Does ASEAN Freer Trade Benefit Malaysia?

Othman, Jamal and Yaghoob, Jafari

Universiti Kebangsaan Malaysia

2 June 2009

Does ASEAN Freer Trade Benefit Malaysia?[+]

By

Jamal Othman and Yaghoob Jafari*

Abstract:

This paper examines the impact of intra-ASEAN trade liberalization (AFTA) using a multi-country, computable general equilibrium model (GTAP Model) with special focus on Malaysia. The study considers the full elimination of intra-ASEAN import taxes and export subsidies. Results suggest that Malaysia's GDP would only increase marginally while the effects on the individual commodity sectors in the country differ substantially.

Key Words: ASEAN Free Trade (AFTA), GTAP, CGE Trade Model, AFTA Impacts on Malaysia, Trade liberalization

* First author *(Jortman@ukm.my)* is Professor of Economics at the Faculty of Economics and Business, Universiti Kebangsaan Malaysia while second author *(Yaghoob.jafari@gmail.com)* is Ph.D candidate at the same faculty.

+ Proceeding of the *Fourth Malaysian Economic National Conference 2009*, 2-3 June 2009. Organized by the Faculty of Economic and Business, Universiti Kebangsaan Malaysia, Bangi.

Introduction

In recent years, there has been a proliferation of bilateral and multilateral Free Trade Agreements (FTAs) across the globe. To date, Malaysia herself has committed to implement two bilateral FTAs and four regional FTAs. The two bilateral FTAs are with Japan (MJEPA) and Pakistan (MPCEPA) while the latter are the ASEAN Free Trade Area (AFTA), ASEAN-Japan Close Economic Partnership Agreement (AJCEP), ASEAN- Korea Free Trade Agreement (AKFTA) and the ASEAN-China Free Trade Agreement (ACFTA). Malaysia is currently negotiating further bilateral FTAs with Australia, Chile, India, New Zealand, the U.S, the EU, and GCC.

The Association of Southeast Asian Nations or ASEAN comprises ten member-countries, i.e., Indonesia, Malaysia, Philippines, Singapore, Lao PDR, Myanmar, Cambodia, Brunei Darussalam, Thailand, and Vietnam. As of 2007, the ASEAN region has a combined population of 575 million (third after China and India), a total area of 4.5 million square kilometers, total nominal GDP of some US$ 1.3 trillion, and a total trade (intra and extra ASEAN) of US$ 1.5 trillion. Owing to its sheer economic size and unexploited resources, the ASEAN region under an Economic Union framework potentially represents a global power house in the near future.

All ASEAN member countries have agreed to implement the AFTA as a means of increasing intra ASEAN trade. The AFTA was incepted by the introduction of the **Common Effective Preferential Tariff Scheme (CEPT)** in 1993 to eliminate intra-ASEAN import tariffs. ASEAN-6 was supposed to remove duties on all products by 2010 with the exception of some highly sensitive unprocessed agricultural products. Special privileges were also given to Indonesia and the Philippines for certain agricultural products (rice and sugar) by 2015. The CEPT Agreement was reviewed and updated in August 2007 to provide the basis for a comprehensive framework for Trade in Goods (TIG) Agreement for the implementation of AFTA.

This study examines the effects of removing all intra-ASEAN import tariffs and export subsidies in light of AFTA implementation. In particular, this paper investigates the impacts of such regional FTA on the Malaysian economy.

Model, Dataset and Scenario

Most contemporary studies on the impacts bilateral or regional trade liberalization have used the GTAP model. The GTAP model is comparative static, exogenous policy, multi-country and utilized a general equilibrium framework. The standard GTAP assumes constant returns to scale production technology and competitive market structure in an economy. It also assumes imperfect substitution between foreign and domestic goods and between alternative sources of imports (Armington assumption). This study uses the latest GTAP7 database which carries a snapshot of the 2004 world economy. The database has 113 regions (aggregates of 226 countries) and 57 sectors. The sectoral definitions in the database follow

the Central Product Classification (CPC) for agricultural & food processing and ISIC for all others. Note that, dynamic effects and other technology variant for certain sectors were not considered in the study. Therefore, the effects and potential gains from trade liberalization espoused in this study are highly likely modest or underestimated.

In this study, the world economy was modeled to comprise the ASEAN individual economy (excluding Brunei), the US, Japan, China, and the Rest of the World aggregate while 6 aggregate economic sectors were considered. The regional and sectoral aggregations are shown in Table 1. Here the 113 original regions in the GTAP7 database are mapped into 13 new regions and 57 original sectors mapped into 6 new sectors.

The study examined a full regional liberalization where the entire intra-ASEAN import tariffs and export subsidies for all commodities were eliminated. This was in light of AFTA which has commited itself to full liberalization of the entire agricultural sector by 2015.

Table 1: Regional and Sectoral Aggregation

	Regions			**Sectors***	
	Code	**Coverage**		**Code**	**Coverage**
1	INDO	Indonesia	1	AGRI	Agriculture
2	MALY	Malaysia	2	EXTR	Extraction Industry
3	SPOR	Singapore	3	FOOD	Processed Food
4	PHIL	Philippines	4	TEXT	Textiles
5	LAO	Lao PDR	5	MANU	Manufactures
6	CAMB	Cambodia	6	SVCS	Services
7	MYNM	Myanmar			
8	THAI	Thailand			
9	VIET	Vietnam			
10	US	US			
11	CHIN	China			
12	JAPN	Japan			
13	ROW	Rest-of-the World			

* *The details of the commodity composition for each of the sectors are presented in Appendix 1.*

Basic Data

This section examines pre FTA simulation bilateral trade situation for each of the ASEAN member economies. Table 1 depicts the initial bilateral trade amongst ASEAN member countries and across other regions.

Table 1: Initial Bilateral Trade

		Trade Partners													
Reporting Countries		JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
	JAPN	0	0.152	0.222	0.015	0.022	0	0.033	0.026	0.015	0	0	0.005	0.51	1
	CHIN	0.132	0	0.272	0.012	0.014	0.001	0.011	0.019	0.008	0.001	0	0.008	0.522	1
	US	0.081	0.047	0	0.005	0.012	0	0.008	0.02	0.004	0	0	0.002	0.821	1
	INDO	0.162	0.096	0.136	***0***	***0.04***	***0.001***	***0.025***	***0.078***	***0.014***	***0.001***	***0***	***0.008***	0.44	1
	MALY	0.094	0.148	0.188	***0.017***	***0***	***0.001***	***0.038***	***0.103***	***0.012***	***0.001***	***0***	***0.008***	0.391	1
	CAMB	0.039	0.011	0.47	***0.002***	***0.004***	***0***	***0.014***	***0.015***	***0.001***	***0***	***0***	***0.032***	0.412	1
	THAI	0.121	0.122	0.156	***0.024***	***0.047***	***0.005***	***0***	***0.041***	***0.015***	***0.005***	***0.004***	***0.018***	0.442	1
	SPOR	0.06	0.111	0.106	***0.071***	***0.089***	***0.001***	***0.031***	***0***	***0.019***	***0.003***	***0***	***0.018***	0.49	1
	PHIL	0.174	0.107	0.158	***0.008***	***0.05***	***0***	***0.028***	***0.06***	***0***	***0***	***0***	***0.004***	0.411	1
	MYAN	0.061	0.054	0.013	***0.006***	***0.035***	***0***	***0.343***	***0.024***	***0.001***	***0***	***0***	***0.006***	0.456	1
	LAO	0.027	0.021	0.086	***0.001***	***0.002***	***0.001***	***0.173***	***0.005***	***0***	***0***	***0***	***0.11***	0.575	1
	VIET	0.125	0.095	0.194	***0.012***	***0.018***	***0.006***	***0.024***	***0.043***	***0.01***	***0***	***0.002***	***0***	0.472	1
	ROW	0.039	0.051	0.165	0.005	0.006	0	0.007	0.01	0.003	0	0	0.002	0.713	1
	Total	0.051	0.057	0.158	0.007	0.01	0	0.01	0.015	0.005	0	0	0.003	0.682	1

Source: GTAP7 database

As seen in Table 1, the US, China, Singapore and Japan are the major trade partners for Malaysia. Intra-ASEAN trade in general has been extremely low. Singapore is Malaysia's most important trade partner (10.3 percent), followed by Thailand (3.8 percent), Indonesia at 1.7 percent, while Lao PDR has almost zero percent trade share with Malaysia. Thailand, on the other hand is a substantial trade partner for Myanmar and Lao PDR.

Tables 2 and 3 provide information about the decomposition of Malaysian exports and imports, respectively. Manufacturing and agricultural goods form the most important export products of Malaysia to Singapore. Indonesia has been Malaysia's important source of imports for agricultural products (AGRI), extraction industry products (EXTR) and processed food (FOOD). Malaysia also imports substantial processed food products from Thailand.

Tables 4 and 5 present the import taxes and export subsidies instituted by Malaysia to other regions.

Table 2: Decomposition of Malaysian Exports by Sector

	JAPN	CHIN	US	INDO	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW
AGRI	0.103	0.02	0.034	0.026	0.001	0.046	0.413	0.007	0	0	0.006	0.343
EXTR	0.256	0.113	0.034	0.036	0	0.093	0.046	0.016	0	0	0.009	0.397
FOOD	0.047	0.178	0.053	0.023	0.001	0.018	0.073	0.017	0.007	0	0.014	0.568
TEXT	0.04	0.052	0.235	0.014	0.015	0.014	0.096	0.007	0.001	0	0.02	0.505
MANU	0.087	0.164	0.219	0.016	0	0.039	0.117	0.012	0.001	0	0.007	0.338
SVCS	0.06	0.023	0.124	0.008	0	0.007	0.017	0.002	0	0	0.002	0.757
Total	0.092	0.148	0.19	0.017	0.001	0.038	0.103	0.012	0.001	0	0.008	0.39

Source: GTAP7 database

Table 3: Decomposition of Malaysian Imports by Sector

	JAPN	CHIN	US	INDO	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW
AGRI	0.001	0.153	0.118	0.134	0.001	0.057	0.024	0.001	0.009	0	0.01	0.491
EXTR	0.005	0.041	0.015	0.143	0	0.023	0.016	0.001	0.012	0	0.067	0.676
FOOD	0.007	0.083	0.051	0.142	0	0.143	0.067	0.014	0.005	0	0.045	0.442
TEXT	0.045	0.401	0.017	0.077	0.001	0.066	0.065	0.003	0.003	0	0.019	0.303
MANU	0.161	0.097	0.133	0.027	0	0.06	0.158	0.031	0	0	0.002	0.33
SVCS	0.029	0.015	0.162	0.003	0	0.007	0.019	0.002	0	0	0.002	0.761
Total	0.13	0.095	0.127	0.035	0	0.056	0.13	0.025	0.001	0	0.006	0.395

Source: GTAP7 database

Table 4: Import Taxes by Malaysia (Base case) (% Ad valorem rate)

	JAPN	CHIN	US	INDO	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	16.81	6.925	30.53	11.54	151.3	9.728	1.338	188.9	0.114	0.196	16.18	11.43	445
EXTR	0.458	1.435	0.518	0.397	0.059	0.105	0.083	0.046	0.163	0	2.259	1.563	7.086
FOOD	37.75	32.58	39.51	22.42	106.2	3.158	41.85	11.45	3.465	125.9	3.304	16.75	444.4
TEXT	14.03	18.53	14.29	4.214	4.845	3.375	3.775	4.601	4.986	4.658	4.236	13.4	94.94
MANU	10.35	5.146	2.022	1.614	0.703	1.844	0.804	0.381	0.318	1.796	2.285	6.642	33.9
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	79.39	64.62	86.86	40.19	263.1	18.21	47.85	205.4	9.046	132.5	28.27	49.78	1025

Source: GTAP7 database

Table 5: Export Subsidies by Malaysia (Base case) (% Ad valorem rate)

	JAPN	CHIN	US	INDO	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	0	0	0	0	0	0	0	0	0	0	0	0	0
EXTR	-2.33	0.698	0.499	1.242	0.99	1.295	1.078	1.288	-1.248	1.342	-0.047	-0.174	4.631
FOOD	0	0	0	0	0	0	0	0	0	0	0	0	0
TEXT	0	0	0	0	0	0	0	0	0	0	0	-1.188	-1.188
MANU	0	0	0	0	0	0	0	0	0	0	0	0	0
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-2.33	0.698	0.499	1.242	0.99	1.295	1.078	1.288	-1.248	1.342	-0.047	-1.363	3.443

Source: GTAP7 database

Malaysia has been imposing heavy import tariffs for the importation of agricultural and food products from Cambodia and Philippines. Imports of food products from Lao PDR and Singapore have also been subjected to marked taxes. On the other hand, Malaysia in general has not been subsidizing her exports to all the ASEAN markets (Table 5). Tax and subsidy rates for all other ASEAN countries are shown in Appendix II.

Simulation Results

This study considers a full elimination of all intra-ASEAN trade protectionism (import tariffs) and enhancement policies (export subsidies) for all sectors. Effects on selected economic variables with special focus on Malaysia are discussed below.

i. Real GDP

Impacts on GDP for the individual region are depicted in Table 6.

Table 6: Impacts on GDP

Regions	Percent Change
JAPN	0
CHIN	0
US	0
INDO	0.04
MALY	***0.17***
CAMB	-0.12
THAI	-0.03

SPOR	0.04
PHIL	0.11
MYAN	-0.02
LAO	0.16
VIET	-0.09
ROW	0

Source: Simulation results

As shown in Table 6, the GDPs of Cambodia, Thailand, Vietnam and Myanmar potentially decline marginally. This may be attributed to the relatively higher imposition of taxes for imported products into these countries prior to AFTA. Malaysia's GDP is poised to gain the most (0.17 percent), followed by Lao PDR, Philippines, Singapore and Indonesia. It is clear that countries which have been facing relatively higher and more extensive import tariffs for their products would stand to gain in GDP following a full removal of intra-ASEAN tariffs.

Overall, the potential GDP change under AFTA would be rather minute as suggested by the results. This is however, not unexpected, given the extremely low intra-ASEAN trade prior to the implementation of AFTA. The impacts of AFTA on the individual economic sectors will be more meaningful and pose greater policy implications. These are discussed in the following sub-sections.

ii. Sectoral Outputs and Trade Balance

Impacts on Malaysian sectoral outputs and trade balance are given in Table 7.

Table 7: Change in Malaysia's Sectoral Output and Trade Balance

Sectors	Percent Change in Output	Change in Trade Balance (USD Millions)
AGRI	-0.51	-22.83
EXTR	-0.41	-42.58
FOOD	6.60	544.01
TEXT	8.88	221.85
MANU	-0.47	-493.29
SERV	-0.31	-218.72
Total		-11.56

Source: Simulation results

Under a full fledge AFTA, the outputs for textile industry (TEXT) and the processed food (FOOD) sectors are expected to increase substantially by 9 and 7 percents, respectively. These are also accompanied by strong increases in trade balance. On the other hand, outputs and trade balances for the agriculture sector (AGRI), extraction industry (EXTR), and especially manufacturing (MANU) and services (SERV) sectors contracted substantially.

Recall that this study deals with aggregate sectors. It is possible that certain individual commodities, for instance vegetable oils (aggregated under AGRI) may see a gain. However, such precise analyses of sectoral impacts would require greater disaggregation of sectors.

Nevertheless, it has been clear the increase in Malaysian GDP would come mainly from increases in value adding activities in the textile and processed food sectors.

iii. Bilateral Exports and Imports

Tables 8 and 9 below show how bilateral exports and imports, respectively, by Malaysia may be affected by AFTA.

Table 8: Change in Bilateral Imports by Malaysia (% change)

	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW
AGRI	-22.35	-22.15	-22.31	29.23	-15.64	3524	18.68	-19.85	8316	-21	-15.73	56.26	-22.27
EXTR	-1.33	-1.21	-1.35	1.87	-2.59	24.94	-3.2	-4.66	-0.18	-2.58	-6.59	26.31	-1.37
FOOD	-27.56	-27.43	-27.58	95.31	-22.35	-1801	-15.41	297.2	19.22	-11.63	-3352	-12.84	-27.56
TEXT	-2.25	-2.16	-2.36	32.19	1.33	48.59	22.89	24.14	35.62	47.56	59.5	35.81	-2.34
MANU	-1.09	-1.09	-1.19	9.51	-2.83	21.7	11.42	1.38	0.76	0.79	21.33	20.06	-1.19
SVCS	0.86	0.9	0.79	-0.38	-0.98	-3.02	-2.02	-3.02	-0.6	1.25	6.14	0.72	0.8

Source: Simulation Results

Table 9: Change in Bilateral Exports by Malaysia (% Change)

	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW
AGRI	6.973	6.95	8.289	19.44	-15.64	106.7	118.8	14.27	32.33	5.487	0.31	39.38	7.628
EXTR	-1.072	-1.105	-1.202	0.792	-2.594	-21.4	0.96	-0.501	30.57	9.604	3.166	-1.683	-1.165
FOOD	6.16	5.489	6.318	22.46	-22.55	9.384	411.9	18.42	-1.19	-5.309	5.377	52.97	6.046
TEXT	3.347	3.342	3.433	22.92	1.326	247.3	171.7	4.645	24.71	64.69	37.68	40.47	3.413
MANU	-1.533	-1.533	-1.603	8.649	-2.833	28.82	17.27	-0.618	5.744	5.748	-11	19.89	-1.595
SVCS	-1.741	-1.768	-1.711	-1.135	-0.985	-0.421	-0.364	-0.6	-0.952	-2.067	-5.255	-2.073	-1.709

Source: Simulation Results

Results indicate Malaysian imports may increase very substantially from countries which have been subjected to significant import tariffs prior to AFTA (Table 8). Likewise, for Malaysian exports. Interestingly, textile products (TEXT) represent the only Malaysian sector that shows increases in both imports and exports in the ASEAN markets. Processed foods (FOOD) will also make greater inroads, especially into the Thai and Vietnamese markets. Malaysian exports to Indonesia and Thailand for all sectors except SVCS are expected to improve. Exports of agricultural goods to Cambodia, Thailand and Vietnam will also show a profound increase of some 107, 118 and 39 percents, respectively. Most strikingly, imports of agricultural products from Cambodia and the Philippines will be magnified greatly by more than 3000 and 8000 percents, respectively. On the other hand imports of FOOD from Cambodia and Lao PDR are poised to decline markedly.

Changes in bilateral exports and imports give rise to the net effect on trade balance for the individual sectors, as depicted in Table 7 earlier. By merely comparing the percentage

changes between both imports and exports, without considering the changes in absolute values may not readily provide any clue on the likely trade balance effects. Interested readers are referred to Appendix III to have an appreciation of the magnitude and differences in absolute values between pre and post AFTA simulation for each commodity sector.

iv. Domestic and Export Market Share Changes

Table 10 compares the domestic and export market share between the pre and post AFTA simulation scenario for each commodity sector. Clearly, only two sectors – FOOD and TEXT reflect a marked change in both domestic and export demand shares. For the two sectors, domestic and export market demand share declines and increases, respectively. Results strongly suggest that changes in market demand structure for processed food and textiles and consequently output augmentation have been strongly induced by export demand, i.e., the removals of the intra-ASEAN trade protectionism measures. However, for the overall economy both market shares appear to be stable in the AFTA scenario.

Table 10: Domestic and Export Market Shares

	Pre Simulation		Post Simulation	
	Domestic demand share	Export market share	Domestic demand share	Export market share
AGRI	0.846	0.154	0.846	0.154
EXTR	0.551	0.449	0.553	0.447
FOOD	0.483	0.517	0.443	0.557
TEXT	0.291	0.709	0.278	0.722
MANU	0.29	0.71	0.288	0.712
SVCS	0.817	0.146	0.818	0.145
Total	0.467	0.523	0.464	0.526

Source: GTAP7 Data base and simulation results

v. Regional Welfare

Table 11 illustrates the impact of intra-ASEAN free trade on welfare and its decomposition for Malaysia. It can be seen that the increase in Malaysia's welfare of USD282 mill is mainly a result of improvement in allocative efficiency of resources and to a lesser extent by improvements in Malaysia's terms of trade. Note that this allocative efficiency constitutes the change in the country's GDP following AFTA.

Table 11: The impact on Malaysian Welfare (EV, Million USD)

	Change in Welfare	Decomposition of Welfare Change		
		Allocative Efficiency	Terms of Trade	Other
Malaysia	282.201	189.783	99.383	-6.965

Source: Simulation Results

It is quite intriguing to observe that a full AFTA would rather lead to welfare decreases in the textile sector (evidently a 'star" sector as far as output and export growth are concerned), while welfare in agriculture, extraction industry and as expected the processed food sector increases – see Table 12. From economic theory, however, it will be clear that output and export expansion (decline) need not necessarily be welfare augmenting (degrading). As seen in the table, the agriculture sector is set to enjoy the highest welfare gains, followed by processed food. Manufactures are expected to face a substantial welfare loss while welfare decline for textiles and services will only be marginal.

Table 12: Allocative Efficiency Effect by Commodity Groups (EV, Million $)

Agriculture	166.9
Extraction Industry	-1.688
Processed Food	63.82
Textile	-3.542
Manufacture	-35.66
Services	-0.076

Source: Simulation Results

Conclusion and Remarks

Overall, intra-ASEAN free trade is likely to produce a small effect on member countries' GDP including Malaysia due to the particularly small existing intra-trade between them. Nevertheless, it is expected Malaysia's GDP and overall national welfare would gain the most relative to other ASEAN member countries. The direction and magnitude of impacts for each sector are projected to be considerably different. Increased outputs and exports are expected to be seen for textiles and processed food while other sectors would experience marginal contraction. However, the agriculture sector is anticipated to enjoy the highest welfare gains (EV) followed by processed food. Generally, an AFTA is beneficial to Malaysia. However, more comprehensive studies are warranted in order to access the repercussions on individual disaggregated commodities and especially to take into account emerging issues such as agricultural multi-functionality, trade-environment effects and the so-called 'development box' which has taken the limelight in recent trade negotiations.

Appendix I: Detailed Coverage of Sectors Used in the Study

Sector	Code	Coverage of Commodities
Agriculture	AGRI	Paddy rice, Wheat, Cereal grains, Vegetables, Fruit, nuts, Oil seeds, Sugar cane, Sugar beet, Plant-based fibers, Crops, Cattle, Sheep, Goats, Horses, Animal products, Raw milk ,Wool, Silk-worm cocoons
Extraction	EXTR	Forestry, Fishing, Coal, Oil, Gas, Minerals
Processed Food	FOOD	Meat products, Food, Vegetable oils and fats, Dairy products, Processed rice, Sugar, Food products, Beverages and tobacco products
Textiles	TEXT	Textiles, Wearing apparel, Leather products
Manufactures	MANU	Wood products, Paper products, Publishing, Petroleum, Coal products, Chemical, Rubber, Plastic prods, Mineral products, Ferrous metals, Metals, Metal products, Motor vehicles and parts, Transport equipment, Electronic equipment, Machinery and equipment, Manufactures
Services	SVCS	Electricity, Gas manufacture, Distribution, Water, Trade, Transport, Construction, Sea transport, Air transport, Communication, Financial, Insurance, Business services, Recreation and other services, Pub Admin /Defence/Health/Education, Dwellings

Source: Adapted from GTAP7 Database

Appendix II: Import taxes and export subsidies for all ASEAN member countries

Import Taxes by INDONESIA (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	2.832	4.704	0.68	0	2.317	0	3.425	3.968	2.434	3.901	0	3.803	1.586	29.65
EXTR	2.187	0.493	2.365	0	0.109	0.465	0.836	1.243	4.001	0.142	0	0.042	0.19	12.07
FOOD	13.85	6.945	5.504	0	7.745	0.006	27.96	16.68	0.921	6.064	0	16.62	6.142	108.4
TEXT	5.85	10.23	5.98	0	2.401	2.017	2.521	2.243	3.953	0.151	0	3.584	8.016	46.95
MANU	6.815	5.393	4.437	0	1.621	2.087	2.699	1.451	1.415	0.078	0.006	1.578	4.431	32.01
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	31.54	27.76	18.97	0	14.19	4.575	37.44	25.59	12.73	10.34	0.006	25.62	20.37	229.1

SOURCE: GTAP7 database

Import Taxes by CAMBODIA (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	7.195	12.34	9.093	9.882	12.14	0	13.06	11.21	6.879	6.989	0	8.192	9.733	106.7
EXTR	8.723	1.779	7.244	13.25	1.421	0	7.315	15.95	14.51	0	0	8.948	0.262	79.4
FOOD	7.07	28.07	17.63	7.198	11.17	0	26.9	24.61	16.54	5.26	7.136	13.23	17.94	182.8
TEXT	10.66	12.62	14.5	10.11	21.52	0	14.17	14.37	9.613	0	0	13.49	14.6	135.6
MANU	18.28	11.51	37.78	10.78	11.83	0	16.64	12.38	13.55	29.22	24.11	7.31	14.54	207.9
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	51.92	66.32	86.25	51.21	58.08	0	78.09	78.51	61.09	41.47	31.25	51.17	57.07	712.4

SOURCE: GTAP7 database

Import Taxes by THAILAND (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	12.94	32.83	18.33	21.97	16.98	32.31	0	4.363	5.805	8.111	28.8	5.894	20.18	208.5
EXTR	5.489	7.689	6.337	0.008	0.088	2.559	0	1.031	7.696	0.304	1.343	0.061	0.221	32.83
FOOD	47.22	34.79	22.28	11.61	45.22	11.63	0	21.88	46.79	5.155	36.66	21.52	32.98	337.7
TEXT	18.57	24.37	16.56	10.18	14.24	5.485	0	7.621	10.57	7.844	9.131	11.61	17.91	154.1
MANU	12.76	9.477	7.601	5.689	2.888	0.5	0	3.788	2.635	3.105	2.024	4.049	8.786	63.31
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	96.98	109.2	71.11	49.45	79.42	52.49	0	38.68	73.49	24.52	77.96	43.14	80.07	796.5

SOURCE: GTAP7 database

Import Taxes by SINGAPORE (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXTR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FOOD	0	0.753	0.215	0	0	0	0	0	0	0	0	0	1.191	2.158
TEXT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0.753	0.215	0	0	0	0	0	0	0	0	0	1.191	2.158

SOURCE: GTAP7 database

Import Taxes by PHILIPPINES (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	4.768	14.1	4.953	4.716	3.514	1.123	4.893	3.57	0	4.403	0	4.854	5.741	56.63
EXTR	2.958	4.366	3.034	2.988	2.953	0	2.281	1.173	0	0	0	2.936	2.98	25.67
FOOD	7.342	10.35	10.78	3.566	3.208	0.5	13.93	3.793	0	3.125	0	48.28	6.266	111.1
TEXT	5.979	9.939	7.476	3.124	2.741	2.981	2.422	3.977	0	3.775	0	3.371	6.654	52.44
MANU	3.035	3.78	2.451	2.129	1.179	1.862	2.159	0.958	0	1.822	0	3.354	2.76	25.49
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	24.08	42.53	28.69	16.52	13.6	6.466	25.68	13.47	0	13.13	0	62.8	24.4	271.4

SOURCE: GTAP7 database

Import Taxes by MYANMAR (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	0	10.77	0	0	0.639	0	12.14	5.432	0	0	0	0	1.644	30.63
EXTR	1.297	4.219	0	1.163	1.226	0	1.693	1.355	1.614	0	0	0	2.195	14.76
FOOD	8.148	22.82	6.326	4.718	1.918	4.97	5.255	12.9	9.734	0	0	8.725	9.707	95.22
TEXT	12.1	8.82	4.13	6.663	7.286	8.357	5.514	6.3	0	0	0	6.371	9.731	75.27
MANU	3.708	2.576	2.622	1.963	1.986	9.092	3.195	2.34	1.081	0	0	2.214	2.085	32.86
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	25.26	49.21	13.08	14.51	13.06	22.42	27.79	28.33	12.43	0	0	17.31	25.36	248.7

SOURCE: GTAP7 database

Import Taxes by LAO PDR (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	4.864	28.29	0	0	11.18	0	26.01	0	0	0	0	26.89	7.465	104.7
EXTR	0	3.275	0	0.437	0	0.283	4.328	0	0	0	0	2.834	1.063	12.22
FOOD	29.94	37.84	18.09	0	11.7	23.92	11.29	37.89	23.98	0	0	18.07	15.17	227.9
TEXT	5.536	10.01	14.03	7.578	8.075	4.956	6.602	6.469	7.649	0	0	6.625	9.41	86.94
MANU	26.1	12.32	7.507	12.18	3.963	10.65	9.202	5.769	14.29	0	0	6.819	9.871	118.7
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	66.43	91.73	39.62	20.2	34.91	39.81	57.44	50.13	45.92	0	0	61.23	42.98	550.4

SOURCE: GTAP7 database

Import Taxes by VIETNAM (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	10.26	22.54	4.068	7.441	5.152	8.792	2.993	4.92	9.169	5.677	4.274	0	6.356	91.64
EXTR	4.004	5.094	2.239	4.03	0.28	2.786	1.327	1.465	3.443	3.492	3.227	0	4.529	35.92
FOOD	29.16	41.31	23.31	9.051	18.26	8.111	8.867	57.43	45.15	8.845	27	0	24.11	300.6
TEXT	36.97	34.26	22.93	7.078	4.52	11.73	7.325	9.009	11.78	10.36	10.01	0	29.41	195.4
MANU	10.61	13.16	4.855	7.722	4.729	1.927	9.338	8.771	4.921	1.827	5.69	0	8.203	81.76
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	91	116.4	57.4	35.32	32.94	33.34	29.85	81.6	74.47	30.2	50.19	0	72.61	705.3

SOURCE: GTAP7 database

Export Subsidies by INDONESIA (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAOS	VIET	ROW	Total
AGRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXTR	-0.517	-0.571	-0.462	0	-0.515	-1.182	-0.527	-0.6	-1.063	-1.214	-0.523	-0.464	-0.568	-8.204
FOOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEXT	-0.769	-0.803	-2.054	0	-0.774	-0.804	-0.798	-0.731	-0.795	-0.797	-0.804	-0.801	-1.11	-11.04
MANU	-1.092	-1.11	-1.304	0	-1.232	-1.374	-1.251	-1.359	-1.224	-1.221	-1.043	-1.217	-1.172	-14.6
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-2.378	-2.484	-3.82	0	-2.521	-3.359	-2.576	-2.69	-3.082	-3.232	-2.371	-2.481	-2.85	-33.84

SOURCE: GTAP7 database

Export Subsidies by CAMBODIA (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXTR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FOOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEXT	0	0	-0.002	0	-0.001	0	-0.001	-0.001	0	0	0	0	-0.001	-0.007
MANU	-5.169	-1.341	-2.478	-10.93	-0.418	0	-12.2	-0.534	-5.259	-4.33	-0.337	-0.022	-3.28	-46.29
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-5.169	-1.341	-2.479	-10.93	-0.419	0	-12.2	-0.535	-5.26	-4.33	-0.337	-0.023	-3.281	-46.3

SOURCE: GTAP7 database

Export Subsidize by THAILAND (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXTR	-0.715	0.472	-0.113	0.411	-0.712	-1.571	0	-0.024	-1.28	-1.232	-1.074	-1.369	-0.997	-8.203
FOOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEXT	0	0	0	0	0	0	0	0	0	0	0	0	-1.142	-1.142
MANU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-0.715	0.472	-0.113	0.411	-0.712	-1.571	0	-0.024	-1.28	-1.232	-1.074	-1.369	-2.139	-9.345

SOURCE: GTAP7 database

Export Subsidies by SINGAPORE (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXTR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FOOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEXT	0	0	0	0	0	0	0	0	0	0	0	0	-0.968	-0.968
MANU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	-0.968	-0.968

SOURCE: GTAP7 database

Export Subsidize by PHILIPPINES (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXTR	-4.403	-3.111	-0.154	-1.049	-3.728	-0.099	-0.294	-0.457	0	-0.006	-0.395	-1.499	-0.989	-16.19
FOOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEXT	-0.478	-0.66	-0.414	-0.686	-0.618	-0.737	-0.712	-0.463	0	-0.418	-0.722	-0.632	-6.261	-12.8
MANU	-1.315	-1.464	-1.263	-1.233	-1.356	-1.258	-1.296	-1.321	0	-0.945	-1.006	-2.006	-1.305	-15.77
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-6.196	-5.236	-1.831	-2.968	-5.702	-2.093	-2.302	-2.241	0	-1.37	-2.124	-4.137	-8.556	-44.76

SOURCE: GTAP7 database

Export Subsidies by MYANMAR (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXTR	0	0	0.004	0	0	0.018	-2.45	0	0.005	0	0.503	0	0	-1.918
FOOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEXT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANU	-0.001	0	-0.001	0	0	0	0.07	0	0.106	0	0	0	0	0.173
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-0.001	0	0.003	0	0	0.018	-2.38	0	0.112	0	0.503	0	0	-1.745

SOURCE: GTAP7 database

Export Subsidies by LAO PDR (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXTR	-0.143	0.03	-1.182	-1.001	-0.257	-1.518	2.271	-1.096	-1.208	0	0	0.234	-1.363	-5.234
FOOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEXT	-0.195	-0.213	-0.194	-0.221	-0.211	-0.221	-0.128	-0.268	-0.221	-0.221	0	-0.159	-0.255	-2.507
MANU	-0.027	-0.254	0.224	3.587	0.153	0.216	-0.313	-3.253	3.609	5.279	0	-0.204	1.817	10.84
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	-0.366	-0.437	-1.152	2.365	-0.315	-1.524	1.83	-4.617	2.18	5.058	0	-0.129	0.2	3.093

SOURCE: GTAP7 database

Export Subsidies by VIETNAM (Base case) (% Ad valorem rate)														
	JAPN	CHIN	US	INDO	MALY	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW	Total
AGRI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXTR	0.858	1.162	1.278	1.339	1.23	0.057	0.809	1.352	0.022	0	0.47	0	1.101	9.678
FOOD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEXT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MANU	-0.007	-0.002	-0.011	-0.005	-0.009	0.071	0	-0.004	-0.001	0.033	-0.002	0	-0.013	0.051
SVCS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0.851	1.16	1.267	1.334	1.22	0.127	0.809	1.349	0.021	0.033	0.468	0	1.088	9.729

SOURCE: GTAP7 database

Appendix III: Pre and Post Simulation for Malaysia Bilateral Export and Imports

Pre Simulation Exports

	JAPN	CHIN	US	INDO	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW
AGRI	63.06	12.44	20.67	16.17	0.47	28.12	252.8	4.19	0.13	0.05	3.68	210
EXTR	2385	1089	324.5	352.6	0.2	900	443.3	150.4	0.13	0.08	86.99	3790
FOOD	419.6	1578	474.2	205.9	12.3	159	647.7	151.5	63.6	0.62	125	5041
TEXT	139.2	180.5	810.7	49.56	52.95	49.45	330.7	23.87	3.53	0.33	68.53	1721
MANU	10277	19468	25912	1862	39.72	4558	13838	1457	71.62	1.49	839.9	40026
SVCS	669.4	259.6	1394	88.43	1.79	74.03	186.6	18.4	1.19	0.15	27.47	8494

SOURCE: Simulation results

Post Simulation Exports

	JAPN	CHIN	US	INDO	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW
AGRI	67.46	13.3	22.38	19.32	0.98	61.53	288.8	5.54	0.14	0.05	5.13	226
EXTR	2359	1077	320.6	355.4	0.15	908.6	441.1	196.3	0.14	0.09	85.53	3746
FOOD	445.4	1665	504.1	252.1	13.45	814.1	767	149.7	60.22	0.65	191.2	5346
TEXT	143.8	186.5	838.5	60.92	183.9	134.3	346	29.77	5.82	0.45	96.27	1780
MANU	10119	19170	25496	2023	51.17	5345	13753	1540	75.73	1.32	1007	39387
SVCS	657.8	255	1370	87.43	1.78	73.76	185.5	18.23	1.17	0.14	26.9	8348

SOURCE: Simulation results

Pre Simulation Imports

	JAPN	CHIN	US	INDO	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW
AGRI	1.67	296.3	228.8	287	2.71	114.1	46.7	2.97	19.24	0.02	21.87	1006
EXTR	9.36	84.14	30.56	271.1	0.19	45.32	31.3	1.05	25.4	0	147.9	1433
FOOD	27.3	310.6	193.7	510.1	1.74	505.9	250	53.01	20.15	0.08	151.9	1678
TEXT	114.4	1026	44.11	195.7	1.96	168.9	164.9	8.26	6.78	0.02	49.42	781.2
MANU	12750	7651	10607	2064	5.33	4667	12535	2459	26.37	0.11	161.3	26089
SVCS	359.5	178	1984	38.19	3.74	86.27	228.3	20.55	0.97	0.8	24.19	9321

SOURCE: Simulation results

Post Simulation Imports

	JAPN	CHIN	US	INDO	CAMB	THAI	SPOR	PHIL	MYAN	LAO	VIET	ROW
AGRI	1.29	230.7	177.8	370.9	98.07	135.4	37.43	250.3	15.2	0.02	34.18	782.2
EXTR	9.23	83.12	30.15	276.2	0.24	43.87	29.84	1.05	24.75	0	186.8	1413
FOOD	19.78	225.4	140.3	996.3	33.07	427.9	993.1	63.2	17.8	2.69	132.4	1216
TEXT	111.9	1004	43.07	258.6	2.91	207.6	204.7	11.2	10	0.03	67.11	762.9
MANU	12611	7568	10480	2261	6.49	5200	12709	2477	26.58	0.13	193.6	25777
SVCS	362.6	179.6	2000	38.04	3.63	84.53	221.5	20.43	0.98	0.85	24.36	9395

SOURCE: Simulation results

References

Acar, M., S. Alpay, E. Bakimli, and Z.Z. Koc (2009), "South – East Asian Integration in the Context of OIC: Implications of Free Trade Among Malaysia, Indonesia and Bangladesh," *Journal of Economic Integration*, March 2009, 24(1): 1-18.

Asean Secretariat online; www.aseansec.org

Center for Global Trade Analysis, The Department of Agricultural Economics, Purdue University. [http://www.gtap.agecon.purdue.edu/].

The GTAP 7 Data Base: *Global Trade, Assistance, and Production* (2008), (ed. Badri Narayanan G and Terrie L. Walmsley, Center for Global Trade Analysis, Purdue University.

Hertel, T.W. (1997), *Global Trade Analysis: Modeling and Applications*, Cambridge University Press.