

A Study on the Establishment of ECFA between Mainland of China and Taiwan

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Abstract

As the chances of a successful conclusion to the Doha Round of trade liberalization under the WTO become increasingly problematic, so the pace of negotiating local free trade agreements (FTAs) is increasing. According to the WTO report, countries in the Asia-Pacific region are “consolidating their drive towards regionalism at an accelerated pace”. After the trade agreements between China and the Association of South-East Asian Nations-so-called ASEAN+1 took effect at the beginning of 2010, both Mainland of China and Taiwan speeded the negotiation on signing the Economic Cooperation Framework agreement (ECFA). Taiwan's exports to China face tariffs ranging from 5% to 15% and its government fears that, unless they are lowered, the island will be left at a competitive disadvantage in the giant Chinese market. This disadvantage would greatly worsen if a planned ASEAN+3 were one day signed, embracing South Korea and Japan. On June 29 at a ceremony in Chongqing, both sides signed ECFA which went into effect later from September 12, 2010. This agreement will remove trade and investment barriers between two economies. So far ECFA has become a hot topic catching the eyes of researchers and government officials. It has been reported that this agreement may result in a GDP growth of 1.65-1.72% at Taiwan side. Besides GDP growth, which specific sectors will benefit from this ECFA on both sides? How will it affect its neighbor economies? Based on GTAP model (Global Trade Analysis Program) which is derived from the CGE model, this paper will update the data after 2004 which is set in GTAPAgg7 and simulate the economic changes on both sides, such as GDP growth, welfare changes, all the sectors production changes. The economic influences on some East Asian economies will also be discussed.

Key Words: FTA, ECFA, CGE Model, Competitiveness

JEL Classification: F13, F15, D58

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1 Introduction

As the chances of a successful conclusion to the Doha Round of trade liberalization under the WTO become increasingly problematic, so the pace of negotiating local free trade agreements (FTAs) is increasing. China was not as active as other Asian countries to pursue FTAs because China joined the WTO in 2001 and was in the process of meeting its WTO obligations (Aminian and Calderon 2010). However, in recent years, as other Asian countries are active in signing FTAs, China has accelerate its pace

to find FTA partners in not only its neighboring economies but other economies in the world. By end of year 2010, China has finished and is negotiating on the 15 RTAs, which cover more than 30 countries and regions. The trade volume among all these covered economies account for one fourth of China's total trade volume in the world.

China's FTA strategy focuses on its neighbor economies. Table 1 shows the concluded RTAs China has finished and are under negotiations and consideration.

Table 1: Situation of China's FTAs /PTAs concluded, under negotiation and consideration

	Country /region	Outline
Concluded	Hong Kong	Jan. 2004 effectuation
	Macau	Jan. 2004 effectuation
	ASEAN	Jan. 2005 effectuation
	Chile	Oct. 2006 effectuation
	Pakistan	Jul. 2007 effectuation
	New Zealand	Oct. 2008 effectuation
	Singapore	Jan. 2009 effectuation
	Peru	Apr. 2010 effectuation
	Costa Rica	Dec. 20 signing
	Asia-Pacific Trade Agreement (PTA)	Jan.2002, effectuation
Under negotiation	Australia	
	GCC	
	Iceland	
	Norway	
	SACU	
Under consideration	India	
	Korea	
	Korea-Japan	
	Switzerland	

Source: <http://fta.mofcom.gov.cn/index.shtml>

After both Mainland of China and Taiwan entered into the WTO, the bilateral trade volume increased greatly every year (see Figure 1). Both sides have been seeking way to enhance the trade and investment relationship and will not be left behind in terms of economic integration. So after the trade agreements between China and the Association of South-East Asian Nations--so-called ASEAN+1 took effect at the beginning of 2010, both Mainland of China and Taiwan speeded the negotiation on signing the Economic Cooperation Framework agreement (ECFA). Taiwan's exports to China face tariffs ranging from 5% to 15% and its government fears that, unless they are lowered, the island will be left at a competitive

disadvantage in the giant Chinese market. This disadvantage would greatly worsen if a planned ASEAN+3 were one day signed, embracing South Korea and Japan. On June 29 at a ceremony in Chongqing, both sides signed ECFA which went into effect later from September 12nd. This agreement will remove trade and investment barriers between two economies. At the end of year 2010, the Chinese mainland took initiative to implement tariff reductions on goods and services as listed in the early harvest program of the ECFA as scheduled. Tariffs on 539 Taiwan goods will be reduced from Jan. 1, 2011.

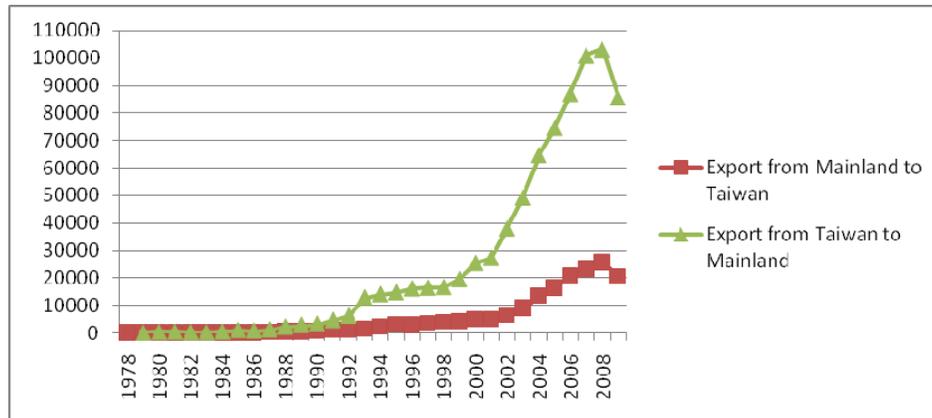


Figure 1: The bilateral trade between Mainland of China and Taiwan (1978-2009)

Source: Ministry of Commerce of PRC. <http://www.mofcom.gov.cn/tongjiziliao/tongjiziliao.html>

So far ECFA has become a hot topic catching the eyes of researchers and government officials. It has been reported that this agreement may result in a GDP growth of 1.65-1.72% at Taiwan side. Besides GDP growth, which specific sectors will benefit from this ECFA on both sides? How will it affect its neighbor economies? Based on GTAP model (Global Trade Analysis Program) which is derived from the CGE model, we will update the baseline data after 2004 which is set in GTAPAgg7 and simulate the economic changes on both sides, such as GDP growth, welfare changes, all the sectors production changes. The economic influences on some East Asian economies will also be discussed.

2. Literature Review on Empirical Study of FTA

The main empirical modes used in relevant studies of FTA are: Balassa model, Gravity model and CGE model. Balassa model is widely used to compute effects of trade creation and trade diversion. Its theory is to utilize the change of import income elasticity of demand, before and after regional cooperation trade (RCT), to illuminate trade creation and trade diversion of RCT. The hypotheses are: import income elasticity of demand is constant before RCT. That means the import income elasticity of demand, the relationship of import and GDP, changes while RCT occurs. If the import income elasticity of demand increases after RCT, it means trade creation happens; if reduces after RCT, it means trade diversion happens. Balassa (1967) analyzed effects of trade creation and trade diversion of European Economic Community with this model. Afterwards, Wilford (1970), Nagent (1971),

Willmore (1976) analyzed American Common Market with this model.

Gravity model can tell us trade effects in which specific year are distinct after setting up Customs Union or FTA, which is superior to Balassa model. Its theory is: use the change of dummy variable to explain trade effects of regional organizations, and regional economic integration or preferential regional trade arrangements. If the coefficient of dummy variable increases, regional organizations promote regional trade. If reduces, restrain regional trade. Admittedly, this model has its own disadvantages. This model assumes that all the countries in the sample develop in a similar route, and they don't change their trade behavior during the development period. Obviously, this hypothesis is unrealistic because not only the product function, but also the utility function is different and these two functions will change systematically as enhancement of economic level.

The above two models are ex post facto researches of regional economic integration, whereas CGE model is used to make prior analysis of regional economic integration. CGE model can calculate the effects of intra-regional trade and economic welfare caused by the establishment of regional integration organizations, which can afford proofs for government decision makers. What's more, CGE model is particularly popular with researchers analyzing the potential impact of: (a) global trade liberalization under a future WTO round, (b) regional trade arrangement, (c) economic consequences of attempts to reduce carbon dioxide emissions via carbon taxes, and (d) domestic impacts of economic shocks in other region (e.g. rapid growth in China). It can analyze the effects of building regional

economic integration organization not only on regional trade, but also on product, employment and social welfare. Furthermore, the model can demonstrate in detail on the gain and loss of participators in terms of regional trade. Gilbert (2001) applied both CGE model and Gravity model to analyze the effects of FTA among Asia-Pacific countries.

The GTAP model used in this paper is a multi-country and multi-sector CGE model and the GTAP database is in its version 7. The database contains bilateral trade, transport, and protection data characterizing economic linkages among regions, together with individual-country input-output data bases that account for intersectoral linkages with each region. With the constantly updated database of GTAP, the credibility of simulation results is increasing. Philip D. Adams (1998) used GTAP model and GTAP database version 4 to compute economic effects of APEC trade liberalization on its members. And the result indicates that trade liberalization can enhance capital stock and real GDP. Xue and Zhang (2004) used GTAP model and GTAP database version 5 to compute economic effects of several trade cooperation arrangements in East Asia. And the result reveals that China-Japan-Korea-ASEAN FTA can bring the most benefit to China, followed by China-Japan-Korea FTA, China-Japan FTA and CAFTA. Meng and Zheng (2007) used GTAP model and GTAP database version 6 to analyze economic effect of East Asia "10+3" and three "10+1". The conclusion shows that "10+3" mode can obviously enhance social welfare and overall economy of East-Asia countries. Evans and van der Geest (2009) use GTAP version 7 to simulate both modest and ambitious bilateral and multi-lateral trade liberalization and its impact on the EU-China trade relation; they also simulate the stimulus of the domestic Chinese economy through implementing a huge stimulus package in the context of rapidly falling global demand brought about by the global financial crisis and its severe demand implosion.

Wang (2003) evaluates the impact of China's WTO accession on trade and economic relation across the Taiwan Strait and its implications for rest of the world by recursive dynamic CGE model with import-embodied technology transfer and specification of tariff rate quotas for agricultural products. The results predict that China will likely emerge as one of the world's largest manufacturing centers as it integrates into the world economy and Taiwan will likely become an upstream supplier for China's massive manufacturing production and

gain more economically by further integrating its economy with China via a "Greater China" FTA after its WTO entry.

3. Scenario Simulations Description

3.1. GTAP Model Application to ECFA Trade Policy

GTAP model, a multi-region and multi-sector CGE model, stems from Australia SALTER trade model. It was built to implement policy simulation analysis of global trade issues. There are five sectors in GTAP model: household, producer, government, global bank and international trade and transport activity. The model assumes that household expenditures, government purchase and saving (flow into global bank) compose final domestic demand. And output depends on the consumption and saving behavior of household sector and government sector. The saving all flows into global bank and global bank decides the distribution of investment capital. Consumptions of household sector and government sector derive from both domestic and abroad producers. Domestic producers use original input and intermediate products to engage in their productive activities. And part of intermediate products comes from domestic producers; other part comes from foreign manufacturers. Part of domestic products sell at home, others export.

In this paper, software "GEMPACK" is applied to solve GTAP model. GTAP model, GTAP database are developed by global trade research centre of Purdue University. The software GEMPACK (General Equilibrium Modeling PACKage) is a suite of general-purpose economic modeling software developed by Monash University. It is especially suitable for computable general equilibrium (CGE) models.

GTAP database version 7 consists of data of 113 countries (regions) and 57 sectors (industries). Therefore, analysis of any scenarios is required to be carried out after data aggregation. This paper aggregates 113 countries (regions) into 17 regions: Mainland of China, Taiwan, Hongkong, ASEAN (10 countries), Korea, Japan, New Zealand, Australia, India, the United States, EU (27 countries), Chile, Pakistan, MENA (Middle East and North Africa Countries), LatinAmer (Latin American countries), Sub-Saharan Africa and other countries in the world; also aggregates 57 sectors into 21 industries such as fruits and vegetables, animal products, dairy products, Cereal, other agricultural products, manufactory products and service etc. (see Table 2).

Table 2: Sectors Aggregation in the Scenarios

Number	Sectors	Description
1	v_f	Fruit, vegetables, plants
2	Animal	Animal products
3	Dairy	Dairy products
4	Cereal	Cereals & preparations
5	Oilf	Oilseeds, fats & oils
6	Sugar	Sugars and confectionery
7	Otheragri	Other agricultural products
8	b_t	Beverages & tobacco
9	Fsh	Fish & fish products
10	Petro	Petroleum
11	Mineral	Minerals & metals
12	Crp	
13	Woodpaper	Wood, paper, etc Chemicals
14	Tex	Textiles
15	TextWapp	Clothing
16	Lea	Leather, footwear, etc.
17	None	Non-electrical machinery
18	Ele	Electrical machinery
19	Trans	Transport equipment
20	Omf	Other Manufactures, n.e.s.
21	Services	All Services

Source: Author

3.1. Baseline Update

GTAP database version 7 contains the economic trade and production data of 113 countries till year 2004. In this paper, we modify the relevant data according to the trade liberalization degree during period of 2006-2008 and update the baseline which forms new basic scheme closer to status quo. It will be useful for reference and comparison of follow-up scenarios simulation.

We make the following adjustments:

1) Another two countries, Bulgaria and Roumania, have been integrated into EU after 2004. So I reduce the tariff rate to zero among EU 27 countries;

2) According to the latest data publicized on the WTO website, we update the level of import tariffs of 20 industries (excluding service industry) of 16 regions (excluding the other regions in the world);

3) According to the new-added bilateral and multilateral trade agreements after 2004, we update the following data: the tariff rate of agricultural products between China and ASEAN reduced to zero from 2006; the average tariff rate reduced to 1.95% among ASEAN nations from 2008; China's tariff rate for agricultural products imported from New Zealand reduced by 23.5% and tariff rate for

industrial products imported from New Zealand reduced by 41.8% from 2008; Meanwhile, New Zealand's tariff rate for agricultural products imported from China reduced by 24% and tariff rate for industrial products from China reduced by 21%; the import tariffs reduced by 66.24% averagely from ASEAN to Korea, the import tariffs reduced by 25.87% averagely from Korea to ASEAN in Jun, 2007; the import tariffs of industrial products between America and Australia reduced by 99%, the import tariffs of agricultural products reduced by 66% from Australia to America, the import tariffs of agricultural products reduced to zero from America to Australia; the import tariffs of industrial products and agricultural goods between Australia and Chile reduced by 50% in 2009(estimated); The average import tariffs between China and Chile and between China and Pakistan are both reduced by 50% since two bilateral FTAs were signed after year 2004; I also update the import tariff between Japan and Chile by an average reduction of 80%.

4) According to relevant government policies and achievements of world agricultural trade liberalization negotiation, we update following data: China abolished agricultural tax from 2006, so we change China's domestic support

from negative value to zero in the database; developed countries canceled export subsidy of cotton from year 2006 (the developed countries discussed in this paper are EU, America, Japan, Australia and New Zealand).

5) We also update the final bound tariff of Mainland of China and Taiwan from year 2004 to year 2008 (see Table 3).

This study simulates two scenarios:

- The first scenario is a modest liberalization between Mainland of China and Taiwan with a tariff reduction of 100% in industrial products and 50% reduction in agriculture and service;
- The second scenario is an ambitious liberalization between Mainland of China and Taiwan with a tariff reduction of 100% in industrial products, agriculture and service.

The two sides have agreed to cut duties on products in the early harvest

program to zero over two years. Taiwan has agreed to reduce duties on 267 items of products imported from the mainland. Under the agreement, the two sides will continue to discuss agreements for commodities trade, services trade and investment

4. Result Analysis of two Scenarios

4.1. Result of the First Scenario

In this section, we demonstrate the results of a modest liberalization between Mainland of China and Taiwan with a tariff reduction of 100% in industrial products and 50% reduction in agriculture and service (Table 3). Only some main sectors and the neighbor economies are chosen to be discussed in this section.

Table 3: The Change in some Macro Data

Region	Mainland of China	Taiwan	Japan	Korea	Hong Kong	ASEAN
Change of GDP (%)	0.056034	0.181424	-0.000985	-0.01304	-0.00288	-0.0101
Change of Total Exports (%)	11.030947	13.023877	9.895577	9.836893	9.797894	10.00275
Change of Total Imports (%)	11.487439	13.372886	9.836023	9.801552	9.766597	9.980405
Change of Social Welfare (million USD)	-418.83	3541.19	-324.49	-378.59	-197.5	-371.22
Change of Terms of Trade (%)	-0.24	1.58	-0.06	-0.12	-0.17	-0.06

Source: Author

From the Table 3, we can see that after the establishment of ECFA, both Mainland of China and Taiwan will increase their exports and imports at a two-digit growth rate. Taiwan's GDP will grow by 0.18% while Mainland grows by 0.06%. In terms of social welfare improvement and terms of trade, Taiwan will benefit more than any of its neighbor

economies. This result consists with my formal research result about the FTA establishment between China and Korea that smaller economy benefits more than larger economies after both sides sign the FTA agreement.

From Table 4, exports of oilseeds and oils will increase by nearly 60% while its exports to other neighbors will decrease a little bit.

Table 4: The Bilateral export Changes in Oilseeds, Fats & Oils (%)

	Taiwan	Mainland of China	Japan	Korea	Hong Kong	ASEAN
Taiwan		59.41	-6.32	-6.65	-6.87	-6.86
Mainland of China	11.81		0.28	0.01	0.1	0.25
Japan	4.92	0.09		0.03	0.12	0.27
Korea	5.2	0.35	0.56		0.39	0.54
Hong Kong	5	0.17	0.38	0.12		0.34
ASEAN	4.78	-0.05	0.16	-0.1	-0.02	

Source: Author

After the establishment of ECFA, Taiwan's exports of vegetable and fruits to Mainland of

China will increase by 22.4% while Mainland's export to Taiwan will increase by 35%. The

other neighbors' exports to each other do not change that much (Table 5).

Table 5: The Bilateral export Changes in Vegetable-Fruit-Nut (%)

	Taiwan	Mainland of China	Japan	Korea	Hong Kong	ASEAN
Taiwan		22.38977	-4.32794	-4.46221	-3.85854	-4.33285
Mainland of China	35.03203		-0.19204	-0.29684	-0.19711	-0.25859
Japan	0.813571	0.079602		-0.0221	0.109371	0.008347
Korea	1.015331	0.287335	0.234907		0.337075	0.212174
Hong Kong	1.00925	0.264905	0.269848	0.156783		0.202192
ASEAN	0.857108	0.114471	0.124228	0.013426	0.146603	

Source: Author

In addition, after the ECFA established, Table 6 reports that the bilateral exports of textiles will grow by 65% or so. This will affect the textile

export from Japan, Korea, Hong Kong and ASEAN to Mainland of China negatively by reducing around 10%.

Table 6: Bilateral Export Changes in Textiles (%)

	Taiwan	Mainland of China	Japan	Korea	Hong Kong	ASEAN
Taiwan		65.12	-12.3	-12.35	-11.1	-10.57
Mainland of China	65.26		0.56	0.58	1.88	2.45
Japan	1.14	-10.38		-0.86	0.35	1.02
Korea	1.59	-9.93	-0.44		0.8	1.46
Hong Kong	1.56	-9.93	-0.44	-0.43		1.42
ASEAN	0.78	-10.73	-1.25	-1.22	-0.01	

Source: Author

From Table 7, we can see Mainland's exports to its neighbor economies grow a little bit while

that of Taiwan to its neighbors decreases dramatically.

Table 7: the Bilateral Export Changes in Electronic Products (%)

i \ j	Taiwan	Mainland of China	Japan	Korea	Hong Kong	ASEAN
Taiwan		-5.650919	-11.0901	-10.542501	-10.454096	-10.7675
Mainland of China	0.343616		1.037272	1.624647	1.675521	1.354248
Japan	-5.97094	1.589039		1.76897	1.819813	1.498534
Korea	-5.72386	1.833743	1.426982		2.065866	1.743119
Hong Kong	-6.46414	1.092963	0.690999	1.275715		1.007158
ASEAN	-6.42182	1.138663	0.732916	1.317554	1.369966	

Source: Author

From Table 8 and Table 9, we can see the bilateral exports of non-electric machinery and transport equipment between mainland of China and Taiwan will increase dramatically while

Taiwan's exports to other neighbors decrease by around 10%. On the other hand, the bilateral exports between any other two East Asian economies does not change that much.

Table 8: The Bilateral Export Changes in Non-electric Machinery (%)

	Taiwan	Mainland of China	Japan	Korea	Hong Kong	ASEAN
Taiwan		39	-12.24	-12.26	-12.02	-11.92
Mainland of China	32.22		0.59	0.68	0.85	0.96
Japan	1.81	-5.41		0.24	0.4	0.53
Korea	2.47	-4.74	0.81		1.06	1.19
Hong Kong	2.06	-5.15	0.4	0.49		0.77
ASEAN	1.62	-5.6	-0.03	0.06	0.21	

Source: Author

Table 8: The Bilateral Export Changes in Transport Equipment (%)

	Taiwan	Mainland of China	Japan	Korea	Hong Kong	ASEAN
Taiwan		88.24	-8.55	-8.9	-8.93	-8.91
Mainland of China	44.85		0.53	0.36	0.47	0.5
Japan	1.77	-1.71		-0.03	0.06	0.1
Korea	2.27	-1.21	0.64		0.57	0.6
Hong Kong	2.49	-0.98	0.86	0.69		0.82
ASEAN	1.73	-1.75	0.11	-0.07	0.02	

Source: Author

4.2. Results of the Second Scenario

In this section, we simulate an aggressive liberalization between Mainland of China and Taiwan with a tariff reduction of 100% in both industrial and agriculture products and service.

In this scenario, the GDP growth, social welfare change and the improvement of terms of trade is very similar to that of scenario one. In any case, an ECFA agreement will benefit Taiwan as a small economy (Table 9).

Table 9: Changes in some Macro Data through Second Scenario

Country	Mainland of China	Taiwan	Japan	Korea	Hong Kong	ASEAN
Change of GDP (%)	0.06	0.19	0	-0.01	0	-0.01
Change of Social Welfare (million USD)	-406.91	3560.11	-323.66	-378.85	-197.79	-373.43
Change of TOT (%)	-0.23	1.58	-0.06	-0.12	-0.17	-0.06

Source: Author

From Tables 10, we can find that the bilateral exports between Mainland and Taiwan in some agriculture sectors will increase more tremendously than in the first scenario since the

import tariffs were removed, especially in the sector of vegetable and fruit. It shows there is still more room between two economies to expand each other's agriculture market.

Table 10: Change in Some Sectors' Bilateral Exports

Electric Product (%)						
	Taiwan	Mainland of China	Japan	Korea	Hong Kong	ASEAN
Taiwan		-5.68	-11.11	-10.56	-10.47	-10.79
Mainland of China	0.32		1.03	1.62	1.67	1.35
Japan	-5.98	1.59		1.77	1.83	1.5
Korea	-5.74	1.83	1.43		2.07	1.75
Hong Kong	-6.48	1.09	0.69	1.28		1.01
ASEAN	-6.43	1.14	0.74	1.32	1.38	

Animal Product (%)						
	Taiwan	Mainland of China	Japan	Korea	Hong Kong	ASEAN
Taiwan		22.9	-4.06	-4.89	-4.08	-4.2
Mainland of China	7.63		-0.1	-0.93	-0.2	-0.32
Japan	6.97	-0.11		-0.59	0.15	0.02
Korea	7.15	0.05	0.39		0.32	0.19
Hong Kong	7.17	0.1	0.45	-0.38		0.23
ASEAN	6.99	-0.1	0.26	-0.57	0.17	
Vegetable-Fruit-Nut (%)						
	Taiwan	Mainland of China	Japan	Korea	Hong Kong	ASEAN
Taiwan	-6.17	49.35	-4.15	-4.29	-3.7	-4.16
Mainland of China	67.88	-0.36	-0.25	-0.36	-0.27	-0.32
Japan	-0.77	0.04	0.1	-0.03	0.1	0
Korea	-0.56	0.26	0.24	0.24	0.34	0.22
Hong Kong	-0.57	0.23	0.27	0.15	0.31	0.2
ASEAN	-0.71	0.1	0.15	0.03	0.16	0.06
Beverage (%)						
	Taiwan	Mainland of China	Japan	Korea	Hong Kong	ASEAN
Taiwan		47.44	-4.29	-4.49	-3.85	-4.2
Mainland of China	14.53		-0.18	-0.29	-0.2	-0.22
Japan	2.56	-0.46		-0.1	0	-0.02
Korea	2.76	-0.27	0.22		0.19	0.18
Hong Kong	2.78	-0.24	0.23	0.11		0.19
ASEAN	2.58	-0.44	0.04	-0.09	0.02	
Sugar (%)						
	Taiwan	Mainland of China	Japan	Korea	Hong Kong	ASEAN
Taiwan	-8.53	-8.17	-10.66	-10.7	-10.41	-9.5
Mainland of China	11.64	-0.27	-0.39	-0.4	-0.5	-0.41
Japan	3.01	0.16	0.04	0.04	-0.09	-0.04
Korea	3.22	0.39	0.27	0.34	0.14	0.19
Hong Kong	3.28	0.45	0.31	0.32	0.21	0.26
ASEAN	3.02	0.2	0.06	0.05	-0.05	-0.01

Source: Author

5. Conclusion

In this paper we update the tariff data from its baseline of year 2004 in the GTAP AGG7 to year 2008, based on which we simulate two simple scenarios to see what kind of economic effects to have after an ECFA agreement is reached between Mainland of China and Taiwan. We draw the following conclusions:

1. The ECFA will benefit both economies in terms of GDP growth and also will expand their total export to each other and other countries. Taiwan will benefit more in terms of social welfare improvement than any of its neighbor economies. This result consists with our formal research result about the FTA establishment

between China and Korea that smaller economy benefits more than larger economies after both sides sign the FTA agreement.

2. The ECFA agreement will not influence their East Asian economies much. So ECFA is a kind of Pareto improvement from the perspective of regional economic development or even the world economic development. Both Mainland and Taiwan should take active attitude to sign this agreement since it will benefit Taiwan in the dimension of economic development. On the other hand, Mainland of China will be willing to integrate the market first, hopefully in future to unite from the political perspective.

3. The agricultural sectors will benefit more after the trade liberalization, especially in the sector of vegetable and fruit, oilseeds and oils. Both economies will increase their export in this sector dramatically. This will benefit the farmers from both sides. Also the consumers with same preference will have more choice of goods in future.

4. An ECFA will benefit textiles, non-electric machinery and transport equipment industrials with and expansion of its export while the electric machinery industry does not benefit that much, which needs further study.

5. Aggressive liberalization in agricultural sector will benefit agricultural sectors more than the modest reduction of import tariff reduction in agriculture goods.

In future, we will update more baseline data, such as GDP, factors change and technology efficiency. We need to input detailed tariff data in each specific sector. All these improvement will make our results more precise.

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