to be overshadowed by a larger economy of APEC.

The approach focuses on *ex post* investigation of bilateral trade values using the so-called gravity equation. Simple examples of the application of a gravity type approach to intra-regional trade bias of selected regional grouping (one being ASEAN) include Hamilton and Winters(1992), Frankel(1993) and Sharma and Chua(2000) while Elbadawi(1997), Frankel and Wei(1993), Endoh(1999,2000) and Soloaga and Winters(2001) present useful extensions of the basic model.

The core methodology in this paper is based upon Frankel and Wei(1993) and Soloaga and Winters(2001) but the analysis concentrates on ASEAN intra- and extra-regional bias in bilateral trade flows and how these trade relationships have altered over time paying particular attention to the periods before and after the signing of AFTA as well as the crucial years prior to and following the Asian crisis.

In this paper I investigate the effects of proposed ASEAN and Korea Free Trade Agreements (Korea-ASEAN FTA) on IT industry level. Using gravity model, I show that the trade creation effect for IT industries expected from Korea-ASEAN FTA will be most significant. The empirical results suggest that Korea-ASEAN FTA increase bilateral trade for IT industry. I also find that Korea-ASEAN FTA lead to an IT industry’s trade structure more conducive to concentrative behavior.

Given the "openness" of ASEAN countries it is important to consider not only intra-ASEAN trade but also the effect of AFTA on non-members trade. By doing so, we hope

to be able to reveal whether AFTA; () increases trade among members () harms non-member countries and () contributes to or undermines future liberalization negotiations.

The paper is organized as follows. In next section, I give a brief overview of the structure of relative importance of the bilateral trading relationship, both in the world context and in Korea-ASEAN economies. In section 2, I discuss FTA in East asian countries. In section 3, I analyze the industrial interdependency between Korea and ASEAN. Section 4 describes the methodology and estimates a modified gravity equation. Section 5 investigates the impact of Korea-ASEAN FTAs on IT(electronics) industry using empirical model. The empirical models used and their results are discussed in this section. Section 6 provides a final summary and conclusion.

II. Economic Integration in East Asian FTAs

1) How Has the Regionalization Move Emerged in East Asia ?

- East Asian Miracle based on increased inter-dependence through travel and investment between East Asian economies, without much institutional integration .
- Regionalization gained momentum in the recovery process from East Asian crisis in 1997-1998.
- With a clear economic rationale underlying the move ;
 - Seek financial cooperation to prepare for another currency crisis.
 - Provide assistance to rectify structural deficiencies to avoid a recurrence of the crisis.
 - Promote liberalization and facilitation to achieve dynamic gains from bigger market .

2) Current State of FTAs in East Asia

- (Table 16) Bilateral FTAs, ASEAN-China, ASEAN-Japan, ASEAN+3, and the First east Asia Summit, at various from joint study, negotiation, basically agreed, signed, and to one already effected.
- Most proposals have started since 2000. Far longer list for ‘with outside’ than ‘within’. East Asia is a late comer in this global trend, urged by competitive

liberalization.

- Only several FTAs have been effected and their trade diversion effects have hardly been materialized yet.
- They have met across resistance by vested interest groups, in agriculture, key manufacturing, and personal services, resulting in 'low level' FTAs.

3) ASEAN + 3 and The First East Asian Summit

- Evolved from Expanded ASEAN Economic Ministers Meeting.
- Succeeded in establishing a regional network of bilateral currency swap agreements.
- Continue to discuss other forms of currency cooperation, technical assistance to strengthening domestic financial system and governance.
- Liberalization and facilitation of trade and investment toward an East Asian market.
- December 2005, the First East Asia Summit will be held in KL. Its participants are expanded to include another 3, India, New Zealand, and Australia. New issues such as terrorism, and Tunami are likely to be on the agenda, but not much focus on trade and investment.

- Insert Table 16 -

4) Tariff Elimination in ASEAN-China FTAs

Since the Asian financial crisis of 1998, it has become a trend for many East Asian countries to actively enter into FTA agreements. There are several examples of FTAs that can describe this trend best. With ASEAN-China FTA, Japan-Singapore FTA, Korea-Chile FTA, and Japan-Korea FTA(under negotiation). Among these FTAs, both ASEAN-China FTA, Japan-Korea FTA were expected to provide East Asia with a significant and controversial issue for regional economic integration in terms of economic and political aspects. However, ASENSA-China FTA is gaining more attention from the world, because it pursued a faster track in negotiation with China's leadership, officially concluded with comprehensive liberalization package November 2004, while the Japan-Korea FTA is not likely to be conclude in near future even though the bilateral FTA was initiated 3 years earlier than the ASEAN-China FTA..

ASEAN-China FTA, is expected to become one of the most prominent

international agreements, forming a bloc composed of China, very potentially a giant economic power, and the 10 ASEAN countries. The FTA will make closer trade and investment relations between ASEAN and China. ASEAN and China occupy 1.7 billion populations, GDP of about US\$2 trillion and bilateral trade of US\$55.2 billion in 2003. According to the agreement between ASEAN and China,¹ the FTA is designed to eliminate tariffs for 99 percent or more of total items, including most agricultural products. However, Japan and Korea recorded lower liberalization ratios in their first FTAs, with Singapore and Chile respectively. Major portions of agricultural products are excluded from liberalization.

<Table 1>.Number of Tariff Lines for (Highly) Sensitive Items in ASEAN-China FTA

Country	Total Number of Tariff Lines	Number of Sensitive Items	Number of Highly Sensitive Items
Brunei	6,489	66(1.02)	34(0.52)
China	7,475	161(2.15)	100(1.34)
Indonesia	11,163	349(3.13)	50(0.45)
Malaysia	10,589	272(2.57)	96(0.91)
Philippines	10,900	267(2.45)	77(0.71)
Singapore	6,036	1(0.02)	1(0.02)
Thailand	6,004	242(4.03)	100(1.67)

Note: Numbers in parentheses are shares out of total tariff lines.

Source: ASEAN Secretariat(2004), Modality for Tariff Reduction/Elimination for Tariff Lines Placed in the Sensitive Track.Appendix 1&2.

ASEAN and China signed the Agreement on Trade in Goods of the Framework Agreement on Comprehensive Economic Cooperation between two regions.² According to this agreement, China and six original ASEAN member countries (ASEAN 6: Brunei, China, Indonesia, Malaysia, Philippines, Singapore and Thailand) will liberalize trade by 2010, and new ASEAN members (CLMV: Cambodia, Lao PDR, Myanmar and Viet Nam) by 2015. The first tranche of tariff reduction under the Early Harvest Package (EHP) would commence starting July 1, 2005. Some products are categorized as the sensitive items and highly sensitive items which allow for longer time frame for tariff reduction/elimination. The sensitive items will be tariff-free by 2018 for

¹ The agreement is in ASEAN homepage(www.asenasec.org).

² This is a part of the ASEAN-China FTA, defining market access in goods. It will be augmented by agreements on services and investments later.

ASEAN-6 and China and 2020 for CLMV. Tariffs for the highly sensitive items will be reduced to 50 percent by 2015 for ASEAN-6 and 2018 for CLMV. Although 50 percent of tariffs for highly sensitive items will remain after 2018, it can be said that 99.1percent of tariff lines will be liberalized in the ASEAN-China FTA, including agricultural liberalization.³ Table 1 shows number of sensitive and highly sensitive items for ASEAN-6 and China.

5) Korea – ASEAN Negotiation

Korea began to promote Korea-ASEAN FTAs in 2004. Korea proposed the Korea-ASEAN FTA. Korea is under discussion for FTAs with several countries. Korea's embracement toward regionalism with joining ASEAN +1 or ASEAN+3(Korea, Japan and China) seems to be its strategic policy for participating in the stream of world economy.

- Insert Table 4 -

6) AFTA

The agreement on AFTA was concluded in January 1992. The initial plan was to reduce tariffs of member countries on industrial products to 0-5 percent by 2008. However in 1994, the deadline for tariff reduction was moved forward to 2003 and coverage was expanded to include agricultural products. Due to the financial crisis in 1997, a few regressive measures were implemented such as tariff increase on certain products and the introduction of an import license system in Thailand, the Philippines, and Malaysia. However, at the 6th ASEAN Summit in December 1998, all members agreed in principle that AFTA would become effective in 2002, which is 1 year before the target date set 1994. <Table 2> shows the current enforcement status of AFTA's Common Effective Preferential Tariffs (CEPT) scheme. Although the targeted tariff rates were 0-5 percent rather than zero tariff, in the case of ASEAN-6, 98 percent of the total items are included in the liberalization list.

However, AFTA has not been successful in facilitating intra-regional trade. A

³ 638 tariff lines for all ASEAN countries and China are categorized as highly sensitive list, 50% of applied tariffs are scheduled to be reduced. Total number of tariff lines for ASEAN and China are 71,830. Thus it can be said that 99.1% of tariff lines are liberalized in the ASEAN-China FTA.

considerable part of the manufacturing sector in ASEAN was established through the inflow of foreign direct investment and major components were brought in from parent companies located overseas. These characteristics made it difficult to satisfy the preferential rules of origin under AFTA. Currently, the volume of intra-regional trade is around 25 percent of AFTA's total exports, and 60 percent to 70 percent of that is composed of transactions between Singapore, Malaysia, and Indonesia. If transshipments from Singapore's free port are excluded, the volume of intra-regional trade is only 5 percent. Even in Malaysia, where the volume of regional trade with other ASEAN countries amounts to 20 percent to 25 percent out of her total trade, only 3 percent of the goods exported to ASEAN are subject to AFTA's CEPT.

<Table 2> CEPT Product List for the Year 2002

Country	Inclusion List (IL)	Temporary Exception List (TEL)	General Exception List (GEL)	Sensitive List (SL)	Total
ASEAN-6	42,850 (98.09)	289 (0.66)	387 (0.89)	160 (0.37)	43,686 (100)
CLMV	10,332 (49.94)	9,689 (46.88)	451 (2.18)	207 (1.00)	20,669 (100.00)
ASEAN	53,172	9,978	838	367	64,335
Total	(82.62)	(15.50)	(1.30)	(0.57)	(100.00)

Note: Numbers in parentheses are shares out of total tariff lines.

Source: Reorganized based on data from ASEAN Secretariat (www.asenasec.org)

- Insert Table 6, 7 -

III. The Relative Importance of the Bilateral Trading Relationship

Revealed Comparative Advantage (RCA) of the Korea-ASEAN Economics

We adopt Balassa's (1965, 1979, 1983) measure of RCA to describe their relative trade performances and competitive abilities of selected countries. The index of RCA in each product category is formulated in the following way:

$$RCA_{ij} = \frac{X_j^k / X_w^k}{X_j / X_w}$$

where X denotes exports. k denotes the commodity group classification (SITC Revised) of exports. j denotes the particular country in question and w refers to the world. In this case the RCA index will be greater than 1. Otherwise, it will be less than 1.

Trade theory and the different resource endowments in the Korea-ASEAN region suggest that resource-poor countries would have a strong comparative disadvantage in primary products, whereas resource-rich economies would have a strong comparative advantage in primary products. When we consider it, the following results can be drawn. First, Korea has a revealed comparative advantage in the export of semi-conductors, electric appliances and communications equipment sectors. Second, there has been a sizeable increase of Korean comparative advantage in the export of all IT industry.

-Insert Table 5-

Export Similarity Analysis in the Korea-ASEAN Economies

To capture the nature of the Korea-ASEAN countries' bilateral trading relationship more detail, I examine the export similarity index in Korea-ASEAN economies for 1992 – 2000 by bilateral countries. In fact, the volume of bilateral exports is greater than their share of world exports and their bilateral imports are greater than world imports. That is, the trading relationship is a relatively intense one.

Whether a bilateral trading relationship is disproportionately large or not can be shown by making use of the export similarity index (ESI).⁴ The index between

⁴ This index is defined by $ESI = \sum_{k=1}^n MIN(M_{ih}^k / M_{ih}^K, M_{jh}^k / M_{jh}^K)$

where M_{ih}^k : commodity k's imports from country i in market h.

M_{ih}^K : group of commodity K's total imports from country i in market h.

M_{jh}^k : commodity k's imports from country j in market h.

countries is close to unity (zero) indicates that the trade structure is very similar (different) to each other. Therefore there has been competition in exports to the world.. <Table 9> shows the export similarity index (ESI) for bilateral trade between Korea and ASEAN for 1992-2000. With respect to world trade, the export similarity index between Korea and Singapore shows that in 2000 Korea and Singapore are higher competition in electronics industry.

- Insert Table 9 –

Trade Specialization Index Analysis

To understand the competitiveness of ASEAN and Korea in the world market, this section gives a brief overview of the structure of competitiveness of them in the world context.

To analyze a bilateral competitiveness, trade specialization index (TSI) is employed. The index is designed as following formula:

$$TSI_i = (X_i - M_i) / (X_i + M_i)$$

where X and M refer to a country's exports and imports of goods contained in industry i in one particular year. This measure takes values between -1 and 1.⁵ <Table 5> shows the trade specialization by HS code 9 digit of IT industries with respect to ASEAN trade over time (1999-2003). 1th step groups are that TSI is 0.046 over, 2th step groups are that TSI is less -0.9, 3th step groups are that TSI is -0.5 over 0.046 less, 4th step groups are that TSI is -0.9 over -0.5 less.

1th step groups are relatively export specialization products, 2th step groups are absolutely imports specialization products, 3th step groups are weak comparative specialization products, 4th step groups are protective products.

- Insert Table 5 –

M_{jh}^K : group of commodity K's total imports from country j in market h.

⁵ The more this index is close to minus one (plus one), the stronger is that economy's import (export) specialization in that industry.

Intra-Industry Trade Index

I construct Grubel-Lloyd index of intra-industry trade (IIT). It is defined as:

$$IIT = 1 - \frac{\sum_i^n |X_i - M_i|}{\sum_i^n (X_i + M_i)}$$

To understand pattern of intra-industry trade more detail, I now examine Grubel-Lloyd index of intra-industry trade in the region, among Korea, and ASEAN.

<Table 10-11> presents intra-industry trade index for the electronics industry among Korea and ASEAN, ASEAN-6 countries. The major conclusion is summarized as follows: first, the overall IIT index among Korea-ASEAN countries had risen consistently over 0.3, reflecting the increasing importance of cooperation in the region. Second, Korea' index with Singapore was higher than Korea's with Indonesia which reflects that the division of labor between Korea and Singapore made steady progress.

In terms of semiconductors, the index for Korea-Singapore(0.55 in 2002) and Korea-Malaysia (0.46 in 2002) exceeded the level of Korea-Philippines (0.40 in 2002).. The index of electric parts showed relatively little progress. As the computer industry in ASEAN has been developed and expanded its export market, both indices for Korea with ASEAN increased. Indices for communication equipment in Korea-Singapore and Korea-Malaysia followed an upward trend in 2000 and 2001.

-Insert Table 10, 11-

IV. The Empirical Analysis of Korea-ASEAN FTA in IT Industries

1. Methodology: Gravity Model

Tinbergen(1962) pioneered the use of the gravity model to study bilateral trade. Linneman (1966) added more variables and went further toward a theoretical justification in terms of Walrasian general equilibrium system. He pragmatically combined three determinants of the size of bilateral international trade flow; the importer's demand, the exporter's supply and the cost of doing business. Anderson

(1979) was the first to derive the gravity equation from models that assumed product differentiation, first assuming Cobb-Douglas preferences and then CES preferences. He made what today would be called the Armington Assumption, that products were differentiated by country of origin. Bergstrand (1985), like Anderson, used CES preferences over Armington-differentiated goods to derive a reduced form equation for bilateral trade involving price indices.

Bergstrand (1989, 1990) departed further from the Heckscher-Ohlin (H-O) model by assuming Dixit-Stiglitz (1977) monopolistic competition, and therefore product differentiation among firms rather than among countries. Recently Deardorf (1995) got the simple gravity equation from the H-O model, properly considered both with frictionless and with impeded trade. This approach has been used empirically by many researchers to examine the determinants of bilateral trade flows (Aiken 1973, Brada and Mendez 1983, Bergstrand 1985). Frankel and Wei (1992, 1995) conducted a test on bilateral trade flows using gravity framework. We use it to characterize the trading patterns of Korea-ASEAN and predict the effect of economic integration.

Bilateral trade flows in the gravity framework are such that trade between two countries is posited to increase with their size (as proxied by their GNP and populations) and to decline with transactions costs (proxied by the geographic distance between them and by whether or not they share a common border). The trade flow from country of origin i to country of destination j is viewed in terms of the framework of Table 3. Country i 's potential supply of exports depend on its GNP, which tends to vary inversely with population. Population proxies the physical size of an economy. Larger economies have less need to trade in order gain from specialization or scale economies. Similar arguments apply to imports: higher GNP suggests higher demand and higher population suggests greater self-sufficiency.

The main natural obstacles to trade are transport and transactions cost. The former are related to distance, while the latter are related to the 'economic horizon' of a country. As a proxy for transportation cost, longer distance implies a higher level of transportation cost and reduces trade flows (Bergstrand 1985). Neighboring countries can be expected to have an additional stimulus to trade. This effect can be captured by using an adjacency dummy which is non-zero if i and j share a common land border. It reflects reductions in transportation frictions between adjacent countries.

The level of development will have a positive impact on the effects of integration and trade because less developed countries have a structural bias against trade, and benefit less from integration. Production of LDCs are concentrated on raw materials and agriculture. On the other hand, developed countries' production, concentrated on manufactures, tends to be traded more as a large measure of intra-industry exchanges.

The use of this model permits us to incorporate into the analysis as the trade preference area effects through the use of dummy variables. To analyze the effect of regionalism, we add dummy variables for participation in regional arrangements (Aitken 1973, Frankel and Wei 1993). A positive coefficient on the dummy variable indicates that two countries, both of which participate in the same preference arrangement, is trading creating for its members.

<Table 3> Summary of the Hypothesized Gravity Model for Bilateral Trade

Determinants	Sign, Hypothesized Direction
Market size of exporting country(Y_i)	+ Export supply
Market size of importing country(Y_j)	+ Import demand
Population of exporting country(N_i)	- Larger countries more self-sufficient
Population of importing country(N_j)	- Self-sufficiency
Distance(D_{ij})	- Transaction cost
Adjacency(Adj)	+ Common borders cut costs
GNP per capita(Y_i/N_i)(Y_j/N_j)	+ Intra-industry trade
Trade preferences dummy	+ Reduced costs

Note: We assume that the logarithm of the trade flow is linearly related to logarithms of explanatory variables.

2. Empirical Model and Data

Aiken (1973) used a cross-sectional trade flow model akin to those of Tinbergen (1962) and Linneman (1966) with the aim of empirically isolating the principal influences which shaped European trade relations between 1951 and 1967. Utilizing dummy variables, he first estimated the effect of the formation of EC and EFTA on the trade of member nations. Bergstrand (1985) and Deardorf (1995) provide strong theoretical support for the use of gravity model in explaining bilateral trade flows.

The bilateral trading relationship between Korea, and ASEAN is disproportionately large given their relative positions in the world trade.. I attempt to estimate the effects

of Korea-ASEAN FTA on the IT electronics industry by means of gravity equations. Although the theoretical foundations for these relations are less than robust, these models perform well empirically and can be useful for estimating changes in the trading relationships among countries.

The estimation procedure was conventional: the log of exports was regressed on distance, GDPs, and a variety of other variables. Dummy variables were then added when both countries were members of a RTA (APEC, NAFTA, ASEAN or AFTA, the Australia-New Zealand CER) or when the importing country was a member of one of the these RTAs while the exporting country was not a member of the same RTA.

I estimate the following specification using data over time (t) at the exporting (i) and importing (j) countries.

Frankel and Wei (1992, 1995) conducted the most extensive compendium of research adopting gravity model. Our model revise Frankel and Wei's gravity model by adding market size variables in order to estimate the effect of ASEAN Korea's FTA(economic integration). The model used by this study is:

$$\begin{aligned} \log X_{ij} = & A + a_1 \log Y_i + a_2 \log Y_j + a_3 \log N_i + a_4 \log N_j \\ & + a_5 \log (Y_i/N_i) (Y_j/N_j) + a_6 \log D_{ij} + a_7 \log Adj \\ & + a_8 \text{Bloc-A(ASEAN+1)} + a_9 \text{Bloc-B(ASEAN+3)} + a_{10} \text{RTA} \\ & + a_{11} \text{im ASEAN} + a_{12} \text{ex ASEAN} \end{aligned} \quad (1)$$

where X_{ij} is the bilateral trade flow from exporting country i to importing country j measured in dollar value, Y is the nominal dollar value of GNP, N is population, D_{ij} is the geographical distance between the commercial centers in the two countries, Adj is a dummy variable for adjacent countries, $(Y_i/N_i) (Y_j/N_j)$ is the product of the two countries's per capita incomes. "Bloc-A(ASEAN+1)" is a dummy variable for ASEAN and Korea FTA trade bloc. Similarly, we can add another dummy, "Bloc-B(ASEAN+3)" for ASEAN, plus Korea, China, and Japan's Economic Cooperation. RTAs is one if both I and j are in the respective RTA. The Dummy "im ASEAN" captures the extra-regional import bias of intra-RTA trade or the import trade diversion as a result of changes to the import structures of the RTA where a negative and significant coefficient indicates that member countries have switched to importing from members rather than non-members. The "ex ASEAN" captures the extra-regional exports bias of the RTA to the rest of the world or the export trade diversion where a negative and significant coefficient means that the RTA has resulted in a member country preferring to export to members rather

than non-members.

Data were collected on trade values in IT(electronics) industry, GDP, population, exchange rates, languages, and distance for the years, 1985 – 2000. Most of the data come from International Marketing Data and Statistics. The total trade between two countries is obtained from IMF, Direction of Trade Statistics, and is in the nominal US dollar. The Gross Domestic Product(series 99b) and population (series 99z) are taken from IMF, IFS, CD-ROM data base. Since the individual country real GDP is reported in domestic currency, it is converted to the US dollar using the market exchange rates. Frankel and Wei's data set (1980, 1985, 1990, 1992)¹¹ are also used. We have collected data for ASEAN member countries from their data set, including GNP, GNP per capita, distance, population, and adjacency variables. The data of ASEAN countries is drawn from UN trade statistics. Membership in ASEAN, APEC and NAFTA is measured by a dummy variable such that it is 1 for members and 0 for non-members in each group. Finally, nearest distance between ports in nautical miles are obtained from the US naval Oceanographic Office.

V. Empirical Results

(1) Basic Determinants of Bilateral Trade

<Table12> reports the basic regression results. The estimates in <Table 12> confirm our hypothesized signs above. All the coefficients except for N_j dummy variables have expected signs. As expected, the market size (GNP) of both countries has a positive impact on trade flows. But, among the market size of importing countries, population variable in 1985 has an unexpected positive sign. The coefficient on the log of distance was -0.45 for 2000 and smaller than that reported by Frankel and Wei(1995). This means that when the distance between two non-adjacent countries is higher by 1 per cent, the trade between them falls by about 0.45 per cent. The estimated coefficient on GNP per capita is small and statistically insignificant except for 2000. This coefficient is interpreted in terms of intra-industry trade. It means that richer economies consume a wider variety of differentiated products than poorer countries, and many of those differentiated varieties are produced abroad.

-Insert Table 12-

(2) Trade Bloc Effect

If we first look at the first three columns where only Bloc-A dummy is included, we find that the intra-Bloc A trade is statistically insignificant except 1997, 2000 in Table 13. It means that the trade between Korea and ASEAN is minimal until 1990. But, it should not be interpreted that the effect of economic integration of Korea and ASEAN is insignificant, since we do not have sufficient data covering the period. Comparing the estimates for 1985 and 2000, the intra-Bloc A trade has become bigger in 2000 than 1985. But, when we add the Bloc-B dummy in the last three columns, it becomes significant, indicating that the intra-regional trade of Southeast Asia grows faster than that can be explained by the gravity variables. Here, the dummy of Bloc-B loses its statistical significance only for 1985. One of the reasons for this is the emergence of China as a major participant in world trade, and its trade with its Southeast Asia as neighbors accounts for a large share of the recent growth in its foreign trade⁴⁾. As intra-Asian trade continues to grow, these developments will have important implications for the future of Korea and ASEAN's foreign trade.

- Insert table 13 -

Table 13 adds dummy variables of trade preferences designed to capture the impact of the trade bloc. The ASEAN coefficient is significantly different from zero except for 1985. When a dummy for common membership in APEC is included in the regressions (together with dummies for the NAFTA memberships), it is significant for 1997 and 2000. The value of the coefficient increases for subsequent years, reaching a significance level of 0.1 in 2000. The large change in the value of APEC coefficient from 1990 to 2000 is consistent with the hypothesis that the APEC's effect on member trade first occurred in 1990.

The most important results from this study are with respect to the estimates for Bloc-B dummy. Basically, block-B dummy has gained their statistical significance in 1990, 1997 and 2000 after ASEAN, APEC and NAFTA dummies are included in the regression. This suggests that the intra-regional bias for Bloc-B is due to the increase of an intra-APEC bias.

It implies that South Korea's role in the ASEAN's free trade and investment scheme stimulates its integration into regional and global economies.

This empirical investigation focuses on the trade-creating effect of an RTA. The overall results show that not only do RTAs have a positive effect on intra-regional trade volume, but an additional trade-creation effect also arises. The estimation results imply that if a pair of countries joining an RTA, they experience an increase in trade with other variables remaining constant.

With the assumption that the proposed Korea-FTA will work as with the previous RTAs, a Korea-ASEAN FTA is expected to increase intra-regional trade for IT electronics. The trade-creation effect for IT industry expected from Korea-ASEAN FTA will be most significant. The results of Table 13 suggest that Korea-ASEAN FTA increase bilateral trade by 11 percent for IT industry.

(3) AFTA effects

The intra-regional dummies for regressions (1) are positive for ASEAN and APEC implying that countries located within these regions do trade more with each other over and above the levels predicted by the basic explanatory variables. We observe that the NAFTA dummies are also generally positive and significant.

Our results, showing a positive and significant ASEAN effect, differ from a number of previous studies such as Soloaga and Winters(2001) who both observe a negative relationship albeit for a different estimating equation and country coverage but are similar to Frankel *et al.*(1995) and Endoh (2000) who recorded positive and significant coefficients for APEC.

Observe that when we include both ASEAN and APEC dummies the ASEAN coefficient is significantly lower. This is consistent with Frankel (1993) who observed that in 1990, 1997 and 2000, the ASEAN dummy was only significant when no other Asian bloc dummies were included and concluded that ASEAN did not seem to be an appropriate bloc around which to draw a border.

This leads us to enquire whether the AFTA process has been trade creating or trade diverting and whether ASEAN is a discriminating bloc or exhibits "open regionalism". The lack of a consistent upward trend in the ASEAN dummy over our period of analysis deserves closer examination. In Table 13 we include our two additional dummies to represent the case where only the import or export country is a member of the RTA. AFTA is trade creating if the ASEAN coefficient increases and that of the other do not

change after the AFTA process started and the AFTA is trade diverting in two cases; () ASEAN member's welfare is reduced if the ASEAN coefficient increases and that of *im ASEAN* decreases, () non-member's welfare is reduced if the ASEAN coefficient increases and that of *exASEAN* decrease

In Table-13 the regional dummies are generally significant and justifies their inclusion. A comparison of the RTA coefficients with Table 13 demonstrates that the largest differences are for the ASEAN dummy (the NAFTA coefficients remain relatively stable.).

Concentrating on ASEAN, we observe that *ASEAN*, *imASEAN* and *exASEAN* all record positive and significant coefficients with the former the largest in all periods. The fact that all three dummies are positive and significant means that members and non-members have traded with each other more than the hypothetical trade level. Examining coefficient change over time we observe again that *ASEAN* falls between 1985 and 1990 and then rises while *imASEAN* increases until 1997 and then increases while *exASEAN* demonstrates a consistent rise. Considering jointly, the *imASEAN* and *exASEAN* coefficients reveal the extent of the extra-ASEAN trade bias over the period. The generally increasing trend means that there has been a *negative* trade diversion effect. More specifically, the upward trend in *exASEAN* indicates that *negative* export trade diversion has been strengthening and means that the volume of trade between members and non-members has been increasing. The slight fall in *imASEAN* after 1985 does reveal a weakening of the *negative* import trade diversion effect as ASEAN members begin to prefer to import goods from members rather than non-members but the effect is only small against a large increase in intra-regional trade in general. These results seem to suggest that ASEAN countries retained their openness and outward orientation despite AFTA.

Finally, in Table 13 we investigate the nature of the AFTA process on ASEAN bilateral trade. The observation of basic gravity findings are worth mentioning. First the ASEAN coefficient increases constantly over time especially after the AFTA formation period. This suggests that the AFTA process may have had some effect on intra-regional trade ever since its inception that has accelerated since the Asian crisis. Second, there is little difference in the coefficients on the GDP variables between the pre- and the post crisis period while the ASEAN coefficient rose. This are no dramatic change in the way other economic factors determine intra-ASEAN trade flows.

(4) Implications of ASEAN FTA

One possible explanation for the fall in trade creation immediately following 1993 was the emergence of credible competition for market share from the new industrial and exporting powers of China, South America and Eastern Europe. Similarly other regional trade agreements such as the EU and NAFTA and associate agreements between these grouping and countries in Eastern Europe, the Middle East and North Africa may have exhibited their own trade diversion effect. The observation from <Table 13> that the coefficient of NAFTA dramatically increases in 1990s.

A second explanation for the weakening of the *negative* import diversion effect after the Asian crisis may reflect the consensus that prior to this date that although ASEAN's success was based on its outward orientation. Perceived problems of credibility and confidence in the region by the industrialized world meant that ASEAN countries were forced to turn inwards and to focus on their local markets. In response, ASEAN governments have made significant efforts to promote the AFTA process in the midst of Asia crisis, for example at the ASEAN summit in 1998 when the final date for completion of AFTA was bought forward. Finally however, it can be stated that the traditional stance of ASEAN countries to outward oriented economic activity has not been significantly damaged but rather stimulated by the AFTA process and/or the economic crisis resulting in no detrimental welfare effects for the rest of the world.

(5) The impact of FTA on bilateral trading relationship – The case of IT Industries

To better understand the effect of proposed Korea-ASEAN FTA on IT (electronics) industry, I now turn to a more formal estimation of how Korea-ASEAN FTA effects on bilateral trading relationship. I investigate the effect that tariff policy has on the ability of industry to collude in oligopolistic IT industry, electronics in Korea-ASEAN.

I estimate the following specification using data over time (t) at the country (j) and sub-sector of IT industry (i).

$$\ln X_{ijt} = \beta_0 + \beta_1 \text{Tariff}_{ijt} + \sum_k \beta_{ik} z_{ikt} + d_j + \varepsilon_{ijt}, \quad (2)$$

In specification (2), X_{ijt} is a various index (such as, IIT, TSI, Herfindahl index) for

bilateral trade relations; z_{ik} represents k characteristic of i sector at time t . As characteristics of sectors, I used capital intensity, average employment, final demand bias, scale economies, technology level, and human capital intensity.. The country dummies d_j represent the fixed country effects that are not captured by the model.

The basic problem faced in the estimation of this model is that this specification cannot control for unobserved industry heterogeneity. Because the unobserved effects tend to persist over time, ignoring these effects of unobserved individual effects (heterogeneity) creates serially correlated with the error term, ε_{ij} . Further, substantial bias may be induced by the correlation of unobserved industry-specific factors and the variables of interest may be large.

To control for this unobserved industry heterogeneity, we translate equation (2) into the following estimation equation (3).

$$\ln X_{ijt} = \beta_0 + \beta_1 \text{Tariff}_{ijt} + \alpha_i \text{trend} + \sum_k \beta_{ik} z_{ikt} + d_j + \varepsilon_{ijt} \quad (3)$$

Due to industry-specific concerns I replace the third terms of equation (3) by a combination of a sector-specific trend $\alpha_i \text{trend}$ to get at sector-wide price trends. I present the fixed effect regression results.

The results of estimates are reported in Table 14. The first column shows the effects of tariff in IT industry on intra-industry index. The coefficient of tariff on intra-industry is significantly negative. This indicates that the formation of Korea-ASEAN FTA reduces tariff rates among Korea-ASEAN countries, and so intra-industry trade will be increased. This results has positive effects on each country's growth through increasing of intra-industry trade.

Tariff rates are negatively correlated with export concentration with respect to the total electronics exports of the Korea-ASEAN countries examined in Table 14. This suggests that small tariff rates lead to an IT industry trade structure more conducive to concentrative behavior. After formation of Korea-ASEAN FTA, each country may specialize its export. As specialization on their exports that have relative comparative advantage, each country has a positive impact on growth.

Table 14 shows results for tariff effects on trade specialization index with respect to

world exports. The coefficient on tariff rates is negative in column (3), but not significant. This indicates that the changes of tariff rates after Korea-ASEAN FTA does not matter for trade specialization with respect to world exports.

VI. Conclusions

International trade has a potential to generate income, and introduce new technologies. It is useful to determine, prior to integration, whether an economic bloc would be welfare-enhancing in a static meaning. The term "natural economic bloc" was introduced to make such a determination. In our study, we tried to identify and empirically test the factors affecting the level of bilateral trade. Using a modified gravity equation, this paper investigates the effect of AFTA on world and regional trade patterns. Our first main finding is that trade flows were not significantly affected in the years immediately following the signing of the AFTA agreement in 1993 and reinforces the finding of previous studies. When the gravity equation was re-estimated for intra-ASEAN trade only however, we did find some evidence of a positive AFTA effect that although limited at first, gradually increased. It should be noted however, that institutional progress by ASEAN governments at this time was relatively limited. The purpose of this study was to extend current understanding of the determinants of trade among Korea and ASEAN countries. The primary reference point for this work has been the study of Frankel and Wei (1993), since they had performed the most extensive analysis of the subject to date.

The main differences between the present and the past studies are found in the number of variables employed. The present study introduced more independent variables into the analysis, including GNP, population. This study shows that market size, all distance between any two countries are significant factors for the bilateral trade in the Korea and ASEAN. The intra-Bloc A trade is insignificant except 1997, 2000. But, when we add the Bloc-B dummy in the last three columns, Bloc-B dummy becomes significant, indicating that the intra-regional trade of Southeast Asia grow faster than what can be explained by the gravity variables. The possibility of "ASEAN+3" Economic Cooperation region (Bloc-B) eliminates the statistical significance of intra-bloc A trade for 1985 South Korea's role in the ASEAN+ 3(Korea, China and Japan)'s free trade and investment scheme will facilitate its integration into regional and global economies.

This paper investigates the current trilateral trade pattern in IT industry among Korea-ASEAN and examines the economic impact of Korea-ASEAN FTA within the industry level, electronics. I find that with respect to the world trade, the export similarity index between Korea-ASEAN shows that Korea and ASEAN are higher competition relationship in electronics industry.

I find that in IT industry, most of the trade is an intra-industry trade and overall IIT index among two countries had risen, reflecting the increasing importance of cooperation in the region. Using gravity model, I find that with the assumption that the proposed Korea-ASEAN FTA will work as with the previous RTAs, the trade creation effect for electronics expected from Korea-ASEAN FTA will be the most significant. The empirical results suggest that Korea-ASEAN FTA increase bilateral trade by 11 percent for IT industry. Tariff rates are negatively correlated with intra-industry index, export concentration, and trade specialization.

The Way toward East Asian Community

- Criticism and warning by outside economists against possible trade diversion and Spaghetti Bowl effect are well taken, but its economics rationale and dynamism underlying the regionalization move should not be missed.
- East Asian Economic Community is still a remote goal, impeded by differences in economic system, lack of experiences in formal integration, residual distrust from events of the past history, as well as resistance by domestic vested interest groups resulting in 'low-level' FTAs.
- We need to promote bilateral, sub-regional, and ASEAN + 3 and guide them so as to pursue 'high-level' FTAs and to be a solid steps toward our ultimate goal.

<Table 4> ASEAN Tariff Rates for IT Items

number	HS CODE	Brunei	Cambodia	Indonesia	Laos PDR	Malaysia	Myanmar	Philippines	Thailand	Vietnam
1	3818001000	0	7	0	10	0	1.5	3	0	-
2	3818002000	-	-	-	-	-	-	-	-	-
3	8471101000	0	15	0	5	0	1.5	0	0	-
4	8471102000	0	15	0	5	0	1.5	0	0	-
5	8471300000	0	15	0	-	0	1.5	0	0	10
6	8471411000	-	-	-	-	-	-	-	-	-
7	8471412000	-	-	-	-	-	-	-	-	-
8	8471419000	0	15	0	5	0	1.5	0	0	10
9	8471491010	-	-	-	-	-	-	-	-	10
10	8471491020	-	-	-	-	-	-	-	-	10
11	8471491090	-	-	-	-	-	-	-	-	10
12	8471499000	0	15	0	-	0	1.5	0	0	10
13	8471501000	0	15	-	-	0	1.5	0	-	10
14	8471502000	-	15	-	-	-	-	-	-	-
15	8471509000	-	15	0	-	-	-	-	-	10
16	8471601010	-	-	-	-	-	-	-	-	-
17	8471601020	0	15	-	-	0	1.5	0	-	10
18	8471601030	-	15	-	-	-	-	-	-	10
19	8471601040	-	-	-	-	-	-	-	-	-
20	8471601090	0	-	-	-	0	1.5	0	-	10
21	8471602011	0	15	-	-	-	-	-	-	5
22	8471602012	0	15	-	-	-	-	-	-	5
23	8471602013	0	15	-	-	-	-	-	-	5
24	8471602019	0	15	5	-	-	-	-	0	5
25	8471602021	-	-	-	-	-	-	-	-	10
26	8471602022	-	-	-	-	-	-	-	-	5
27	8471602023	-	15	-	-	-	-	-	-	-
28	8471602029	-	-	0	-	-	-	-	-	10
29	8471602090	0	-	-	-	0	1.5	0	-	-
30	8471603010	-	-	-	-	-	-	-	-	-
31	8471603020	-	-	-	-	-	-	-	-	-
32	8471603030	0	-	-	-	-	-	-	-	-

33	8471603090	0	-	-	-	0	1.5	0		5
34	8471701000	0	-	-	-	0	1.5	0	0	
35	8471702010	-	15	0	-	-	-	-	-	5
36	8471702020	-	15	0	-	-	-	-	-	5
37	8471702031	-	15	-	-	-	-	-	-	5
38	8471702032	-	-	-	-	-	-	-	-	5
39	8471702039	-	15	-	-	-	-	-	-	5
40	8471702090	0	-	-	-	0	1.5	0	0	5
41	8471709000	0	15	0	-	0	1.5	0	-	-
42	8471800000	0	15	0		0	1.5	0	0	-
43	8471900000	0	15	0	5	0	1.5	0	0	-
44	8473101000	0	15	5	5	0	1.5	3	20	-
45	8473102000	-	-	0	-	-	-	-	-	0
47	8473302000	-	-	-	-	-	-	-	-	-
48	8473304010	-	-	-	-	-	-	-	-	5
49	8473304020	-	-	-	-	-	-	-	-	-
50	8473304030	-	-	-	-	-	-	-	-	-
51	8473304050	-	-	-	-	-	-	-	-	-
52	8473304060	-	-	-	-	-	-	-	-	-
53	8473304090	-	-	-	-	-	-	-	-	-
54	8504311000	20		5		-	1	10	20	30
55	8504312000	-	-	-	-	-	-	-	-	30
56	8504319010	-	-	-	-	-	-	-	-	-
57	8504319020	-	-	-	-	-	-	-	-	-
58	8504319040	-	-	0	5	-	-	-	-	-
59	8504321000	20	35	5		-	1	3	20	30
60	8504322000	-	-	-	-	-	-	-	-	-
61	8504329010	-	-	-	-	-	-	-	-	-
62	8504329020	-	35	-	-	-	-	10	-	-
63	8504331000	20	35	10	-	-	-	10	20	-
64	8504332000	-	-	-	-	5	1	-	-	-
65	8504339010	-	-	-	-	-	-	-	-	-
66	8504339020	-	-	-	-	-	-	-	-	-
67	8504339040	-	-	5	-	-	-	-	-	-
68	8504401010	-	-	0	-	-	-	0	-	-
69	8504401090	20	35	10	5	-	1	7	20	0

70	8504402011	-	-	0	-	-	-	-	-	-
71	8504402019	-	-	-	-	-	-	-	-	-
72	8504402091	-	-	-	-	-	-	-	-	-
73	8504402099	-	35	-	-	-	-	-	-	0
74	8504403010	-	-	-	-	-	-	-	-	-
75	8504403090	-	-	-	-	-	-	-	-	0
76	8504404010	-	-	-	-	-	-	-	-	-
77	8504404090	-	-	-	-	-	-	-	-	-
78	8504405010	-	-	-	-	-	-	-	-	-
79	8504405090	-	-	-	-	-	-	-	-	-
80	8504409011	-	-	-	-	-	-	-	-	-
81	8504409019	-	-	-	-	-	-	-	-	0
82	8504409091	-	-	-	-	-	-	-	-	-
83	8504409099	-	35	-	-	0	-	7	-	-
84	8504501010	-	-	-	-	-	-	-	-	-
85	8504501090	-	-	-	-	-	-	-	-	-
86	8504502010	-	-	-	-	-	-	0	-	0
87	8504502090	20	35	0	5	0	1	7	20	-
88	8504509010	-	-	-	-	-	-	-	-	0
89	8504509090	-	-	-	-	-	-	7	-	0
90	8504901000	-	-	-	-	-	-	1	3	0
91	8504909000	20	35	-	5	0	1	3	3	0
92	8517110000	5	15	10	10	15	1	0	7.56	20
93	8517191000		15	-	-	-	1	-	-	10
94	8517199020	-	-	-	-	-	-	7	-	-
95	8517199090	5	-	10	-	15	-	-	7.56	20
96	8517210000	5	15	0	-	0	1	0	3	10
97	8517220000	5	15	0	10	0	1	0	0	10
98	8517301000	-	-	-	-	-	-	-	-	-
99	8517302000	-	-	-	-	-	-	-	-	-
100	8517309000	5	15	-	10	-	1	0	3	10
101	8517502010	-	-	-	-	-	-	-	-	-
102	8517502020	-	-	-	-	-	-	-	-	-
103	8517502090	-	-	-	-	-	-	-	-	-
104	8517504030	5	-	10	10	-	1	0	3	-
105	8517504040	-	-	-	-	-	-	-	-	-

106	8517504090	-	-	-	-	-	-	-	-	-
107	8517505050	-	-	-	-	-	-	-	-	-
108	8517505070	-	-	-	-	-	-	-	-	-
109	8517505090	-	-	-	-	-	-	-	-	-
110	8517507010	-	-	-	-	-	-	-	-	-
111	8517507020	-	-	-	-	-	-	-	-	-
112	8517507030	-	15	-	-	-	-	-	-	10
113	8517507090	-	-	-	-	-	-	-	-	-
114	8517508010	-	-	-	-	-	-	-	-	-
115	8517508020	-	15	-	-	-	-	-	-	-
116	8517508090	-	15	-	-	-	-	-	-	10
117	8517509000	-	-	-	-	-	-	-	-	-
118	8517803000	-	-	-	-	-	-	-	-	-
119	8517804000	-	-	-	-	-	-	-	-	-
120	8517809000	5	15	10	-	-	1	0	0	-
121	8517901000	-	-	10	-	-	-	-	3	10
122	8517909200	-	-	-	-	-	-	-	-	-
123	8517909300	-	-	-	-	-	-	-	-	-
124	8517909410	-	-	-	-	-	-	-	-	-
125	8517909420	-	-	-	-	-	-	-	-	-
126	8517909490	-	-	-	-	-	-	-	-	-
127	8517909500	-	-	-	-	-	-	-	-	-
128	8517909600	-	-	-	-	-	-	-	-	-
129	8517909700	-	-	-	-	-	-	-	-	-
130	8517909900	5	15	0	10	0	1	0	3	5
131	8518101000	5	35	0	10	0	20	0	30	20
132	8518109000	-	-	10	-	-	15	5	-	20
133	8518291000	-	-	0	10	-	-	-	-	20
134	8518299000	5	35	5	-	15	-	10	30	20
135	8518304000	-	-	-	-	0	-	0	-	20
136	8518309000	5	35	5	10	25	10	3	30	20
137	8518901000	-	-	5	10	-	20	3	-	20
138	8519993090	5	15	15	20	10	10	15	30	50
139	8520200000	5	15	5	20	5	10	0	9.33	10

<Table 5> 138 IT Products's Competitiveness (HS code 9 digit)

number	HS code	World TSI	1 Step groups	Exports Increase	2 steps groups	ASEAN's TSI	3 Steps groups	RCA Index	4 steps groups
		0.046		23.31		0.069		0.096	
1	8504311000	-0.886	4	42.52	4	-0.296	4	0.057	4
2	8504312000	-0.001	3	-52.43	3	0.181	3	0.486	1
3	8504319010	-0.274	3	-7.74	3	0.609	1	3.004	1
4	8504319020	0.155	1	-25.57	1	0.804	1	2.036	1
5	8504319040	0.335	1	-38.08	1	0.315	1	0.971	1
6	8504321000	-0.650	4	34.65	4	0.033	4	0.248	1
7	8504322000	-0.130	3	-6.27	3	0.991	1	0.138	1
8	8504329010	0.146	1	-14.13	1	0.325	1	0.564	1
9	8504329020	0.507	1	-3.63	1	0.519	1	0.964	1
10	8504331000	-0.514	4	55.06	4	0.680	1	0.195	1
11	8504332000	-0.404	3	0.00	3	0.801	1	0.126	1
12	8504339010	-0.206	3	-49.37	3	0.112	3	6.402	1
13	8504339020	-0.384	3	254.59	3	0.992	1	0.431	1
14	8504339040	-0.267	3	40.03	3	0.960	1	0.308	1
15	8504401090	0.325	1	-9.10	1	0.466	1	0.428	1
16	8504402019	-0.186	3	30.65	3	0.446	3	0.143	1
17	8504402099	-0.848	4	27.84	4	0.202	4	0.065	4
18	8504403090	0.248	1	57.30	1	0.328	1	0.234	1
19	8504404090	-0.087	3	40.53	3	0.649	1	0.053	1
20	8504405090	-0.238	3	-12.70	3	-0.319	3	0.274	1
21	8504409099	-0.432	3	18.59	3	-0.596	3	0.406	1
22	8504501090	0.294	1	-9.52	1	0.534	1	0.200	1
23	8504502090	-0.148	3	4.45	3	-0.305	3	1.683	1
24	8504509090	-0.185	3	-16.47	3	0.531	1	0.438	1
25	8504909000	0.244	1	9.22	1	0.680	1	1.391	1
26	8518109000	0.217	1	34.84	1	0.848	1	1.018	1
27	8518299000	0.043	3	4.46	3	0.064	3	1.463	1
28	8518309000	-	5	-	5	-	5	0.000	5
29	8519993090	0.817	1	-23.71	1	0.711	1	1.030	1
30	8520901020	-0.761	4	-12.15	4	-0.827	4	0.169	1

31	8520909000	0.724	1	48.72	1	0.862	1	7.708	1
32	8521909000	0.854	1	97.45	1	0.804	1	1.090	1
33	8525101000	-0.556	4	127.46	4	-	4	0.009	4
34	8525102000	-0.923	2	201.23	4	-	4	0.006	4
35	8525109090	-0.052	3	48.34	3	-0.226	3	0.134	1
36	8525301000	-0.974	2	-11.80	2	-	2	0.005	2
37	8525302000	0.816	1	16.55	1	0.881	1	6.985	1
38	8525309000	0.245	1	34.14	1	-0.047	1	1.226	1
39	8526101000	-0.766	4	-9.81	4	-	4	0.011	4
40	8526109000	-0.945	2	282.74	4	-	4	0.046	4
41	8526911010	-0.208	3	36.14	3	-	3	0.022	3
42	8526911090	-0.901	2	-41.58	2	-	2	0.040	2
43	8526912010	-0.195	3	27.96	3	-	3	0.011	3
44	8526912090	-0.933	2	-29.29	2	-	2	0.003	2
45	8526913010	-0.599	4	118.20	4	-	4	0.000	4
46	8526913090	0.876	1	1.72	1	-	1	5.942	1
47	8526914000	-0.654	4	-	4	-	4	0.007	4
48	8526919010	-0.574	4	51.02	4	-0.007	4	0.164	1
49	8526919090	-0.735	4	13.66	4	-0.117	4	0.878	1
50	8526920000	0.497	1	-9.13	1	0.172	1	2.351	1
51	8527132000	-0.315	3	409.71	3	-1.000	3	0.023	3
52	8527139000	-0.212	3	352.39	3	-0.625	3	0.011	3
53	8527901000	-0.702	4	157.55	4	-	4	0.003	4
54	8527902019	0.219	1	-100.00	1	-	1	0.016	1
55	8527902090	0.308	1	28.94	1	-	1	0.078	1
56	8527909000	0.801	1	-11.11	1	0.787	1	3.741	1
57	8528122000	0.978	1	49.18	1	0.957	1	4.251	1
58	8528129012	-	5	-	5	-	5	0.000	5
59	8528129022	-	5	-	5	-	5	0.000	5
60	8528129032	-	5	-	5	-	5	0.000	5
61	8528129042	-	5	-	5	-	5	0.000	5
62	8528129090	0.430	1	294.58	1	0.560	1	0.089	1
63	8529101000	-0.623	4	13.73	4	-	4	0.105	1
64	8529109100	-0.231	3	-1.76	3	-0.442	3	0.107	1
65	8529109210	0.649	1	0.78	1	0.203	1	2.526	1
66	8529109290	0.210	1	20.97	1	0.818	1	0.316	1

67	8529109900	-0.485	3	14.10	3	0.157	3	0.296	1
68	8529901000	-0.903	2	23.91	4	-0.617	4	0.029	4
69	8529909100	0.157	1	16.09	1	0.380	1	0.208	1
70	8529909200	-0.488	3	-43.25	3	-	3	0.010	3
71	8529909300	0.534	1	5.83	1	0.565	1	3.129	1
72	8529909500	-0.508	4	56.92	4	0.184	4	0.019	4
73	8529909990	0.231	1	36.35	1	0.370	1	1.914	1
74	8536101000	-0.461	3	-2.12	3	-0.647	3	0.146	1
75	8536109000	-0.620	4	21.19	4	-0.263	4	0.295	1
76	8536200000	0.147	1	10.11	1	0.882	1	0.351	1
77	8536300000	-0.321	3	94.84	3	-0.280	3	0.217	1
78	8536410000	-0.616	4	13.81	4	-0.823	4	0.176	1
79	8536490000	-0.353	3	33.77	3	0.518	1	0.369	1
80	8536501000	-0.325	3	16.39	3	-0.777	3	0.048	3
81	8536502000	0.069	1	16.10	1	-0.096	1	1.014	1
82	8536503000	-0.233	3	-20.47	3	0.325	3	0.117	1
83	8536504000	0.194	1	51.99	1	0.837	1	0.166	1
84	8536509090	-0.516	4	12.23	4	0.005	4	0.772	1
85	8536610000	0.237	1	13.56	1	0.135	1	0.173	1
86	8536699000	0.217	1	81.21	1	0.149	1	0.050	1
87	8536909090	-0.298	3	34.52	3	0.185	3	0.035	3
88	8538901000	0.007	3	27.67	3	0.333	3	0.281	1
89	8538902000	-0.046	3	15.26	3	0.857	1	0.221	1
90	8538903000	-0.609	4	17.95	4	0.201	4	0.045	4
91	8538904000	-0.905	2	39.96	4	-0.402	4	0.090	4
92	8538909000	-0.334	3	29.37	3	0.532	1	0.805	1
93	8540110000	0.499	1	-2.22	1	0.236	1	3.714	1
94	8540120000	-0.629	4	116.38	4	-0.751	4	0.534	1
95	8540201000	0.257	1	-38.52	1	-	1	0.005	1
96	8540209000	-0.941	2	28.36	4	-	4	0.001	4
97	8540400000	0.575	1	50.28	1	0.410	1	2.523	1
98	8540500000	-0.479	3	-14.54	3	-	3	0.014	3
99	8540601000	0.789	1	-8.94	1	0.876	1	52.998	1
100	8540609000	0.258	1	18.06	1	-1.000	3	0.293	1
101	8540710000	0.829	1	12.68	1	0.379	1	11.004	1
102	8540720000	-0.988	2	-	2	-	2	0.000	2

103	8540790000	-0.897	4	16.13	4	-	4	0.032	4
104	8540810000	-0.977	2	-100.00	2	-	2	0.006	2
105	8540891000	-0.818	4	24.88	4	-	4	0.015	4
106	8540892000	-0.962	2	126.22	4	-0.978	4	0.019	4
107	8540893000	0.951	1	-10.43	1	0.980	1	17.732	1
108	8540899000	-0.776	4	-4.99	4	0.494	4	0.108	4
109	8540911000	0.137	1	-28.94	1	0.250	1	5.526	1
110	8540912000	0.393	1	8.76	1	0.053	1	2.156	1
111	8540913000	-0.074	3	14.05	3	0.982	1	5.898	1
112	8540919000	0.337	1	9.89	1	0.963	1	6.516	1
113	8540990000	0.842	1	17.80	1	0.991	1	11.649	1
114	8544200000	0.478	1	-13.27	1	0.960	1	2.284	1
115	8544411090	-0.762	4	5.59	4	0.402	4	0.002	4
116	8544412090	-0.388	3	30.03	3	0.337	3	0.368	1
117	8544419090	-0.280	3	-6.96	3	0.709	1	0.378	1
118	8544491090	-0.859	4	82.12	4	-	4	0.000	4
119	8544492090	-0.342	3	20.05	3	0.560	1	0.187	1
120	8544499090	-0.331	3	15.37	3	0.607	1	0.182	1
121	8544511090	-0.694	4	13.23	4	0.038	4	0.026	4
122	8544512090	-0.282	3	31.70	3	0.146	3	0.429	1
123	8544519090	-0.593	4	-17.18	4	-0.360	4	0.069	4
124	8544591000	0.658	1	26.47	1	0.993	1	0.198	1
125	8544592000	0.664	1	-6.80	1	0.990	1	1.178	1
126	8544599000	0.333	1	-8.27	1	0.864	1	1.136	1
127	8544601010	0.844	1	-13.43	1	0.999	1	1.306	1
128	8544601090	-0.480	3	67.20	3	0.941	1	0.087	1
129	8544602010	0.835	1	-12.35	1	0.660	1	6.989	1
130	8544602090	0.201	1	36.30	1	0.729	1	0.975	1
131	8544603010	0.926	1	42.85	1	1.000	1	1.241	1
132	8544603090	0.747	1	40.77	1	1.000	1	1.741	1
133	8548900000	-0.560	4	302.15	4	-0.472	4	0.530	1
134	8705909040	-0.876	4	-100.00	4	-	4	0.020	4
135	8705909060	-	5	-	5	-	5	0.002	5
136	9001103000	0.145	1	-61.57	1	0.600	1	0.095	1
137	9009120000	0.623	1	14.00	1	0.379	1	0.720	1
138	9013801090	-0.053	3	-44.90	3	0.421	3	3.157	1

<Table 6> AFTA : Average CEPT Tariff Rates within New Time Frame

countries	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Brunei	3.78	2.64	2.54	2.02	1.61	1.37	1.55	1.26	1.17	0.96	1.04
Indonesia	17.27	17.27	15.22	10.39	8.53	7.06	5.36	4.76	4.27	3.69	2.17
Malaysia	10.79	10.00	9.21	4.56	4.12	3.46	3.20	3.32	2.71	2.62	1.95
Philippines	12.45	11.37	10.65	9.55	9.22	7.72	7.34	5.18	4.48	4.13	3.82
Singapore	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thailand	19.85	19.84	18.16	14.21	12.91	10.24	9.58	6.12	5.67	4.97	4.63
ASEAN-6	11.44	10.97	10.00	7.15	6.38	5.22	4.79	3.64	3.22	2.89	2.39
Cambodia								10.39	10.39	8.89	7.94
Laos						5.00	7.54	7.07	7.08	6.72	5.86
Myanmar						2.39	4.45	4.43	4.57	4.72	4.61
Vietnam				0.92	4.59	3.95	7.11	7.25	6.75	6.92	6.43
CLMV				0.92	4.59	2.98	6.31	7.51	7.17	6.77	6.22
ASEAN-10				7.03	6.32	4.91	5.01	4.43	4.11	3.84	3.33

Sources: ASEAN Secretariat (www.asenasec.org)

<Table 7> ASEAN 's CEPT by Products , 1996-2003 (%)

products	1996	1997	1998	1999	2000	2001	2002	2003
Live animals	8.35	8.25	6.58	6.26	4.92	4.64	3.54	2.27
Vegetable	6.46	6.35	5.12	4.83	3.87	3.61	2.91	2.10
Fats & oils	5.78	5.00	3.76	3.30	2.64	2.64	2.43	2.35
Prepared	10.13	9.63	7.99	7.32	5.78	5.47	4.17	2.71
Mineral	2.50	2.47	2.22	2.18	1.95	1.95	1.87	1.81
Chemicals	3.96	3.54	3.01	2.85	2.48	2.47	2.32	2.14
Plastics	9.91	8.65	6.63	5.87	4.46	4.40	3.83	3.22
Hides & leathers	0.68	5.99	4.81	4.08	3.06	2.88	2.74	2.46
Wood& Wood Articles	12.93	11.83	10.60	8.75	6.67	5.92	4.92	4.58
Pulp & Paper	7.99	7.83	6.36	6.17	4.69	4.54	3.88	3.00
Textiles & Apparel	11.27	9.04	7.28	5.99	4.17	4.17	4.15	3.92
Footwear	14.77	13.70	11.39	10.93	8.36	8.19	6.18	3.96
Cements & Ceramics	9.56	8.63	6.93	5.50	3.92	3.81	3.43	2.92
Gems	5.35	4.88	4.35	4.05	3.47	3.26	3.10	2.76
Base metals	6.85	6.72	5.73	5.43	4.34	4.12	3.42	2.65
Machinery	5.88	5.52	4.64	4.28	3.47	3.40	3.06	2.69
Vehicles	6.50	6.29	5.42	5.15	4.15	3.78	2.96	2.16
Optical inst.	5.71	5.43	4.65	4.37	3.65	3.53	3.21	2.84
Arms	12.73	12.57	10.29	10.00	7.68	7.55	5.45	3.42
Miscellaneous	11.95	11.12	9.01	8.41	6.39	6.19	4.74	3.48
Antique	7.28	6.70	5.68	5.30	3.99	3.85	2.49	1.92

Sources: ASEAN Secretariat (www.asenasec.org)

<Table 8>.Share of Intra-ASEAN trade to total trade of the region, 1991-2000 (percent)

Year	AFTA	Mercosur	Andean	EFTA	CER	NAFTA	EU
Exports							
1991	19.77	12.29	5.65	0.76	6.92	40.86	61.95
1992	19.47	15.66	7.82	0.87	7.20	43.89	61.70
1993	21.22	19.75	9.69	0.84	7.93	46.24	57.67
1994	24.16	20.32	9.98	0.80	8.80	48.27	57.88
1995	24.57	21.24	12.52	0.74	9.02	46.49	57.60
1996	24.42	24.17	10.33	0.80	8.94	47.48	67.55
1997	23.70	25.69	11.80	0.78	8.76	49.14	66.99
1998	21.15	26.03	13.90	0.91	8.26	51.69	67.34
1999	21.36	21.71	9.18	0.76	9.32	54.67	68.14
2000	23.22	22.78	9.05	0.59	8.26	56.21	66.31
Imports							
1991	16.28	14.90	6.22	0.96	7.50	34.53	58.76
1992	16.62	19.92	7.64	1.14	7.33	36.01	59.42
1993	17.75	20.18	8.99	1.04	7.70	36.82	56.22
1994	18.31	20.70	10.88	0.89	8.15	37.34	56.80
1995	18.12	22.23	12.87	0.87	7.96	37.77	56.60
1996	18.51	21.24	13.43	0.97	8.47	39.17	67.88
1997	19.10	21.70	13.41	0.90	8.37	39.92	66.38
1998	20.97	22.17	11.52	0.92	6.72	40.28	66.40
1999	21.58	21.07	11.63	0.84	7.58	40.35	65.11
2000	21.83	22.60	13.90	0.75	6.83	40.05	60.91
Total Trade							
1991	17.87	13.27	5.88	0.86	7.21	37.41	60.31
1992	17.90	17.58	7.74	1.00	7.27	39.57	60.53
1993	19.20	19.95	9.34	0.93	7.81	40.99	56.95
1994	20.87	20.51	10.40	0.84	8.46	42.11	57.35
1995	20.77	21.53	12.70	0.80	8.46	41.67	57.11
1996	20.79	22.60	11.70	0.88	8.70	42.91	67.71
1997	20.97	23.51	12.57	0.84	8.56	44.03	66.69
1998	20.69	23.92	12.63	0.91	7.45	45.21	66.88
1999	21.03	21.38	10.29	0.80	8.36	46.33	66.64
2000	22.30	22.69	11.01	0.66	7.51	46.61	63.60

<Table 9> Export Similarity Index between Korea and ASEAN

		1992	1993	1994	1995	1996	1997	1998	1999	2000
Korea-Singapore	Semiconductor	0.41	0.45	0.47	0.48	0.47	0.49	0.50	0.54	0.56
	Electric appliance	0.44	0.45	0.48	0.49	0.48	0.46	0.49	0.51	0.57
	Communication	0.44	0.46	0.48	0.48	0.49	0.52	0.51	0.53	0.56
	Electronic parts	0.43	0.46	0.47	0.48	0.49	0.49	0.52	0.55	0.57
Korea-Malaysia	Semiconductor	0.45	0.46	0.51	0.52	0.53	0.54	0.56	0.54	0.55
	Electric appliance	0.43	0.45	0.47	0.48	0.49	0.52	0.53	0.55	0.56
	Communication	0.44	0.46	0.47	0.48	0.49	0.50	0.52	0.54	0.55
	Electronic parts	0.45	0.47	0.48	0.49	0.50	0.51	0.53	0.55	0.56
Korea-Thailand	Semiconductor	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37
	Electric appliance	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38
	Communication	0.31	0.32	0.33	0.34	0.35	0.34	0.33	0.35	0.36
	Electronic parts	0.31	0.32	0.34	0.35	0.36	0.34	0.34	0.36	0.37

Source: Author's calculation based on UNCTAD COMTRADE and PC-TAS

<Table 10> Intra-Industry Index among Korea, and ASEAN

		1998	1999	2000	2001	2002
Overall	Korea-Singapore	0.45	0.46	0.48	0.51	0.53
	Korea-Malaysia	0.35	0.37	0.38	0.41	0.43
	Korea-Thailand	0.33	0.34	0.35	0.38	0.40
	Korea-Philippines	0.30	0.32	0.33	0.35	0.37
	Korea-Indonesia	0.22	0.23	0.27	0.29	0.31
Semiconductors	Korea-Singapore	0.46	0.49	0.51	0.52	0.55
	Korea-Malaysia	0.38	0.39	0.41	0.43	0.46
	Korea-Thailand	0.39	0.42	0.42	0.41	0.46
	Korea-Philippines	0.27	0.31	0.38	0.39	0.40
	Korea-Indonesia	0.19	0.20	0.22	0.25	0.29
Electronic parts	Korea-Singapore	0.32	0.36	0.37	0.38	0.40
	Korea-Malaysia	0.19	0.20	0.18	0.18	0.20
	Korea-Thailand	0.26	0.21	0.24	0.19	0.21
	Korea-Philippines	0.21	0.23	0.25	0.26	0.27
	Korea-Indonesia	0.17	0.18	0.20	0.21	0.22
Computer	Korea-Singapore	0.45	0.46	0.48	0.51	0.53
	Korea-Malaysia	0.28	0.29	0.31	0.32	0.35
	Korea-Thailand	0.32	0.34	0.37	0.40	0.42
	Korea-Philippines	0.25	0.27	0.28	0.29	0.31
	Korea-Indonesia	0.19	0.21	0.22	0.23	0.25
Communications	Korea-Singapore	0.38	0.37	0.39	0.41	0.44
	Korea-Malaysia	0.29	0.31	0.34	0.38	0.39
	Korea-Thailand	0.35	0.36	0.38	0.37	0.39
	Korea-Philippines	0.21	0.25	0.23	0.26	0.27
	Korea-Indonesia	0.19	0.17	0.18	0.19	0.21
Electric appliance	Korea-Singapore	0.55	0.54	0.57	0.61	0.63
	Korea-Malaysia	0.48	0.46	0.49	0.51	0.58
	Korea-Thailand	0.36	0.39	0.41	0.43	0.46
	Korea-Philippines	0.29	0.28	0.31	0.32	0.33
	Korea-Indonesia	0.21	0.22	0.25	0.28	0.32

Source: Author's calculation based on UNCTAD COMTRADE and PC-TAS

<Table 11> Intra-industry trade index for manufactures, ASEAN-6, 1990 and 2000.

Reporter/Partner	Brunei	Indonesia	Malaysia	Philippines	Singapore	Thailand
1990						
Brunei		0.0	0.9	0.0	1.0	0.0
Indonesia	..		24.1	23.4	23.5	21.9
Malaysia	3.9	27.1		30.2	63.3	54.7
Philippines	1.2	23.4	34.1		44.0	35.7
Singapore	6.2	..	59.3	39.4		57.6
Thailand	0.1	23.7	47.3	15.5	70.3	
2000						
Brunei		0.4	8.3	..	9.2	34.5
Indonesia	0.4		34.7	17.3	24.3	28.7
Malaysia	8.3	57.5		47.8	71.7	73.5
Philippines	..	17.3	47.8		55.6	56.6
Singapore	9.2	..	78.0	55.6		54.2
Thailand	34.5	55.4	59.8	56.6	46.5	

<Table 12> Regression Results for Basic Determinants of Bilateral Trade

	1985	1990	1997	2000	1985	1990	1997	2000
Y _i	0.55** (5.75)	0.48** (9.5)	0.62** (8.2)	0.68** (4.5)	0.56** (5.11)	0.49** (8.9)	0.62** (8.0)	0.69** (4.37)
Y _j	0.41** (2.16)	0.45* (1.94)	0.56** (3.16)	0.62** (2.81)	0.42* (2.28)	0.46* (1.91)	0.55** (3.11)	0.64** (2.92)
N _j	-0.38** (2.11)	-0.29 (1.01)	-0.16** (2.63)	-0.31 (1.65)	-0.29* (1.91)	-0.10 (1.04)	-0.27** (2.67)	-0.33* (1.67)
N _j	0.10 (0.45)	-0.12* (1.91)	-0.08* (2.15)	-0.05* (1.92)	0.11 (0.48)	-0.03* (2.01)	-0.05* (2.25)	-0.06* (1.94)
(Y _i /N _i)(Y _j /N _j)	0.21 (0.91)	0.10 (1.15)	0.28 (1.28)	0.21* (1.79)	0.22 (0.94)	0.10 (1.16)	0.29 (1.39)	0.22* (1.87)
D _{ij}	-0.60** (6.5)	-0.57** (5.1)	-0.51** (3.5)	-0.45** (3.7)	-0.61** (6.6)	-0.56** (4.9)	-0.50** (3.6)	-0.47** (3.8)
Adj	0.73** (2.15)	0.76** (2.18)	0.99* (1.98)	1.01* (2.02)	0.74* (2.14)	0.77* (2.20)	0.95* (1.95)	0.94* (2.00)
Bloc-A (ASEAN+Korea)	-0.08 (0.18)	0.10 (0.61)	0.15 (0.60)	0.23* (1.75)	-0.07 (0.17)	0.09 (0.63)	0.10 (0.59)	0.21 (1.47)
Bloc-B (ASEAN+3)	-	-	-	-	0.51 (0.55)	1.01* (1.72)	1.38* (1.85)	2.39** (3.41)
# of observation	512	512	521	571	512	512	521	571
S.E.E.	1.31	1.25	1.21	1.17	1.41	1.34	1.21	1.23
adj. R ²	0.46	0.51	0.58	0.64	0.49	0.55	0.57	0.61

note: t-values are shown in parenthesis, where 1.66 and 2.36 are significant at the 0.05 and 0.01 level, respectively. ** implies significance at 1 %, * implies significance at 5 %. All regressions have an intercept whose estimate is not reported here.

<Table 13> Regression Results with a Variable for ASEAN, ASEAN+3, NAFTA, APEC Bloc

	1985	1990	1997	2000	1985	1990	1997	2000
Y _i	0.41** (5.45)	0.45** (8.5)	0.53** (7.9)	0.57** (3.9)	0.45** (4.99)	0.44** (8.9)	0.59** (7.9)	0.61** (3.9)
Y _j	0.40** (2.10)	0.43 (1.84)	0.51** (2.91)	0.60** (2.17)	0.41** (2.29)	0.42* (1.68)	0.49** (2.41)	0.62** (2.82)
N _i	-0.36* (1.96)	-0.29 (0.99)	-0.17** (2.53)	-0.28 (1.56)	-0.26* (1.96)	-0.27 (1.14)	-0.19** (2.41)	-0.28* (1.77)
N _j	0.14 (0.55)	-0.10* (1.89)	-0.07* (2.11)	-0.06* (1.87)	-0.13 (0.55)	-0.08* (1.97)	-0.07** (2.75)	-0.05* (1.99)
(Y _i /N _i)(Y _j /N _j)	0.24 (0.68)	0.09 (1.01)	0.25 (1.15)	0.28* (1.67)	0.21 (0.91)	0.12 (1.10)	0.31* (2.10)	0.27* (1.66)
D _{ij}	-0.63* (6.1)	-0.55** (4.8)	-0.53** (3.1)	-0.45** (3.1)	-0.58** (4.1)	-0.51** (3.9)	-0.54** (2.96)	-0.46** (2.91)
Adj	0.71* (2.11)	0.75* (2.11)	0.95* (1.86)	0.99* (1.95)	0.76* (2.14)	0.71* (2.10)	0.91* (2.24)	1.01** (2.12)
Block A (ASEAN+Korea)	0.10 (0.09)	0.11 (0.63)	0.17* (1.75)	0.21* (1.85)	0.07 (0.10)	0.09 (0.64)	0.11* (1.77)	0.20* (1.97)
Block B (ASEAN+3)	-	-	-	-	0.55 (1.35)	1.15* (1.91)	1.28* (1.79)	1.72* (1.99)
ASEAN (AFTA)	0.85 (1.01)	0.75* (1.96)	1.01* (1.81)	1.21* (1.97)	0.67 (1.17)	0.59* (1.91)	1.26* (2.11)	1.35* (2.31)
APEC	0.18 (0.45)	0.69 (1.01)	1.25* (1.68)	2.16** (3.15)	0.79 (0.56)	0.87 (1.01)	1.39** (2.91)	2.32** (2.45)
NAFTA	0.51* (1.75)	0.58** (3.21)	0.92** (3.52)	1.10** (3.91)	0.56* (1.89)	0.67** (2.95)	0.89** (4.21)	1.25** (4.67)
(import from) im ASEAN					0.76** (6.27)	0.51** (7.61)	0.82** (6.25)	0.98** (5.81)
(exports from) ex ASEAN					0.68** (7.31)	0.75** (5.67)	0.81** (4.56)	0.85** (7.53)
#of observation	512	512	522	571	512	512	522	571
SEE	1.43	1.35	1.27	1.22	1.48	1.41	1.35	1.31
adj. R ²	0.42	0.46	0.50	0.51	0.41	0.45	0.56	0.47

note: t-values are shown in parenthesis, where 1.66 and 2.36 are significant at the 0.05 and 0.01 level, respectively. ** implies significance at 1 %, * implies significance at 5 %. All regressions have an intercept whose estimate is not reported here.

<Table 14> Tariff effects

	(1)	(2)	(3)
	Intra-industry (IIT)	Exp.concentration	TSI
Tariff	-0.652 (-2.85)***	-0.225 (-2.97)***	-0.322 (-2.48)**
capital intensity	0.422 (0.91)	0.352 (1.23)	0.245 (0.91)
scale economies	0.421 (2.35)**	0.454 (2.34)**	0.357 (3.57)***
technology intensity	0.324 (1.49)	0.483 (1.98)*	0.348 (3.46)***
human capital intensity	0.673 (0.45)	0.644 (0.77)	0.763 (1.25)
observation	3,721	3,721	3,721
overall R2	0.05	0.07	0.06

Notes: t-statistics are in parentheses.

***, ** and * denote significance at the 1%, 5% and 10% respectively.

All regressions include sub-sectoral dummy variables.

<Table 15-1> Top Ten Korea's Exports Items to ASEAN

(units: million dollars)

Rank	HS Code	1998		1999		2000	
		value	increase	value	increase	value	increase
		15,328	-24.7	17,708	15.5	20,134	13.7
1	831	5,437	9.1	5,783	6.4	5,967	3.2
2	813	284	-44.1	512	80.1	609	19
3	812	67	-50.5	231	242.9	673	191
4	741	138	-77.8	349	151.4	596	70.9
5	613	516	-39.6	518	0.4	600	15.9
6	133	674	5.1	747	10.8	1,014	35.7
7	832	498	-15.5	754	51.4	762	1
8	214	384	-30.6	457	18.9	325	36.9
9	746	668	17.7	883	32.2	336	-62
10	439	109	-19.4	498	21.9	596	19.6

Rank	HS Code	2001		2002		2003	
		value	increase	value	increase	value	increase
		16,459	-18.2	18,400	11.8	20,253	10.1
1	831	3,444	-42.3	3,284	-4.6	3,783	15.2
2	813	588	-3.5	1,333	126.6	1,535	15.1
3	812	989	47	1,127	14	1,420	25.9
4	741	574	-9.5	624	8.6	893	43.1
5	613	543	-9.5	707	30.2	789	11.6
6	133	1,012	-0.2	996	-1.6	721	-27.6
7	832	533	-30	650	21.8	668	2.8
8	214	512	-18.2	561	9.7	661	17.8
9	746	450	34.1	608	35	593	-2.4
10	439	485	-18.6	453	-6.6	423	-6.6

note: 1) MTI 1 units

Sources: Korea Traders Association, KOTIS

<Table1 15-2> Top Ten Korea's Imports to ASEAN

(units: million dollars)

Rank	HS code	1998		1999		2000	
		value	increase	value	increase	value	increase
		9,135	-27.2	12,249	34.1	18,173	48.4
1	831	1,664	0.5	2,289	37.6	3,568	55.9
2	134	1,541	-32.6	1,873	21.6	2,554	36.3
3	131	1,004	-37.1	1,212	20.7	1,876	54.8
4	813	544	-36.2	1,566	187.8	2,807	79.3
5	133	570	-36.1	626	9.9	1,189	89.9
6	132	156	8.7	153	-1.4	137	-10.9
7	622	96	-49.1	136	42.1	183	34.4
8	251	154	45.1	133	-12.9	212	59.7
9	113	216	39.1	239	10.9	247	3.5
10	252	10	-48.2	58	469.7	99	71.4

Rank	HS code	2001		2002		2003	
		value	increase	value	increase	value	increase
		15,916	-12.4	16,757	5.3	18,458	10.2
1	831	3,720	4.3	4,247	14.2	4,896	15.3
2	134	1,721	-32.6	1,933	12.3	2,271	17.5
3	131	1,938	3.3	1,760	-9.2	1,761	0.1
4	813	1,630	-41.9	1,427	-12.5	1,499	5
5	133	919	-22.7	815	-11.3	686	-15.8
6	132	164	19.9	188	14.6	256	36.2
7	622	186	1.8	167	-10.3	248	48.2
8	251	219	3.3	227	3.7	243	7
9	113	324	31.1	225	-30.5	225	-0.3
10	252	89	-9.5	158	77.5	180	14

note: 1) MTI 1 units

Sources: Korea Traders Association, KOTIS

<Table 16>. FTA / EPAs in East Asia

	Countries / regions	Year / month
Current state	AFTA (ASEAN 10 members)	Jan-92
Within East Asia	Japan-Singapore	Nov-02
Effectuated	China-ASEAN Framework Agr.	Jul- 03
	China-Hong Kong	Jan-04
	China-Macao	Jan-04
	China-ASEAN Commodity Trade Agr.	Jul-05
Signed	Korea-Singapore	Apr-05
Basically Agreed	Korea-ASEAN	Nov-04
	Japan-Malaysia	May-05
	Japan-Thailand	Aug-05
Negotiating	Japan-Korea	since Dec-03
	Korea-ASEAN	since Feb-04
	Japan-ASEAN	since Apr-05
	Korea-Indonesia	since Jul-05
Conducting Joint Study	Japan-China-Korea	since Nov-00
	ASEAN+3	since Nov-00
Joint Study Agreed	Korea-Malaysia	Aug-04
	China-Korea	Sep-04
With	Singapore-New Zealand	Jan-01
Outside East Asia Effectuated	Singapore-EFTA	Jan-03
	Singapore-Australia	Jul-03
	Singapore-USA	Jan-04
	Taiwan-Panama	Jan-04
	Korea-Chile	Apr-04
	Thailand-Australia	Jan-05
	Japan-Mexico	Apr-05
	Signed	Singapore-Jordan
	Thailand-New Zealand	Apr-05
Basically Agreed	Singapore-Panama	Apr-05
	Singapore-Qatar	Jun-05
	Trans-Pacific (Singapore-Brunei-NZ-Chile)	Jun-05
	Singapore-India	Jun-05

Negotiating	Thailand-Bahrain (Frame Agr. Sinned)	Dec-02
	Thailand-Peru	since Jan-02
	Thailand-India	since Jan-04
	ASEAN-India	since Jan-04
	China-New Zealand	since Dec-04
	Singapore-Mexico	suspended
	Hong Kong-New Zealand	since Apr-01
	Singapore-Canada	since Oct-01
	Thailand-USA	since Jun-04
	China-Gulf CC	since Sep-04
	Singapore-Peru	since Nov-04
	Korea-EFTA	since Dec-04
	Singapore-Kuwait	since Jan-05
	China-Chile	since Jan-05
ASEAN-Australia-New Zealand	since Dec-05	
Negotiation Agreed	Singapore-Egypt	Feb-04
	China-South Africa CU	Jun-04
	China-Australia	Apr-04
	Malaysia-Australia	Apr-05
Preliminary Consultation	Singapore-Sri Lanka	since Oct-03
	Singapore-Bahrain	since Feb-04
	Korea-Canada	since Jan-05
	Korea-USA	since Mar-05
	Singapore-ASCU	since Apr-05
Conducting	Malaysia-New Zealand	since Sep-04
Joint Study	Korea-Mexico	since Oct-04
	Korea-India	since Jan-05
	Japan-Chile	since Jan-05
Joint Study Agreed	China-India	Jun-04
	Korea-Mercosur	Nov04
	Japan-Australia	Apr-04
Policy Dialogue	Japan-India	since Apr-05

Sources: JETRO, White Paper on Trade and Investment 2005

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