

Evaluation of FTA Negotiation Results, Economic Effects and Compensation Policies on the Korean Agricultural Sector: Focusing on Korea's FTAs with Chile, US and EU

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Abstract

The objectives of this study is to evaluate Korea's FTA negotiation results, economic effects by various models as well as compensation policy measures focusing on FTAs with Chile, US and EU. The Korea-Chile FTA is meaningful as the first FTA, which Korea successfully concluded in 2004. The Korea-US FTA is the most comprehensive negotiation with one of gigantic countries and would be a standard of forthcoming FTA negotiations with other countries such as EU, China and Canada. The Korea-EU FTA is also a significant negotiation with another gigantic economic bloc after the Korea-US FTA and is in effect on July 1st, 2011 after fast ratifications in Korea and EU's Congresses. As the Doha round negotiations of the WTO have been standoff since 2001, Korea has actively engaged in the regionalism through FTA negotiations with over 50 countries as a complementary trade mechanism. Up to now, Korea's efforts to FTAs can be evaluated to be successful because damage to agricultural sector seems not to be serious as different from those expected before FTAs. Positive trade liberalization through FTA provides new opportunities as well as challenges within and between sectors. Therefore, it is highly recommended to determine a standard of analyzing economic effects of trade liberalization in collaboration with academics and government since trade negotiation strategies, farmers' long-run decision for planting and government budget planning are highly dependent on models' simulation results.

Keywords: FTA, Korean Agriculture, Economic Effects,

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I. Introduction

Korea is one of the most active countries to participate in FTA negotiations in the world¹, though it had ignored the significance of regional trade agreement until 2000. As the Doha round negotiations of the WTO have been standoff since 2001, all the countries of the world have made efforts to make regional trade agreements such as EU and NAFTA.

According to the WTO, 297 Regional Trade Agreement (RTA) are in effect on May 13th, 2011.

² In particular, the number of RTA has increased significantly under the WTO since 206 RTAs has entered into force after 1995. On the other hand, RTAs under the GATT from 1947 to 1994 are 91. As a result, more than 50% of the world trade is covered by trade in RTAs. In responses of the wide spread of regional agreements in the world, Korea has also started Free Trade Agreement (FTA) negotiations with numerous countries simultaneously. While the Korean economy has been benefitted from the multilateral trading system of the GATT, Korea has actively engaged in bilateral FTA negotiations with over 50 countries. The Korean government positively promotes FTAs which will improve the deteriorated balance of payment due to the global financial crisis. It believes that FTAs will provide new economic growth opportunities for the near future. In the pursuit of a series of FTA negotiations, the Korean government has been confronted with strong objections from farmers' associations since the competitiveness of agricultural sector is relatively weak and food security would be worsen after the successful establishment of FTA agreements. In particular, the Korea-EU FTA legally entered into force in July 1st, 2011; therefore, it is expected that FTAs with China, Japan and other countries will be accelerated.

The objectives of this study is to evaluate Korea's FTA negotiation results, economic

¹ A recent study by Wainio, Gehlhar and Dyck(2011) describes that Korea, Columbia, and the 10 ASEAN countries have been particularly aggressive in FTA negotiations.

² See the WTO homepage, <http://ratis.wto.org/UI/publicsummarytable.aspx>

effects by various models as well as compensation policy measures after the FTAs with Chile, US and EU. For this purpose, this study reviews Korea's strategies and progress on FTA negotiations, FTA negotiation results on agriculture with three major FTAs with Chile, US and EU. First of all, this study focuses on the Korea-US FTA since it has been a standard guideline for follow-up FTAs such as Korea's FTAs with EU, Canada, China and others. In addition, this study reviews economic effect studies of FTAs on agricultural sector as well as compensation policy measures for FTAs, and finally discusses implication and suggestions for future FTA negotiations.

II. Overview of Korea's FTA Promotion

1. Korea's Strategies on FTA Negotiations

While Korea participated in FTA negotiations late in early 2000s, it has recognized the significance of FTAs, and also involved in FTA negotiations positively. For the successful promotion of FTAs, the Korean government established a roadmap on FTAs in 2003 and set up the FTA Promotion Committee in 2004. Finally, in 2005, the government established an aim for an 'advanced trade nation' and finalized Korea's FTA policy as follows: First, Korea aims to pursue FTAs with large advanced economies or economic blocs and promising emerging markets³. Second, Korea aims to pursue FTAs that are high-level in terms of degree of liberalization and comprehensive in terms of coverage and scope. Third, Korea adopts a multi-track approach when negotiating FTAs, meaning that the negotiations can be carried out simultaneously with more than one country when necessary. Fourth, in

³ Korea's top trading partners are China, the EU, the US and Japan, in order. Therefore, Korea promotes the Korea-China FTA aggressively since it already concluded FTA negotiations with the US and the EU.

order to achieve national consensus as part of the negotiation process, Korea aims to pursue a wide range of outreach efforts with the public and private sectors.⁴

The government pays special attention on the preoccupancy effect of FTA which may substitute the market share of competing countries to Korean goods and services in the global market. Therefore, it has push forward with positive FTA negotiations with several countries simultaneously.

2. Progress of FTA negotiations in Korea

As a consequence of positive efforts on FTAs, Korea has become one of the countries which have actively participated in FTA negotiations. The FTAs with 5 economic blocs and 17 nations such as Chile, Singapore, EFTA (European Free Trade Association)⁵, ASEAN and India have entered into force and the Korea-EU FTA has been provisionally in effect since July 1, 2011. After the FTAs with three countries and two economic blocs came into force, the trade amount with the partners has increased 1.2-3.2 times, and the growth rate of trade has become 0.6-0.8 times higher than before the agreements was not in effect. It was higher by 1.5-1.7 times in comparison to the growth rate of trade with entire nations, as well.

On the other hand, there are two concluded FTAs with the US and Peru, which waits for congressional ratification in both countries. In 2010, Korea has made a series of successful FTA negotiations with big and small economies: a supplemental FTA negotiation with the US in December 2010, the official sign of a FTA between Korea and EU in October 2010, the conclusion of Korea-Peru FTA in August 2010, the opening of Korea-Turkey FTA in April 2010 and the progress of FTA negotiations with Australia and Columbia. Korea is

⁴ It is shown in the homepage at Ministry of Foreign Affairs and Trade

⁵ A free trade organization founded in 1960 is composed of 4 countries, Switzerland, Norway, Iceland and Liechtenstein.

currently negotiating with seven countries such as GCC (Gulf Cooperation Council), Australia, New Zealand, Columbia, Canada, Turkey and Mexico.

Prior to official FTA negotiations, Korea is starting preparation talks or joint research projects with prospective FTA countries such as China, Japan, MERCOSUR, Israel, Vietnam, Central-America, Malaysia and Indonesia. In addition, China, Japan and Korea have been organizing a joint study for a possible trilateral FTA since 2010 under the purpose of concluding the joint study within 2011. More specific information about present conditions of Korea's FTA is offered in Table 1.

It is predicted that FTAs bring beneficial effects on the Korean economy. Especially, promoting FTA negotiations with gigantic economies such as the US, EU, China and Japan would have significant spillover effects on domestic economy. However, it would also accompany severe damages on relatively less competitive sectors like the Korean agriculture. While FTAs fall farm prices and income, social welfare will be improved since consumers might have more choice of goods and services and consume all farm products at a low price without any seasonal and locational limitation.

Korea started FTA negotiations with countries which would make minimal impacts on agriculture and then moved forward to major trading counties. Korea chose Chile as the first negotiating partner because it is located in the diagonally opposite side of the earth and then negotiated Singapore and EFTA for minimizing damages to agriculture and food system. According to agreements of FTAs in effect, the concession of the Korea-Singapore FTA excluded the most sensitive items such as rice, apple, pear and others; therefore, the proportion of the exception was 33.3%. This negotiation also adopted strict rules of origin and custom clearance to prevent imports through roundabout routes. In addition, the governments agreed with adopting bilateral safeguard policy to protect vulnerable sectors.

The Korea-EFTA FTA also has the low level of concession since EFTA also has high level of protection to agriculture and regards the multi-functionality as an important function of agriculture like Korea. Thus, the concession with EFTA had 65.8% of the exemption. The Korea-ASEAN FTA agreement has chosen a means of protection such as exemptions from the concession and gradual removals of trade barriers in sensitive products. The concession of CEPA (Comprehensive Economic Partnership Agreement) with India had 44.8% of exception on agricultural products. Meanwhile it has not adopted import quota or agricultural safeguard system due to classifying most sensitive items to exemption from the concession. Three FTAs and one CEPA in effect are assessed to have the low level of concession or sufficient protection mechanisms. Therefore, it is generally expected that they have rarely negative impacts on the Korean agriculture.

The US and EU are the highly competitive in agriculture. Therefore, it is still controversial how to develop the Korean agriculture in the long-run. With regard to the ratification of the National Assembly on FTAs with the US, both the ruling party and the government decided the position that they ratified the Korea-EU FTA firstly and wait the Korea-US FTA's ratification until the US Congresses pass the ratification since the KORUS would influence the national economy including agriculture as well as politics and social activities enormously.

Table 1. Progress of FTAs in Korea (July 2011)

Classification	Countries	Progress
FTAs in effect (5)	Chile	April 1 st , 2004
	Singapore	March 2 nd , 2006
	EFTA	September 1 st , 2006
	ASEAN	July 1 st , 2007
	India (CEPA)	January 1 st , 2010
	EU	July 1 st , 2011
Concluded FTAs (2)	USA	·The negotiation has been concluded on April 2 nd , 2007. ·The re-negotiation has been agreed upon on December 3 rd , 2010.
	Peru	·The negotiation has been concluded on August 30 th , 2010. ·The agreement has been signed on November 15 th , 2010.
FTAs under negotiation (7)	Canada	·The 13 th negotiation was taken placed in March, 2008.
	GCC	·The 3 rd negotiation was taken placed during July 8 th -10 th , 2009
	Australia	·The 5 th negotiation was taken placed during May 24 th -28 th , 2010
	New Zealand	·The 4 th negotiation was taken placed during May 12 th -14 th , 2010
	Colombia	·The 3 rd negotiation was taken placed during June 14 th -18 th , 2010
	Turkey	·The 1 st negotiation was taken placed during April, 26 th -30 th , 2010
	Mexico	·The 2 nd negotiation was taken placed during June 3 rd -11 th , 2008.
FTAs under consideration (10)	Japan	·The 2 times higher officials meeting after October 2010 to restart
	China	·The 4 times of working-level talks after June 2008 to` restart
	China-Japan	· The 1 st meeting of joint study on May 6 th -7 th , 2010
	MERCOSUR	·The joint study completed in November 2006.
	Russia	·The 2 nd meeting for a joint research was taken on July 2008.
	Israel	·A joint research by private was started on August 17 th , 2009
	SACU	·Agreement on opening a joint research on December 9 th , 2008
	Vietnam	·The 3 rd meeting of joint study on March 16-17, 2011.
	Mongolia	·Agreement on opening a joint research in October 2008
	Central-America	·The joint study completed in May 2011.

Source: Ministry of Foreign Affairs and Trade

III. FTA Negotiation Results on Agriculture in Three Major FTAs

1. Korea-Chile FTA

According to the concession of the Korea-Chile FTA as shown in Table 2, agricultural products will be discussed again after the successful conclusion of the DDA negotiations. However, some products, which will be renegotiated after the DDA such as beef, chicken meat, milk serum, plum, mandarin and other vegetables, are opened the market with a tariff rate quota (TRQ). Instead of delaying tariff reduction after the DDA conclusion, TRQ guarantees Chile to export a certain volume to Korea at a low in-quota tariff. Rice, apple and pear are exempted from tariff elimination because rice is a major staple; apple and pear are exempted due to exotic insects and quarantine negotiation problems. In addition, fresh grape was allowed to apply seasonal tariffs in the harvesting season since grape from Chile is very competitive. Agricultural products with short-term tariff elimination period of below 5 years have the largest proportion as 54% of total products. Products belonging to long-term tariff elimination period of more than 10 years are 14.6% of total products.

The Korea-Chile FTA was expected to be painful during the negotiation since this agreement was the first signed FTA. Korea therefore introduced a domestic agricultural compensation mechanism for closing orchards for greenhouse grape, kiwi and peach before signing FTA with Chile. This compensation was evaluated to have effects of supporting prices and increasing productivity.

Table 2. Korea's Concession in the Korea-Chile FTA

Concessions Type/ Tariff Removal Periods	Commodities	Numbers of Items in HS 10 digit (%)
Exception	rice, apple(fresh), pear(fresh)	21(2%)
Seasonal Tariff	grape(fresh)	1
Discussion after the DDA Negotiation	·vegetables: pepper, garlic, etc. ·grains: barley, bean, etc. ·livestock products: eggs, honey, etc. ·fruits: tangerine, jujube, etc. ·others: watermelon, green tea, etc.	373(26%)
TQR and the Discussion after the DDA Negotiation	Beef(400ton), chicken meat(2,000ton; frozen, processed), milk serum(1,000ton), plum(280ton), mandarin(100ton), other vegetables(100ton)	18(1%)
16 years	prepared milk powder, other fruits(dried), etc. ·livestock products: pork, mutton, etc.	12(0.8%)
10 years	·vegetables and flowers: cut-flower, tomato, etc. ·fruits: lemon, dried grape, etc.	197(13.8%)
9 years	other fruit wines ·fruits: peach can, jam, etc.	1
7 years	·livestock products: turkey-meat (600ton of TRQ) ·grains: corn for seed, potato, etc. ·vegetables: other vegetables (frozen), etc. ·others: walnut, etc.	40(2.8%) with 6 items with TQR
5 years	·livestock products: horse, lamb, turkey, etc. ·flowers: tulip, lily (dormant), etc. ·vegetables: leaves of plants, cabbage, etc. ·others: almond, nuts, coffee, etc.	545(38%)
0	·livestock products: seed bull, breeding pig, etc. ·grains: wheat, rye, etc. ·others: golden syrup, beet, etc.	224(15.6%)
Total		1,432(100%)

Source: Ministry of Food, Agriculture, Forestry and Fisheries.

According to a study by a government sponsored research institute, KREI(Korea Rural Economic Institute), the effect of supporting price was estimated about 3~4 percent in greenhouse grape and 1.5 percent in peach. In addition, it may contribute to improving productivity because the targets of closing orchards were focused on old trees and old farmers. However, the direct payment for damage compensation has some issues to be revised. The reasons are that the compensation mechanism supporting 80 percent of the price gap between market price and base price never worked out, and also the indemnity for closing orchards was too much and supported too many peach farms even though peach is not imported from Chile.

While the Korea-Chile FTA substitutes imports from other countries to Chile products and also expands imports by tariff reduction and removal, overall evaluation on the Korea-Chile FTA impacts is not serious because domestic production in major importing commodities from Chile, such as pork, grape, red wine, kiwi and others, is also growing since demand is also increasing.

2. The Korea-U.S. FTA

The Korea-US FTA was concluded in April 2007 and officially signed in June 2007; however, follow-up measures were delayed in both countries. As the congressional ratification procedure was delayed in the US, the early ratification opinion was retreated in the government and the National Assembly. According to the demand of revising the Korea-US FTA from the US automobile industry and the Democratic Party, the US government asked a supplementary negotiation. Therefore, both countries renegotiated and concluded the modification of the initial agreement on automobile and pork in December 3rd 2010. At the supplementary negotiation, Korea extended two more years of a grace period for removing

tariffs on pork to January 1st 2016; however, it conceded to eliminate automobile tariffs within four years.

The Korea-US FTA with U.S was agreed with the highest level of concession contrary to the past concluded FTAs as shown in Table 3. According to the concession, agricultural products in short-term tariff elimination are over 60 percent of total items. However, rice is exempted from tariff elimination like other previous FTAs. It is possible that agriculture sector in Korea is highly damaged from the Korea-US FTA. Especially, 70 percent of agricultural damages from FTA with U.S. come from livestock sector and the second severe damages are from fruit sector. While the Korea-US FTA is still controversial, the general public supports its ratification since, two recent surveys by new media resulted in 60% for and 27.3% against and 55.2% for and 28.5% against. The Korean government determined the basic position of the ratification in February 2011. The government position is the ratification of the Korea-EU FTA first and that of the Korea-US next. Therefore, both the ruling party and the government will promote the ratification of the Korea-US FTA in the National Assembly after considering the US ratification progress and situation.

The Korea-US FTA did not set a good precedent for the future since Korea still negotiates FTAs with other big countries such as China, Japan, Canada, Australia, New Zealand and other countries. It is concerned that other countries may also ask for the additional negotiation after concluding FTA negotiations with Korea.

Table 3. Korea's Concession in the Korea-U.S. FTA

Concessions Type/ Tariff Removal Periods	Commodities	Numbers of Items (%)
Exception	Rice	16(1.0%)
Current Level & TRQ	orange, honey, etc.	15(1.0%)
17 years, Seasonal Tariff	Grape	1(0.1%)
15 years, Seasonal Tariff	potato for chips	0(0.1%)
18 years & TRQ	Ginseng	4(0.3%)
15 years &TRQ	cheese, wheat, etc.	10(0.6%)
12 years &TRQ	sub-feed, modified starch	6(0.4%)
10 years &TRQ	butter, modified milk powder, others(for infants), etc.	11(0.8%)
20 years	apple(Fuji), pear(Asian)	0(0.1%)
18 years	red ginseng	3(0.2%)
16 years	sugar	2(0.1%)
15 years	beef, eggs, etc.	98(6.5%)
12 years	milk cow, frozen onion, etc.	34(2.2%)
10 years	peach, frozen drumstick, etc.	332(24.1%)
9 years	fresh strawberry	1(0.1%)
7 years	beer, ice-cream, etc.	41(2.6%)
until 2014.1.1	pork, etc.	21(1.4%)
6 years	corn oil, etc.	2(0.1%)
5 years	orange juice, tomato juice, etc.	317(20.6%)
3 years	Seaweeds	33(2.1%)
2 years	avocado, lemon, etc.	6(0.4%)
0 years	grape juice, coffee, etc.	578(37.9%)
Total		1,531(100%)

Source: Ministry of Food, Agriculture, Forestry and Fisheries.

As shown in Table 4, among 1,531 negotiation items in the Korea-US FTA, the exception items of tariff elimination are 31 (HS 10 basis) including 16 rice related products. Fifteen items such as orange, soybean for food, potato for food, some diaries and natural honey could maintain current tariff with providing TRQ (tariff rate quota). Grape and potato for chip are

allowed to use seasonal tariffs and gradually eliminate tariffs over 17 and 15 years respectively. On the other hand, 38.2% of the items belong to instantaneous tariff elimination targets, and it is a clearly aggressive conclusion comparing with other FTAs. For example, Korea reached a settlement that the portion of exception for tariff elimination was about 29% to Chile and more than 30% were excluded in tariff elimination in FTAs with Singapore, EFTA and ASEAN FTA. In addition, the proportions of instantaneous tariff elimination are 14 % (Korea-EFTA) ~ 36.8% (Korea-ASEAN), which are lower than FTAs with US and EU. Recently, two FTAs were concluded in 2010. Firstly, in the Korea-Peru FTA, the percentage of general exception for tariff elimination and instantaneous tariff elimination take 7.1% and 25.2% respectively. It seems less extreme comparing with the FTA with US and Korea, but it is more severe than prior FTAs. In the case of the Korea-EU FTA, the Korean government allowed similar level of agricultural market opening for EU with US. The concession in the Korea-EU FTA includes 5.4% of exception for general tariff elimination and 42.1% of instant tariff elimination.

Table 4. Comparison with Concluded FTAs (HS 10 basis)

	KOR-Chile	KOR-Singapore	KOR-EFTA	KOR-ASEAN	KOR-U.S.	KOR-Peru	KOR-EU
General							
Exception for Tariff Elimination*	412(29%)	484(33.3%)	956(65.8%)	448(30.9%)	31(2.0%)	107(7.1%)	78(5.4%)
Instantaneous Tariff Elimination	224(15.6%)	232(16.0%)	204(14.1%)	533(36.8%)	585(38.2%)	377(25.2%)	610(42.1%)

*General exception for tariff elimination includes not only exception for tariff elimination but also partly reduction of tariff, re-negotiation after DDA negotiation, maintenance of present tariff after offering TRQ and seasonal tariff which is not removed.

For objective assessment for the Korea-U.S FTA on agriculture, it is critical to realize basic position for each country. Korea's basic position for agriculture was to open the market

for as many items as possible gradually. On the other hand, the US position was to eliminate tariffs in agricultural market as soon as possible for its trade gain. In the Korea-US FTA, Korea was allowed to open its market more widely ever than before, so that other countries would ask same condition when they try to reach a FTA settlement with Korea. For example, EU and Canada already proclaimed that they should reach a settlement with similar condition with the US. It means Korea would face a problem to maintain the position of gradual and flexible opening after considering the sensitivity of agriculture in future FTA negotiations.

3. The Korea-EU FTA

The Korea-EU FTA negotiations started in May 2007 and were finally concluded in July 2009 after the 8th round meetings. This FTA is in effect after the congressional ratifications in July 1st, 2011. The Korea-EU FTA agreements on removing trade barrier in agricultural market have been reached asymmetrically, considering the agricultural competitiveness of both countries. While 96 percent of imports from EU will phase out tariffs within three years, a long enough periods have been allowed to eliminate tariffs in the agricultural products. The details of the Korean concession are shown in Table 5. In general, the concession scope is similar to the Korea-US FTA, but flexibilities on tariff elimination to sensitive products like rice, livestock and dairy products and others were introduced. Korea's tariff removal type and periods on agricultural products are quiet extensive from instantly to 20 years. Along with extensive tariff removal periods, various concession types such as exemption, seasonal tariff, TRQ and the combination of concession types and the period of tariff removal were introduced to minimize damages. EU consistently insisted the same concession as the Korea-US FTA during the negotiation periods, yet Korea differentiated the concession allowing a longer period of tariff elimination in pork and dairy products.

Particularly, the 10-year grace period of tariff removal in pork belly and neck was allowed. Contrastingly, in the Korea-US FTA's agreements, pork tariffs should be removed until January 1st 2016. In dairy products, the period of tariff removal is as same as the Korea-US FTA, but the lower TRQ requirement was obtained.

Economic impacts on the Korean agriculture by the implementation of the Korea-EU FTA is expected to be quite great, nevertheless the agreement in agriculture was reached asymmetrically because the present proportion of commodities which are in low tariff level is 67.6% in EU and, on the contrary, 20.8% in Korea.

The annual average reduction of farm production value is about 177.6 billion won (\$159 million USD), which is less than one-third of the FTA with the US. The 93% of production value reduction would be concentrated on livestock sector and half of this reduction comes from pork. Damages of domestic livestock in the Korea-EU FTA is severer than that the Korea-US FTA. The government announced a supplementary policy for improving the competitiveness of livestock sector to allocate 2 trillion won (\$1.8 billion US dollar) for next 10 years in November 2010.

Table 5 Korea's Concession in the Korea-EU FTA

Concessions Type / Tariff Removal Periods	Commodities	Numbers of Items (%)
Exception	rice, rice related goods	16(1.09%)
Current Tariffs	soybean, wheat, etc.	26(1.77%)
Current Tariff &TRQ	honey, powder milk, etc.	12(0.82%)
Seasonal Tariff &TRQ	orange(September-February: current tariff+TRQ, March-October: 7 years)	1(0.07%)
Seasonal Tariff	grapes(May 1st-October 15th: 17 years, October 16 th -April 30 th : 5 years)	1(0.07%)
15 years & TRQ	cheese, malt, etc.	6(0.41%)
12 years & TRQ	sub-feed, modified starch, etc.	8(0.55%)
10 years & TRQ	butter, modified milk powder, etc.	11(0.75%)
20 years	apple, pear	2(0.14%)
18 years	green tea, ginger, etc.	7(0.48%)
16 years	white sugar	1(0.07%)
15 years	mandarin, jujube, etc.	92(6.28%)
13 years	Chicken meat(frozen breast and drumstick), sweet potato, etc.	27(1.84%)
12 years	Chicken meat(cold-storage), mixed juice(grape), etc.	16(1.09%)
10 years	pork(pork belly, cold-storage neck), tangerine juice	274(18.69%)
7 years	pork(cold-storage edible innards), tomato, etc.	47(3.21%)
6 years	pork(frozen trotter, sealed one), etc.	3(0.20%)
5 years	pork(others), olive oil, etc.	287(19.58%)
3 years	orange juice, margarine, etc.	13(0.88%)
2 years	Avocado(fresh), lemon, prune(dried)	0(0.20%)
0 years	black tea, flower, feed, etc.	613(41.81%)
Total		1,466(100%)

Source: Ministry of Food, Agriculture, Forestry and Fisheries.

IV. Economic Effects Studies of the Korea-US FTA on Agricultural Sector

1. Review of Previous Studies on the Korea-US FTA

Most studies have used a well-known GTAP (Global Trade Analysis Project) model under the framework of CGE (Computable General Equilibrium) analysis to assess FTA impacts on global agricultural trade and production. Some studies applied partial equilibrium models to investigate commodity specific effects (Han, et al., 2006, 2007 and KREI, 2007). A recent study of ERS of USDA by Wainio, Gehlhar, and Dyck(2011) applied GTAP to analyze the Korea-US FTA, which would offer the largest gain for the US agriculture among three pending bilateral FTAs with Korea, Columbia and Panama. The total U.S. agricultural export gains in the Korean market are expected to increase of about 40 percent, over \$1.9 billion annually.

Prior to the Korea-US FTA agreement, Park (2002) and Rogowsky (2004) conducted economic effects by GTAP, but they used 1995 year database so that it did not reflect latest trade and farm production changes. According to Lee (2005), US \$2.8 billion of farm production would be reduced and pork, beef and grape were found as the sensitive items to the Korea-US FTA.

KREI⁶ analyzed two studies on the damage of the Korean agriculture in 2006 and in 2007. The 2006 study was based on tariff removal before the conclusion of the Korea-US FTA, and the 2007 study used the concession result after the FTA. The former employed CGE model and partial-equilibrium model. In the 2006 study, KREI calculated supply reduction and demand increase due to price decreases using supply and demand elasticities of farm products and eventually estimated domestic production and import changes. In the 2007 study, the KREI-ASMO (Agricultural Sector Model) was used. This agricultural sector model

⁶ KREI is a government sponsored research institute specializing in agricultural and food policies

consisted of 5 main projections: macroeconomic condition, intermediary goods, crop, livestock, and overall sector projection. Firstly, it simulated baseline results until 2023 under the assumption that current condition without the Korea-US FTA would be maintained. After that, it simulated the FTA results with the concession and presented the gap between two simulations as the FTA effects. It also reflected agricultural production and employment for baseline solutions. Meanwhile, the concessions on individual items such as tariff, TRQ and ASG were considered as exogenous variables in the model. The KREI model was reflecting several kinds of substitution effects such as domestic-imported products and the US-other countries products. However, the model did not consider the effect of import restriction by quarantine, and did not include processed food. According to 2007 study of KREI, Korea would have damage cost of ₩446.5billion won⁷ after 5 years, ₩895.9 billion won after 10 years, ₩1,036.1billion won after 15 years due to the Korea-U.S. FTA. The order for production damage was livestock, grain, fruits, vegetable, and specific products was as follows: beef (₩195.7~525.5billion), soybean (₩239.4~285.8billion), pork (₩209~250.billion), barely (₩135.1billion), apple (₩985~153.3billion), chicken (₩902~151.7billion), grape(₩860~1403billion).

Han et al.(2007) at Korea University simulated the reduction of production value due to the decrease of import price and increase of import for the U.S agricultural products according to the concession of the Korea-U.S. FTA. This study is differentiated to other studies which performed economic effects of the FTA with aggregate data of CGE model. This study estimated supply curves for each products and measured the reduction of domestic production and prices using a dynamic simulation by E-Views.

Comparing the studies of KREI and Korea University, KREI assumed the substitute

⁷ Exchange rate between Japanese yen and Korean won is 134 won per 10 yen on July 15, 2011.

relationship between domestic and imported agricultural products for all items which were analyzed. On the other hand, Korea University considered quality difference between the US and domestic products because of freshness, the value of country of origin and the loyalty of domestic product. It modeled that the price for domestic products would decline if there would be no quality difference and the premium would be added if there is quality difference. On the other hand, KREI analyzed the FTA damage as the price of the US import products would become lower and their demand increase, and after all, it would make the demand for domestic products lower and domestic price fall down. The weakest point of KREI' study is that most substitution elasticities between domestic and imported products were assumed to simulate the model since most US products have never been imported or had not enough history to estimate them.

Contrary to KREI study, Korea University considered quality premium for the products which were subject to tariff reduction, so that the price of imported products affected domestic wholesale price directly. As tariffs would be reduced gradually, the cheaper one between the US import price and domestic wholesale price would be determined as the domestic market price. Under imperfect substitution between domestic and imported products, the quality premium would be applied to analyze economic impacts of the FTA. The quality premium to consider imperfect substitution was classified into two scenarios which maintained full premium and 50% of the premium until tariff elimination. Some products such as pepper, garlic, peanut and ginseng were mostly imported from China and had competitive prices so that the US products had substitution relationship with the Chinese products. In this case, it regarded the gap of wholesale price between domestic and imported products from China as the quality premium. Additionally, Korea University also considered indirect impacts of the Korea-US FTA on agriculture and agribusiness through input-output

analysis unlike KREI's study which considered only direct impacts.

2. Economic Effects of the Korea-US FTA by Korea University

Korea University analyzed the economic effects of tariff removals under three scenarios as follows: 1) Scenario 1: 50% reduction of quality premium until tariff elimination, 2) Scenario 2: no change of quality premium, 3) Scenario 3: estimation of substitution elasticities between domestic and imported beef and pork and no change of quality premium in other products. Quality premium is used for ten products such as corn, beef, pork, apple, pear, pepper, garlic, peanut and ginseng from total twenty-one products. These three scenarios were analyzed under following steps. First, supply functions were estimated using price and output data from 1980 to 2004. Second, changes in domestic output by tariff reduction schedule of the Korea-US FTA were derived using supply functions. Third, the change of output value for each product was measured.

The simulated reduction of production value by scenarios is presented in Table 6. First, in scenario 1, the reduction of production value was simulated as about ₩792billion for the 5th year, ₩1,485billion for the 10th year and ₩2,127billion for the 15th year. Second, according to the reduction of production value by product, there would be ₩22billion for the 5th year, ₩ 31billion for the 10th year and ₩128billion for the 15th year in grain sector. On the other hand, all of scenarios were considered in livestock sector under the presumption regarding the scenario 1 as the ceiling and the scenario 3 as the bottom. In turn, there would be the reduction of livestock production value as ₩310-605 billion for the 5th year, ₩593-933billion for the 10th year and ₩763-1,470 billion for the 15th year. Moreover, for the fruit sector, this study considered 5 products under the scenario 1 and the scenario 2. The results implicated that there would be decrease of ₩138-166 billion for the 5th year, ₩231-290

billion for the 10th year, and ₩314-407 billion for the 15th year,. Finally, for vegetables and special products under the scenario 1 and scenario 2 as well, production value would decrease ₩6 billion for the 10th year and ₩45-122billion for the 15th year.

Third, some products showed the significant decrease of production value under the scenario 1 and 2 respectively. For the scenario 1, beef, apples, pears and pork were significantly damaged. For the scenario 2, barley for brewing, barely, beef, dairy products, tangerines and peaches are them. These products had a common characteristic of higher domestic price and relatively higher bound rate tariffs.

It is expected that agricultural production would be reduced by the implementation of the Korea-U.S. FTA and will trigger comprehensive recession in agricultural-related industries. Therefore, the impact on agricultural-related industries as well as the reduction of agricultural production could be counted as a major effect of the FTA.

Korea University projects indirect effects of the FTA on industrial sectors through input-output analysis. In purpose of analyzing a precise break-down of the FTA effects to various industries, the study uses the 2003 input-output table with 404 industries. This study categorized industries to five sectors:1) agriculture, forestry and fisheries, 2) agricultural related industry, 3) mining and manufacture, 4) electricity, services for gas, water and construction, and 5) other services. Agriculture is classified into six sectors: grains, vegetable, fruits, special products, livestock and others. Agriculture-related industry is subdivided into three sectors: 1) farm input industry, 2) processing and distribution of agricultural products, 3) service and knowledge industry for agriculture.

Table 6 Direct Effects of Tariff Reduction by Product and Scenario

Unit: ₩ 100million

Classification		5 th year			10 th year			15 th year		
		S-1	S-2	S-3	S-1	S-2	S-3	S-1	S-2	S-3
Grain	Soybean	17.3	17.3	17.3	20.1	20.1	20.1	21.6	21.6	21.6
	Potato	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4
	Barely	4.2	4.2	4.2	10.4	10.4	10.4	57.8	57.8	57.8
	Barely for Brewing	0	0	0	0	0	0	48.4	48.4	48.4
	Corn*	0	0	0	0	0	0	0	0	0
	Sum	21.8	21.8	21.8	30.9	30.9	30.9	128.2	128.2	128.2
Livestock	Beef*	192.1	146.5	84.4	449.9	328.1	162.0	713.5	512.1	238.6
	Fork*	308.9	254.7	122.2	482.8	379.8	205.4	502.0	394.9	269.7
	Chicken*	63.3	63.3	63.3	128.7	128.7	128.7	132.1	132.1	132.1
	Dairy Product	40.0	40.0	40.0	96.3	96.3	96.3	121.8	121.8	121.8
	Honey	0.4	0.4	0.4	0.5	0.5	0.5	0.7	0.7	0.7
	Sum	604.7	504.9	310.3	1158.2	933.4	592.9	1470.1	1161.6	762.9
Fruit	Apple*	20.8	9.1	9.1	70.0	28.9	28.9	128.3	53.4	53.4
	Pear*	237	78	78	417	237	237	627	455	455
	Peach	179	179	179	275	275	275	309	309	309
	Tangerine	690	690	690	987	987	987	1,072	1,072	1,072
	Grape	342	342	342	521	521	521	774	774	774
	Sum	1,656	1,380	1,380	2,900	2,309	2,309	4,065	3,144	3,144
Vegetable and Special Product	Pepper*	0	0	0	0	0	0	810	127	127
	Garlic*	0	0	0	0	0	0	124	36	36
	Onion	0	0	0	0	0	0	203	203	203
	Tomato	0	0	0	61	61	61	86	86	86
	Peanut*	0	0	0	0	0	0	0	0	0
	Ginseng*	0	0	0	0	0	0	0	0	0
	Sum	0	0	0	61	61	61	1,223	452	452
Total Sum	7,921	6,647	4,710	14,852	12,013	8,608	21,271	16,494	12,507	

*Products that quality premium was applied.

The Korea-US FTA will have both negative and positive impacts on agricultural production. That is, negative impact is domestic production reduction and positive impact is real income increase caused by relative price decrease. Both negative and positive effects of the FTA can be driven by input-output analysis. As for the negative effects, the reduction of agricultural production is a direct effect as the reduction of final demand and the decrease of final demand creates indirect effects on agriculture-related industry. Both direct and indirect effects reduce household income and eventually decrease household consumption as an induced effect.

According to the result of input-output analysis, net total damage of the Korea-US FTA was estimated as ₩1 – 1.76 trillion for the 5th year, ₩1.8-3.3 trillion for the 10th year, ₩2.6-4.8 trillion for the 15th year. The proportion of net agricultural reduction is the largest 43% of total damage and agricultural related industry has next as 40%. Therefore, the overall negative effects of the Korea-US FTA would be more than 2 times of direct effect from agricultural production reduction.

V. Assessment of Compensation Policy Measures on FTAs for Agriculture

Compensation policies on FTAs have introduced after the conclusion of each FTA negotiation. Two typical countermeasures on FTA are both short-run damage compensation measures and long-run policy for enhancing competitiveness. The Korean government announced to invest ₩10 trillion for next 10 years after the conclusion of the Korea-US FTA and invest additional ₩ 2 trillion for next 10 years for livestock sector after the Korea-EU FTA. Short-run measures also have two programs: a direct payment for import damage compensation and a subsidy of farm closure. In particular, the direct payment for damage compensation has gotten a spotlight since it can directly

compensate farmers' income. After the Korea-Chile FTA, the government introduced the direct payment for green house grape and kiwi for 7 years from 2004 to 2010.

The purpose of compensation policies is to appease farmers' anxiety to the future without careful consideration. Therefore, farmers have blamed government since the direct payment on import damage for greenhouse grape and kiwi has never used due to the high standard of compensation. Furthermore, the subsidy of farm closure has used too much for a specific commodity, peach, which has not been imported from Chile. Additionally, compensation policies have provoked a great deal of social controversy on policy failure. There are two examples of agricultural policy failure on compensation for import damage due to FTAs.

First, 'FTA Special Law' after Korea-Chile FTA was introduced to compensate farmers' income reduction due to import increase. It was designed to support 80% of price decrease in the case that an agricultural product price drops more than 20 percent in comparison to a base price.⁸ Though this law was passed and the government advertised it guaranteed farm income, but it makes farmers angry since it never worked out.

Second, an indemnity on closing orchard is another policy failure after Korea-Chile FTA. Government introduced this compensation for greenhouse grape, peach and kiwi for five years from 2004 to 2008 because fruit farmers were very concerned about fruit import from Chile. This compensation and kiwi is excessive and supports too many farmers; therefore, some farmers closed orchard to get indemnity and reopened the orchard after a certain period. The government should be introduced a compensation policy after a full investigation on policy mechanism to avoid farmers' moral hazard and budget waste. The total acreage of closed orchard with indemnity was 5,810 ha. The acreage of peach is 5,225

⁸ A base price is calculated by an Olympic average formula that is three-year average price after removing the highest and lowest prices with recent five years prices.

ha (89.9%), green house grape 482ha (8.3%) and kiwi 106 ha (1.8%). This is a typical policy failure since peach has never been imported for Chile since 2004; however, the acreage of peach among closed orchards was dominant for 2004-2008. In addition, new problems of closing compensation scheme have been occurred continuously since farmers, who closed their orchards, converted farming from above three fruits to other fruits. It induced other problems such as overproduction and price decrease in other commodities and delayed structural adjustments of the Korean agricultural sector.

In order to acquire the congressional ratification on the Korea-EU FTA, the National Parliament eventually revised this law on June 29th, which is just two days before the ratification of Korea-EU FTA. The revised FTA Special Law is to support 90 % of price decrease when a product price drops more than 15 percent compared with a base price. This compensation payment will be provided to farmers for next 10 years since July 1st 2011, the starting day of Korea-EU FTA Implementation.

In spite of above problems, closing farm compensation will also continue to farmers for fruit, green house and livestock in the case of abandoning farming for next 10 years to convince farmers the gain of trade by FTA.

As the National Assembly ratified the Korea-EU FTA, the government announced the establishment of 'Supporting Center for Farmers and Fishermen' in accordance of FTA implementation to analyze impacts on import and price as well as to conduct consulting related to FTA. The purposes of the center are: 1) to determine the damage of FTA after systematic analysis of FTA impacts on price and import amount, 2) to strengthen the function of consulting and announcing information on FTAs for farmers. The title of compensation payment changed to 'Direct Payment for Damage Compensation'.

VI. Implications and Suggestions

As the Doha round negotiations of the WTO have been standoff since 2001, Korea has actively engaged in the regionalism through FTA negotiations with over 50 countries as a complementary trade mechanism. The Korean government positively promotes FTAs which will improve the deteriorated balance of payment due to the global financial crisis.

It is predicted that FTAs bring beneficial effects on the Korean economy. Especially, promoting FTA negotiations with gigantic economies such as the US, EU, China and Japan would have great effects on domestic economy. However, it would also accompany severe damages on relatively less competitive sectors like the Korean agriculture. While FTAs fall farm prices and income, consumer welfare could increase since consumers consume all commodities in the world without any seasonal and locational limitation.

Korea started FTA negotiations with countries which would make minimal impacts on agriculture and then moved forward to major trading countries such as the US and EU. Korea chose Chile as the first negotiating country because it is located in the diagonally opposite side of the earth and then negotiated Singapore and EFTA for minimizing the damage to agriculture and food system.

Overall evaluation of trade liberalization in agriculture is positive because economic impacts were not serious as expected before FTA agreements. In addition, structural changes in agriculture, mainly through public investment, have been achieved relatively successful after active participation of agricultural trade liberalization. This favorable adjustment to trade liberalization comes from national concerns to agriculture because people in the nation allow the government to allocate fiscal budgets to agriculture. Up to now, agricultural trade liberalization is positively evaluated; nevertheless, the following suggestions should be considered in the future FTA and TPP negotiations.

First, it is highly recommended to determine a standard of analyzing economic effects of trade liberalization in collaboration with academics and government since farmers' long-run decision as well as government budget planning is highly dependent on simulation results from various models. Economic modeling for trade studies is classified to two types of studies such as CGE model and commodity-specific sector model. Both models have strengths and weaknesses. CGE based on GTAP can capture the changes of global trade flows in the long-run point. GTAP can't capture the dynamic effects from trade flow changes and is fully dependent on own data set. In addition, it is not able to analyze commodity-specific effects on agricultural and food markets. Therefore, it would be difficult to use GTAP results as a guideline of agricultural policies focusing on commodities. It is recommended to build a commodity-specific sector model to analyze impacts of market opening in detail and to simulate various farm policy options. Commodity sector model may not analyze indirect and spillover effects of FTAs and TPP; therefore, a detailed input-output model is also constructed.

Second, in order to achieve national consensus and to persuade people damaged by trade liberalization, the government promotes a wide range of efforts with NGO leaders, consumers, business and academia. The existence of gainers and losers in trade negotiations is inevitable; therefore, the government prepares follow-up measures and policies for sectors and industries that would be expected to be damaged. The government should open a line of communication with people of all levels of society such as farm and NGO leaders. It is an indispensable action of government in the front of the Korea-China FTA and the TPP since farmers, NGOs and small businesses are very anxious about them.

Third, the countermeasure policies for FTAs should be developed after intensive studies to avoid policy failure. The purpose of compensation policies is to appease farmers'

anxiety to the future without careful consideration. Therefore, farmers have blamed government since the direct payment on import damage for greenhouse grape and kiwi after the Korea-Chile FTA has never used due to the high standard of compensation. Furthermore, the subsidy of farm closure has used too much for a specific commodity, peach, which has not been imported from Chile. Therefore, compensation policies should be developed after considerable studies to avoid a great deal of social controversy on policy failure.

Fourth, it is necessary to evaluate FTAs in effect and concluded as well as case studies of FTAs and the TPP on trading partners. Ex-post studies for the evaluation of FTAs contribute to distinguish between right and wrong parts on negotiations and countermeasures since these evaluations these studies might be very useful to prepare forthcoming FTAs and the TPP.

Agricultural trade liberalization is expected to be further accelerated since Korea is planned to negotiate or currently to negotiate with numerous countries. Particularly, negotiations of the TPP and the FTA with China would have great impacts on the Korean agricultural and food system. As a result, agricultural imports are likely to increase in line with the expansion of trade liberalization and economic growth because consumers demand diverse high-quality food products. As agricultural liberalization is accelerating, the share of agriculture in national economy would decline gradually and lose the role of multi-functionality in agriculture. Therefore, it is a future challenge how to balance between the expansion of trade liberalization and the public value of agriculture.

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