

The Effect of Free Trade Agreement (FTA) on Small Open Economics: Implications for the Korea – US (KORUS) FTA

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Given that the KORUS / Korea-EU agreement has not been long put into effect and Korea-China agreement is not ratified, in order to extrapolate the effect of the KORUS FTA on Korea, the study explores simulation of economic effects of free trade agreements between Korea and advanced economies in the recent past. Combining results from previous research, the study draws economic effects and implications of KORUS FTA on Korea. In general, the Korean economy will achieve a quantitative economic expansion to a greater or lesser degree through KORUS FTA. We can find similar results on the research of KOREU and Korean-China FTA. FTA between a relative smaller open economy and a bigger market economy will give a driving force of economic growth on the functioning of the relatively small and open economies.

The Effect of Free Trade Agreement (FTA) on Small Open Economies: Implications for the Korea – US (KORUS) FTA.

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1. Introduction

Free Trade Agreement is a Preferential Trade Agreement which relaxes tariff and non-tariff barriers to trade between members who have contracted agreement. The Republic of Korea (Korea) and the US had started their first free trade agreement on April 2007 and renegotiation continued until December 2010. Finally, the KORUS FTA took effect on March 2012. Despite the long negotiation time, the KORUS FTA is still a subject of hot political and economic debate particularly among the Korean society. Supporters of the KORUS FTA argue that the agreement will enhance the advancement of the Korean economic system, the volume of trade, investment, and would lead to job creation. On the other hand, opponents stress that Korean economy could quickly and easily become subordinated to the US economy, making particularly the manufacturing, agriculture, and service business are falling. Above all, they capitulate that it would lead to increased polarization of wealth among Koreans (Ahn, 2008). The KORUS FTA is a turning point in the Korean Economy.

Given the positive as well as the negative effects of FTA, the study hypothesizes that an FTA between a relatively smaller open economy such as Korea and a highly advanced and larger market economy (such as the USA) is likely to place a greater social and economic strength or burden on the functioning of the relatively small and open economies. **The main objective of this research is, therefore, to examine the economic effects of the US-Korea FTA.**

In order to examine the research objective, the study looks at modern Korean economy and the economic relationship between Korea and US. Figuring out the overall backgrounds of KORUS FTA helps to analyze the economic effect of KORUS FTA. The study checks the general effect of FTA based on two typical analysis methods. The study also collects relevant reviews on FTA agreements between a number of relatively small open economies including Korea and large (advanced) economies such as the US, the EU and China in order to assess the changes in the growth of GDP and related measures of socio-economic variables between the parties to the identified agreements. Given that the KORUS / Korea-EU agreement has not been long put into effect and Korea-China agreement is not ratified, in order to extrapolate the effect of the KORUS FTA on Korea, the study explores simulation economic effects of each agreement in the recent past. Combining results from previous research, the study draws economic effects and implications of KORUS FTA on Korea.

The paper works on the following manner: Section 2 reviews the Korean economy and backgrounds of KORUS FTA. Section 3 provides the economic effect of general FTA. Section 4 discusses the review of three agreements (KORUS / Korea-EU / Korea-China). Section 5 provides the conclusion of economic implication about KORUS FTA.

2. The Korean Economy and Backgrounds of KORUS FTA

2.1 The Korean Economy History

In the early 1960s, the Korean government tried to promote high economic growth through a rapid industrialization. The main goal of the industrialization program was to change the economy

from one that is largely agricultural to exported-oriented economy. During the 70s, the Korean government promoted heavy and chemical industry to increase the export competitiveness of Korean manufacturing industries. In the 1980s, Korea introduced market liberalization owing to product improvement and industry innovation. Consequently, during the 60s and 80s, the Korean economy maintained an annual economic growth rate of six to eight percent. The Korean economy, however, faced its greatest challenge during the Asian financial crisis. The bankruptcy of six major companies caused the financial crisis in 1997. To overcome the crisis, the Korean economy adapted global capitalist standard system since 1997. Thus, it had to accept economic reforms which opened its markets to foreign capital. The rapid foreign capital influx and deregulation of financial market brought about economic recession in 2003. As a result, the Korean economy has experienced a long-term economic recession with a short business recovery. The table 1 depicts the economic performances of the Korean economy over the period 2005-2010.

Table 1: Korea's main economic indicators

| | Nominal GDP (billion) | Gini's coefficient | Real growth rate | Unemployment rate | Consumer price rate | Current account |
|------|-----------------------|--------------------|------------------|-------------------|---------------------|-----------------|
| 2005 | 8,447 | 0.281 | 4.0% | 3.7% | 2.8% | 186.1 |
| 2006 | 9,511 | 0.306 | 5.2% | 3.5% | 2.2% | 140.8 |
| 2007 | 10,493 | 0.312 | 5.1% | 3.2% | 2.5% | 217.7 |
| 2008 | 9,309 | 0.314 | 2.3% | 3.2% | 4.7% | 32.0 |
| 2009 | 8,344 | 0.314 | 0.3% | 3.6% | 2.8% | 327.9 |
| 2010 | 10,143 | 0.310 | 6.2% | 3.7% | 3.0% | 293.9 |

Source: Bank of Korea (Economic statistic system): http://ecos.bok.or.kr/flex/Key100Stat_k.html

2.2 The recent trade agreements of The Republic of South Korea

Korea is one of the major open economic countries which actively pursue FTA. According to the report from Korea's Ministry of Foreign Affairs (2012) between 1999 and 2012, South Korea has effectively negotiated about eight FTA agreements with a dozen countries, the latest being with the USA. Korea is now negotiating eight and studying seven FTA agreements with other countries.

Table 2: List of Korea's Trade Agreements

| Process Phase | Trade Partner | Process Situation |
|------------------------------|---------------|--|
| The effectuation of a treaty | Chile | Dec, 99 Opening negotiation / Apr, 04 Effectuation |
| | Singapore | Jan, 04 Opening negotiation / Mar, 06 Effectuation |
| | EFTA | Jan, 05 Opening negotiation / Set, 06 Effectuation |
| | ASEAN | Feb, 02 Opening negotiation / Set, 09 Effectuation |
| | India | Mar, 06 Opening negotiation / Jan, 10 Effectuation |
| | EU | May, 07 Opening negotiation / Jul, 11 Effectuation |
| | Peru | Mar, 09 Opening negotiation / Aug, 11 Effectuation |
| Sign | U.S. | Jun, 06 Opening negotiation / Dec, 10 Renegotiation settlement |

Source: Ministry of Foreign Affairs and Trade (Korea)

2.3 Background of Korea-US FTA

The U.S. is an important trade partner for Korea. Korea is one of the resource poor

economies while U.S. has an economic superpower and a huge consuming market. Korea's trade balance with the U.S. has recorded the black-ink balance since 2000. The table below presents a summary of Korea's trade performances with the USA.

Table 3: Annual U.S-Korea Merchandise Trade

| Year | U.S Export | U.S Imports | Trade balance | Total trade |
|------|------------|-------------|---------------|-------------|
| 1990 | 14.4 | 18.5 | -4.1 | 32.9 |
| 1995 | 25.4 | 24.2 | 1.2 | 49.6 |
| 2000 | 26.3 | 39.8 | -13.5 | 66.1 |
| 2003 | 22.5 | 36.9 | -14.1 | 59.5 |
| 2004 | 25.0 | 45.1 | -20.1 | 70.1 |
| 2005 | 26.2 | 43.2 | -17.0 | 69.4 |
| 2006 | 30.8 | 44.7 | -13.9 | 75.5 |
| 2007 | 33.0 | 45.4 | -12.4 | 78.4 |
| 2008 | 33.1 | 46.7 | -13.6 | 79.8 |
| 2009 | 27.0 | 38.7 | -11.7 | 65.7 |
| 2010 | 38.0 | 48.9 | -10.9 | 86.9 |

Source: 1990 and 1995 data from Global Trade Information services. 2000-2008 data from U.S International Trade Commission. The 2000-2010 U.S export data are for U.S domestic exports and the data for U.s imports are for imports on a consumption basis.

Table 4: Asymmetrical Economic Interdependence (2010)

| | Total Trade | Export Market | Source of Imports | Source of FDI |
|---------------------------|-------------|---------------|-------------------|---------------|
| For the U.S (Korea ranks) | #7 | #8 | #7 | #16 |
| For Korea (U.S. ranks) | #3 | #2 | #3 | #1 |

Source: U.S Department of Commerce, U.S Census Bureau and Bureau of Economic Analysis; Bank of Korea

Given Korus FTA enters into force, 95% of Korus trade products will be taken away within five years and all remaining tariffs will be phased out within ten years. Main objective of the U.S. is to get access to the Korea market for agricultural, pharmaceutical and medical products with low or zero tariffs. At present, the average U.S. tariff on Korea's imports is 3.5% while Korea's tariffs on imports from the U.S. are 17.0%. The main objective of from FTA with the US is to get a stable market share of the U.S. compared to other countries especially China. In addition, it also wants to increase competitiveness in its service industry. In the past, Korea has focused on expanding the manufacturing industries with the purpose of developing its export-sector. Consequently, the service industry has a relatively low competitiveness compared to manufacturing industries. The Korean government offers market dynamic to their service industry through Korus FTA.

3. The general effect of FTA

In general, there are two typical analysis methods on the effects of FTA. One is general equilibrium models with the simulation approach to predict the economic effects of FTA. This approach uses a static computable general equilibrium (CGE) or a dynamic general equilibrium model (Lee et al. 2008). Another is gravity model to investigate bilateral trade flows. Gravity model has been generally used to analyze trade flows among customs unions in respect of GDP, distance, and other

factors (Anderson and Wincoop. 2003). Most studies of economic analysis of FTA are based on two methodologies.

First, the economic effects of FTA by using gravity model can be grouped into two categories: Positive impacts and mixed results. In terms of positive impacts case, Lee et al (2008) argue that RTA has positive effect on global trade by using the gravity model to analyze the effect of proliferating regional trading blocs on global trade with dataset of 175 countries from 1948 to 1999. According to their study, RTA improves global trade by increasing intra-bloc trade, however, the net trade effect depends on RTA forms. Shin et al (2006) specifically provide that RTA contributes productivity to the economy with empirical analysis. Analyzing 128,658 bilateral trade datasets in the period between 1970 and 2000, they find that RTA increases 0.099 percent of economic productivity when the real opening extent of economy rise 1 percent. Shin and Lee (2005) support RTA would increase trade volume from members and nonmembers through East Asian RTAs case. Other papers are fence sitters on the effects of RTA by using gravity model. Dee and Gali (2005) suggest that Preferential Trade Agreement (PTA) would produce economic profits with the nontrade provisions of third wave-PTAs while PTA would also influence economic damage from the preferential nature of the trade provisions. Rose (2003) shows that it is difficult to say that GATT/WTO membership has positive effects on trade based on 83 sets of estimates from WTO/GATT countries. Frankel and Wei (1998) argue the effect of RTAs is mixed. They also emphasize that the characteristics of FTA is the key element to influence trade diversion and creation.

Second, the economic effects of RTA by using CGE model can be divided into two parts: positive impacts and negative impacts. Robinson and Thierfelder (1999) prove that trade creation is much bigger than trade diversion by using CGE models. He also finds that welfare effects on RTA members will increase as RTA expands. Park (2006) finds that RTA has positive effects on welfare and trade creation to existing RTAs members by using CGE models. On the other hand, Panagariya (1999) argue that RTA has negative effects on world trade liberalization and welfare RTA member countries. Furthermore, Lloyd and Maclaren (2004) suggest that RTA has exacerbated trade gaps between advanced countries and developing countries.

Taken together, it is inconclusive that FTA has positive or negative effects on economy. An implication of these findings is that the economic effects of FTA depend on the type of FTA, regional characteristics and economic standards between members.

4. The review of three agreements

4.1 KOREU FTA

Korea and the EU signed the bilateral FTA on October 6, 2010. Korea and the EU free trade agreement (KOREU FTA) is the most similar FTA to KORUS FTA. Both the U.S and EU are major economic superpowers. Also, KOREA and KORUS FTA have included similar tariff elimination on most trade goods. In this respect, the economic research of KOREU FTA has important implications to analyze the economic effect of KORUS FTA. Most studies predict that KOREU FTA will increase Korea's GDP 1-2 percent (Cooper et al, 2011).

For example, Copenhagen Economics (2007) used CGE models including GTAP 6.2 with data from 2001 to analyze the economic effect of KOREU FTA. They assumed three possible conditions. Partial one trade agreement is the 40 percent tariff reduction on food, full tariff reduction on non-food and 25 percent tariff reduction on service sectors. Partial two trade agreement is the 40 percent tariff reduction on food, full tariff reduction on non-food and 50 percent tariff reduction on service sectors. Full trade agreement is the full tariff reduction on food, non food and on service

sectors. According to the results by Copenhagen Economics, full trade agreement will increase Korea's GDP, by 1.6 % and the EU's GDP by 0.3%. It will also boost change in the value of exports 20.8 percent and 0.9 percent of Korea and the EU. The economic effects of Partial one and two trade agreement, on the other hand, are less effective than the full trade agreement. Two partial trade agreements will increase Korea's GDP by 0.6 and 0.8 percent, respectively.

On the other hand, the Korean Economic Research Institute (2009) used a KERI-CGE mode, a complete dynamic CGE model. The change of demand and supply of goods, investment, saving and capital accumulation is based on endogenous growth theory. They assumed six scenarios depending on the reduction tariff rates of agriculture and manufacturing sectors and endogenous growth theory.

Table 5: Scenario by KERI

| Model | Scenario | Conditions |
|--------------------------|------------|---|
| Growth Model | Scenario 1 | Full tariff elimination on agriculture and manufacturing sectors |
| | Scenario 2 | Full tariff elimination on agriculture and manufacturing sectors and 50 percent elimination of trade barriers on service sectors |
| | Scenario 3 | 50 percent tariff elimination on agriculture, full tariff elimination manufacturing sectors and 50 percent elimination of trade barriers on service sectors |
| Endogenous growth theory | Scenario 4 | Full tariff elimination on agriculture and manufacturing sectors |
| | Scenario 5 | Full tariff elimination on agriculture and manufacturing sectors and 50 percent elimination of trade barriers on service sectors |
| | Scenario 6 | 50 percent tariff elimination on agriculture, full tariff elimination manufacturing sectors and 50 percent elimination of trade barriers on service sectors |

Source: Choi and Song (2009)

According to the simulation results by KERI, KOREU FTA will increase Korea's GDP by 1.28-3.57 percent and increase Korea's employment rate by 0.51-1.58 percent. Above all this, Korean economy can gain a large scale of export growth from 4.32 to 8.83 percent though KOREU FTA. On the other hand, KOREU FTA will have a marginal effect on the EU. The EU will increase their GDP by less than 0.4 percent and gain an increase employment rate by 0.23 percent at its maximum.

Table 6: The Economic effects of KOREU FTA

| | | Growth Model | | | Endogenous Growth Model | | |
|-------|------------|--------------|-------|-------|-------------------------|-------|-------|
| | | SCN 1 | SCN 2 | SCN 3 | SCN 4 | SCN 5 | SCN 6 |
| Korea | GDP | 1.28 | 2.97 | 2.95 | 1.87 | 3.59 | 3.57 |
| | Export | 4.32 | 8.75 | 8.75 | 4.40 | 8.83 | 8.83 |
| | Employment | 0.51 | 1.18 | 1.16 | 0.91 | 1.60 | 1.58 |
| EU | GDP | 0.023 | 0.091 | 0.092 | 0.292 | 0.359 | 0.360 |
| | Export | 0.190 | 0.451 | 0.449 | 0.319 | 0.580 | 0.578 |
| | Employment | -0.002 | 0.029 | 0.030 | 0.200 | 0.230 | 0.231 |

Source: Choi and Song (2009), Unit is percent

4.2 Korea-China FTA

The Korean government is pursuing an FTA with China. China has risen rapidly as the global economic power with the U.S. and the EU. Also, China accounts for a greater and greater portion of

Korea's external trade. In this regard, the economic research of Korea-China FTA has also significant implications to evaluate KORUS FTA similarly as KOREU FTA. The Korea Institute for International Economic Policy (KIEP)) for example, used two CGE models to estimate the economic effects of the Korea-China FTA. First is a static model with short-run economic effects. Second is a capital accumulation model that captures investment and higher savings produced by the static gains including short-run economic effects. They also set two scenarios; one is full elimination of tariff and non tariff barriers in manufacturing goods and second is a 50 percent reduction of trade barriers in services including scenario one.

Table 7: Effect of a Korea-China FTA (Unit: %)

| | Static Model | | | | |
|-------------|----------------------------|---------|--------|--------|-------|
| Scenario I | GDP | Welfare | Export | Import | ToT |
| Korea | 2.433 | 1.132 | 4.756 | 5.152 | 1.235 |
| China | 0.395 | 0.073 | 3.537 | 4.732 | 0.154 |
| Scenario II | | | | | |
| Korea | 2.472 | 1.164 | 4.787 | 5.182 | 1.237 |
| China | 0.401 | 0.084 | 3.561 | 4.763 | 0.154 |
| | Capital Accumulation Model | | | | |
| Scenario I | GDP | Welfare | Export | Import | ToT |
| Korea | 3.132 | 2.989 | 5.433 | 5.858 | 0.942 |
| China | 0.584 | 0.593 | 3.733 | 4.944 | 0.128 |
| Scenario II | | | | | |
| Korea | 3.174 | 3.030 | 5.477 | 5.903 | 0.903 |
| China | 0.594 | 0.603 | 3.863 | 4.980 | 0.127 |

Source: Lee et al (2005)

According to the economic results of Korea-China FTA, Korean economy will gain a 2.4 percent increase of GDP growth and a 1.1 percent increase of welfare growth based on the Static Model while The Chinese economy will gain small economic effects less than 1 percent. When applying the Capital Accumulation Model, a Korea-China FTA will increase Korea's GDP by 3.1% and China's GDP 0.5%. Regardless of types of model, Korea can get more economic effects from a Korea-China FTA. Another thing, the import growth will exceed the export growth for both countries.

Similarly, the Samsung Economic Research Institute (SERI) used two CGE models to analyze Korea-China FTA; GTAP Basic Model and Capital Accumulation Model. They set three scenarios for different situations. Scenario one is full elimination of import tariffs in manufacturing sectors and a 50 percent reduction on imports tariff in agriculture sectors. Scenario two is the liberalization of manufacturing and agricultural sectors. Scenario three is a 50 percent reduction in import tariffs in service sectors including scenario one.

Table 8: Effect of a Korea-China FTA (Unit: %)

| | Scenario 1 | | Scenario 2 | | Scenario 3 | |
|----------------|--------------|-----------|--------------|-----------|--------------|-----------|
| | Static Model | C.A Model | Static Model | C.A Model | Static Model | C.A Model |
| GDP Growth | 2.02 | 2.72 | 2.02 | 2.76 | 2.89 | 4.00 |
| Welfare Growth | 0.64 | 1.25 | 0.69 | 1.34 | 1.11 | 1.98 |

Source: Park et al (2011)

According to Scenario 1, Korea's GDP will increase by a 2.02-2.72 % based on the Static and Capital accumulation models. Scenario 2 applying the liberalization of agricultural products has no difference from Scenario 1. The Korean economy will gain a 2.89-4.00 % of GDP growth by Scenario 3. Along with these changes, Korea-China FTA will increase by a 0.64-1.98 % in the welfare growth of Korean economy (Park et al, 2011).

4.3 KORUS FTA

4.3.1 Previous Research of KORUS FTA

The economic analysis of KORUS FTA has been conducted since the mid 90s. An economic result of previous research prior to 2005, predicted that the GDP growth rate of Korea will increase more than the GDP growth rate of the U.S. KORUS FTA will increase Korea's economic welfare from \$1.6 billion to \$4.8 billion in respect to a comparative static model. The U.S. economy will increase from \$2.7 billion to \$19.6 billion in terms of comparative static model. Since 2005, most economic studies of KORUS FTA have also produced similar results.

Table 9: Comparison of GTAP modeling results for economic welfare in KORUS FTA (billions of dollars)

| Research | Comparative Static results | Comparative Static Results (including FDI) |
|-------------------------|-------------------------------|--|
| Cheong and Wang (1999) | | |
| Korea | \$4.8 billion (1.7% of GDP) | |
| U.S. | \$3.7 billion (0.7% of GDP) | |
| McDaniel and Fox (2001) | | |
| Korea | \$3.9 billion (0.69% of GDP) | |
| U.S. | \$19.6 billion (0.23% of GDP) | |
| Choi and Schott (2001) | | |
| Korea | \$4.1 billion (0.91% of GDP) | \$10.9 billion (2.41 % of GDP) |
| United States | \$ 3.8 billion (0.03% of GDP) | \$8.9 billion (0.13 % of GDP) |
| Choi and Schott (2004) | | |
| Korea | \$1.6 billion (0.37% of GDP) | |
| U.S. | \$2.7 billion (0.03% of GDP) | |

Source: Research Seminar in International Economics

4.3.2. The analysis of KORUS FTA by KOREA Institute for International Economic Policy

The KIEP used the CGE model to analyze a quantitative evaluation of the effects of a KORUS FTA. They adapted the Global Trade Analysis Project (GTAP) model with 13 sectors (Korea, U.S, EU, China, and Japan) from five regions of the world economy. They assumed two possible scenarios. Scenario 1 is the 80 percent liberalization in the agricultural sector, full removal of tariffs manufactured goods and 20 percent reduction in trade barriers in services. Scenario 2 is the 80 percent liberalization in the agricultural sector, full removal of barriers in manufactured goods and 50 percent reduction in trade barriers in services.

Table 10: Effects on KORUS FTA on Korean Economy

| | Static model | | Dynamic model (capital accumulation CGE model) | |
|-----------------------------|--------------|------------|---|------------|
| | Scenario 1 | Scenario 2 | Scenario 1 | Scenario 2 |
| GDP (%) | 0.42 | 0.59 | 1.99 | 2.27 |
| Consumption Expenditure (%) | 0.57 | 0.65 | 1.64 | 1.85 |
| Welfare (million \$) | 2,374 | 2,717 | 6,815 | 7,698 |

Source: Lee and Lee (2005)

According to the economic results of KORUS FTA, The Korean economy can gain a 0.42-0.59 percent increase of GDP growth and \$ 2,374 -2,717 million economic welfares based on static model. In terms of dynamic model, The Korean economy can gain a 1.99-2.27 percent increase of GDP growth and \$ 6,815-7,698 million economic welfares. Additionally, Korus FTA would create about 50 thousand jobs in the short term and 78 thousand jobs in the long term in the Korean labor market (Lee and Lee 2005).

4.3.3 Kiyota and Stern (2007)

Kiyota and Stern used the Michigan Model; CGE model incorporates 27 economic sectors of 30 countries or regions. The Michigan Model includes new trade theory with increasing returns to scale, product variety and monopolistic competition. Kiyota and Stern, 2007 found that Korus FTA will increase Korea's economic welfare by \$9.28 billion (1.26 percent of GDP), with \$4.48 billion coming from manufactures industries and \$5.46 billion from services industries. U.S economic welfare will be increased by \$25.12 billion (0.14 percent of GDP), with \$7.27 billion from services industries. They also found that Korus FTA has created the \$ 41.0 billion global welfare increases, which has a greater effect than other FTAs.

4.3.4 Korean National Assembly economic report (2007)

Eleven national economic institutions analyzed the economic effect of KORUS FTA by using CGE model. They studied the economic effect of KORUS FTA with short term and long term effect. Short term effect is reflected partial tariff elimination. The Long term effect included the complete tariff elimination with the fixed productivity.

Table 11: Effect on KORUS FTA to Korean Economy

| | Short term effect | Long term effect with capital accumulation | |
|-----------------------|-------------------|--|------------------------|
| | | Fixed Productivity | Increased Productivity |
| GDP (%) | 0.32 | 1.28 | 6.0 |
| Welfare (%) | 0.24 | 0.56 | 2.9 |
| Employment(thousands) | 57 | 83 | 336 |

Source: Korean National Assembly economic report (2007)

The National Assembly economic report (2007) by eleven economic research institutions in Korea predicts positive economic effects: 0.3 millions in job creation, 6% rise in GDP and 4.6 billion dollars in trade surplus in terms of the growth of productivity by an accumulation of capital. Without consideration of the growth of productivity, Korus FTA will increase Korea's GDP by 1.28% and job creation by 83 thousands. In terms of short term effect, the Korean economy will gain 0.32 percent of GDP growth and 57 thousand new employment opportunities.

4.3.5 Ko (2006)

Jonghwan Ko, a professor at Pukyong National University, used dynamic CGE model to estimate the economic effect of KORUS FTA. This model incorporates 5 main variables of production: capital land, natural resources, intermediate inputs, skilled labor and unskilled labor. He assumed that capital and labor are used by all parts and land and natural resources are used in particular parts. In order to do effective analysis of KORUS FTA, he supposed four different scenarios. Scenario one is the 10 percent reduction on imports tariff in manufacturing sectors. Scenario two is the agricultural liberalization including scenario one. Scenario three is the agricultural liberalization and 2.5 percent reduction on import tariffs in service sectors including scenario one. Scenario four is the agricultural liberalization and 5 percent reduction on import tariffs in service sectors including scenario one. According to his simulation, scenario one and scenario two will increase by 0.72 and 0.45 percent of GDP growth respectively. Scenario three and scenario four, however, will decrease by 1.28 and 4.93 percent of GDP growth. In regard to economic effect, all scenarios will decrease welfare economic effects except scenario one. Moreover, the Korean economy will record a trade deficit with the U.S on all scenarios.

5. Conclusion

According to most simulation results, KORUS FTA will have positive effects on Korean economy. The GDP of Korea will increase by 0.42 % and 1.28 based on the Static Models. By using dynamic models, Korea will get higher GDP increase by 2.27% and 6.0%. The growth of consumption expenditure and welfare seems to follow a similar pattern as the growth of GDP. However, one of the studies by Ko (2009) shows that KORUS FTA will have an adverse effect on the Korean economy, which is different from most studies about KORUS FTA. **In general, the Korean economy will achieve a quantitative economic expansion to a greater or lesser degree through KORUS FTA.** We can find similar results on the research of KOREU and Korean-China FTA. In case of KOREU FTA, Korea's GDP will improve 1.28% and 3.57% and get a six percent of increased export on average. Korea-China FTA has bigger economic effects than KOREU FTA on the Korean economy. The Korean economy will obtain a 2-4 percent of GDP growth and 0.64-3 percent of welfare growth. Furthermore, judging from all economic simulation results between Korea and highly advanced and larger economies in the study; the Korean economy has much more economic benefits than other countries. **In conclusion, FTA between a relative smaller open economy and a bigger market economy will give a driving force of economic growth on the functioning of the relatively small and open economies.**

On June 21, the Ministry of Strategy and Finance announced the economic effects of KORUS FTA on Korea after having been in force for 100 days. According to the report, Korean exports to the US have increased by 8% while Korean exports to world have decreased by 2.5%. Along with these increasing, foreign investments on Korea has increased about 211% over the same

period in the previous year in the face of the European economic crisis. Although the report was reflected in a short period of time (100 days), KORUS FTA has had positive effects on the Korean economy in the face of world recession. These actual results reinforce the conclusion of the study which is derived from predicted results on previous studies.

Limitations

The study shows that small and open economies have a quantitative economic expansion through FTA with large and advanced economies. Nevertheless, the quantitative economic expansion might not directly correlate with economic development. On the long term point of view, the quality of economic growth is more important than quantitative expansion when it comes to economic development. The study doesn't analyze how KORUS FTA affects the economic quality of Korea.

Also, Korea is the only nation which has changed their economic status from an aid giving country to an aid country after the OECD launching. Therefore, the economic effects of FTA between Korea and other countries might not be a general case to apply to other FTAs among countries. Further research is required to review other FTAs between small and large economies in order to study more rational economic effects of them.

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