EJEM
Econ. J. Emerg. Mark.

ECONOMIC JOURNAL OF EMERGING MARKETS
Available at http://jurnal.uii.ac.id/index.php/jep

ASEAN-India and ASEAN-Korea FTA: Global Trade Analysis Project

Ana Shohibul Manshur Al Ahmad[1]

[1]Faculty of Economics and Business, Universitas Sebelas Maret, Surakarta, Indonesia.
e-mail: shohibulana@gmail.com

Article Info

Abstract

The aim of this research is to investigate the effects of the free trade agreement between ASEAN-India (AIFTA) and ASEAN-Korea (AKFTA). The Computable General Equilibrium (CGE) model was applied in this paper with a Global Trade Analysis Project (GTAP) database version 8. The GTAP simulations results show that AIFTA provides a greater positive impact than the AKFTA for each region. The greater improvement in terms of welfare, GDP, trade and investment is generated under the AIFTA scheme. Implication of this research is required of any reallocation of resources shared by each country heading on sectors which have a comparative advantage.

Abstrak

Tujuan dari penelitian ini adalah untuk menguji dampak kerjasama perdagangan bebas antara AEAN-India (AIFTA) dan ASEAN-Korea (AKFTA). Analisis penelitian ini menggunakan model Computable General Equilibrium (CGE) dengan pendekatan Global Trade Analysis Project (GTAP) versi 8. Hasil simulasi dengan GTAP menunjukkan bahwa AIFTA memberikan dampak positif yang lebih besar daripada AKFTA untuk setiap negara. AIFTA menghasilkan perubahan kesejahteraan, PDB, nilai perdagangan internasional dan investasi yang lebih besar. Implikasi dari penelitian ini adalah perlu adanya realokasi sumber daya dari tiap-tiap negara terhadap sektor-sektor yang memiliki keunggulan komparatif. Kebijakan yang mendukung FTA dimana memberikan keuntungan yang lebih besar sangat diperlukan.

Introduction

World economic integration in the form of free trade and investment has been rapidly expanding after World War II. The global trading system has changed drastically, i.e increasing world trade cooperation in the form of preferential trading arrangements (PTA) in recent decades. Regional trade agreements (RTA) have been growing rapidly after the 1970s. This is reflected in the increase of RTAs which rose from 26 to 350 in 2007. Bowles (1997) notes, that the regionalism at the time (post 1990's) was a new regionalism characterized by (i) international capital flows and capital diversion volume blast/capital mobility devoted to developing countries have risen, (ii) enhanced competition between countries as investors and the desire to become participants in the global economy, and (iii) the existence of clear institutional arrangements.

Studies on regionalism bring out pros and cons for international economics theorem. Regionalism can be an advantage in the shape of trade creation on the other hand it may cause trade diversion for union members as well as outside partners. Most economists argue that free trade has a positive impact, Estrada, et al (2011) argue that an ASEAN-China-Japan-Korea (ASEAN + 3) agreement would provide positive welfare and GDP for the entire region; AFTA

(ASEAN free trade area) going to be trade creation and investment (Pardo et al, 2009), (Bowles, 1997)]; the Japan and Singapore FTA causes a wider access and strengthens trade flows, and then enhances the trade in goods and investments (Hertel et al, 2001); FTAs will have an positive impact on welfare, trade, and the trade balance surplus (Gilbert, 1998); the Bilateral FTA between Australia and China creates a strong trade relationship that is complementary in nature, thus forming a trade specialisation pattern that leads to a comparative advantage (Siriwardhana and Yang, 2007); the UE-15 and CEEC-4 free trade agreement has a determinate and significant impact on trade flow among member countries (Caporale et al, 2009). While the negative impact of the FTA among others, Yeats (1998) argues that the MERCOSUR (Brazil, Argentina, Paraguay, and Uruguay free trade agreement) does not provide a comparative advantage for all countries, caused trade diversion and reduce on welfare; McDonald and Walmsley (2003) found that the EU-RSA FTA (European Union and Republic of South Africa free trade agreement) negatively impacts on South Africa and the adjacent countries; Trefler (2004) concluded that Canada-USA free trade agreement led to employment loses up to 12 percent for Canada; Horagochi (2007) note that FTA cause systemic turbulence and trade diversion in the regional economies; trade diverted on large intra-industry will have negative impact on welfare, while trade diverted on intra-industry hard to explain (Cheong and Wong, 2007).

The ASEAN-Korea and the ASEAN-India FTA are trans-regional free trade agreements. Negotiations between ASEAN and Korea were carried out in three stages (i) the merchandise trade agreement in 2006; (ii) the approval of trade services in 2007; and eventually the investment agreement starting in June 2009. While the ASEAN-India FTA was signed in August 2009 and came into effect in January 2010. Trade agreements in goods, services, investments and intellectual property are the subjects of this cooperation. India and Korea became potential markets for the ASEAN; this is reflected in merchandise trade and investment relations between the two regions. Korean and Indian investments contribute 5.0 respectively 3.4 percent to the total investments into ASEAN in 2009.

The purpose of this research is to simulate the impact of free trade cooperation between ASEAN and Korea (AKFTA) and between ASEAN and India (AIFTA). This study implements the Computable General Equilibrium (CGE) model using the Global Trade Analysis Project (GTAP) database 8 approach for quantitative assessment of these cooperation. Welfare, gross domestic product (GDP), trade value, investments and sector (trade balance and output) effects are variables analyzed in this study. This study consists of four sections. The next section are contains the methodology and data used. Results and discussion are presented in section three, and the last part (section five) contains the conclusions and implications.

Methods

Outline model and database

The GTAP model built with the assumption that markets are a perfect competition and that equilibrium reigns in all markets. This implies that the manufacturer's selling price is equal to the marginal costs (P=MC). The existence taxes, subsidies and regional governments may affect the manufacturer's selling and purchase prices. Meanwhile, in commodity markets, the differentiation between domestic and imported goods makes it possible for two-way trade between countries to occur.

The GTAP model contains exogenous and endogenous variables. Exogenous variables are independent variables, so that these variables can be given a shock. The endogenous variables include income, investments, trade quantity, excess supply, wa-

lraslack, product differentiation, and price savings. While a variety of variables such as opportunity costs, various policy variables (tariffs, export taxes, subsidies, taxes of endowment commodities), population and technological change are exogenous variables (Siriwardhana and Yang, 2007).

The GTAP model is based on multi-region, multi-sector, computable general equilibrium (CGE), perfect competition, zero profit, and constant returns to scale, with a bilateral trade model using the Armington assumption. The equation system used in the model are based on: (i) a social accounting matrix, which ensures that the revenue and expenditure of the economic agents are in a state of equilibrium, and (ii) behaviour equations which based on macroeconomic theory are behaviour optimizing agents in the economy as well as the demand function (Brockmeier, 2001).

Input combination for each stage of both primary and intermediate goods, are constant elasticity of substitution (CES) and will produce a nest. Assuming that primary and intermediate inputs are independent, the restrictions of elasticity substitution among primary and intermediate inputs, as well as inputs with each other are the same. So the use of primary inputs in production is not affected by the price of intermediate inputs, and vice versa. Intermediate input from trade is independent of intermediate inputs that are imported, while the individual price of each input does not affect the price of the other inputs. The GTAP series used in this study is the GTAP database version 8 with a data aggregation in 2004 and 2007. A total of 129 countries and 57 sectors recorded in the GTAP database version 8, so it is easier for researchers to perform quantitative analysis of each country, sector and input.

Simulation design

The Simulations performed were done separately and two-way. In this study a shock for each region has been simulated. Tariff reduction (partial liberalization) and elimination (full liberalization) to zero percent is a form of shock. Indicators of the existence of free trade agreements (AKFTA and AIFTA) measured several variables such as welfare, exports and imports, GDP, foreign direct investment (FDI) and sector (trade balance and output) effects.

Welfare of the existence AKFTA and AIFTA measured by equivalent variation (EV) and real consumption expenditure. Equivalent variation is the income adjustments that alter consumer utility is equal to the level that would occur, if the economic changes have occurred. A negative EV suggests that economic changes (income and price) result in a decrease in the level of consumer welfare and vice versa. Aggregation processes are grouped into several regions of ASEAN-India (AIFTA) and ASEAN-Korea (AKFTA). Regional aggregation consists of ten countries (ASEAN 8 + India and ASEAN 8 + Korea), namely Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, Vietnam, India and Korea. Commodities in this study were grouped into nine sectors in accordance with characteristics and types, includes Agricultural Products, Food Products, Extractive Industry, Textiles, Heavy Manufacturing, Technology-intensive Manufacturing, Utilities, Construction and Services. Agglutination of the commodities traded in this study refer to Park et al. (2008); and McDonald and Walmsley (2003); and are adapted to the purpose of research.

Results and Discussion

ASEAN–India Free Trade Agreement (AIFTA)

The Simulation results of the macroeconomic effects of the AIFTA are presented in Table 1. Net welfare of the AIFTA is measured using the equivalent variation (EV). AIFTA provides significant welfare changes for both regions, but some ASEAN countries experienced a decline in welfare. Cambodia and Laos are countries that ex-

perienced a decrease in welfare both in short and long term, while the Philippines suffer decreased welfare in the short term. India enjoyed the largest welfare gains.

The real GDP is projected to increase for both scenarios for most of the member countries of ASEAN (Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam), while India's GDP decreases by 0.36 percent. In terms of international trade performance, India has a higher performance than the ASEAN member countries. ASEAN and India imports increase for all scenarios, except for Cambodia. Meanwhile, the increase in Indian imports are not as big as the increase in exports, Indian imports grow by 1.03 percent (short term) and 2.12 percent (long term).

The percentage change in trade value shows that, in general, both ASEAN and India expand exports greater than imports. Formation AIFTA for ASEAN, tariff reductions across various domestic sectors (both final and intermediate commodities) are substituted by imports and domestic production serves export expansion. So that trade creation is based on a decrease in the use of high-cost domestic industries which have been replaced by larger imports due to lower costs for members of the AIFTA. In contrast to India, trade diversion is based on the fact that cheaper imports from outside the region are replaced by imports from within the region due to the tariff reduction scheme.

Investments depend on the rate of return. Investments gradually move between countries according to the different rates of return. Increased rates of return will encourage additional investments both domestic and abroad. The ASEAN investment rate increases for all scenarios (except for Cambodia and Laos), with the highest increase in Singapore (0.43 percent) followed by Malaysia (0.22 percent), Thailand (0.22 percent) and Viet Nam (0.20 percent). While India experiences the greatest change with 0.45 percent.

Table 1. Macroeconomic Effects of AIFTA

	Equivalent Variation (EV) (US$ Million)	Real GDP (%)	Export (%)	Import (%)	Term of Trade (%)	Trade Balance (US$ Million)	Rate of Return on Capital Stock (%)
Scenario 1							
Cambodia	-3,67	-0,03	0,02	-0,01	-0,07	1,65	-0,09
Indonesia	734,24	0,89	1,08	0,97	0,6	356,29	0,06
Laos	-1,07	-0,01	0,01	0,01	-0,07	-0,03	-0,02
Malaysia	311,93	0,29	0,2	0,18	0,14	131,39	0,12
Philippines	-5,76	0	0,02	0,03	-0,02	-3,96	0,01
Singapore	64,87	0,1	0,28	0,3	0,04	102,16	-0,09
Thailand	180,89	0,18	0,13	0,15	0,09	16,78	0,08
Viet Nam	34,1	0,11	0,1	0,11	0,03	-14,91	0,07
India	3137,08	-0,36	1,23	1,03	-0,39	-131,77	0,14
Scenario 2							
Cambodia	-4,32	-0,05	0,05	0,05	-0,08	0,01	-0,02
Indonesia	833,3	0,98	1,38	1,34	0,66	342,39	0,12
Laos	-1,31	-0,03	0,01	0	-0,08	0,11	-0,04
Malaysia	551,87	0,5	0,47	0,51	0,25	170,75	0,31
Philippines	1,08	0,01	0,08	0,12	-0,02	-22,34	0,06
Singapore	439,12	0,49	0,72	0,86	0,22	106,71	0,43
Thailand	255,11	0,25	0,27	0,37	0,13	-65,95	0,22
Viet Nam	13,24	0,03	0,29	0,31	0,00	-46	0,2
India	4328,27	-0,13	2,4	2,12	-0,27	-589,22	0,45

Source: Model simulation

Table 2: Estimated Changes in Trade Balance by Sector under AIFTA Scheme

	Cambodia		Indonesia		Laos		Malaysia		Philippines		Singapore		Thailand		Vietnam		India	
	1	**2**	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**
Agricultural Products	-0,8	-2	-395	-427	0,3	0,2	-59	-68	-5,98	-10,8	-6	-5,8	4,36	3,79	13,1	18,3	424,3	487,8
Food Products	1,88	2,48	2593	2697	0,1	0,2	195	188	3,03	-8,16	8,82	-17	15,2	-23	-8,4	-48	-2245	-2195
Extractive Industry	-0,1	-0,3	43,1	144	-2	-0	226	508	-8,88	-12,2	27,3	71,4	-9,7	-2,5	1,73	2,08	162,1	256,6
Textiles	0,78	0,71	-353	-372	-0	-0	-1,1	-7,1	-1,47	-4,68	-7,1	-21	-2,2	-15	-1,3	12	709,8	552,5
Heavy Manufacturing	1,11	-0,5	-503	-572	2,1	0,4	401	376	32,7	22,51	574	492	313	345	7,73	-7,2	-297	69,04
Technology-intensive Manufacturing	0,12	-0,2	-740	-775	-0	-0	-450	-535	-5,43	-1,53	189	155	-118	-123	-8,6	-3,5	554,9	119,8
Utilities	-0	-0	-4	-4,8	0,2	0,3	-6,9	-10	-0,21	-0,33	-6,8	-8,6	-3,1	-3,9	-1,2	-1,6	5,37	1,36
Construction	-1,3	-0,1	-259	-319	-0	-0	-166	-267	-17,2	-6,66	-685	-540	-175	-234	-15	-15	550,4	127,4
Services	0,05	0,02	-26	-30	-0	0	-7,2	-13	-0,46	-0,55	7,96	-20	-7,6	-12	-2,6	-2,9	4,03	-8,52

Source: Model Simulation

Table 3: Estimated Change in Output by Sector under AIFTA Scheme

	Cambodia		Indonesia		Laos		Malaysia		Philippines		Singapore		Thailand		Vietnam		India	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Agricultural Products	0,01	-0,03	0,62	0,62	0	0	0,17	0,08	-0,02	-0,06	0,18	0,02	0,02	-0,04	0,03	-0,01	-0,42	-0,41
Food Products	0,13	0,17	3,65	3,8	-0,01	0	0,89	0,91	0,03	0	0,14	-0,45	0	-0,11	-0,07	-0,27	-3,86	-3,94
Extractive Industry	0,07	0,04	-0,27	-0,23	-0,1	-0,01	0,4	0,79	0,01	-0,02	1,68	3,18	0,06	0,05	-0,01	-0,04	0,09	0,14
Textiles	0,04	0,05	-2	-2,11	-0,09	-0,05	-0,08	-0,26	-0,03	-0,09	0,38	-0,64	-0,04	-0,14	0,04	0,25	1,39	1,13
Heavy Manufacturing	0,21	0,08	-1,27	-1,39	0,33	0,09	0,57	0,4	0,22	0,17	1,67	1,27	0,5	0,57	0,06	0,06	-0,03	0,02
Technology-intensive Manufacturing	-0,07	-0,02	-1,45	-1,5	0,1	0,08	-0,57	-0,67	-0,01	0,01	0,24	0,22	-0,19	-0,15	-0,06	0,11	0,46	0,32
Utilities	-0,03	-0,04	-0,38	-0,42	0,12	0,17	0,07	-0,01	0,02	0,01	0,41	0,44	0,08	0,08	0,01	0,01	0,02	0,03
Construction	-0,05	-0,02	-0,06	-0,06	-0,03	-0,02	-0,11	-0,15	-0,02	0	-0,46	-0,37	-0,08	-0,07	-0,02	0,02	0,19	0,2
Services	-0,03	-0,06	0,16	0,17	-0,03	-0,03	0,05	0,06	-0,01	-0,02	0,07	0,03	0,02	-0,01	0,01	-0,06	0,17	0,19

Source: Model Simulation

Table 4. Effects of Changes in Trade Patterns Due to AIFTA (US$ Million)

	Scenario			Scenario	
	1	2		1	2
Indian Imports from:			**Indian Exports to:**		
Cambodia	0,36	0,89	Cambodia	62,63	122,21
Indonesia	5.555,93	7.099,24	Indonesia	2.892,37	5.643,65
Laos	0,09	0,09	Laos	4,44	8,66
Malaysia	1.336,96	3.141,85	Malaysia	2.778,75	5.421,96
Philippines	7,95	31,82	Philippines	830,78	1.621,03
Singapore	2.875,58	7.394,34	Singapore	5.078,57	9.909,41
Thailand	350,56	728,09	Thailand	2.914,85	5.687,52
Viet Nam	26,78	77,65	Viet Nam	1.738,29	3.391,78

Source: Model simulation

Tables 2 and 3 represent the changes in the trade balance and output for each region. The direction of change in the output of ASEAN and India refers to the trade balance (Table 2) of each sector, but there are exceptions in some sectors of each country. For example, for Cambodia, the trade balance (extractive industries) grows negatively but with a relatively higher output. Technology-intensive manufacturing and services have a better performance in the trade balance and a decreased output for all scenarios. The agricultural sector shows a lower performance in the trade balance of Indonesia, Malaysia, and Singapore but a better output for each country, whereas India shows a better performance in the trade balance, but decreased output for the same industry.

The key condition is due to the elimination of bilateral tariffs in the region, so that the both regions (ASEAN and India) have to undertake structural adjustments based on their comparative advantages. In some sectors, imports and domestic production of each ASEAN member country and India increase simultaneously.

Table 3 shows that the ASEAN countries and India undertook large structural adjustments in different sectors including food products (Cambodia, Laos, and Malaysia); construction sector (all ASEAN countries); technology-intensive manufacturing sector (ASEAN member countries except Laos and Singapore); ASEAN service sector (except Indonesia and Singapore); and textile sector (ASEAN except Cambodia and Vietnam); as well as agricultural sector (Indonesia, Malaysia, and Singapore).

Table 4 shows the change in ASEAN and India exports value as impact of changes in trade patterns under the AIFTA scheme. Indonesia is largest exporter country for India i.e. USD 5.5 billion (short-term) and USD 7.1 billion (long-term), followed by Singapore at USD 2.9 billion (short-term) and USD 7.9 billion (long-term) and then Malaysia at USD 1.3 billion (short-term) and USD 3.1 billion (long-term). Meanwhile, India's largest export destinations are Singapore (over USD 5.1 billion), Thailand (over USD 2.9 billion), Indonesia (over USD 2.9 billion), and Malaysia (over USD 2.8 billion). Indonesia is the only ASEAN member country that shows a higher export expansion than import expansion.

The change effect of trade patterns is as an indication of a decrease in trade diversion in bilateral trade flows between ASEAN and India. During the trade creation is greater than trade diversion resulting from the free trade agreements (union), therefore AIFTA will inventing benefits for its member countries. In general, full liberalization shows a better impact than partial liberalization under the AIFTA scheme.

ASEAN–Korea Free Trade Agreement (AKFTA)

The implementation of AKFTA will have a negative impact on welfare in most of the ASEAN countries (Table 5). In the short term (except Laos and Vietnam), the equivalent variation (EV) for all ASEAN coun-

tries is negative, with the largest decrease in welfare in Indonesia (USD 304.92 million). While the largest positive EV is reached by Vietnam (USD 490.36 million) followed by Korea (USD 393.3 million). In the long term/full liberalisation, most EV values are positive (except for Cambodia and Philippines), the largest EV benefit is reached by Korea (USD 2112.47 million) followed by Vietnam (USD 651.88 million), Malaysia (USD 118.14 million), Singapore (USD 93.83 million), Thailand (USD 74.38 million), Indonesia (USD 41.91 million), and Laos (USD 11.04 million). Positive EV indicates an increase in economic welfare as a result of the increased trade creation between the two countries/regions. It must be projected that the EV value for the rest of the world is negative, reflecting the effects of trade diversion resulting from the AKFTA scheme.

AKFTA shows a negative impact on the GDP growth in all countries except Laos and Vietnam in the short term. With a full liberalization scheme, AKFTA projects to show a positive impact on the growth of the GDP of all ASEAN member countries

and Korea, but not on the world's GDP. It is almost identical to the exports and imports value. In short term, the AKFTA will negatively impact the growth of exports and imports, except for Cambodia and Vietnam. While in long term, the value of exports and imports of all countries have will increase, except for Laos. So in the long run, AKFTA will increase trade creation through changes in domestic products with relatively high costs, which will be replaced by cheaper imports from within the region (ASEAN and Korea).

The trade balance will increase for most ASEAN member countries in the short term, except for Cambodia and Vietnam. While in the long run, the AKFTA scheme will impact on the ASEAN and Korean trade balance, except for Singapore (USD 29.23 million) and the rest of the world (USD 1794.15 million). Similarly to the change in GDP and trade value, the rates of return of ASEAN member countries and Korea will experience a decline in the short term, except for Laos and Vietnam, and will rise in the long term.

Table 5. Macroeconomic Effects of AKFTA

	Equivalent Variation (EV) (US$ Million)	Real GDP (%)	Value of Export (%)	Value of Import (%)	Term of Trade (%)	Trade Balance (US$ Million)	Rate of Return (End Periode) (%)
Scenario 1							
Cambodia	-2,04	-0,01	0,22	0,35	-0,07	-8,64	0,44
Indonesia	-304,82	-0,21	-0,48	-0,6	-0,23	20	- 0,15
Laos	5,79	0,01	-0,65	0,61	0,25	0,35	0,19
Malaysia	-160,17	-0,1	-0,15	-0,25	-0,08	64,88	-0,29
Philippines	-76,16	-0,15	-0,14	-0,32	-0,09	107,34	-0,34
Singapore	-250,96	-0,22	-0,3	-0,44	-0,1	109,97	-0,54
Thailand	-49,68	-0,05	-0,02	-0,04	-0,04	21,06	-0,04
Viet Nam	490,36	1,19	1,74	2,19	-0,09	-463,7	2,68
India	393,3	-0,02	-0,24	-0,41	0,03	610,33	-0,19
Scenario 2							
Cambodia	-3,27	0,02	0,41	0,67	-0,13	-17,2	0,85
Indonesia	41,91	0,03	0,36	0,46	0,00	-23,75	0,06
Laos	11,04	0,36	-0,53	-0,34	-0,11	-2,32	0,52
Malaysia	118,44	0,05	0,23	0,39	-0,01	-127,57	0,34
Philippines	-2,22	0,09	0,31	0,4	-0,01	-35,14	0,12
Singapore	93,83	0,1	0,01	0	0,05	29,23	0,08
Thailand	74,38	0,07	0,25	0,41	0,02	-154,62	0,25
Viet Nam	651,88	1,57	2,33	3,07	-0,06	-706,24	4,1
India	2112,47	0,55	0,87	1,13	0,33	-756,52	0,43

Source: Model simulation

Table 6: Estimated Change in Trade Balance by Sector Under the AIFTA Scheme

	Cambodia		Indonesia		Laos		Malaysia		Philippines		Singapore		Thailand		Vietnam		Korea	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Agricultural Products	3,35	3,14	46,28	38,03	-0,18	-1,09	3,93	5,7	50,49	51,27	-2,13	-2	14,32	14,21	9,65	-14,3	-112,4	-144,8
Food Products	-2,48	-3,05	31,6	-19,7	-0,58	-1,85	23,64	14,96	17,27	-10,6	32,04	17,19	227,3	213,1	-99,1	-107	-9,79	-170,5
Extractive Industry	0,73	0,28	-419	97,28	-0,38	-3,62	-85,6	48,8	23,78	1,95	-43,1	-15,6	-9,63	-16	-103	-139	-123,7	125,9
Textiles	9	13,54	76,58	36,82	1,13	-1,55	-7,68	-36,6	25,62	-6,48	5,4	-7,3	-40,7	-116	851,8	1006	1750	2025
Heavy Manufacturing	-0,76	-5,02	-10,9	-134	-10,3	-2,56	42,4	-71	-10,2	-15,5	246,7	-36,2	-108	-135	-426	-569	442,7	935,7
Technology-intensive Manufacturing	-9,29	-15,6	211,9	-25,2	8,44	7,32	45,57	-5,18	-29,8	-26,8	-94,7	181,7	-46,8	-13,6	-434	-538	-1497	-2403
Utilities	0,02	0,01	2,31	-0,6	0,27	0,06	2,06	-4,06	1,29	-0,63	-0,87	0,5	0,87	-1,37	-15	-21,7	-1,53	-20,34
Construction	-8,78	-9,73	73,15	-14,6	1,83	1,11	37,65	-75,9	26,17	-26,7	-53,1	-104	-18,1	-95,5	-212	-274	155,1	-981
Services	-0,44	-0,77	7,76	-1,65	0,13	-0,12	2,85	-4,4	2,7	-1,76	19,78	-5,05	1,28	-4,65	-36,1	-50,2	6,41	-123,3

Source: Model simulation

Table 7. Estimated Change in Output by Sector under the AIFTA Scheme

	Cambodia		Indonesia		Laos		Malaysia		Philippines		Singapore		Thailand		Vietnam		Korea	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Agricultural Products	0,07	0,04	0,08	0,03	0,07	0,06	0,06	-0,02	0,26	0,23	0,2	0,07	0,29	0,24	-0,17	-0,34	-0,26	-0,43
Food Products	-0,16	-0,18	0,03	-0,05	0,06	0,1	0,17	0,06	0,05	-0,06	0,93	0,53	0,58	0,51	-0,82	-0,88	0,18	0,14
Extractive Industry	-0,16	-0,3	-0,28	0,05	-0,12	-0,33	-0,09	0	0,15	-0,02	-0,4	-0,73	-0,05	-0,1	-1,14	-1,53	-0,15	0,73
Textiles	0,4	0,63	0,47	0,26	0,64	-0,96	-0,14	-1,11	0,59	-0,09	0,57	-0,67	-0,22	-0,68	9,86	11,6	6,38	7,43
Heavy Manufacturing	-0,15	-0,75	0,17	-0,17	-1,22	-0,17	0,11	-0,22	-0,06	-0,1	0,75	-0,1	-0,18	-0,21	-2,2	-2,81	0,11	0,24
Technology-intensive Manufacturing	-0,98	-1,47	0,34	-0,01	-1,43	-2,61	-0,01	0,19	-0,13	0,02	-0,39	0,28	0	0,17	-2,71	-2,78	-0,54	-0,79
Utilities	-0,1	-0,21	0,08	-0,05	-0,03	-0,14	0,05	-0,1	0	-0,03	0,12	-0,06	-0,02	-0,04	-0,72	-0,87	0,23	0,3
Construction	-0,09	-0,06	-0,01	0	0,19	0,31	0	0	-0,07	-0,02	-0,05	-0,06	-0,03	0	0,63	1,03	-0,01	0,03
Services	-0,13	-0,25	-0,04	0	0,23	0,23	0,02	-0,08	0,02	-0,02	0,08	0,01	0,01	-0,05	-0,07	-0,21	0,05	0,01

Source: Model simulation

Tables 6 and 7 respectively describe the changes of trade balance and output in each country under the AKFTA scheme. Most changes in the output of AKFTA member countries follow the pattern of changes in the trade balance (Table 6). However there are some exceptions, Laos and Singapore's agricultural sectors grew faster in output but show a worse trade balance performance. Food products show a negative performance in Laos' and Korea's trade balance, but with an increased output. Technology-intensive manufacturing and utilities show a better performance in the trade balance of Laos, but with a decreased output. The Korean utility sectors, shows a negative performance in the trade balance but with an increased output, and the construction sector in Vietnam shows a negative performance in the balance of trade, but with an increased output. This is due to a decrease/elimination of tariffs, so that the two regions/economies must make structural adjustments to their respective comparative advantages.

In general, Table 7 shows for the agricultural sector that the two economies (ASEAN and Korea, with the exception of Vietnam) have a large structural adjusted, because the output of the ASEAN countries (except for Vietnam) is positive, while for Korea, the output is negative. Cambodia and Vietnam's food products, Malaysia and Thailand's textile industry, the heavy manufacturing sectors of Cambodia, Laos, Philippines, Thailand, and Vietnam, the utilities sector of all ASEAN countries, and Cambodia and Vietnam's service sector have similar features with the respective industries in Korea.

AIFTA and AKFTA comparison

With a full liberalization scheme, AIFTA will provide a greater net welfare increase for ASEAN, compared with the AKFTA scheme, but not for India and Korea (table 8). AIFTA will benefit the ASEAN countries with USD 2.1 billion and less than US$ 1 billion in other schemes. While India will get larger welfare gains than Korea and ASEAN, and Korea will get greater welfare gains than ASEAN. With the ASEAN + 2 scheme, the ASEAN welfare (USD 2.8 billion) increases more than Korea's (USD 2.03 billion), while India's (USD 4.3 billion) remains the greatest of all regions and schemes.

Table 8: Changes in Welfare, GDP, and Trade under the AIFTA, AKFTA, And ASEAN+2 schemes

	Welfare (US$ Millions)	Real GDP (%)	Trade Value (US$ Millions)
ASEAN-India FTA			
ASEAN	2088,09	0,45	18473,97[a]
India	4328,27	-0,13	31806,22[b]
ROW	-1213,54	-0,01	-23666,20[c]
ASEAN-Korea FTA			
ASEAN	985,99	0,10	10029,60[d]
Korea	2112,47	0,57	30036,60[e]
ROW	-1946,02	-0,02	-17592,34[f]
ASEAN + 2 (India & Korea) FTA			
ASEAN	2820,19	0,56	49937,34[g]
India	4292,78	-0,16	43684,47[h]
Korea	2033,99	0,56	37847,36[i]
ROW	-3283,87	-0,03	-55044,18[j]

Source: Calculated by the author

AIFTA has an estimated increase in GDP for ASEAN, but not for India. AIFTA will cause a decline in India's GDP by 0.13 percent, while ASEAN's GDP will increase by 0.45 percent. This is in contrast to AKF-TA. This cooperation agreement will improve both region's GDP (ASEAN and Korea) by 0.10 percent and 0.57 percent respectively. Thus, in terms of an increase in GDP for ASEAN, AIFTA will be more profitable compared with AKFTA. In the case of ASEAN + 2, ASEAN's GDP will increase by 0.56 percent, the same as Korea's. Meanwhile, India's GDP will fall by more (0.16 percent) with ASEAN + 2 when compared with AIFTA (0.13 percent). For ASEAN, AIFTA would be more advantageous in terms of increased GDP compared with AKFTA.

Two-way trade under the AIFTA scheme shows a greater increase than under the AKFTA for all regions, respectively USD 18.47 billion and USD 10.02 billion. Increased exports of India (AIFTA) to ASEAN (USD 31.80 billion) are larger than the increase in exports of Korea (AKFTA) to ASEAN (USD 30.03 billion). While with ASEAN + 2, the largest increase in the value of exports is with ASEAN. ASEAN exports to India and Korea are predicted to increase by USD 49.93 billion, more than the Indian and Korean exports to ASEAN (USD 43.68 billion). All variables (welfare, GDP, and trade value) for the rest of the world have decreased as a result of free trade under AIFTA, AKFTA, and ASEAN + 2.

AIFTA provides greater advantages than AKFTA. This is due to several reasons (i) India is far bigger than Korea, it is possible that AIFTA will lead to more trade creation than AKFTA; (ii) a higher degree of complementary between ASEAN exports and imports of India (or vice versa), as compared to Korea; (iii) AIFTA trade has a greater coverage than with AKFTA, in terms of population and GDP; (iv) ASEAN (most of the ASEAN countries) have a per capita income which is almost the same (except Singapore), thus offering intra-industry trade patterns are great. On the other hand, AKFTA provide greater advantages than the other agreement, it shows that the trade relationship with ASEAN is very important. In general, the ASEAN-India FTA leads to the second largest welfare increase after the ASEAN-China FTA. AKFTA leads to welfare benefits for ASEAN of USD 2.10 billion (Estrada et.al, 2011), whereas AIFTA is able to create a welfare increase for ASEAN of USD 2.088 billion.

Conclusion

In the full and partial liberalization scenario, AIFTA generates a positive welfare development for both regions, except for Cambodia, Laos, and the rest of the world, and vice versa for AKFTA. The policy changes of trade balance for each country is almost the same as the direction of change in output, but there are exceptions for some case. Thereby the structural adjustments towards a comparative advantage are necessary for each country.

AIFTA yields a bigger advantage (welfare, GDP, trade value) than AKFTA to ASEAN. This is due to population size and greater initial tariffs, the per capita income which is almost the same, and the degree of complementary allowing for intra-industry trade between ASEAN and India.

The shock in this study is based only on tariff liberalization of trade. In the real world, tariff elimination will be followed by other changes in trade policy. For example if a country eliminates tariffs, it may increase export subsidies or other trade benefits. With the decrease in export restraints it is possible to generate additional benefits for both the region and the world economy as a whole. This research using the GTAP models is comparatively static, so the dynamic effects of international trade are difficult to explain, and also reflect real changes less.

In the real world, as opposed to ideal conditions, exist groups that have vested interests and some are trying to impede international trade. For example, Korean farmers have a comparative disadvantage in agriculture, and in consequence tend to reject trade liberalization that would expose them to competition by relatively cheaper foreign products. So that ASEAN + 2 FTA negotiations will be more difficult than bilateral negotiations.

The implementation of a full liberalization in Southeast Asia and some countries in East and South Asia under the ASEAN + 2 FTA, may be detrimental to some small countries in the region, so that the ASEAN + 2 FTA must be prepared to offer help to the countries that will suffer losses to enable those countries to carry out the trade integration and participate fully in the framework of the FTA.

ASEAN should be the established as a single market, which in turn leads to a strong economy and helps small countries to participate in free trade. This can be implemented with partner countries, so that later the dynamic effects of trade liberalization (communications, transportation, customs area, etc.) can be measured.

The existence of a single market in ASEAN and with trading partners through the FTA scheme, should lead to equal prices of goods, because it can be assumed that the costs are similar between countries in the region, so each country can specialize in a particular sector or sectors. In consequence, intra-industry trade can be realized across the whole region.

References

Bowles, P. (1997), "ASEAN, AFTA and the New Regionalism", *Pacific Affairs*, 70(2), 219-233.

Brockmeier, M. (2001), "A Graphical Exposition of the GTAP Model", *GTAP Technical Paper* No. 8.

Pardo, H.C., C. Freund and E. Ornelas (2009), "The ASEAN Free Trade Agreement: Impact on trade flows and external trade barriers", *CEP Discussion Paper* No 930.

Cheong, J. and K. Wong (2007), "Economic Integration, Trade Diversion and Walfare Change", *Working Paper University of Washington.*

Caporale, G.M, C. Rault, R. Sova and A. Sova (2009), "On the Bilateral Trade Effects of Free Trade Agreements between the EU-15 and the CEEC-4 Countries", *Review of World Economics / Weltwirtschaftliches Archiv*, 145(2), 189-206.

Estrada, G., D. Park, I. Park and S. Park (2011), "ASEAN's Free Trade Agreements with the People's Republic of China, Japan, and the Republic of Korea: A qualitative and quantitative analysis", *ADB Working Paper Series* No.75.

Gilbert, J.P. (1998), *GTAP Model Analysis: Simulating the effect of a Korea–US FTA Using Computable General Equilibrium Techniques*, GTAP.

Hertel, T.W., T. Walmsley and K. Itakura (2001), "Dynamic Effects of the "New Age" Free Trade Agreement between Japan and Singapore", *Journal of Economic Integration*, 16(4), 446-484.

Horaguchi, H.H. (2007), "Economic Analysis of Free Trade Agreements: Spagetti Bowl Effect and a Paradox of Hub andSpoke Network", *Journal of Economic Integration*, 22(3), 664-683.

McDonald, S. and T.L. Walmsley (2003), "Bilateral Free Trade Agreements and Customs Unions: The impact of the EU Republic of South Africa free trade agreement on Botswana", *GTAP Working Paper* No. 29.

Park, D., I. Park and G.E.B Estrada (2008),

"Is the ASEAN–Korea Free Trade Area (AKFTA) an Optimal Free Trade Area?", *Working Paper Series on Regional Economic Integration* No. 21.

Siriwardana, M. and J. Yang (2007), "GTAP model Analysis of the Effect of an Australia China FTA: Sectoral aspect", *CCAS Working Paper* No.7.

Trefler, D. (2007), "AssociationThe Long and Short of the Canada-U.S. Free Trade Agreement", *The American Economic Review*, 94(4), 870-895.

Yeats, A. J. (1998), "Does Mercosur's Trade Performance Raise Concern about the Effect of Regional Trade Arrangement", The *World Bank Economic Review,* 12(1), 1-28.