NAFTA's Impact on Korean Exports

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Many Asian countries are concerned that as the negotiations for the proposed Free Trade Agreement of the Americas (FTAA) are concluded in 2005, it may erode their share of the largest trading market, North America. As a first step toward assessing the impact of the FTAA on Asian countries, this paper evaluates the effects of FTAA's predecessor, the North American Free Trade Agreement (NAFTA), on Korean external trade. Analyses of the shift in shares, trade intensity indices, and gravity models are used to assess the impact at a macro level, while trade diversion and creation effects are tested at sub-industry levels. Some lessons for future action are also drawn.

Keywords: Free Trade, NAFTA, North America, East Asia, Korea, preferential trading arrangement, trade diversion, trade creation

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I. INTRODUCTION

At the beginning of 2003, all Latin American democracies reconfirmed that negotiations for Free Trade Agreement of the Americas (FTAA) are to be concluded by 2005. This announcement caused consternation in many Asian countries, particularly Korea. The impact of FTAs on Asian economies is potentially detrimental because the agreement would lift non-tariff barriers among members and accord preferential tariffs to 34 Western Hemispheric countries with 800 million people, the major export markets of Asian economies.

Justification for such a fear, however, is debatable. The historical predecessor to FTAA, NAFTA of 1994, was concluded between Canada, Mexico, and the United States. While this alarmed Asian countries at the time, NAFTA members' share of world exports only increased from 17.6% in 1993 to 18.9% in 1999.

Scholars are divided as to the effects of preferential trade agreements (PTAs), such as the FTAA and NAFTA. Some economists argue that, on balance, they lead to lower trade barriers among members without raising barriers to non-members, as is required by Article xxiv of the General Agreement on Tariffs and Trade (GATT). For example, Bergsten (1996) argues that PTAs are building blocks for trade liberalization on a global scale. Others, such as Bhagwati (1991), oppose discriminatory regional and other preferential trading arrangements on the grounds that they undermine the guiding principles of GATT and the World Trade Organization (WTO), namely world welfare and multilateralism.

As Viner (1950) notes, PTAs may enhance or reduce world welfare depending on the magnitude of trade creation and diversion. Therefore, the net effect of PTAs on the welfare of their member countries and on third party countries can be studied empirically.

Trade creation within a PTA is the process by which countries lowering their tariffs shift from reliance on high-cost domestic industry to imports from low-cost partner countries. Trade diversion occurs when lower-cost production in the rest of the world is displaced by higher-cost production in a partner country.

Although there have been several studies on the impact of NAFTA on its members (e.g. Gould 1998, Kruger 1999 and 2000, Burfisher, Robinson, and Thierfelder 2001, Arndt and Huemer 2001 and 2002, and Fukao, Okubo, and Stern 2002, and The World Bank 2004), there have been few comprehensive ex-post empirical studies on the impacts of NAFTA on East Asian economies, particularly on Korea. The few studies that do exist neither cover all sectors of an East Asian economy, nor trade vis-à-vis the whole world, but focus only on selected labor-intensive sectors and trade with NAFTA members. Even if some studies cover world trade, they fail to identify whether the trade diversion occurred at the expense of East Asian countries, particularly Korea.

Kreinin and Plummer (1998) only predicted that NAFTA is likely to cause major trade diversion from Asia towards Mexico and Canada, as there is substantial overlap

between these countries' commodity exports. Karemara and Ojah (1998) compare impacts on trade for selected manufacturers of ASEAN members and NAFTA using a gravity model, but they do not capture the effect of the post-effectiveness of the NAFTA, as their data end in 1993.

James and Umemoto (2000) studied textiles and apparel sectors, which have restrictive rules of origin, coupled with large discriminatory trade preferences. They verify that trade diversion in the two sectors totaled \$4.9 billion in 1994, \$7.3 billion in 1995 and \$9.8 billion in 1996 (in constant 1990 prices). A control group analysis of footwear and electrical machinery supplements their work. James and Umemoto suspect that NAFTA has net positive effects on East Asian trade, since trade in electrical machinery appears to be significantly liberalized and is much larger than trade in textiles, apparel, and footwear. However, they remain silent in the analysis of other sectors.

Kruger, using changes in the patterns of trade flows and gravity equations, noted that trade relationships among NAFTA members intensified considerably, but did not find much evidence that imports from the rest of the world declined as intra-NAFTA trade increased. She also found that NAFTA did not change tariff differentials for U.S. imports from Mexico and East Asia drastically to cause any significant trade diversion.

Sloaga and Winters (2001) and Wall (2002) attempted more comprehensive studies of NAFTA, using a gravity-model approach. While Sloaga and Winters found no evidence of trade diversion from NAFTA, Wall found that total Japanese exports and imports were 5.4 percent and 9.2 percent lower, respectively.

Burfisher, Robinson, and Thierfelder (2001) provide a comprehensive survey of NAFTA's impact on the U.S. However, they point out the fallacies regarding much of the macroeconomic discussion related to NAFTA, such as bilateral trade balance with NAFTA members, and focus on the sectoral adjustments in agriculture, automobile sectors, as well as textiles and apparel sectors. They address the trade diversion issue only with respect to textiles and apparel, especially vis-à-vis East Asia, confirming James and Umemoto's findings as noted above.

Arndt and Huemer (2001 and 2002) show that Mexico increased its share of U.S. imports of automobiles, television sets, textiles, and apparel at the expense of East Asian countries (China, Japan, Korea, and Taiwan), through graphical analyses and focus on selected trade sectors.

Fukao, Okubo, and Stern (2002) focus on a disaggregated level for selected labor-intensive manufactured goods, using a version of the gravity model to identify the presence of trade diversion as a consequence of NAFTA. They conclude that Mexico's share of U.S. imports of labor-intensive goods, such as textiles and apparel, was significantly associated with the changes in tariff rates as a result of NAFTA. But the study cannot directly show the locus of the trade diversion.

The purpose of this study is to provide a comprehensive analysis of NAFTA's impact on Korean trade worldwide. This study will focus on the following issues: Has NAFTA affected Korean trade patterns? In particular, was there a trade diversion

from Korea to NAFTA member countries? If yes, has the diversion taken place across all sectors of the economy, or has it been in proportion to the magnitude of tariff preference given to different sectors of NAFTA economies? Or was the diversion consistent with comparative advantage (or international competitiveness) of Korean exports?

This paper is divided into 7 sections. The second section makes an analysis of the shift in U.S.' share of Korean exports at the aggregate level. The third section applies the trade intensity index, i.e. U.S.'s share of Korean exports at the aggregate level, taking into account changes in the relative importance of the U.S. import market in the world import market. The fourth section deals with the question of whether shifts in shares are consistent with tariff preferences accorded to different sectors of NAFTA economies, or with efficiency and true comparative advantage of Korean exports at sub-industry levels. The fifth section extends the comparative static analysis made in the previous section to an analysis using continuous annual observations and dynamic changes in the U.S. import markets vis-à-vis world import markets. The sixth section uses a form of gravity models to investigate the causes of the changes in Korean exports to the U.S. and other major export markets worldwide. The final section summarizes the findings of the study and draws some lessons and policy implications.

II. ANALYSIS OF SHIFTS IN SHARE AT THE NATIONAL LEVEL

With the advent of NAFTA, Korea's total exports increased steadily from \$96 billion in 1994 to \$145 billion in 1999, and Korea's exports to NAFTA members increased from \$22.2 billion to \$32.3 billion (Table 1). During the same period, however, NAFTA's share of Korean exports (i.e. the proportion of Korean exports directed to NAFTA markets) declined from 24% to 23% (Table 2). The U.S.' share of Korean exports declined from 21.4% in 1994 to 15.8% in 1997, and rebounded to 20.4% in 1999. Mexico's and Canada's share of Korean exports remained more or less stable. Korea's share of NAFTA's total import markets also declined from 2.5% in 1994 to 2.3% in 1998, rebounding to 2.6% only in 1999 (Table 3).

On the other hand, the proportion of NAFTA members' total imports that came from other NAFTA members increased sharply from 37.4% in 1994 to 40.3% in 1999. While the proportion of NAFTA's total imports that came from Canada (i.e. Canadian exports' share of total imports of NAFTA members) remained stable, and the proportion of NAFTA's imports that came from the U.S. increased slightly, the share of NAFTA's total imports that came from Mexico (i.e. the share of Mexico's exports in the total imports of NAFTA members) rose sharply from 5.8% in 1994 to 8.2% in 1999 (Table 3). Therefore, one is likely to conclude that NAFTA had negative effects on Korea's exports, and that there was a trade diversion from Korea to Mexico from a U.S. imports perspective.

TABLE 1. KOREA'S EXPORTS BY DESTINATION, 1988-1999

(UNIT: U.S. \$ MILN)

	Exports to NAFTA members				Exports to non-NAFTA members				
	NAFTA	Canada	U.S.	Mexico	Non-NAFTA	EU	Japan	Asian dev.	LAC(excl. Mexico)
1988	23,450	1,692	21,478	280	37,233	8,134	12,004	8,748	1,255
1989	22,509	1,849	20,203	457	37,987	7,164	13,167	9,636	1,168
1990	21,738	1,732	19,446	560	43,289	8,869	12,638	11,427	1,466
1991	21,056	1,675	18,608	775	50,814	9,734	12,356	16,233	1,409
1992	20,603	1,608	18,090	905	56,029	9,228	11,599	21,426	3,994
1993	20,489	1,374	18,138	977	61,747	9,892	11,564	26,202	2,849
1994	23,212	1,390	20,533	1,289	72,828	10,191	13,523	30,891	3,797
1995	26,910	1,794	24,173	943	98,148	15,327	17,088	44,009	2,336
1996	24,168	1,207	21,765	1,196	105,547	14,071	16,002	49,288	2,529
1997	24,556	1,509	21,576	1,471	111,608	15,194	14,480	52,718	3,833
1998	26,039	1,555	23,076	1,408	106,274	18,298	12,262	45,090	774
1999	33,255	1,638	29,600	2,017	111,490	20,284	15,863	49,862	825

SOURCE: IMF, *Direction of Trade Statistics*, Various years

However, this is too quick a conclusion. Korean exports to NAFTA markets in both absolute amounts and market share had been steadily declining even before NAFTA took effect in 1994. NAFTA's share of Korean exports declined from 38.6% (\$23.2 billion) in 1988 to 24.9% (\$20.5 billion) in 1993 (Table 2). By country, U.S. and Canada set the trend. Only Mexico's share of Korean exports increased from 0.5% in 1988 to 1.2% in 1993. Korea's share of NAFTA's total import markets also declined from 4.0% in 1988 to 2.5% in 1993 (Table 3).

TABLE 2. DISTRIBUTION OF KOREA'S EXPORTS BY DESTINATION, 1988-1999

(UNIT: PER CENT)

	Total Exports (U.S.\$ mln)	Exports to NAFTA members				Exports to non-NAFTA members				
		NAFTA	Canada	U.S.	Mexico	Non-NAFTA	EU	Japan	Asian dev.	LAC(excl. Mexico)
1988	60,683	38.64	2.8	35.4	0.5	61.36	13.4	19.8	14.4	2.1
1989	60,496	37.21	3.1	33.1	0.8	62.79	11.8	21.8	15.9	1.9
1990	65,027	33.43	2.7	29.9	0.9	66.57	13.6	19.4	17.6	2.3
1991	71,870	29.30	2.3	25.9	1.1	70.70	13.5	17.2	22.6	2.0
1992	76,632	26.89	2.1	23.6	1.2	73.11	12.0	15.1	28.0	5.2
1993	82,236	24.91	1.7	22.1	1.2	75.09	12.0	14.1	31.9	3.5
1994	96,040	24.17	1.4	21.4	1.3	75.83	10.6	14.1	32.2	4.0
1995	125,058	21.52	1.4	19.3	0.8	78.48	12.3	13.7	35.2	1.9
1996	129,715	18.63	0.9	16.8	0.9	81.37	10.8	12.3	38.0	1.9
1997	136,164	18.03	1.1	15.8	1.1	81.97	11.2	10.9	38.7	1.3
1998	132,313	19.68	1.2	17.4	1.1	80.32	13.8	9.3	34.1	0.6
1999	144,746	22.97	1.1	20.4	1.4	77.03	14.0	11.0	34.4	0.6

SOURCE: IMF, *Direction of Trade Statistics*, Various years

TABLE 3. DISTRIBUTION OF NAFTA'S IMPORTS BY ORIGIN, 1988-1999

(UNIT: PER CENT)

	Imports from NAFTA members				Imports from non-NAFTA members				
	NAFTA	Canada	U.S.	Mexico	Non-NAFTA	EU	Korea	Japan	Asian dev. LAC(excl. Mexico)
1988	32.3	13.9	14.2	4.2	67.7	15.8	4.0	17.3	13.4
1989	33.0	14.2	14.2	4.6	67.0	16.4	3.6	16.7	13.7
1990	33.3	14.1	14.3	4.9	66.7	17.8	3.2	15.4	13.7
1991	34.2	14.2	14.9	5.1	65.8	18.5	2.9	15.8	14.7
1992	35.7	13.8	16.7	5.2	64.3	16.8	2.7	15.0	15.9
1993	32.8	14.3	16.8	1.7	67.2	14.8	2.2	15.2	16.3
1994	37.4	14.5	17.0	5.8	62.6	13.8	2.5	14.6	16.9
1995	37.7	14.9	16.2	6.6	62.3	16.0	2.8	13.9	17.8
1996	39.2	15.0	16.9	7.3	60.8	16.0	2.5	12.0	17.7
1997	39.8	14.4	17.8	7.7	60.2	16.0	2.3	11.4	17.9
1998	40.2	14.2	18.0	8.0	59.8	16.9	2.3	11.0	18.3
1999	40.3	14.4	17.7	8.2	59.7	16.7	2.6	10.6	18.1

SOURCE: IMF, *Direction of Trade Statistics*, Various years

However, the analysis of shifts in share has a limited value. It does not isolate NAFTA's effects from many other factors that affected Korea's exports by destination. Moreover, the decline in NAFTA's share of Korean exports had begun long before NAFTA took effect. It could be possible that NAFTA simply reinforced the declining trend of the NAFTA's share of Korean exports since 1994. The same thing can be said about the Korean exports' share of NAFTA's total imports.

III. TRADE INTENSITY ANALYSIS AT THE NATIONAL LEVEL

The above analysis of shifts in share assumes that NAFTA's importance in the world import market is constant. However, this assumption needs to be checked against the changes in the importance of NAFTA markets regarding total world imports. If this importance increases, the decline in NAFTA's share of Korean exports would have more serious economic effects on the Korean economy. Conversely, if this importance declines sharply, the negative economic effects of the decline on Korean exports could be more than offset.

To take into account the possible changes in the importance of NAFTA markets in the world's total imports, trade intensity indices have been computed for the period between 1988 and 1999, following the tradition of Brown (1947), Kojima (1964), Drysdale and Garnaut (1982), Anderson (1983), and Yeats (1998). The intensity of trade index (I_{ij}) is defined as the proportion of country i 's total exports going to country j (x_{ij}/X_i) relative to the share of j 's total imports (M_j) in world imports (M_w). The equation is as follows:

$$I_E = (x_i/X_i) / (M_i/M_w) \quad (1)$$

If the bilateral trade intensity index is greater than unity, the countries have greater bilateral trade than would be expected based on the partner's share in world trade. The trade intensity indices for Korea with respect to individual and aggregated NAFTA member countries are reported for the entire observation period of 1988-1999 (Table 4). The indices document the decreasing intensity of Korea's bilateral trade with NAFTA members. The bilateral trade intensity index for Korea's exports to the U.S. declined by half, from 2.18 to 1.13 over the whole period, and there was no difference in the pace of the declining trend before and after NAFTA (Table 4). Intensity indices of trade with Canada declined from 0.72 to 0.31. The indices for trade with Mexico increased briefly before NAFTA from 0.67 to 1.02 during the period 1988-1991 and then gradually declined to 0.72 in 1992, continuing to 0.57 in 1999 in the post-NAFTA era. The intensity indices for Korea vis-à-vis all NAFTA countries as a whole declined from 1.86 in 1988 to 1.17 in 1993, and further declined to 0.84 in 1997 before rising again to 0.95 in 1999. The fact that the indices declined to a level less than unity means that the share of Korean exports directed to NAFTA countries was less than the importance of the NAFTA's imports in world imports. The picture presented is not that different from the shifts in shares of trade as seen before (Table 2). This is due to the more or less similar growth rates of total trade of NAFTA member countries and non-NAFTA countries (i.e. the importance of NAFTA member countries in world trade has not changed much during the observed period).

TABLE 4. TRADE INTENSITY INDEX FOR KOREA, 1988-1999

	Trade with NAFTA members				Trade with non-NAFTA members				
	NAFTA	Canada	U.S.	Mexico	Non-NAFTA	EU	Japan	Asian dev.	IAC(excl. Mexico)
1988	1.86	0.72	2.18	0.67	0.77	0.35	2.99	1.13	0.81
1989	1.81	0.80	2.08	1.02	0.79	0.31	3.19	1.19	0.78
1990	1.75	0.78	2.02	1.00	0.82	0.34	2.89	1.31	0.95
1991	1.58	0.70	1.83	1.02	0.82	0.33	2.61	1.52	0.75
1992	1.40	0.65	1.64	0.72	0.91	0.31	2.50	1.77	2.11
1993	1.17	0.46	1.38	0.68	0.95	0.35	2.18	1.75	1.08
1994	1.15	0.41	1.34	0.73	0.96	0.31	2.22	1.73	1.22
1995	1.10	0.45	1.29	0.54	0.98	0.33	2.09	1.82	0.53
1996	0.93	0.29	1.10	0.55	1.02	0.30	1.90	1.97	0.53
1997	0.84	0.32	0.99	0.55	1.04	0.30	1.81	2.06	0.54
1998	0.87	0.33	1.04	0.48	1.04	0.36	1.86	2.18	0.14
1999	0.95	0.31	1.13	0.57	1.02	0.38	2.04	2.07	0.16

NOTE: Calculation based on IMF's *Direction of Trade Statistics* (various years)

From the analysis of the shift in shares and the trade intensity index, it is observed that Korean exports and the proportion of Korean exports directed to NAFTA countries

steadily declined before and after NAFTA, and the pace of the decline did not accelerate after NAFTA. Therefore, one cannot say that NAFTA has had negative effects on Korea's exports to NAFTA members, and that there was a trade diversion between U.S. imports from Korea and Mexico.

While NAFTA's share of Korea's exports declined steadily, as we have seen in the above analysis, the non-NAFTA share of Korean exports increased gradually from 61.4% (\$37.2 billion) in 1988 to 75.1% (\$61.8 billion) in 1993 and to 77.0% (\$111.5 billion) in 1999 (Table 2).

Trade intensity indices for Korean exports also document the same trend. The indices for bilateral trade with non-NAFTA countries steadily increased from 0.77 in 1988 to 0.95 in 1993, and then to 1.02 in 1999 (Table 4). On the one hand, the intensity index for Korean exports going to Latin American and Caribbean countries, excluding Mexico, steadily declined from 0.81 in 1988 to 0.16 in 1999. On the other hand, the intensity index for Korean exports going to East Asian developing countries almost doubled from 1.13 in 1988 to 2.07 in 1999.

Since the amount of Korean exports to ROW countries is relatively larger than the amount of Korean exports to NAFTA members (Table 1), the decline in NAFTA's intensity is more than offset by the increase in non-NAFTA's intensity of Korean exports. Korean exports to NAFTA countries decreased in absolute amounts, from \$23.4 billion in 1988 to \$20.4 billion in 1993, but increased to \$33.2 billion in 1999 (an increase of \$9.8 billion). However, Korea's exports to non-NAFTA countries increased from \$37.2 billion in 1988 to \$111.4 billion in 1999, an increase of \$74.2 billion. Therefore, any losses in Korean exports to NAFTA markets during this period were more than offset by export increases to non-NAFTA markets. The net increase in Korean exports worldwide between 1988 and 1999 was \$50.8 billion.

IV. TRADE DIVERSION OR CREATION AT INDUSTRY LEVELS

The above analysis raises fundamental questions: Did the decline in shares and trade intensity indices take place in all industries uniformly, or was there any difference among industries? Was the decline in shares and intensity indices by industry consistent with efficiency and true comparative advantage of Korean exports?

To answer these questions, we need to analyze changes in Korea's trade patterns by commodity group before and after NAFTA. This way, we can see whether any specific categories of goods have been more affected by NAFTA, or whether all categories of goods were affected uniformly and equally. Assuming that the share of Korean exports in the U.S. and ROW markets in 1991 would remain constant in the 1990s, we project the Korean exports in those markets before and after NAFTA and compare them with actual Korean exports in those two markets. This is done for each 1-digit SITC industry group and for all groups together. In this way, we can also look into any shifts in Korean exports in the two markets (Table 5).

TABLE 5. SHIFTS IN SHARE, KOREAN EXPORTS TO THE U.S., 1991-1998

(Unit: U.S.\$ billion)

	Total U.S. imports from the world	Korea's Exports to U.S. if constant share of U.S. imports in 1991 is assumed	Changes due to shifts in actual U.S. imports (actual-assu- med)	Total ROW's imports from the world	Korea's exports to ROW if constant share of ROW imports in 1991 assumed	Changes due to shifts in actual ROW imports (actual-assu- med)	Net Changes due to shifts in Share
Total (including all commodities)							
1991	509.3	18.6	0.0	3089.1	53.3	0.0	0.0
1992	552.6	20.2	-2.1	3295.8	56.8	1.7	-0.4
1993	600.0	21.9	-3.8	3152.5	54.4	9.7	5.9
1994	689.3	25.2	-4.7	3625.6	62.5	13.0	8.3
1995	771.0	28.2	-4.0	4363.3	75.2	25.7	21.7
1996	817.8	29.9	-8.1	4558.9	78.6	29.3	21.2
1997	898.7	32.8	-11.3	4737.2	81.7	32.9	21.6
1998	944.6	34.5	-11.4	4691.3	80.9	28.4	17.0
SITC 5 Chemicals and related products, n.e.c.							
1991	25.3	0.2	0.0	281.8	2.9	0.0	0.0
1992	28.9	0.3	0.0	304.0	3.2	1.0	1.0
1993	30.5	0.3	0.0	298.0	3.1	1.5	1.5
1994	35.5	0.3	0.0	335.0	3.7	2.3	2.3
1995	42.2	0.4	0.0	434.3	4.5	4.0	4.0
1996	46.6	0.5	0.1	440.9	4.6	4.0	4.1
1997	50.3	0.5	0.1	457.2	4.8	5.3	5.4
1998	56.4	0.5	0.1	456.0	4.8	4.8	4.9
SITC 7 Machinery and transport equipment							
1991	213.5	8.9	0.0	1044.9	21.1	0.0	0.0
1992	237.0	9.8	-0.7	1138.3	23.0	0.5	-0.2
1993	265.6	10.9	-0.9	1121.0	22.6	4.3	3.4
1994	314.6	13.0	-0.3	1296.0	26.2	8.2	7.9
1995	357.9	14.7	2.0	1571.8	31.8	17.2	19.2
1996	369.2	15.2	0.4	1636.1	33.5	19.3	18.9
1997	395.9	16.3	-2.1	1743.1	35.2	18.7	16.6
1998	431.6	17.8	-3.8	1770.5	35.8	15.4	11.6
SITC 6 & 8 Manufactured goods classified chiefly by material & Miscellaneous manufactured articles							
1991	147.6	9.2	0.0	844.5	24.6	0.0	0.0
1992	162.9	10.1	-1.2	922.4	26.8	0.8	-2.5
1993	178.9	11.1	-3.7	891.6	25.9	1.6	-2.1
1994	202.2	12.5	-5.4	1021.5	29.7	-0.4	-5.8
1995	223.3	13.9	-7.3	1236.6	36.0	-1.6	-8.9
1996	232.8	14.4	-8.5	1249.6	36.4	-3.1	11.6
1997	250.0	15.5	-9.1	1288.9	37.5	-2.8	-11.9
1998	286.7	17.8	-10.1	1255.5	35.9	2.6	12.7

SOURCE: OECD, *International trade by commodities and foreign trade by commodities*, various years, UN, *International trade statistics yearbook*, various years and KOTIS database <http://www.kotis.net>

NOTE: SITC 0,1,2,3,4, and 9 are excluded because about 90 percent of Korean exports consists of SITC 5,6,7 and 8.

Before 1991, Korean exports appeared to lose their share in both NAFTA and ROW markets. However, since 1991, and especially after 1995, Korea continued losing its share in the NAFTA market but gained in the ROW market. Moreover, gains in the ROW more than offset losses in the NAFTA market. The net gains range from \$17 billion to \$22 billion per year. This makes an interesting contrast with the findings of Krueger's (2000) analysis in the case of Mexico. Krueger found that the share of Mexican exports increased in the U.S. market, but lost in the ROW in the late 1980s and early 1990s. However, since the early 1990s and especially after 1994, Mexico's share not only increased in the U.S., but also in the ROW. Krueger's interpretation is that rather than NAFTA resulting in the trade diversion from the ROW to Mexico, Mexico's trade liberalization at the end of the 1980s and the sharp peso devaluation in 1994 account for the sharp increases in Mexican exports to both the U.S. and ROW markets since early 1990s.

Taking into account the findings on Mexico, a correct interpretation should be that Korea was losing its relative efficiency in both the U.S. and ROW by 1990. In the aftermath of the 1988 Seoul Olympic Games, the Korean economy experienced a high rate of inflation and the Korean currency was overvalued. Also, China's exports were making inroads in U.S. markets, replacing Korea's traditional exports, especially in light industries such as textiles and apparel. Since 1991, however, Korean exports have been gaining international competitiveness in the ROW, but have not been sufficient to compete with Mexican exports in the U.S. market. This is due mainly to Mexico's trade liberalization and sharp real devaluation in 1994 (Table 3). We suspect that NAFTA must have helped Mexico's exports increase in the U.S. market somewhat, but fundamentally, Korean exports' efficiency was not high enough to compete with Mexico. This is the main reason why the share of Korean exports in U.S. markets continued declining after NAFTA.

In the case of Mexico, the gains in market share were most pronounced in manufactures, classified chiefly by materials, machinery and transport equipment, and miscellaneous manufactured articles. In each of these categories, the increased share accounted for about half or more of the increment in Mexican exports. Moreover, in each of these categories, the increased Mexican share in trade with the rest of the world was almost as large as the increase in share of trade with the U.S. (Kruger 2000).

For Korea, gains in share have taken place mostly in chemicals and related products, as well as machinery and transport equipment. Especially in the latter group, Korean exports' share in the U.S. market has declined every year since NAFTA was established, but has increased in the ROW market. This indicates that this group's efficiency was high enough to compete in the ROW, but not in the U.S. (especially because of competition with Mexican goods that had increased efficiency not by the preferential tariffs accorded by the NAFTA, but through trade liberalization and sharp peso devaluation (Kruger 2000)).

It is interesting to note that in manufactured goods classified chiefly by materials and miscellaneous manufactured articles, Korea's share has fallen every year in both

the U.S. and ROW markets. This means that Korea's comparative efficiency in those goods has eroded in both markets. In other words, the decrease in the share of Korean exports to the U.S. market was caused more by the relative inefficiency or comparative disadvantage of some specific Korean exports, rather than the preferential tariffs accorded to NAFTA members across the board.

To substantiate this point, it would be instructive to look more in-depth at the extent to which each category of goods has been affected by the tariff reductions and then to compare its relative efficiency or comparative advantage in the international market. We examine changes in tariff rates and changes in the share of U.S. imports from Mexico and Korea for all 3-digit industries and for selected industries in which Mexico gained market share by more than 10 percentage points between 1992 and 1997-1998, following the similar analysis made by Krueger (2000).

TABLE 6. TARIFF RATES, CHANGES IN SHARE IN U.S. IMPORTS FROM KOREA AND MEXICO, 1992-1998

(Unit: percent)

Commodity Category SITC Code and Name	U.S. Tariff Rates ^a				Shares of U.S. Imports ^b				Elasticity
	1992		1997		1992		1998		
	Korea	Mexico	Korea	Mexico	Korea	Mexico	Korea	Mexico	
613 Furskins (Fur/Skins or Fur and Skins or Fur, skins)	4	5	3	1	1.8	0.2	0.8	11.8	5.9
846 Clothing accessories	5	2	6	1	9.2	0.9	8.4	12.5	-0.8
782 Transport road vehicles	6	3	7	1	0.0	4.6	0.0	32.6	6.1
652 Woven cotton fabrics	4	3	3	1	4.2	1.7	3.5	10.6	n.a.
674 Plated or coated iron and steel	9	3	10	3	6.6	3.7	8.0	18.9	16.6
672 Primary iron and steel forms	7	6	8	6	0.7	4.3	1.6	20.7	4.3
873 Meters and counters	4	1	2	1	0.7	12.5	0.1	60.5	-24.7
591 Insecticides, fungicides	7	1	7	0	0.5	2.3	0.3	8.7	22.0
62 Sugar confectionery	6	2	6	2	0.9	5.8	0.6	17.6	n.a.
266 Synthetic fibers	10	2	12	3	20.7	5.1	23.6	13.7	-2.9
245 Fuel wood	28	11	24	5	0.0	21.9	0.1	48.6	10.3
579 Waste of plastics	12	2	13	5	0.1	9.5	0.7	19.4	n.a.
711 Electric power machinery other than generating	1	0	16	3	0.7	4.8	7.0	9.1	-0.1
716 Rotating electrical plant and parts	4	0	3	0	2.0	20.8	2.6	34.8	-28.5
761 TV receivers	3	0	4	0	6.6	48.6	1.7	74.9	2.1
Average all 3-digit industries	4	2	3	1	3.1	6.5	2.6	10.2	n.a.

SOURCE: a. Krueger (2000)

b. U.S. ITC Data Web, <http://dataweb.usitc.gov>

In 1992, the average tariff rates applied to imports from Mexico were generally less than the average tariff rates for comparable imports from Korea. For all 3-digit industries as a whole, the average tariff was 4% for imports from Korea, but only 2% for Mexico. This may sound strange under the GATT rule of Most Favored Nation (MFN) treatment. However, this was due to the U.S. trade policy for the maquiladora (kick-back) industries in Mexico, which were entitled to duty-free entry into the U.S. for those components that had been exported from the U.S. to Mexico and then re-exported to the U.S. This is nothing but the rule of origin (ROO) set at 100% on parts and materials under a preferential trading arrangement (PTA). Therefore, some imports from Mexico must have taken advantage of this rule. After NAFTA took effect, the average tariffs applied to imports from Mexico and Korea had the same difference of 2 percentage points, as before NAFTA for the industries as a whole (Table 6). And average tariff rates for all imports from both Mexico and Korea were lowered by 1 percentage point between 1992 and 1997. Therefore, imports from Mexico as a whole enjoyed average tariff preference over imports from Korea by 2 percentage points in 1997, as in 1992. As a result, in 1997, no 3-digit industries in Mexico had a greater tariff preference than before by more than 2 percentage points, except for transport road vehicles (SITC 782) and electrical power machinery other than generating equipment (SITC 711).

Despite the same degree of tariff preference given for imports from Mexico over Korea before and after NAFTA's establishment, Mexico's share of U.S. imports increased by 3.7 percentage points, while Korea's share declined by 0.5 percentage points for the industries as a whole. In particular, there does not appear to be any systematic relationship between the changes in tariff rates and changes in market shares.

Among those 3-digit industries in which Mexico gained 10 percentage points of U.S. imports, Mexico's share of U.S. imports increased more sharply in fur-skins (613), clothing accessories (846), transport road vehicles (782), woven cotton fabrics (652), and plated or coated iron/steel (674). For these industries, the gap in the average tariff rates between Mexico and Korea did not increase unusually, except for transport road vehicles (782).

In those industries for which the gap in average tariff rates for Mexico and Korea increased by more than that for the whole industries, i.e. transport road vehicles (from 5 to 6 percentage points) and electric power machinery (from 1 to 13 percentage points), Mexico's share of U.S. imports did not change evenly. On the one hand, in transport road vehicles (782), Mexico's share increased sharply (from 4.6% to 32.6%) while Korea's share remained unchanged. On the other hand, in electric power machinery (711), Korea's share increased relatively more starkly (from 0.7% to 7.0%) than Mexico's share (from 4.8% to 9.1%). Mexico must have had a comparative advantage in the transport road vehicle industry, and Korea must have had a comparative advantage in the electrical power industry.

Therefore, for all 15 industries, estimation was made on the elasticity of the changes in the difference between Mexico and Korea's share of U.S. imports with respect

to the changes in tariff preferences accorded to Mexico over Korea before and after NAFTA was established (Table 6). For seven industries, the elasticity was positive and greater than 1. However, the elasticity was negative or infinity in eight industries. This means that in these eight industries, the Mexican share of U.S. imports either declined sharply as the tariff preference margin rose or increased even though there was no change in tariff preferences between the two countries before and after NAFTA. For increases in Mexico's share of U.S. imports, therefore, credit should be given not to Mexico's tariff advantage accorded by NAFTA, but to the improved efficiency in these Mexican industries, which must have resulted from the trade liberalization and structural adjustment at the end of the 1980s and the sharp real devaluation in 1994. Conversely, it would also be true that the decline in Korea's share of U.S. imports was not due mainly to Korea's tariff disadvantage accorded by NAFTA, but to the inefficiency of those Korean industries. There was no difference in the average tariff preference given to Mexico vis-à-vis Korea before and after NAFTA across all manufacturing industries.

V. REGIONAL ORIENTATION INDEX

The above analysis has limitations in two respects. First, it has been made on the basis of two discrete observations in 1992 and 1997-98. Second, the analysis focuses on U.S. imports and does not take into account any changes in the ROW market. Therefore, a further analysis is made on the basis of continuous observations from 1990 through 1998, comparing both the U.S. and ROW markets for the products of the same 3-digit industries. For this purpose, the traditional regional orientation index is modified. The modified regional orientation index is defined as follows:

$$(M_{jk_us}/M_{j_us}) / (M_{jk_row}/M_{j_row}) \quad (2)$$

where M_{jk_us} and M_{jk_row} are values of Korean product, j , imported by the U.S. and ROW, respectively, and M_{j_us} and M_{j_row} are total values of all countries' product j imported by the U.S. and ROW. The index indicates the proportion of Korean product j to the total value of all countries' product j imported by the U.S., relative to the proportion of Korean product j to the total value of all countries' product j imported by the ROW. If the index value is unity, the Korean product j is equally competitive in both the U.S. and ROW markets.

When the modified regional orientation indices are computed for each of the 3-digit industries over the period 1990-1998, they declined before and after NAFTA for most industries. This indicates that Korean products were becoming less efficient in the U.S. market compared to the ROW market, especially after NAFTA Table 7. The exceptions were clothing accessories (846), primary iron and steel forms (672), and synthetic fibers (266), for which the modified regional orientation index was

either stable or increased over the period. These industries have a comparative advantage in the U.S. market despite the tariff preference and release of non-quantitative barriers accorded to NAFTA members. In sum, before and after NAFTA, Korean exports' share of the U.S. import market did not change uniformly and equally among all industries, but changed according to their international competitiveness or comparative advantage, irrespective of the degree of their tariff disadvantage vis-à-vis Mexican exports.

TABLE 7. REGIONAL ORIENTATION INDEX, 1990-1998

SITC	873	846	782	761	716	711	674	672	652	613	591	266
1990	0.0	0.7	0.0	0.9	2.3	2.2	0.3	0.0	1.2	0.0	1.0	0.7
1991	0.0	0.7	0.0	1.0	3.0	6.1	0.3	0.0	1.1	1.5	1.0	0.8
1992	0.0	0.8	0.0	0.8	2.4	0.3	0.4	0.0	1.2	0.0	0.9	1.1
1993	0.0	1.1	0.0	0.3	2.1	6.6	0.1	0.0	1.2	0.0	0.9	1.0
1994	0.0	1.0	0.0	0.2	2.2	0.0	0.1	0.0	0.9	0.0	0.4	0.8
1995	0.0	0.9	0.0	0.2	1.9	0.0	0.1	0.0	1.0	0.0	0.3	0.8
1996	0.0	1.1	0.0	0.2	1.6	0.1	0.1	0.1	0.8	0.0	0.3	0.8
1997	0.0	1.6	0.0	0.3	1.7	0.0	0.1	0.2	0.7	0.1	0.4	0.6
1998	0.0	1.5	0.0	0.3	2.0	0.3	0.1	0.1	0.9	0.0	0.6	0.9

NOTE: Calculation based on UN, *International Trade Statistics Yearbook* (various years) and U.S. ITC Data Web, <http://dataweb.usitc.gov>

VI. GRAVITY MODEL ANALYSIS

Then why has Korean exports' share of the NAFTA market declined even before the restrictive rules of origin, coupled with large margins of preferential tariffs, were applied among NAFTA members? What explains the behavior of Korean exports in the U.S. and ROW markets before and after NAFTA? To answer these questions, we now turn to an analysis using a form of gravity equations. Although the theoretical foundations for these relations are less than rigorous, these models perform well empirically and can shed useful light on the trading patterns among countries (Frankel 1998).

Our first attempt is to see if NAFTA has significantly affected Korean export performance before and after it took effect. This is done using three dummy variables: (1) any special factors in every 2-years before/after NAFTA; (2) NAFTA membership; and (3) the trend (the number of years past) since 1987, de facto start of the NAFTA.

Other independent variables include the distance between Korea and its trading partners, as well as the population and GDP of Korea and its trading partner countries, usually included in a gravity model. This model is built on the hypothesis that a country's trade performance is positively dependent on the size of trade partners or potential sales in the partner countries, and negatively related to the distance between the trading partners. In addition, our model uses a remoteness variable to

take into account the fact that some trading partners are further away from most trading partners, following the study by Kruger (1999). Two remote countries might be expected to trade more with each other than with many relatively proximate trading partners.

A pooled time-series and cross-section regression was estimated with the following form:

$$\begin{aligned} \ln \text{ Export (K,J) } = & \text{Constant} + a_1 (\text{D1989}) + a_2 (\text{D1991}) + \dots a_7 (\text{D2001}) \\ & + b_1 \ln(\text{GDP-K}) + b_2 \ln(\text{GDP-J}) + c_1 \ln(\text{GDPpc-K}) \\ & + c_2 \ln(\text{GDP pc-J}) + d_1 \ln(\text{DIST-K,J}) + d_2 \ln(\text{REM-K}) \\ & + d_3 \ln(\text{REM-J}) + e_1 (\text{NAFTA-J}) + e_2 (\text{TREND-NAFTA-J}) \end{aligned}$$

where K and J denote Korea and its importing partners, respectively; D1989, D1991, etc. are year dummies; GDP-K and GDP-J and GDPpc-K and GDPpc-J are GDPs and GDP per capita of Korea and its importing partners, respectively (converted into constant 1990 U.S. dollars); DIST is the distance between Korea and its trading partners; REM-K and REM-J are the weighted (by GDP) averages of the distance from Korea and its trading partners, respectively. The dummy variable NAFTA-J is 1 if a Korea's trading partner is a member of the NAFTA and TREND-NAFTA-J is the number of years elapsed since 1987, the de factor start year of NAFTA.

The source of trade data was the World Bank's World Integrated TradeSolution (WITS), based on UN COMTRADE data. GDP and population were based on the World Bank's World Development Indicators. For distances, consult <http://www.indo.com/distance>. There are 55 countries included in the sample, which are comparable to the 61 countries used by Frankel (1997). Each country has been observed seven times on average for a period of 15 years (1989-2001).

Estimation of the equation was made on the basis of the random effect model (error-components model) of the maximum likelihood regression (Kmenta 1971).

Results of the regression analysis are as follows (Table 8). Natural log likelihood and LR Chi square statistics are significantly high. The coefficients of year dummy variables are positive and statistically significant at the 1 or 5 percent level between 1989 and 2001. It is interesting to note that overall Korean exports were positively affected in those years after NAFTA's inception by some factors not considered in this equation. The coefficient of trading partners' GDP is large, positive, and statistically significant, as is usual in gravity equation analyses; the coefficient of the per capita GDP, however, is small and non-significant.

Contrary to the common results of gravity analyses, the distance dummy is relatively large and positive, but not significant. This is contrary to our expectations, since Korean exports to neighboring Asian countries ranged between 35 and 50 percent during the period under review. This unexpected sign of the coefficient may be considered together with the negative, large, and significant coefficient of the remoteness variable. Korean exports during this period have been negatively affected by trade with relatively remote countries to a substantial degree, since they trade more among themselves.

The unexpected sign of the distance variable may be due to the fact that Korean overseas direct investment (ODI) rose sharply since NAFTA's inception, except during the 1997 Asian Financial Crisis (Figure 1). Perhaps Korean exporters raised the level of ODI in the NAFTA area to compensate for any negative effects of NAFTA on their exports and took advantage of the rule of origin and the proximity of NAFTA member countries and Latin America. Korean ODI firms may have increased imports from Korea to sell their products in neighboring NAFTA and Latin American countries. Consequently, Korean ODI may have positively affected Korean exports. However, this hypothesis could not be empirically tested as data are not available on the exports of those Korean ODI firms located in the NAFTA area. A further study to account for Korean trade patterns since NAFTA would require an analysis of the import and export performance of Korean ODI firms located in the NAFTA area, especially in Mexico, where labor costs are less expensive than in Korea.

The coefficient of NAFTA membership, our main interest in this analysis, is negative and relatively large, but statistically not significant. Likewise, the coefficient of TREND-NAFTA is small and positive, but not significant. Therefore, we cannot state that variations in trade with NAFTA member countries and the length of their NAFTA membership affected Korean exports negatively.

TABLE 8. REGRESSION ON KOREA'S EXPORTS WITH TIME AND MEMBER DUMMIES

	Coefficient	Standard error	p > t
Cons	11.43	5.01	.00
D89	.22	.092	.02
D91	.62	.092	.00
D93	.82	.092	.00
D95	1.20	.094	.00
D97	1.28	.095	.00
D99	1.51	.096	.00
D21	1.26	.098	.00
Ln GDP _{ik} (dropped)*			
Ln GDP _j	.73	.087	.00
Ln GDP _{peik} (dropped)*			
Ln GDP _{pej}	.01	.101	.89
Ln DIST _j	.57	.813	.18
Ln REMOT _k	-1.26	.716	.08
Ln REMOT _j (dropped)*			
NAFTA _j	-.52	.369	.16
TREND NAFTA _j	.07	.125	.596
Ln likelihood		-380.5171	
LR Chi sq. (13)		162.54	
Di		433	

* These variables were dropped by the computing program due to collinearity.

FIGURE 1. KOREA'S OVERSEAS DIRECT INVESTMENT IN NAFTA AREAS, 1988-2003

SOURCE: www.koreacxim.go.kr

VII. CONCLUSIONS AND POLICY IMPLICATIONS

Even though we have focused on the static analysis of the trade effects of NAFTA, it is not easy to isolate those effects from other economic policies and events. During the period under study, many economic events took place that must have affected trade of NAFTA member countries, in particular Mexico, and their trading partners including Korea.

Mexico undertook drastic reform measures to liberalize trade and experienced a sharp real devaluation of its currency on the order of 50% in 1994. Trade liberalization brought down the average tariff rate from more than 40% in 1987 to about 13% in 1989, and to 10% by early 1990s. Therefore, actions towards free trade preceded NAFTA in Mexico. Even from 1989, the relatively low tariffs (estimated at 6%) on maquiladora imports and the implementation of the Canada-U.S. Free Trade Agreement (CUSTA) meant that imports into the U.S. from Canada and Mexico already enjoyed preferential treatment. Moreover, the magnitude of earlier tariff reductions was much more drastic than those made under NAFTA, which were on the order of 1.4-3.3 percentage points (Table 9). Tariff reduction under the NAFTA did not occur in one shot, but has been continuing over ten or 15 years, depending on the sector. In addition, after the "tequila crisis" of late 1994, the Mexican government imposed a surcharge on all imports entering Mexico, except those from NAFTA member countries. All these and other factors, together with NAFTA, must have affected Mexican trade patterns.

Likewise, the Korean government, in preparation for joining the OECD in 1995, carried out major trade liberalization and the opening of capital markets in the early 1990s. These policies have been accentuated after the Asian crisis in 1997 despite negative or slow economic growth rates.

Undoubtedly, all these events and policies affected trade between NAFTA members

and their trading partners including Korea. Thus it is difficult to discern the effects of NAFTA on Korean trade and investment, let alone measure the magnitude of the net effects. Naturally, we will have to assess the effects of NAFTA, together with those of several economic events and policies.

TABLE 9. THE AVERAGE TARIFF OF SELECTED ECONOMIES

(Unit: percent)

	1989		1999		Change (percentage point)	
	All products	Manufactured All	products	Manufactured All	products	Manufactured
Korea	18.8 ^a	18.7 ^a	8.7	7.8	-10.1	-10.9
NAFTA						
-Canada	7.7	8.4	4.4	2.7	-3.3	-5.7
-U.S.	5.7	6.1	4.3	4.2	-1.4	1.9
-Mexico	13.2	13.3	10.1	10.0	-3.1	-3.3
LAC						
-Argentina	12.2 ^d	25.4 ^c	11.1	12.5	-1.1	-12.9
-Brazil	42.2	43.5	13.6	13.9	28.6	-29.6
Asia						
Hong Kong	0.0	0.0	0.0	0.0	0.0	0.0
-India	79.1 ^e	80.3 ^e	32.2	32.4	-46.9	-47.9
-Indonesia	21.9	22.3	10.9	10.7	-11.0	-11.6
-Japan	5.9 ^e	4.7 ^e	4.8	3.4	-1.1	-1.3
-Malaysia	20.6 ^e	20.3 ^e	7.4 ^e	7.5 ^f	-13.5	12.8
-Philippines	28.0 ^e	23.6 ^e	10.0	6.0	-18.0	17.6
Singapore	0.5	0.6	0.0 ^e	0.0 ^e	-0.5	-0.6
Thailand	38.5	39.6	21.6 ^e	21.2 ^e	-16.9	-18.4

SOURCE: World Bank (2001), *World development indicators*.NOTE: ^a 1988, ^b 1990, ^c 1991, ^d 1992, ^e 1995, and ^f 1997.

Broadly speaking, Korean exports' share of the NAFTA market has declined after NAFTA was formed. Since NAFTA, there may have been some trade diversion from Korea to NAFTA member countries, particularly Mexico. However, this was a continuation of the trend observed from the late 1980s. Moreover, Korean exports' share of the ROW market has risen, compensating for the losses in the share of trade in the NAFTA market. As the regression analysis shows, Korean export values are positively associated with the post-NAFTA era (1993-1999) at a significant level, and are negatively associated with NAFTA membership, but not significant.

The value of Korean exports in the ROW has increased much more sharply after NAFTA. Korean exports to the NAFTA market also reversed the declining trend and have risen moderately since NAFTA (Table 1). There may have been some trade diversion after NAFTA from Korea to NAFTA member countries. However, trade

creation in both the NAFTA and ROW markets has more than offset any possible diversion effect in the NAFTA market. Hence, NAFTA appears to have had some overall net positive effects on Korean trade. The discriminatory protection of NAFTA, coupled with the strengthened efficiency of NAFTA products, must have provided impetus for Korean exporters to improve their products for the NAFTA market and may have reinforced the Korean exporters' urge to expand their role in the ROW market.

This study provides some lessons in anticipation of the FTAA and other PTAs. First, a PTA such as the NAFTA can serve as a building block toward trade liberalization on a global scale. As part of the preparation for NAFTA, member countries had taken trade liberalization measures even before the formal PTA agreement became effective. Some of those measures were more significant for trade promotion than the preference given under the PTA itself, and countries outside the PTA also drew benefits from these measures.

Second, even if the North American preferential trade arrangement had any negative effects on the share and value of a non-member country's exports, they were easily offset by the impact of other macroeconomic policy adjustments. In Korea, trade liberalization and other structural adjustment programs, such as flexible foreign exchange policies before and after NAFTA, seem to have more than offset effects on the value of Korean exports destined to the PTA markets, including Mexico. Therefore, a macroeconomic policy adjustment would be more effective than a PTA in promoting exports.

Third, the trade creation/diversion effects of a PTA are not in proportion to the margin of tariff preference. Increases in the exports of an industry, where the margin of tariff preference was greater, were not uniformly greater than in other industries. Exports of an industry where the margin of tariff preference was greater than in other industries did not actually increase much, while in another industry, exports increased more sharply. Given the limited magnitude of the preferential tariffs, other factors affected trade more, and thereby offset preferential tariff effects.

Fourth, when the margin of tariff preference is relatively small, as in the case of NAFTA, trade creation effects of a PTA have been relatively limited. A more important factor for increasing trade share and trade creation is the international competitiveness of a product. Both PTA member and non-member countries should examine those products in which they have a true comparative advantage and focus on how to improve the competitiveness of those products in PTA and ROW markets. Advancement of technology and accumulation of human capital involved in the production of a commodity would generate greater returns than would margins of tariff preference.

REFERENCES

- Anderson, Kym. 1983. Prospects for Trade Growth among Pacific Basin Countries. *Developing Economies* 21 (December): 376-85.
- Arndt, Sven and Alex Huemer. 2001 and 2002. North American Trade After NAFTA: Part I, Part II, and Part III. *Claremont Policy Brief*, Issues No. 01-01, 01-02, and 02-01.
- Bergsten, C. Fred. 1996. Globalizing Free Trade. *Foreign Affairs* 75: 105-20.
- Bhagwati, Jagdish. 1991. *The World Trading System at Risk*. London: Harvester Wheatsheaf.
- Burfisher, Mary, Sherman Robinson, and Karen Thierfelder. 2001. The impact of NAFTA on the United States. *Journal of Economic Perspectives* 15: 125-44.
- Drysdale, Peter, and Ross Garnaut. 1982. Trade Intensities and the Analysis of Bilateral Trade Flows in a Many-Country World: A Survey. *Hitotsubashi Journal of Economics* 2(2): 62-84.
- Frankel, J.A. Ed. 1998. *The Regionalization of the World Economy*. Chicago: University of Chicago Press.
- Fukao, Kyoji, Toshihiro Okubo, and Robert Stern. 2003. An Econometric Analysis of Trade Diversion under NAFTA. School of Public Policy, University of Michigan, Discussion Paper No. 491, Ann Arbor.
- Gould, David. 1998. Has NAFTA Changed North American Trade? Federal Reserve Bank of Dallas. *Economic Review, First Quarter*: 12-23.
- James, William E. and Masaru Umemoto. 2000. NAFTA Trade with East Asia: Rules of Origin and Market Access in Textiles, Apparel, Footwear and Electrical Machinery. *ASEAN Economic Bulletin* 17(3) (December): 293-311.
- Karemera, David and Kalu Ojah. 1998. An Industrial Analysis of Trade Creation and Diversion Effects of NAFTA. *Journal of Economic Integration* 13: 400-25.
- Kojima, Kiyoshi. 1964. The Pattern of Trade among Advanced Countries. *Hitotsubashi Journal of Economics* 5(1): 16-36.
- Kmenta, Jan. 1971. *Elements of Econometrics*. New York: Macmillan Co.
- Krcinin, Mordechai and Michael Plummer. 1998. Ex Post Estimates of the European Single Market Programme on the Exports of Developing Countries. *ASEAN Economic Bulletin* 15(21): 206-14.
- Krueger, Anne. 2000. NAFTA's Effects: A Preliminary Assessment. *The World Economy* 23(6) (June): 761-76.
- _____. 1999. Trade Creation and Trade Diversion under NAFTA. National Bureau of Economic Research, Working Paper 7429 (December).
- Sloaga, Isidro and Alan Winters. 2001. Regionalism in the Nineties: What Effect on Trade? *North American Journal of Economics and Finance* 121: 1-29.

- Viner, J. 1950. *The Customs Union Issue*. New York: Carnegie Endowment.
- Wall, Howard. 2002. Has Japan Been Left Out in the Cold by Regional Integration? Federal Reserve Bank of St. Louis. *Review* 84: 25-36.
- World Bank. 2004. *Lessons from NAFTA for Latin American Countries: A Summary of Research Findings*. Washington, D.C.: The World Bank.
- Yeats, Alexander J. 1998. Does Mercosur's Trade Performance Raise Concerns about the Effects of Regional Trade Arrangements? *The World Bank Economic Review* 12 (1): 1-28.