4

Potential Benefits of a Korea-US FTA

In this chapter, we analyze the potential gains from a Korea-US Free Trade Agreement using two types of economic models. First, we use a "gravity" model to examine the potential for trade expansion under an FTA. Second, we simulate the welfare effects of an FTA on both countries using a computable general equilibrium (CGE) model. The third section comments on other economic benefits of a potential accord.

The most immediate and direct effect that two countries expect from an FTA is an increase in bilateral trade flows. Thus when two countries are considering the possibility of an FTA, the current state of trade performance should be assessed first. Is their bilateral trade underperforming (at a level below their potential trade volume) or overachieving (at a level above their potential trade volume)? Depending on the answer to this question, one can estimate how significant an impact an FTA could make.

Room for Improvement in Trade Flows: Gravity Model Analysis

In order to see if Korea and the United States are up to their potential trade level, we use a gravity model to analyze the determinants of bilateral trade flows.[1] For this purpose, we have built a global bilateral trade data

1. The gravity model used in this study is based on one developed by Jeffrey Frankel (1997). Specifications of the model are almost the same as Frankel's model but we use more current data.

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Table 4.1 Trade intensities of Asia-Pacific countries: Gravity model estimation[a]

	All sectors	Agriculture	Raw material	Manufacturing
GDP[b]	0.93 ***	0.75 ***	1.01 ***	0.99 ***
Per capita GDP[c]	0.18 ***	0.16 ***	−0.09 ***	0.22 ***
Distance[d]	−0.88 ***	−0.61 ***	−0.98 ***	−1.01 ***
Culture	0.78 ***	0.75 ***	0.81 ***	0.76 ***
Adjacency	0.29 ***	0.69 ***	0.50 ***	0.16
Korea[e]	**1.04 *** **	**−0.82 *** **	**0.48 *** **	**1.46 *** **
Japan	0.07	−0.75 ***	−0.36 ***	0.23 ***
United States	**−0.11**	**0.41 *** **	**−0.01**	**−0.14**
Mexico	−0.70 ***	−0.96 ***	−0.69 ***	−0.68 ***
Chile	0.69 ***	0.65 ***	1.20 ***	0.61 ***
China	0.53 ***	0.18	−0.21 **	0.82 ***
Singapore	1.67 ***	0.33 ***	1.93 ***	1.88 ***
Adjusted R^2	0.75	0.54	0.56	0.76
Number of observations	8,078	7,404	7,230	7,863

a. Data cover 1985, 1990, 1995, and 1997. Dependent variable is the log of trade value, that is, the sum of the exports and imports.

Nondummy explanatory variables are measured as described below.

All other variables are dummy variables.

The value of the culture variable is equal to 1 if two trading nations share a common language or colonial linkage, and 0 if they do not.

The value of the adjacency variable is equal to 1 if two trading nations share a common border, and 0 if they do not.

All regressions use OLS (ordinary least-squares) technique and have an intercept and year dummies, not reported here.

b. Gross domestic product (GDP) variable is the log of the product of the two countries' GDP.

c. Per capita GDP variable is the log of the product of the two countries' per capita GDP.

d. Distance is the log of distance between two countries.

e. Country variables take the value 1 if the pair of nations in an observation includes a particular country, and 0 if it does not.

***, ** indicate that the coefficients are statistically significant at the 99 percent and 95 percent levels, respectively.

Source: Authors' calculations based on the World Trade Analyzer database (CD-ROM).

set composed of 73 major trading countries for 1985, 1990, 1995, and 1997. The data set contains more than 8,000 observations. The model basically states that bilateral trade volume should be positively related to the two economies' size and per capita income, and negatively related to the distance between the two countries. In addition, the two countries usually should trade more with each other if they share a common border and similar cultural background, such as language and colonial linkage.

Results from the gravity model analysis first reveal that countries interested in bilateral FTAs in the Asia-Pacific region show very different trade intensities in their trade with the rest of the world. Table 4.1 shows that

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Korea is a trade-intensive country while the United States is a somewhat trade-deficient country. Korea's trade with its trading partners is estimated to be 183 percent more than what trade would be between two otherwise-similar economies with respect to size, per capita income, distance, and so on.[2] In particular, Korea trades 331 percent more in the manufacturing sector. However, in agricultural products trade, Korea trades 56 percent less than two otherwise-similar economies.

On the other hand, the US dummy variable shows negative coefficients, which, though not statistically significant, indicate the tendency of trade deficiency, except in agricultural products, in which case the United States trades 51 percent more than two otherwise-similar countries. The fact that the coefficients are statistically insignificant from zero could imply that the United States trades roughly as much as one would expect. However, the coefficients estimated for later years (not shown in table 4.1), particularly 1995 and 1997, are statistically significant.[3] One can thus argue that overall there is some room for potential trade expansion for the United States and Korea.

To further investigate bilateral trade between Korea and the United States, we analyzed the status of trade integration between the Asia-Pacific countries interested in bilateral trade blocs (table 4.2). Results show that Korea and the United States are very much integrated in trade, indicated by the positive and statistically significant coefficient estimates for a Korea-US bloc dummy variable. The pooled estimate shows that the trade between the two countries is 301 percent more than what trade would be between otherwise-similar countries. Much of this strong trade relationship between the United States and Korea, however, can be attributed to the close security relationship. In fact, when we analyze the gravity model of trade determinants for the United States only (table 4.3), the coefficient estimate of a dummy variable for strong security relationships is positive and statistically significant. It shows that the United States trades 51 percent more with countries that have close security ties than with otherwise-similar countries without close security ties. It should be noted that, with the security relationship variable in the model, the coefficient estimates for the Korea dummy variable are very small and statistically insignificant, which means that the United States does not trade significantly more with Korea than with otherwise-similar trading partners.

At the same time, when we allow for the two countries' openness toward other trading partners, the level of trade integration weakens

2. This is calculated by taking the antilog of the coefficient estimate, since the dependent variable is in log form, and then subtracting 1 from it.

3. The coefficient estimates for 1995 and 1997, respectively, are -0.25 and -0.51, which are statistically significant at 93 and 99 percent levels, respectively.

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Table 4.2 Trade integration between Asia-Pacific countries: Gravity model estimation[a]

	Pooled		1985		1990		1995		1997	
	Without[e] openness	With[f] openness	Without[e] openness	With[f] openness	Without[e] openness	With[f] openness	Without[e] openness	With[f] openness	Without[e] openness	With[f] openness
GDP[b]	0.91 ***	0.94 ***	0.85 ***	0.88 ***	0.88 ***	0.90 ***	0.95 ***	0.98 ***	0.97 ***	1.01 ***
Per capita GDP[c]	0.21 ***	0.16 ***	0.33 ***	0.29 ***	0.23 ***	0.18 ***	0.20 ***	0.16 ***	0.10 ***	0.07 ***
Distance[d]	−0.83 ***	−0.88 ***	−0.84 ***	−0.91 ***	−0.88 ***	−0.96 ***	−0.80 ***	−0.83 ***	−0.79 ***	−0.83 ***
Culture	0.82 ***	0.77 ***	0.46 ***	0.42 ***	0.89 ***	0.80 ***	0.97 ***	0.92 ***	0.95 ***	0.92 ***
Adjacency	0.30 ***	0.30 ***	0.42 *	0.41 *	0.22	0.19	0.29	0.29	0.29	0.29
Japan-Korea	−0.80 ***	−2.08 ***	0.15	−1.46 ***	−0.70 ***	−2.48 ***	−1.59 ***	−2.40 ***	−1.09 ***	−2.04 ***
Chile-Korea	2.87 ***	1.97 ***	3.03 ***	2.05 ***	2.91 ***	2.20 ***	2.73 ***	1.75 ***	2.87 ***	1.91 ***
Japan-Singapore	1.26 ***	1.36 ***	1.82 ***	1.42 ***	1.49 ***	1.35 ***	0.64 ***	1.26 ***	1.01 ***	1.28 ***
Korea-US	1.39 ***	0.40 **	1.78 ***	0.72 ***	1.74 ***	0.99 ***	0.97 ***	−0.12	1.04 ***	−0.05
Japan-Mexico	−0.24	−0.97 ***	0.48 ***	−0.18	−0.02	−0.60 ***	−0.71 ***	−1.39 ***	−0.70 ***	−1.72 ***
Korea-Mexico	0.75 ***	1.22 ***	0.40 ***	0.59 ***	0.95 ***	1.12 ***	0.67 ***	1.44 ***	1.00 ***	1.72 ***
Japan-Korea openness		−0.19 ***		0.11		−0.55 ***		−0.24		−0.06
Chile-Korea openness		0.67 ***		0.87 ***		0.95 ***		0.46 **		0.47 ***
Japan-Singapore openness		1.70 ***		1.70 ***		1.90 ***		1.54 ***		1.63 ***
Korea-US openness		−0.16 **		−0.01		0.18		−0.33 **		−0.54 ***
Japan-Mexico openness		−1.45 ***		−1.25 ***		−0.95 ***		−1.82 ***		−1.77 ***
Korea-Mexico openness		0.70 ***		0.16		0.31		1.14 ***		1.14 ***
Adjusted R^2	0.73	0.75	0.65	0.67	0.75	0.77	0.77	0.78	0.75	0.77
Number of observations	8,078	8,078	1,857	1,857	1,919	1,919	2,197	2,197	2,105	2,105

a. This analysis focuses only on six prospective bilateral trade blocs in the Asia-Pacific region. Dependent variable is the log of trade value, that is, the sum of the exports and imports. Nondummy explanatory variables are measured as described below. All other variables are dummy variables. The value of the culture variable is equal to 1 if two trading nations share a common language or colonial linkage, and 0 if they do not. The value of the adjacency variable is equal to 1 if two trading nations share a common border, and 0 if they do not. All regressions have an intercept and year dummies for pooled estimation, not reported here.

b. Gross domestic product (GDP) variable is the log of the product of the two countries' GDP.

c. Per capita GDP variable is the log of the product of the two countries' per capita GDP.

d. Distance is the log of distance between two countries

e. Bloc variables take the value 1 if both countries in the pair are in the bloc, and 0 if they are not.

f. Openness variables take the value 1 if the pair includes a country in the bloc, and 0 if it does not.

***, **, * indicate that the coefficients are statistically significant at the 99 percent, 95 percent, and 90 percent levels, respectively.

Source: Authors' calculations based on the World Trade Analyzer database (CD-ROM).

Table 4.3 Determinants of US trade: Gravity model estimation[a]

	All sectors	Agriculture	Raw material	Manufacturing
GDP[b]	0.72 ***	0.51 ***	0.83 ***	0.76 ***
Per capita GDP[c]	0.11 ***	−0.06	−0.17 **	0.19 ***
Distance[d]	−1.47 ***	−1.91 ***	−1.92 ***	−1.25 ***
Culture	0.76 ***	0.64 ***	0.55 ***	0.75 ***
Adjacency	0.71 **	0.19	0.51	1.13 ***
Security[e]	0.41 ***	0.67 ***	0.80 ***	0.37 **
European Union[f]	−0.09	−0.04	−0.65 ***	0.13
Mercosur	0.26	0.35	−0.37	0.57 ***
East Asia	1.76 ***	1.51 ***	1.31 ***	1.99 ***
Korea	0.13	−0.20	0.10	0.19
Adjusted R^2	0.79	0.68	0.66	0.80
Number of observations	256	255	255	256

a. Data cover 1985, 1990, 1995, and 1997. Dependent variable is the log of trade value, that is, the sum of the exports and imports.

Nondummy explanatory variables are measured as described below.

All other variables are dummy variables.

The value of the culture variable is equal to 1 if two trading nations share a common language or colonial linkage, and 0 if they do not.

The value of the adjacency variable is equal to 1 if two trading nations share a common border, and 0 if they do not.

All regressions use OLS (ordinary least-squares) technique and have an intercept and year dummies, not reported here.

b. Gross domestic product (GDP) variable is the log of the product of the two countries' GDP.

c. Per capita GDP variable is the log of the product of the two countries' per capita GDP.

d. Distance is the log of distance between two countries.

e. Security dummy variable takes the value 1 if the United States has a military base in its trading partner country, and 0 if it does not.

f. Regional dummies take the value 1 if the trading partner of the United States is in the region, and 0 if it is not. European Union includes EU-15 countries and East Asia includes ASEAN countries, China, Hong Kong, Japan, Korea, and Taiwan.

***, ** indicate that the coefficients are statistically significant at the 99 percent and 95 percent levels, respectively.

Source: Authors' calculations based on the World Trade Analyzer database (CD-ROM).

significantly. The pooled estimates show that the United States and Korea trade only 49 percent more than two otherwise-similar economies. In addition, when we consider a time trend, we find a general downward trend in coefficient estimates of different years. Estimates even become negative for 1995 and 1997, although they are not statistically significant. This means that there is a trend of weakening trade integration between the United States and Korea. This trend is most significant in manufacturing.[4] For manufacturing, estimates for the Korea-US dummy variable even

4. A test for structural change in coefficient estimates shows that this downward trend is statistically significant from 1985 and 1990 estimates to 1995 and 1997 estimates.

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become negative and statistically significant for 1995 and 1997 (table 4.4). This indicates that the two countries in fact trade less manufactured goods than two otherwise-similar countries.

Thus results from the gravity model analysis show that, for the last several years of the 1990s, trade integration between Korea and the United States has weakened. There could be several reasons. Some exports could have lost their competitiveness and therefore lost market share in the other market. Or perhaps some exports fell due to a rise in trade barriers, or some exporters decided to sell their products elsewhere because of continuing barriers to bilateral trade. In any event, the fact that the two countries' bilateral trade is underperforming implies that the United States and Korea have some room for improvement through an FTA.

Welfare Improvement: GTAP Model Analysis

To understand the potential economic impact of a preferential trading arrangement between the United States and Korea, we use a global, multisectoral model known as GTAP (Hertel 1997).[5] The GTAP model is a competitive computable general equilibrium (CGE) model that has been extensively used in the literature to examine a wide variety of trade policy issues.[6] Distortions in an economic system, such as trade barriers, will often have second-best repercussions far beyond the sector in which those distortions occur. Where the distortions are wide-ranging, a general equilibrium approach is perhaps the only method capable of capturing the relevant feedback and flow-through effects.

In order to carry out our simulations, we first aggregate the GTAP4 data base (McDougall, Elbehri, and Truong 1998) into 10 regions and 10 sectors (table 4.5). We then specify two alternative microeconomic closures of the model. In the first, we adopt a neoclassical approach—fixing the endowments of productive factors and allowing market prices to adjust to maintain full employment. This type of closure is often interpreted as representing the medium run, since it envisages a situation where the existing capital stock is able to move between sectors in response to variations in the rates of return to capital across sectors (which are thereby eliminated). However, the period considered is not long enough for new investment to come online as productive capital. In the second alternative,

5. We are indebted to Professor John Gilbert of Washington State University for running the GTAP model and providing the summary results set out in this section and more fully in appendix B.

6. CGE models have a number of useful features. Most important, the optimizing behavior of economic agents is modeled explicitly through utility and profit-maximizing assumptions. In addition, CGE models differ from other multisector tools of analysis in that economywide constraints are rigorously enforced.

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Table 4.4 Trade integration in manufacturing between Asia-Pacific countries: Gravity model estimation[a]

	Pooled		1985		1990		1995		1997	
	Without[e] openness	With[f] openness	Without[e] openness	With[f] openness	Without[e] openness	With[f] openness	Without[e] openness	With[f] openness	Without[e] openness	With[f] openness
GDP[b]	0.98 ***	1.01 ***	0.93 ***	0.96 ***	0.97 ***	1.00 ***	1.00 ***	1.03 ***	1.03 ***	1.07 ***
Per capita GDP[c]	0.24 ***	0.19 ***	0.36 ***	0.32 ***	0.24 ***	0.18 ***	0.24 ***	0.19 ***	0.15 ***	0.11 ***
Distance	−0.94 ***	−1.01 ***	−0.95 ***	−1.02 ***	−0.98 ***	−1.08 ***	−0.97 ***	−1.02 ***	−0.87 ***	−0.91 ***
Culture	0.79 ***	0.74 ***	0.27 **	0.25 **	0.88 ***	0.80 ***	1.01 ***	0.96 ***	0.97 ***	0.93 ***
Adjacency	0.18	0.17	0.49 *	0.48 *	0.11	0.08	0.01	0.00	0.17	0.17
Japan-Korea	−0.84 ***	−2.44 ***	0.41 **	−1.50 ***	−0.75 ***	−2.85 ***	−1.84 ***	−3.05 ***	−1.15 ***	−2.34 ***
Chile-Korea	3.29 ***	2.02 ***	3.43 ***	1.91 ***	3.39 ***	2.30 ***	3.17 ***	1.93 ***	3.23 ***	1.95 ***
Japan-Singapore	1.48 ***	1.46 ***	2.26 ***	1.62 ***	1.71 ***	1.44 ***	0.76 ***	1.27 ***	1.15 ***	1.40 ***
Korea-US	1.51 ***	0.15	1.98 ***	0.38 *	1.80 ***	0.67 ***	1.10 ***	−0.24 *	1.10 ***	−0.32 **
Japan-Mexico	−0.42 ***	−1.59 ***	−0.11	−1.25 ***	−0.43 ***	−1.48 ***	−0.54 ***	−1.58 ***	−0.65 ***	−2.08 ***
Korea-Mexico	1.09 ***	1.49 ***	0.43 ***	0.52 **	1.28 ***	1.39 ***	1.21 ***	1.86 ***	1.44 ***	2.17 ***
Japan-Korea openness		0.04		0.63 ***		−0.28		−0.20		0.09
Chile-Korea openness		0.58 ***		0.74 ***		0.86 ***		0.45 **		0.35 *
Japan-Singapore openness		1.93 ***		1.86 ***		2.12 ***		1.82 ***		1.87 ***
Korea-US openness		−0.22 ***		−0.11		0.07		−0.30 **		−0.61 ***
Japan-Mexico openness		−1.76 ***		−1.69 ***		−1.28 ***		−1.98 ***		−2.11 ***
Korea-Mexico openness		1.01 ***		0.43 *		0.66 ***		1.40 ***		1.54 ***
Adjusted R^2	0.74	0.76	0.66	0.69	0.75	0.77	0.78	0.79	0.76	0.78
Number of observations	7,863	7,863	1,765	1,765	1,870	1,870	2,152	2,152	2,076	2,076

a. This analysis focuses only on six prospective bilateral trade blocs in the Asia-Pacific region. Dependent variable is the log of trade value, that is, the sum of the exports and imports. Nondummy explanatory variables are measured as described below. All other variables are dummy variables. The value of the culture variable is equal to 1 if two trading nations share a common language or colonial linkage, and 0 if they do not. The value of the adjacency variable is equal to 1 if two trading nations share a common border, and 0 if they do not. All regressions have an intercept and year dummies for pooled estimation, not reported here.

b. Gross domestic product (GDP) variable is the log of the product of the two countries' GDP.

c. Per capita GDP variable is the log of the product of the two countries' per capita GDP.

d. Distance is the log of distance between two countries

e. Bloc variables take the value 1 if both countries in the pair are in the bloc, and 0 if they are not.

f. Openness variables take the value 1 if the pair includes a country in the bloc, and 0 if it does not.

***, **, * indicate that the coefficients are statistically significant at the 99 percent, 95 percent, and 90 percent levels, respectively.

Source: Authors' calculations based on the World Trade Analyzer database (CD-ROM).

Table 4.5 Aggregated regions/sectors used in GTAP model simulations

Region	Sector
Australia and New Zealand	Agriculture, forestry, and fisheries
Japan	Processed food
Korea	Mining and quarrying
China and Hong Kong	Textiles and apparel
ASEAN	Chemicals, rubbers, and plastics
Taiwan	Metals
United States	Transportation equipment
Canada	Electronics
Mexico	Other manufactures
Rest of world	Services

ASEAN = Association of South East Asian Nations.

Source: Model simulations.

we adopt what is often termed a ''steady state'' closure, which is long-run in perspective. In this closure, the rate of return to capital is set exogenously, and the level of the capital stock is allowed to adjust. Adjustment is the length of time required for both the allocation and the level of the capital stock to adapt to a given policy change so as to equilibrate rates of return across sectors and to restore rates of return to their initial levels. The changes under this closure approximate the effect of investment expansion following trade liberalization in a neoclassical model.

The macroeconomic closure used is the standard GTAP closure (fixed current-account simulations are in appendix B)—that is, total global investment is allocated across economies so as to partially equilibrate expected rates of return. Since savings in each economy is a fixed value share of total regional income, this implies that the current account in each region is flexible. The simulation results are very sensitive to the macroeconomic closures.

The simulations are run as comparative static experiments from the base year, 1995. Thus the simulations compare the initial equilibrium (1995 base year) to a new equilibrium that takes into account whatever changes are simulated. The transition from the old to the new equilibrium is not considered. Hence, there is no explicit time dimension to the model; the time frame is represented only indirectly through different assumptions on the adjustments that are allowed to take place when the new equilibrium is determined.

In our analysis, we simulate the formation of a free trade agreement under two alternative scenarios. In the first, we assume that all tariffs are removed between the United States and Korea on a preferential basis. In the second, we assume that only nonagricultural tariffs are removed.

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Tables 4.6 and 4.7 report the estimated net welfare results of the FTA analysis.[7] Table 4.6 presents the overall welfare effects on all economies in the model. The results indicate net welfare gains to both Korea and the United States, under all scenarios. The absolute welfare gains are evenly allocated across both economies, in the range of $1.5 billion to $8.9 billion for the United States and $1.7 billion to $10.8 billion for Korea. As the much smaller economy, Korea obviously has more to gain in proportional terms.[8]

An important result is that virtually all other economies in the model are estimated to lose in net welfare terms under all scenarios—including NAFTA partners. The most substantial welfare losses are to Japan in absolute terms, and to China and ASEAN in proportional terms. This result indicates the presence of trade diversion effects, declines in the terms-of-trade of nonmember economies associated with the switching of imports to preferential trading partner sources.

Table 4.7 reveals the sources of gains from a free trade agreement between Korea and the United States. Not surprisingly, the welfare gains derive from different effects in the two economies.

In the US case, most of the gains are from improvements in the terms of trade. These improvements reflect the benefits of export expansion into the Korean market. Allocative efficiency gains/losses are small, reflecting the relatively low distortion levels in the US economy.

In contrast, for Korea terms-of-trade effects are less significant and in some cases negative. Negative terms-of-trade effects indicate a cost from trade diversion being imposed on the Korean economy (an increase in the true cost of imports to the economy). For Korea, the largest gains come from improvements in allocative efficiency. In the literature this is referred to as the ''Vinerian'' trade creation effect—the benefit associated with replacing inefficient domestic production with imports. This result suggests that Korea has little to gain from an FTA with the United States relative to unilateral liberalization.

Another important result is that the potential gains of a Korea-US FTA are more than halved for both economies if agriculture is excluded from the agreement. This result reflects both the importance of agricultural

7. The welfare measure used is the equivalent variation for each regional household, expressed in millions of 1995 dollars. This can be interpreted as the change in regional household income at constant prices that is equivalent to the effect of the proposed policy change.

8. It is important to note several limitations of the analysis. First, a perfectly competitive model cannot capture certain procompetitive and/or scale effects that may be associated with imperfect competition. Second, the GTAP4 database does not adequately capture services protection data, which may be a major potential source of welfare gains. For these reasons, the results presented here are probably lower-bound estimates of the impact of a free trade agreement.

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Table 4.6 Estimated net welfare effect of a Korea-US FTA on regions[a]

Region	Full liberalization: Medium run	Full liberalization: Long run	Excluding agriculture: Medium run	Excluding agriculture: Long run
Australia and New Zealand	−296.3 (−0.07)	−409.8 (−0.10)	−17.6 (0.00)	10.6 (0.00)
Japan	−2,231.7 (−0.04)	−3,581.9 (−0.07)	−1,170.7 (−0.02)	−1,941.2 (−0.04)
Korea	4,099.6 (0.91)	10,860.7 (2.41)	1,712.2 (0.38)	4,923.4 (1.09)
China and Hong Kong	−486.5 (−0.06)	−927.8 (−0.11)	−427.3 (−0.05)	−666.0 (−0.08)
ASEAN	−519.8 (−0.08)	−850.4 (−0.14)	−278.7 (−0.05)	−509.3 (−0.08)
Taiwan	−267.3 (−0.10)	−467.6 (−0.17)	−83.9 (−0.03)	−157.0 (−0.06)
United States	3,783.4 (0.05)	8,934.6 (0.13)	1,532.4 (0.02)	4,186.1 (0.06)
Canada	−293.4 (−0.05)	−324.3 (−0.06)	−193.3 (−0.03)	−253.7 (−0.04)
Mexico	−138.7 (−0.05)	−379.7 (−0.14)	−94.1 (−0.03)	−306.1 (−0.11)
Rest of world	−2,223.1 (−0.02)	−3,813.9 (−0.03)	−1,169.2 (−0.01)	−1,689.7 (−0.01)
Sum of world	1426.2 (0.01)	9039.9 (0.03)	−190.3 (0.00)	3597.3 (0.01)

ASEAN = Association of South East Asian Nations.

a. Mean equivalent variation in millions of 1995 dollars. Percent of GDP in parentheses.

Source: Model simulations.

market access for the United States and the potential efficiency gains from agricultural trade reform in Korea. Once again, this result shows up clearly in the decomposition presented in table 4.7.

The basic pattern of trade diversion suggested by the welfare results is confirmed by the projected changes in the trade pattern, summarized in table 4.8. A Korea-US FTA allows the United States to substantially increase its exports to Korea (hence the terms-of-trade improvement), but

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Table 4.7 Decomposition of net welfare effect of a Korea-US FTA by country and source of effect[a]

	Full liberalization		Excluding agriculture	
Source	**Medium run**	**Long run**	**Medium run**	**Long run**
United States				
Allocative efficiency	1.8	501.9	94.2	363.5
Terms of trade	3,781.4	2,773.6	1,438.2	866.6
Marginal utility of income	0.2	0.5	0.0	0.0
Growth effect	0.0	5,658.6	0.0	2,956.0
Total	3,783.4	8,934.6	1,532.4	4,186.1
Korea				
Allocative efficiency	2,634.1	3,902.3	266.5	879.9
Terms of trade	1,509.5	−120.1	1,445.9	646.4
Marginal utility of income	−44.0	−85.8	−0.2	−1.4
Growth effect	0.0	7,164.3	0.0	3,398.5
Total	4,099.6	10,860.7	1,712.2	4,923.4

a. Mean equivalent variation in millions of 1995 dollars.

Source: Model simulations.

the corresponding increase in imports to Korea has a strong tendency to displace imports from other sources. Korean exports to the United States also increase sharply, but US imports from other APEC countries (except China and Hong Kong) also grow due to US income gains. Similarly, efficiency gains allow Korea to expand exports to Japan, China, and ASEAN countries under several scenarios.

Other Economic Benefits

There are other economic gains that could result from an FTA other than static efficiency gains. One of the important benefits is economies of scale.[9] With further specialization of production and more trade, producers in FTA partner countries can achieve greater economies of scale. Thus economies of large-scale production would improve efficiency in the long run. In this sense, an FTA may improve efficiency in the long run even if it mainly results in trade diversion. In fact, gains from increased economies of scale could be one of the key reasons the United States, and especially Korea, should pursue an FTA.

9. The improvement in efficiency through economies of large-scale production resulting from an FTA was originally recognized by Viner, but as a minor factor. However, over the past half-century, many empirical and theoretical studies have shown that economies of scale is one of the key issues in discussing FTAs. For example, for a treatment of US-Canada FTA's gain in efficiency from economies of scale, see Harris (1985) and Wonnacott and Wonnacott (1967).

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Table 4.8 Effect of a Korea-US FTA on US and Korean trade volumes by region (percent change)

	Full liberalization				Excluding agriculture			
	Medium run		Long run		Medium run		Long run	
Region	**Export**	**Import**	**Export**	**Import**	**Export**	**Import**	**Export**	**Import**
United States								
Australia and New Zealand	−1.6	1.7	−1.1	1.2	−0.6	0.0	−0.3	−0.1
Japan	−1.8	0.8	−1.5	0.4	−0.5	0.3	−0.4	0.1
Korea	46.1	26.2	49.4	30.3	22.1	23.8	23.3	25.5
China and Hong Kong	−2.2	−0.6	−2.0	−0.8	−0.6	−0.9	−0.5	−1.0
ASEAN	−1.6	0.3	−1.3	0.0	−0.6	−0.3	−0.5	−0.4
Taiwan	−1.6	0.0	−1.4	−0.1	−0.6	−0.4	−0.4	−0.4
Canada	−0.8	0.1	−0.6	0.0	−0.4	−0.1	−0.3	−0.1
Mexico	−0.8	0.0	−0.7	−0.2	−0.4	−0.1	−0.3	−0.2
Rest of world	−1.6	0.1	−1.2	0.0	−0.6	−0.2	−0.4	−0.3
Korea								
Australia and New Zealand	−3.8	−14.3	−0.4	−12.8	−3.2	0.4	−1.5	1.4
Japan	0.6	−3.3	3.2	−1.7	−3.3	−4.0	−2.0	−3.3
China and Hong Kong	1.0	−2.0	3.7	−0.2	−3.1	−0.2	−1.7	0.7
ASEAN	−2.1	−8.9	0.7	−7.2	−2.9	−2.4	−1.4	−1.4
Taiwan	−2.4	−2.5	0.4	−0.8	−3.0	−2.8	−1.6	−1.9
United States	26.2	46.1	30.3	49.4	23.8	22.1	25.5	23.3
Canada	−1.9	−5.6	1.0	−3.7	−2.8	−2.6	−1.4	−1.6
Mexico	−2.0	−4.9	0.7	−3.3	−2.6	−1.4	−1.2	−0.6
Rest of world	−3.0	−4.3	0.5	−2.5	−3.3	−1.7	−1.5	−0.8

ASEAN = Association of South East Asian Nations.

Source: Model simulations.

Another key benefit from an FTA is having more secure access to the other market. This would be very important, particularly for Korea, since exports to the United States take up about 20 percent of total Korean exports, which in turn represents about one-third of Korea's GDP. This means that exports to the United States contribute about 7 percent to the total GDP of Korea. Thus it is very important for Korea to secure US market access. That was in fact one of Canada's key goals in pursuing free trade talks with the United States—Canadian manufacturers were worried about the prospects of suddenly losing market access, particularly from countervailing duties, to the US market.[10] Canada was only partially successful in achieving its objectives. For Korea, this problem is even more important since Korea has no preferential trading arrangement with any country and many Korean exports often face sudden changes in access to the US market, particularly from antidumping and countervailing duties. For example, in the recent US section 201 case involving import curbs on wire rod and line pipe, Canada and Mexico were excluded from the remedies in both cases under special rules that apply to NAFTA signatories.[11] The country most affected by the line pipe decision was Korea.[12] Not surprisingly, Korea is contesting NAFTA's special safeguard rules in a WTO dispute settlement case.

An FTA could also help ameliorate a balance of payments problem. Having trade discrimination and diversion as a result of an FTA may in fact be beneficial to FTA partner countries. In the case of a Korea-US FTA, it is generally expected that the increase of US exports to Korea would exceed the increase of Korean exports to the United States since US trade barriers currently are already low and definitely lower than those of Korea. However, some of this increase in US exports to Korea would come from trade diversion from Japanese products imported into Korea. At the same time, some of the increase in Korean exports to the United States would come from trade diversion of imports from Japan or Taiwan.[13]

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10. See Wonnacott and Lutz (1989) for more discussion of the Canada-US FTA.

11. Signatories of NAFTA receive special treatment in section 201 cases. Under section 802 of NAFTA, signatories must be excluded from a global section 201 petition if they are not among the top five suppliers to a market and if they do not contribute importantly to serious injury individually. A party shall normally be deemed to be such a contributor if the growth rate of its imports is appreciably lower than the growth rate of imports from all sources. NAFTA also provides improved procedures for consultation and dispute settlement in cases involving antidumping and CVDs.

12. Korea accounts for about half of all US line pipe imports and for about 87 percent of the 1998 import surge of line pipes. In this particular case, therefore, Korea would not have been excluded from a section 201 petition even if Korea had an FTA with the United States on the same terms as NAFTA.

13. The issue of trade diversion is discussed in the next chapter.

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For the United States, an FTA with Korea would have the short-run effect of improving its trade balance with Korea, and with Japan and Taiwan as well. In the long run, of course, the investment and income effects of the FTA could have the opposite impact. In fact, GTAP model simulation results show that expansion of US income tends to increase US imports from Japan and Taiwan and thereby worsen the US trade balance with those countries (see appendix table B.17).

For Korea, its trade balance with the United States would worsen, but its trade balance with Japan would improve. In this case, the net effect of a Korea-US FTA on the overall trade balance of Korea could be either positive or negative, depending on magnitudes of trade creation and diversion. Even if the net effect turns out to be negative, not only should it be small due to the negating effect of trade diversion on the trade balance, but it could still be beneficial to Korea in terms of its management of trade relations with the United States and Japan. Korea has often been under trade pressure from the United States because of its chronic trade surplus with the United States (except for 1995–97). On the other hand, Korea has had a chronic and severe trade deficit with Japan. In fact, Korea even tried to artificially divert imports from Japan to other countries under the "import source diversification system" for many years.[14] An FTA with the United States could enable Korea to naturally divert imports from Japan to the United States, thereby mitigating the problem of trade imbalances with the United States and Japan. GTAP model simulations confirm this point (see appendix table B.19). For Korean trade officials, it would be like killing two birds with one stone.

To this point, the analysis has dealt primarily with tariff liberalization, but an FTA would cover a broader array of trade reforms. In addition to eliminating tariffs, an FTA would also cover a wide range of nontariff barriers and other economic issues, including investment, standards, rules of origin, government procurement, intellectual property rights, and competition policy. A liberalized investment regime and services trade would unleash higher efficiency and productivity, and generate faster growth for both economies. Therefore, an FTA would have a long-run dynamic effect. For example, through increased direct investment from the United States and new industrial alliances, many Korean firms could benefit from technology transfer.[15] Many US firms could also benefit from having strategic alliances with Korean firms, thereby using Korea as a base for

14. This import control program in Korea, introduced in 1978 under article 25 of the Enforcement Ordinance of the Foreign Trade Act, allows the government to control imports from a country with which Korea has a severe and chronic trade deficit. For example, in 1994, the importation of some 230 Japanese products (in the 10-digit harmonized system classification) was restricted by this program. During Uruguay Round negotiations, Korea agreed to phase out this program by the end of 1999. As part of the IMF program during the recent economic crisis, Korea moved up its phaseout timetable to the end of June 1999.

15. See Choi and Hyun (1991) for empirical evidence of FDI's positive effect on productivity through technology transfer in Korean industries.

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further expansion of their activities in China, North Korea, and other Asian markets. In addition, the US firms would enjoy a larger market for their service exports, which would narrow the US deficit.[16] For Korea, there is an additional benefit, in that an FTA could spur its ongoing domestic reform program and stimulate further economic reform.

Other Political Benefits

Aside from the economic benefits of an FTA, the United States and Korea have another common interest that an FTA could reinforce: a strong security relationship. They have been close military allies for the last 50 years. Forming an FTA would bring the two countries much closer not only in their economic relations (by reducing bilateral trade frictions and reinforcing trade and investment linkages) but also in their political and security relationships.

Indeed, political objectives often have driven US participation in FTA negotiations. The US-Israel FTA in the early 1980s was the first and clearest example of this trend. Congressional support for NAFTA arguably hinged on broad concerns about immigration and US security interests and democracy in Central America. Similarly, US support for trade preferences under the Caribbean Basin Initiative (CBI) was based to a significant extent on the goal of resolving the migration and drug trafficking problems in that region. More recently, the US-Jordan FTA, signed 24 October 2000, seeks to strengthen the economic foundation for Jordan's participation in the peace process in the Middle East.

For similar reasons, strengthening the Korea-US political and security relationship could provide over time much more important benefits than the economic gains from an FTA. The trade pact could be particularly valuable if the thaw in North-South Korean relations is sustained—both as a show of US support for peaceful relations in Northeast Asia and as a means of ensuring that South Korea has the means to advance that process.

16. See Mann (1999) for more discussion.

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