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A General Equilibrium Analysis of the Economic Impacts of Vietnam's Accession to AFTA.

By Nguyen Van Ba¹

I. Introduction.

The foreign trade policy reforms, along with the liberalization in foreign investment area, have been the key features of “Open Door” policy of Vietnam since the launching of “DOI MOI”. In order to open up the domestic economy and integrate into the regional and the world market, Vietnamese government have adopted a series of changes in its foreign trade regime, which include: the relaxation of controls on entry into foreign trade activities; relaxation of controls used to manage imports and exports and introduction of a tariffs system; phases out of foreign exchange controls and adoption of a more market oriented exchange rate policy, accompanying by a large devaluation of Vietnamese Dong against US\$ to the level of free market rate²; and joins the regional and multilateral trading agreements.

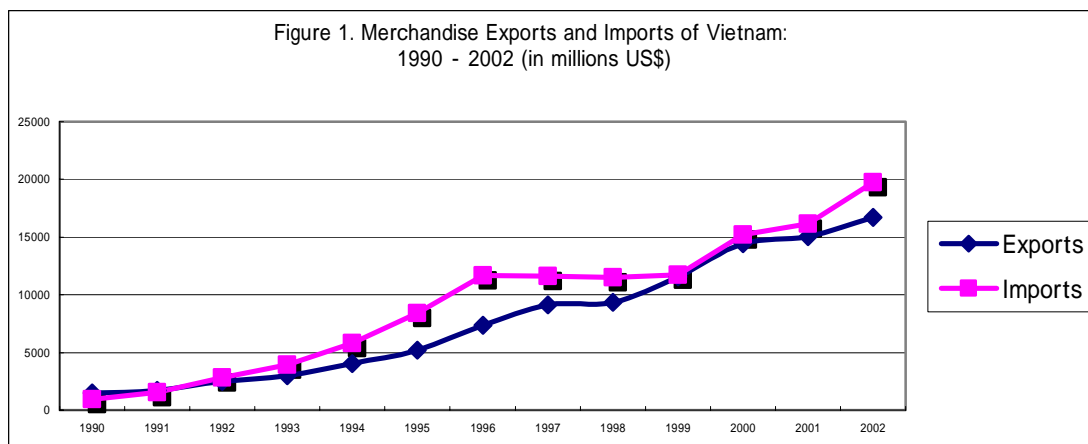
Concerning the process of joining regional and multilateral trading agreements, Vietnam has signed a trade agreement with the European Union in 1992. The country joined the Association of Southeast Asian Nations (ASEAN) and became a member of ASEAN Free Trade Area (AFTA) since 1995. It joined the Asian Pacific Economic Corporation (APEC) in 1998. Vietnam also signed a bilateral trade agreement (BTA) with the United States in 2001. And the process of negotiating for accession to WTO has been started since 1995.

¹ 2nd-year PhD Candidate student at the Graduate School of Economics, Shiga University. E-mail address: lanba75@yahoo.com

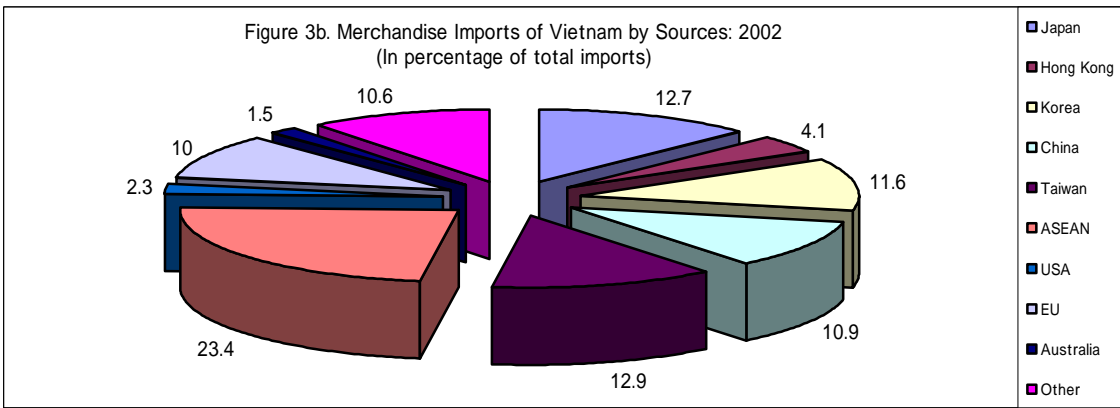
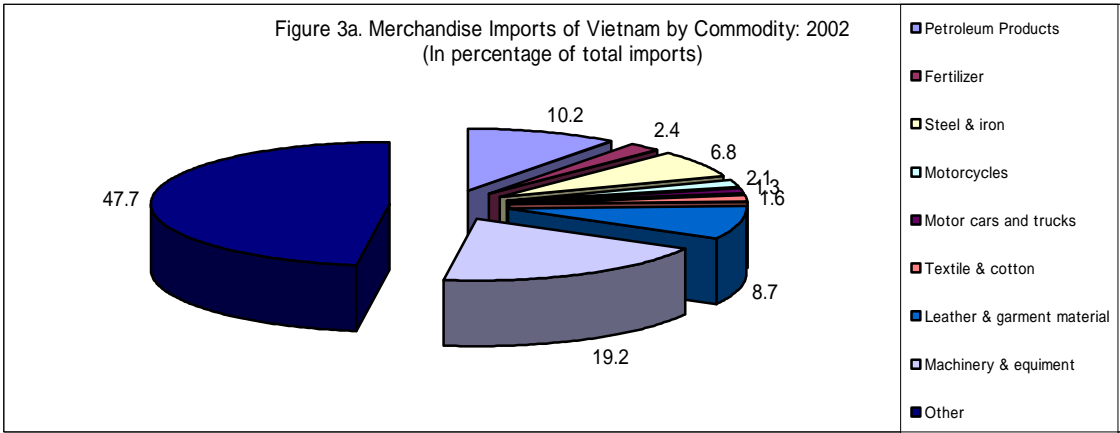
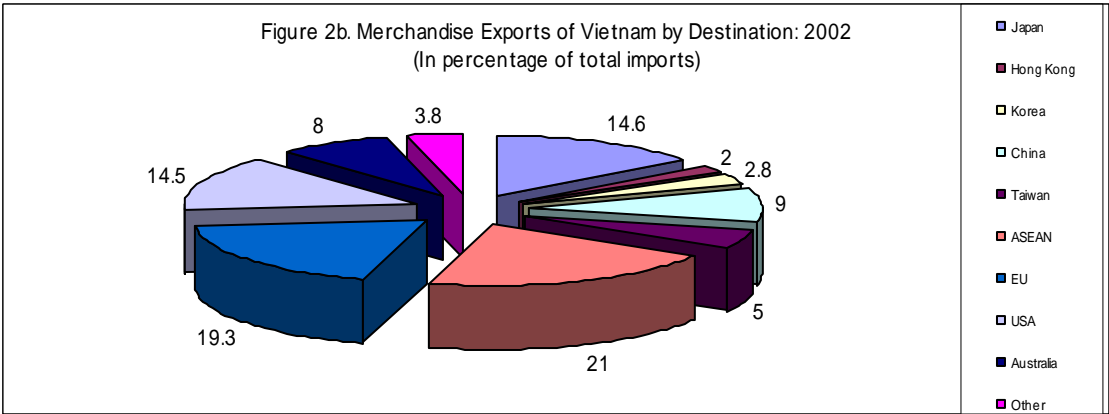
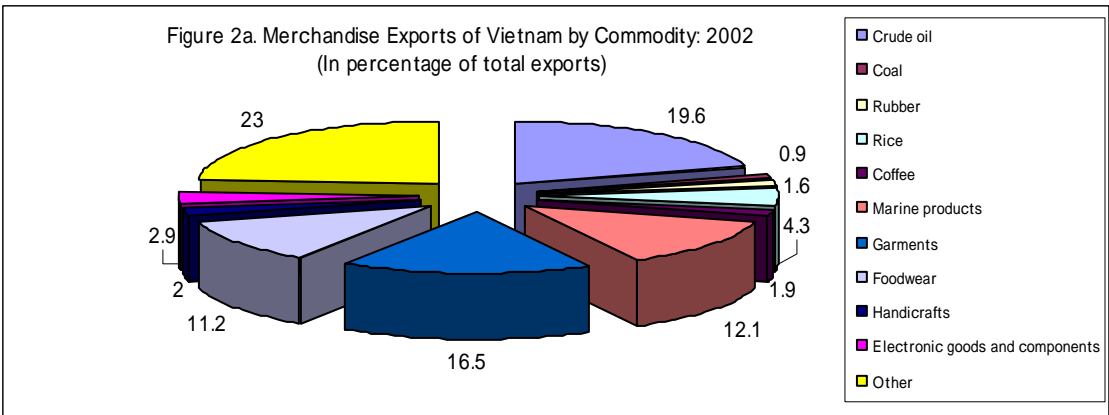
² It is worth noting that before the reform free market price of foreign exchange is usually 20 times higher than the official rate.

As a result of the trade liberalization policy, foreign trade performance of Vietnam was remarkable with the annual average growth rate of both exports and imports were about 30 percent up until the onset of the Asian Financial Crisis in 1997. The number of enterprises involved in foreign trade activities has blossomed to thousands compare with only some State-monopoly Foreign Trade Corporations before the reforms³. Both exports and imports values of Vietnam in term of the U. S dollars expended about ten times within the period from 1990 to 2002 (Figure 1). Figure 2a, 2b, 3a, 3b show the structures of Vietnam's exports and imports by commodity and by trading partners in 2002. As the figures 2a shows that exports of Vietnam is still unsustainable, when the most portion of receipts comes from exporting of primary resources and agricultural products, those prices fluctuate frequently in the world market.

Taken into account the current structure characteristics of Vietnam's foreign trade and Vietnamese economy as a whole, this study quantitatively estimates the overall economic impacts of Vietnam's accession into ASEAN Free Trade Area (AFTA) utilizing the GTAP5.4 data and model – a comparative static multi-region multi-sector computable general equilibrium model.



³ Which includes a huge number of private enterprises which was non-existent before the reforms.



II. Emergence of ASEAN Free Trade Area (AFTA) and Commitments of Vietnam.

1. Emergence of ASEAN and AFTA.

The Association of Southeast Asian Nations or ASEAN was formally established on 8th August 1967 in Bangkok by the five original Member Countries, namely, Indonesia, Malaysia, the Philippine, Singapore and Thailand. Brunei Darussalam joined in 1984, Vietnam in 1995, Laos and Myanmar in 1997, and Cambodia in 1999. At present, the ASEAN region has a population of about 530 million, a total area of 4.5 million square kilometers, a combined gross domestic product of US\$646 billion, and total trade of US\$840 billion. With only ten member countries, ASEAN witnesses a diversified economic conditions, ranking from Singapore with the GDP per capita is similar to OECD countries to Myanmar with the GDP per capita leveled of poorest countries in the world (Table 1). The large gap in the level of economic development between members might become a barrier for the process of economic integration within the region.

Table 1. Macro-Economic Indicators of ASEAN 10 Countries in 2002.

	Real GDP growth rate (%)	GDP per capita in US\$	GDP (current US\$ bil)	Population (mil)	Exports (US\$ mil)	Imports (US\$ mil)	Openness index (%)	Secondary Enrollment Ratio (%)
Brunei	3.2	12,971	4.66	0.36	n.a	n.a	n.a	n.a
Cambodia	5.0	310	4.09	13.2	2,360	2,696	120	27
Indonesia	4.1	972	205.7	211.7	61,934	50,689	54.7	47.4
Laos	5.9	362	2	5.5	334	642	49	28.6
Malaysia	5.2	4,175	101.4	24.3	108,281	91,673	155.5	61
Myanmar	5.1	179	8.7	48.8	1,187	2,524	49	34.2
Philippine	4.5	987	78.86	79.9	38,142	38,532	65.6	79
Singapore	1.1	20,987	88.145	4.2	124,794	121,084	270	84
Thailand	6.8	2,291	114.125	61.6	82,104	72,967	70	84.2
Vietnam	7.2	481	38.67	80.4	19,480	20,884	110	61.4
Total	5.0	1,267	646.35	530	438,616	401,691		

Source: ASEAN Secretariat, 2003; World Bank, World Development Indicators 2003.

In order to facilitate the economic cooperation and promote intraregional trade between the members countries, in 1992, at the Fourth ASEAN Summit held in Singapore, the Member Countries agreed to launch a scheme toward an ASEAN Free Trade Area or AFTA within 15 years beginning from 1st January 1993. The Common Effective Preferential Tariff (CEPT) scheme was designed to bring down tariffs on all manufactured and processed agricultural products to 0-5 percent within 15 years. During the 26th ASEAN Economic Ministers Meeting in September 1994, the time frame was shortened from fifteen to ten years, with the aim of achieving the AFTA goals by the year of 2003 (by 2006 for Vietnam, 2008 for the Laos and Myanmar and 2010 for Cambodia). In addition, the Meeting has agreed to include all unprocessed agricultural products in the CEPT scheme.

There are four product lists are used as the instrument to determine the pace and scope of liberalization under the CEPT scheme, including – the Inclusion List (IL), the Temporary Exclusion List (TEL), the Sensitive List (SL) and the General Exception List (GEL):

- ***Inclusion List.*** Products in the Inclusion List are those that have to undergo immediate liberalization through reduction in intra-regional tariff rates, removal of quantitative restrictions and other non-tariff barriers. Tariffs on these products should be down to a maximum of 20% by the year 1998 and to 0-5% by the year 2002. The new members of ASEAN have up to 2006 (Viet Nam), 2008 (Laos and Myanmar) and 2010 (Cambodia) to meet this deadline. By the year 2000, there were 53,294 tariff lines in the Inclusion List representing 82.78% of all tariff lines in ASEAN.

- ***Temporary Exclusion List.*** Products in the Temporary Exclusion List can be shielded from trade liberalization only for a temporary period of time. However, all

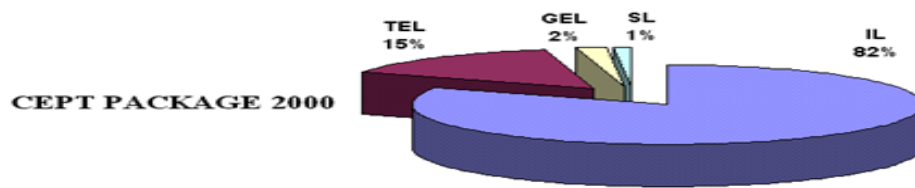
these products would have to be transferred into the Inclusion List and begin a process of tariff reduction so that tariffs would come down to 0-5%. Starting on 1 January 1996, annual installments of products from the TEL have been transferred into the Inclusion List and then reduce to 0-5 percent by 2003. By the year 2000, there remained 9,674 tariff lines in the TEL representing about 15.04% of all tariff lines in ASEAN.

- ***Sensitive List***. This contains unprocessed agricultural products, which are given a longer time frame before being integrated with the free trade area. The commitment to reduce tariffs to 0-5%, remove quantitative restrictions and other non-tariff barriers is extended up to the year 2010. The new members of ASEAN have up to 2013 (Viet Nam), 2015 (Laos and Myanmar) and 2017 (Cambodia) to meet this deadline. By the year 2000, there would be 370 tariff lines in the Sensitive List making up 0.58% of all tariff lines in ASEAN.

- ***General Exception List***. These products are permanently excluded from the free trade area for reasons of protection of national security, public morals, human, animal or plant life and health and articles of artistic, historic and archaeological value. There are 1,036 tariff lines in the GE List representing about 1.61% of all tariff lines in ASEAN.

As Figure 4 shown, by the year of 2000, there are 62,968 tariff lines out of 64,374 lines in the IL and TEL. This means that 98.1 percent of tariff lines will be between 0-5 percent by 2003 (by 2006 for Vietnam and by 2008 for Laos and Myanmar). The share of the SL and GEL, 0.58 percent and 1.61 percent respectively, appear to be small relative to the IL and TEL.

Figure 4. Share of CEPT Package by 2000.



Sources: ASEAN Secretariat, ASEAN Free Trade Area: An Update, 1999.

Table 2 shows the CEPT product list by country. Although, the SL and the GEL account for a relatively small share in total tariff lines, some commodities in the SL and the GEL represent high trade volume and/or high tariff rates. For instant, Indonesia includes a high portion of unprocessed agricultural products in the SL including rice, wheat, and soy bean, which account for a large share of import values from ASEAN. For Vietnam and Laos the import values in the GEL correspond to 10 percent and 37 percent of total imports from ASEAN respectively⁴.

Table 2. CEPT Product Lists.

Country	IL		TEL		SL		GEL		Total
	Tariff lines	Share (%)	Tariff lines	Share (%)	Tariff lines	Share (%)	Tariff lines	Share (%)	
Brunei	6105	94.0	135	2.1	14	0.2	239	3.7	6493
Indonesia	6622	91.8	545	7.6	4	0.1	45	0.6	7216
Laos	533	15.0	2831	79.7	96	2.7	91	2.6	3551
Malaysia	8648	95.1	276	3.0	104	1.1	63	0.7	9091
Myanmar	2356	43.1	2987	54.6	21	0.4	108	2.0	5472
Philippine	5221	91.6	385	6.8	68	1.2	28	0.5	5702
Singapore	5739	98.0	0	0.0	0	0.0	120	2.0	5859
Thailand	9040	99.1	79	0.9	7	0.1	0	0.0	9126
<i>Vietnam</i>	<i>1718</i>	<i>57.0</i>	<i>1147</i>	<i>38.0</i>	<i>23</i>	<i>0.8</i>	<i>127</i>	<i>4.2</i>	<i>3015</i>
Total	45982	82.8	8385	15.1	337	0.6	821	1.5	55525

Source: ASEAN Secretariat, CEPT Product Lists, 1998.

⁴ Fukase and Martin, 2001.

One of the important natures of the CEPT scheme is that the concessions are granted on a reciprocal, product by product basic. A product is eligible for concession under the scheme has to meet three conditions. Firstly, the product should be included in the IL of the both importing and exporting countries. Secondly, in order to receive all concession, the product must have a CEPT tariff of 20 percent or below. Thirdly, the product has to satisfy the local content requirement of at least 40 percent. In the short run, the reciprocal requirement of the CEPT scheme provides incentives for the member countries to include their commodities in the IL and to reduce tariffs below 20 percent to receive concessions. The CEPT scheme also involves a phased reduction in tariff. Another key feature of the CEPT is that member countries are required to eliminate all quantitative restrictions and non-tariff barriers (NTBs) on products on which they receive CEPT concessions within a period of five years after receiving concessions. The NTBs covers para-tariff measures, price control measures, finance measures, monopolistic measures, and technical measures (ASEAN Secretariat, 1995).

2. Position of Vietnam in ASEAN and Its Commitments in AFTA.

Vietnam officially became the seventh member of ASEAN on 28th July of 1995. As a consequence of its membership, Vietnam has agreed to join with other ASEAN countries to form an ASEAN Free Trade Area. Vietnam is the second populous country in ASEAN after Indonesia with its 80 million people in 2002. However, Vietnam is still a low-income economy in the region with relatively small share of GDP and trade values, about 6 percent and 4.8 percent respectively (Table 1). As a transitional economy, Vietnam has been one of the fastest growing economies in the 1990's. In 2002, total exports plus imports relative to GDP reached 110 percent, a relatively high figure for a populous economy. Compare with five

original members of ASEAN, Vietnam's economy is predominantly agricultural and primary production, particularly, economic structure of Vietnam is reflected in its imports and exports commodity structures (Figure 2a and 3a). As represents in Figure 2b, 21 percent of Vietnam exports in 2002 go to ASEAN countries. Within the region, Singapore is the largest market for Vietnam made products, follows by Philippine, Thailand. Concerning the imports side, in 2002, Vietnam sourced about 24 percent of its imports from ASEAN countries (Figure 3b). Similar with the export market share, the biggest source of Vietnam's imports is Singapore, followed by Thailand and Malaysia.

Table 3 illustrates the composition of Vietnam's trade with ASEAN-10 by commodity in 2002. Primary products exports accounted for nearly 70 percent of Vietnam total exports value to ASEAN, in which a large share was crude oil exported to Singapore. There was only 30 percent of export revenues come from manufactures exports. The fact means that liberalization of partner markets for primary products of Vietnam is much more important for Vietnam than liberalization for manufactured products⁵. In contrast, Vietnam imported about 60 percent of manufactured products in total imports from ASEAN and only 40 percent of primary products in 2002⁶ (Table 3). It is clearly that, fulfilling CEPT obligations⁷ means increasing the share of manufactured exports to Vietnam in the future and domestic producers should anticipate the stiffer competition from cheaper imported manufacturing products from ASEAN countries.

Table 3. Trade with ASEAN by SITC 1-digit commodity in 2002.

⁵ It is worth noting that almost unprocessed agricultural products still lies in the Sensitive List of CEPT scheme.

⁶ I believe that the main portion of sector 3: Mineral fuels, lubricant and related materials is petroleum products come from Singapore.

⁷ Almost all tariff lines of manufactured products are included in the Inclusion List of CEPT.

SITC Code	Section	Exports to ASEAN		Imports from ASEAN	
		Value (US\$ 1000)	Share (%)	Value (US\$ 1000)	Share (%)
	Total	2,434,915	100	4,769,177	100
I	Primary Products (0 - 4)	1,681,771	69.11	1,920,515	40.3
0	Food & live animal	469,809	19.3	184,028	3.9
1	Beverages & tobacco	9,944	0.4	104,822	2.2
2	Crude materials, except fuels	127,709	5.2	280,327	5.9
3	Mineral fuels, lubricants & related materials	1,073,642	44.1	1,252,581	26.3
4	Animal & vegetable oils, fats	667	0.03	98,758	2.1
II	Manufactured Products (5-8)	753,144	30.9	2,848,615	59.7
5	Chemical & related products	84,819	3.5	912,727	19.1
6	Manufactured products	180,782	7.4	741,993	15.6
7	Machinery and transports	350,064	14.4	1,025,390	21.5
8	Miscellaneous manufactures	137,480	5.6	168,505	3.5
9	Commodities not classified	0	0	47	0

Source: General Statistics Office, International Merchandise Trade of Vietnam, 2002.

For the process of fulfilling the obligations of Vietnam so far, much have been done and much more are needed to be done in the future. In 2002, Vietnam have submitted the IL, the TEL, the SL, and the GEL according to Harmonized Tariff System applied by AFTA members and consist of 8,769 tariff lines, 1,416 lines, 89 lines and 415 lines, respectively. According to Vietnam's commitments, by 2003 all of the products included in the TEL will be transferred to the IL with the highest rate of least than 20 percent and by the year of 2006, about 10,150 tariff lines will be down to 0-5 percent. At the same time, Vietnam has to build a schedule for *elimination of quantitative restrictions and non-tariff barriers* as CEPT agreement requires. The other important tasks include improving the *Green Lane System*; *harmonizing the tariff nomenclature*; *simplifying and harmonizing the custom procedures*; and adopting a *common valuation method*.

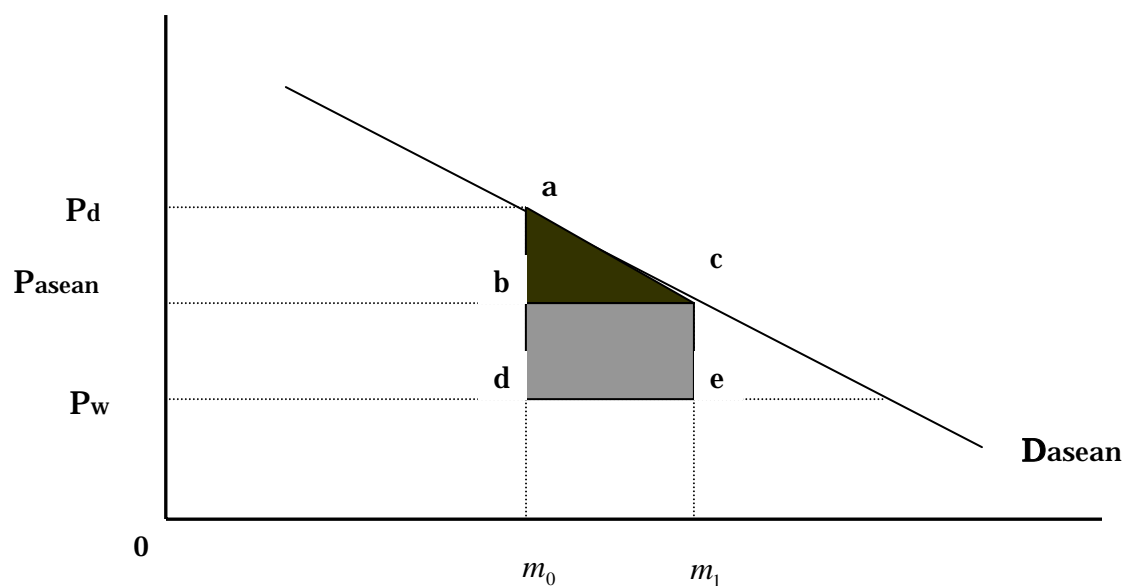
III. Theoretical Backgrounds and Working Model.

1. Theory of Preferential Trade Liberalization.

The preferential trade liberalization is the liberalization of foreign trade barriers on discriminatory basic. Under AFTA, Vietnam and ASEAN members will eliminate their barriers to trade with each others only, when the trade barriers with other trading partners remain unchanged. In order to evaluate the economic impacts of such preferential trade liberalization, the theoretical impacts will be considered bellows.

First, we consider the effects of changes in the rates of protection that Vietnam levies on its imports. The concept of trade creation and trade diversion are central to the evaluation of discriminatory trade liberalization. Trade creation measures the gains from expanding trade in the products being liberalized. Trade diversion, in contrast, measures the reductions in trade of products disadvantages by the preferential liberalization. To aid understanding of the concept of trade creation, the market for goods imported from ASEAN is illustrated in Figure

Figure 5a. Welfare impacts of Vietnam's liberalization of ASEAN members' imports.



In the initial equilibrium, Vietnam imposes a tariff t from the ASEAM members (P_d

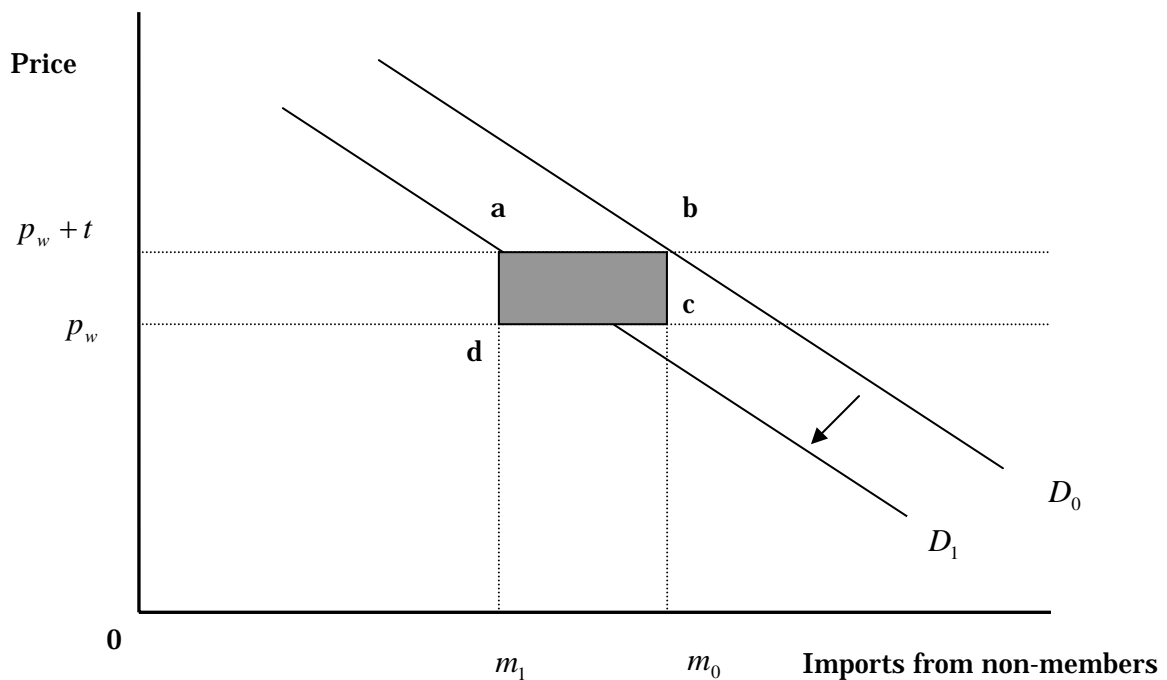
= $P_w + t$). Let us now introduce preferential tariff rate $t_{asean} < t$ through a reduction in the tariff on imports from the ASEAN partners ($P_{asean} = P_w + t_{asean}$). This reduces tariff revenues on initial imports from ASEAN by P_dabP_{asean} . However, the gains to consumers are greater since they are able to increase the quantity of ASEAN goods that they purchase. Following the decline in the domestic price, consumers move down the demand curve for ASEAN goods, D_{asean} from initial quantity m_0 to final quantity m_1 . Consumer surplus increases by the area $P_dabP_{asean} + abc$. In addition, with the increase in the imports from ASEAN, the loss of revenues is partially compensated by the area $bced$. In some, the net gain to Vietnam in this market is approximated by the area $aced$. This is the welfare benefit from trade creation.

If the import distortion being liberalized is the only distortion in the economy, then the welfare impacts of liberalization can be analyzed by considering only the trade creation effects depicted above. However, if there are distortions in the other markets, the impacts of liberalization on the trade flows through these barriers must be considered. This kind of welfare effect is trade diversion. In the analytical framework used in this study, this potential source of loss is readily seen by examining conditions in the market for imports from non-member countries, represented in Figure 5b.

Assuming that imports from non-member countries are substitutes for imports from member countries, the reduction in the price of imports from partner countries show in Figure 5a leads to a reduction in the demand for goods from non-partner countries. This reduction shifts the demand curve for these goods from D_0 to D_1 . This has adverse welfare consequences that can be measured by the tariff revenues collected on non-member imports. This reduction in tariff revenues

corresponds to a reduction in welfare because each unit of the good that was previously imported was worth p_d to consumers in the imported market, but cost the country only p_w to purchase in world markets. The welfare loss to Vietnam is the loss in tariff revenues shown by the area abcd (Figure 5b)

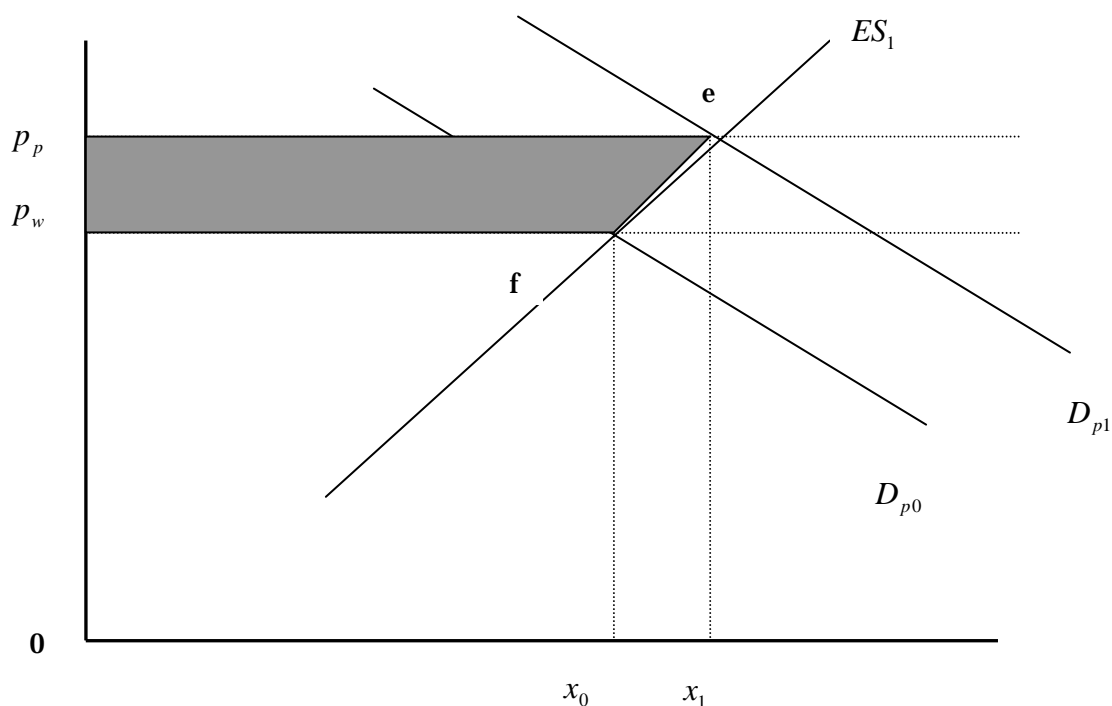
Figure 5b. Impact of preferential liberalization on imports from non-member countries.



. Whether, there is a net gain or loss to Vietnam depends on the relative sizes of the two shaded areas in Figure 5a and Figure 5b.

Now we turn to the analysis of impacts of liberalization of trade barriers on Vietnam exports to member countries. In the export side, Vietnam will experience a term of trade gains. The reduction in the ASEAN members' tariff on exports from Vietnam shifts the demand curve for exports from D_{p0} to D_{p1} . The result is an increase in both the volume of exports from Vietnam to ASEAN, and an increase in the price received for these exports (shaded area p_p of p_w).

Figure 5c. Term of Trade impacts of improved access to member markets.



All of the impacts of discriminatory trade liberalization outlined above need to be taken into account simultaneously in forming an overall assessment of the proposed approach. While diagrams of the type shown above help understanding, they do not provide a practical basis for making an overall evaluation. By contrast, quantitative models allow all of these effects to be taken into account at once.

2. Working Model.

In order to quantitatively evaluate the economic impacts of Vietnam accession into AFTA, this study makes use of Global Trade Analysis (GTAP) Model – a comparative static standard multi-sector multi-region Computable General Equilibrium Model – which incorporates the necessary links between global factor demand, production structures, trade and protections. The GTAP model is documented comprehensively in Hertel (1997), with updated information on the

GTAP website⁸. The model assumes that firms use constant return to scale technology in perfect competitive markets. Household consumption behavior is represented by a constant difference elasticity (CDE) expenditure function, while consumption and government demand are characterized by constant value shares. The equilibrium levels of production and consumption are determined by global demand and supply of the products and zero economic profit for firms. Trade goods are linked through international trade. A key assumption of the model is that Vietnamese consumers distinguished between imported and domestic goods, and between imports by country of origin, under the so-called Armington (1969) assumption.

The version of the model utilized in this study is based on the Version 5.4 GTAP data base. The based year of this data set is 1997. The data base depict the real world economic structure in 1997, which consists of 57 sector of production and 78 regions.

IV. Simulation Designs and Results Analysis.

1. Simulation Designs.

In order to explore the quantitative effects of CEPT liberalization on Vietnam economy, three simulations according to the CEPT scheme schedule in which Vietnam has committed is going to implemented. Due to the lack of information about Brunei in GTAP 5.4 data base, this study concentrates on the liberalization of Vietnam against ASEAN-5, namely, Indonesia, Malaysia, the Philippine, Singapore and Thailand. First, the liberalization of products include in the Including List and the Temporal Excluding List which is supposed to be in the

⁸ www.gtap.agecon.purdue.edu/

range of 0-5 percent by 1st January of 2006. Second, the tariffs on the products (mostly unprocessed agricultural products) lie in the Sensitive List will be down to 0-5 percent by 2013 (for Vietnam). Third, the liberalization of products in the General Excluding List is examined. This is realistically to considered the possibility of liberalization of some products in the GEL, because Vietnam has the largest number of tariff lines in the GEL, which include not only the products as defined by the 9B section of CEPT/AFTA 1992, but also the products which receives strong protection such as motor vehicles and parts. At this moment, the Ministry of Finance of Vietnam has proposed to the Prime Minister for reviewing the GEL and further phase out those kinds of products.

The simulations are designed as below:

Simulation Design:

Scenario 1: AFTA1, Vietnam liberalizes the products in the Inclusion List and Temporary Excluding List and the ASEAN-5 members reciprocate the concessions.

Scenario 2: AFTA2, Senario 1 plus liberalization of products in the Sensitive List and ASEAN-5 members reciprocate the concessions.

Scenario 3: AFTA3, Senario 2 plus liberalization of products in the General Exclusion List and ASEAN-5 members reciprocate concessions.

In order to run the simulations as above making use of the GTAP 5.4 data base and standard model which consists of 57 sectors and 78 countries/regions, an aggregation scheme of regions and sectors must be preceded.

REGIONS AGGREGATION.

1. VNM: Vietnam	5. SGP: Singapore
2. IND: Indonesia	6. THA: Thailand
3. MYS: Malaysia	7. JPN: Japan
4. PHL: The Philippine	8. ROW: Rest of the world

SECTORS AGGREGATION.

<p>1. AGR (Agricultures and Forestry) 1. paddy rice 2. wheat 3. cereal grains nec 4. vegetables, fruits, nuts 5. oil seeds 6. sugar cane, sugar beet 7. plant based fibers 8. crops nec 9. bovine cattle, sheep, goats, horses 10. animal products nec 11. raw milk 12. wool, silk-worn cocoons 13. forestry 14 fishing</p>	<p>5. LIGHMANU(light manufacturing) 27. textiles 28. wearing apparel 29. leather products 30. wood products 31. paper products & publishing</p>
<p>2. RESOURCE (natural resources) 15. coal 16. oil 17. gas 18. mineral nec</p>	<p>6. FUELS 32. Petroleum, coal products</p>
<p>3. FOODS 19. bovine meat products 20. meat products nec 21. vegetables oil and fats 22. dairy products 23. processed rice 24. sugar 25. food products nec</p>	<p>7. BASMANU(basic manufacturing) 33. chemical, rubber, plastic products 34. mineral products nec 35. ferrous metal 36. metal nec 37. metal products</p>
<p>4. BEVTAB (beverages and tobacco) 26. beverages and tobacco products</p>	<p>8. AUTO (auto vehicle and others) 38. motor vehicle and parts 39. transport equipments nec</p> <p>9. ELECTMACH 40. electronic equipments 41. machinery equipment and nec 42. manufactures nec</p> <p>10. SVCES (services) 43. electricity 44. gas manuf., distribution 45. water 46. construction 47. trade 48. transport nec 49. water transport 50. air transport 51. communication 52. financial services nec 53. insurance 54. business service nec 55. recreational & other services 56. public services 57. dwelling</p>

Before implementing the experiments of CEPT tariff liberalization, it is worth looking at the initial rates of protection imposed on Vietnam's exports by the ASEAN members and the rates of protection that Vietnam levies on imports from members countries in the based year (the based year of GTAP 5.4 data is 1997) according to the above aggregation.

Table 4a. Ad valorem import tax rates imposed by Vietnam on imports from ASEAN-5 members countries (%).

Products	2 IND	3 MYS	4 PHL	5 SGP	6 THA
1 AGR	0.76	2.53	8.04	20.12	0.39
2 NATFUEL	2.32	4.39	1.44	0.74	1.71
3 FOOD	30.07	20.27	11.27	32.56	1.35
4 BEVTAB	99.14	96.33	36.1	99.96	75
5 LIGHMANU	21.1	9.19	15.07	26.04	23.91
6 FUELS	0	38.6	6.53	38.73	34.74
7 BASMANU	5.1	9.69	2.11	9.75	9.28
8 AUTO	47.5	38.08	15.93	21.79	52.88
9 ELECMACH	14.55	23.67	3.71	9.81	13.81

Table 4b. Ad Valorem import tax rates imposed by ASEAN-5 members countries on Vietnam's exports in 1997(%).

Products	2 IND	3 MYS	4 PHL	5 SGP	6 THA
1 AGR	4.11	69.89	11.6	0.39	18.37
2 NATFUEL	2.71	0.18	0	0	3.13
3 FOOD	3.98	32.55	49.64	7.77	40.33
4 BEVTAB	86.11	9.44	17.03	0	50.96
5 LIGHMANU	19.07	21.05	32	0	41.47
6 FUELS	0	0	0	0	0
7 BASMANU	8.99	2.32	0	0	14.27
8 AUTO	3.47	26.19	0	0	10.67
9 ELECMACH	1.34	6.92	0	0	6.87

Source: GTAP 5.4 data base.

2. Results Analysis.

a) Change in Direction of Trade.

Table 5b and Table 6b below provide the information about the changes in direction of exports and imports of Vietnam with ASEAN member countries, Japan and the rest of the world as the results of CEPT liberalization.

First, we look at the changes in direction of exports of Vietnam after liberalization of AFTA 1 (involves the liberalization of products in the IL and TEL). The exports of Vietnam to Malaysia, the Philippine and Thailand sharply increase by 67%, 100% and 67%, respectively. That is due to the high protection rate of those three countries on Vietnam export products before the liberalization. While exports to Singapore slightly decrease due the very low rate of import tariff that Singapore levied on Vietnam exports (almost at 0%) before the liberalization (Table 4b). The lowered protection in ASEAN countries makes Vietnam exporters change their markets to ASEAN countries, exports to Japan and ROW, where the rates of protection remain unchanged, decrease by 2.9% and 3.5%, respectively. Exports of three liberalized sectors, including foods, light manufactures and electric and machinery, contribute most to increases of exports to ASEAN members. When Vietnam and ASEAN members liberalize the SL, which consist of almost unprocessed agriculture products (AFTA 2), which is the comparative advantage sectors of Vietnam at the moment, agricultural exports of Vietnam is double, contrasting with the AFTA1 scenario, exports of those products decrease in all markets. Malaysia is account for the largest parts of increase due to its inclusion of many unprocessed agriculture in its SL.

The most interesting results are in the third scenario when Vietnam and ASEAN members liberalize the GEL, exports of Vietnam to all ASEAN member

increase, while exports to Japan and ROW decline a little, by 0.8% and 1%, the results may due to the decrease in Vietnam's overall export prices, as they can source cheaper inputs from ASEAN market⁹. As a results, the total exports increase by US\$618 million or 7%. Foods, light manufactures and electric and machinery exports account for the largest share of increases in export earning.

Table 5a. Export values of Vietnam in 1997 by sector and destination. ((US\$ mil)

Sector	2 IND	3 MYS	4 PHL	5 SGP	6 THA	7 JPN	8 ROW	Total
1 AGR	46.28	16.99	8.06	93.27	6.49	60.04	681.26	912.4
2 NATFUEL	28.7	1.18	11.77	189.33	10.78	501.02	600.93	1343.71
3 FOOD	11.73	54.91	96.17	30.68	13.57	403.74	453.46	1064.26
4 BEVTAB	0.02	0.07	0.01	2.87	0.12	2.01	8.79	13.88
5 LIGHMANU	1.39	18.75	4.15	48.93	5.84	748.44	2442.92	3270.4
6 FUELS	0	0	0	0	0	0	0	0
7 BASMANU	1.06	33.37	7.61	38.89	3.58	55.6	293.31	433.41
8 AUTO	0.09	0.3	0.62	2.34	0.02	2.9	15.11	21.37
9 ELECMACH	9.13	21.32	135.16	53.26	136.75	111.54	315.5	782.65
10 Svces	6.6	2.95	2.49	2.9	4.9	138.38	754.07	912.3
Total	105	149.83	266.04	462.46	182.06	2023.67	5565.34	8754.39

Source: GTAP 5.4 data base.

Table 5b. Change in Exports of Vietnam after simulations (1997 US\$ mil)

AFTA 1

Sector	2 IND	3 MYS	4 PHL	5 SGP	6 THA	7 JPN	8 ROW	Total
1 AGR	-6	-2.18	-1.15	-11.78	-0.84	-7.58	-91.05	-120.57
2 NATFUEL	-0.27	-0.01	-0.08	-1.89	-0.1	-4.94	-6.08	-13.37
3 FOOD	0.9	79.97	271.38	7.74	29.76	-40.23	-44.44	305.08
4 BEVTAB	0	0	0	-0.18	-0.01	-0.14	-0.61	-0.94
5 LIGHMANU	1.57	25.05	0.02	0.45	28.74	3.3	10.76	69.91
6 FUELS	0	0	0	0	0	0	0	0
7 BASMANU	0.47	2.47	-0.26	-1.27	2.84	-1.94	-10.22	-7.92
8 AUTO	0	-0.01	-0.01	-0.05	0	-0.06	-0.31	-0.44
9 ELECMACH	0.86	10.2	2.16	0.87	64.44	1.71	4.81	85.05
10 Svces	-0.51	-0.23	-0.2	-0.22	-0.37	-10.71	-58.38	-70.62
Total	-2.98	115.27	271.87	-6.32	124.45	-60.58	-195.52	246.19

⁹ Vietnam includes natural fuel products, fuel products and motor vehicle and parts in its GEL.

AFTA 2

1 AGR	-1.99	132.71	2.43	-17.61	4.77	-11.93	-142.91	-34.53
2 NATFUEL	-0.34	-0.01	-0.11	-2.34	-0.13	-6.12	-7.53	-16.58
3 FOOD	0.24	73.12	254.53	5.66	27.38	-60.21	-66.55	234.16
4 BEVTAB	0	-0.01	0	-0.24	-0.01	-0.18	-0.8	-1.25
5 LIGHMANU	1.54	24.53	-0.03	-0.19	28.32	-5.95	-19.93	28.29
6 FUELS	0	0	0	0	0	0	0	0
7 BASMANU	0.45	2.04	-0.34	-1.71	2.77	-2.56	-13.51	-12.86
8 AUTO	0	-0.01	-0.02	-0.08	0	-0.1	-0.54	-0.76
9 ELECMACH	0.76	9.89	0.82	0.35	62.46	0.6	1.68	76.56
10 Svces	-0.58	-0.26	-0.23	-0.25	-0.43	-12.29	-66.99	-81.03
Total	0.08	242.01	257.05	-16.42	125.13	-98.76	-317.09	191.99

AFTA 3

1 AGR	-1.72	133.61	2.49	-16.06	4.81	-11.65	-139.58	-28.1
2 NATFUEL	4.44	0.02	-0.06	3.97	2.19	-2.71	-3.34	4.51
3 FOOD	0.76	78.59	267.61	7.37	29.25	-44.65	-49.38	289.56
4 BEVTAB	0.71	0.06	0.01	0.16	1.48	0.12	0.5	3.05
5 LIGHMANU	1.69	26.76	0.18	2.39	30.09	31.87	106.21	199.19
6 FUELS	0	0	0	0	0	0	0	0
7 BASMANU	0.54	4.15	0.07	0.46	3.15	0.51	2.68	11.56
8 AUTO	0.14	5.43	0.48	1.88	0.11	2.27	11.83	22.13
9 ELECMACH	1.33	11.67	8.51	3.38	73.98	6.95	19.6	125.43
10 Svces	-0.06	-0.03	-0.03	-0.02	-0.02	-1.44	-7.76	-9.36
Total	7.83	260.26	279.25	3.54	145.05	-18.74	-59.22	617.97

Source: Author's simulation results.

Concerning the imports side, Table 6b shows that due to the lowered tariff rates levies on imports from ASEAN countries, imports from all ASEAN members increase by the scarifying of imports from Japan and ROW. Malaysia, Singapore and Thailand make the largest increase in total rising of imports from ASEAN, by US\$217 million, US\$ 504 million and US\$ 201 million, respectively. That reflects the present high protection rates of Vietnam imposed on imports from those three countries. The imports of electronics and machinery sector from Singapore, Malaysia and Thailand show the largest increases. The total imports of this sector increases by US\$ 448 million or 48.9%. That followed by imports of basic

manufactures, which serves as vital inputs for manufacturing industries in Vietnam, by about US\$ 283 million. The results reflect the fact that Vietnam still depend heavily on the industrial material inputs from foreign countries. In contrast, food sector also get the preferential tariff rates at AFTA 1 scenario, however, food imports from ASEAN to Vietnam increase negligibly.

The impacts on imports nearly remain unchanged when unprocessed agricultural products in the SL are included in the liberalized list (AFTA 2 scenario) compares with the effects of AFTA1 scenario. That is due to the high comparative advantage of Vietnam in this sector.

The situation becomes much more different when the GEL is included in the liberalization list. Imports from ASEAN increase sharply, particularly, imports of beverage and tobacco, fuel products (includes almost petroleum products) electrics and machinery from Singapore (by US\$158 million, US\$220 million and US\$244 million) and motor vehicle and transport equipments from Thailand (by US\$628 million) contribute most to the rising in import bills. As a results, total imports of Vietnam increase by US\$623 or about 5.2%.

Table 6a. Import Values of Vietnam in 1997 by Sector and Sources(in US\$ mil)

Sector	2 IND	3 MYS	4 PHL	5 SGP	6 THA	7 JPN	8 ROW	Total
1 AGR	0.04	1.53	0.01	2.74	0.07	1.92	102.79	109.1
2 NATFUEL	0	0.63	0.36	0.17	0.39	0.46	14.18	16.18
3 FOOD	5.91	53.36	3.93	16.95	0.01	12.87	239.08	332.11
4 BEVTAB	0.64	2.75	0	8.01	0	0.76	122.18	134.33
5 LIGHMANU	56.84	38.2	4.35	54.93	49.36	172.49	1669.41	2045.58
6 FUELS	0.92	31.94	44.85	190.1	140.74	149.36	690.77	1248.69
7 BASMANU	243.68	93.97	66.36	311.49	200.13	279.93	2098.66	3294.21
8 AUTO	6.55	3.46	1.09	16.66	81.15	281.7	317.39	708.01
9 ELECMACH	6.92	76.55	5.11	593.4	68.08	611.29	1754.06	3115.41
10 Svces	6.66	2.95	2.52	2.93	4.86	137.28	742.13	899.32
Total	328.15	305.33	128.59	1197.37	544.8	1648.04	7750.66	11902.94

Source: GTAP 5.4 data base.

Table 6b. Change in Import Values of Vietnam after AFTA Liberalization (in 1997US\$ mil).**AFTA 1**

Sector	2 IND	3 MYS	4 PHL	5 SGP	6 THA	7 JPN	8 ROW	Total
1 AGR	0	0.13	0	0.22	0.01	0.16	8.68	9.2
2 NATFUEL	0	-0.01	0	0	0	0	-0.11	-0.13
3 FOOD	11.41	36.35	0.85	26.59	0	-0.98	-18.12	56.1
4 BEVTAB	0.02	0.08	0	0.17	0	0.02	3.43	3.72
5 LIGHMANU	64.32	5.72	2.52	93.28	71.35	-15.24	-147.54	74.41
6 FUELS	0.01	0.25	0.4	1.53	1.13	1.29	5.95	10.56
7 BASMANU	38.22	38.51	1.24	128.12	77.22	-22.38	-167.85	93.08
8 AUTO	0.02	0.01	0.01	-0.03	0.23	2.07	2.32	4.64
9 ELECMACH	5.63	136.46	0.22	254.68	51.01	-92.3	-264.89	90.81
10 Svces	0.24	0.11	0.11	0.1	0.17	5.29	28.6	34.62
Total	119.88	217.61	5.34	504.67	201.11	-122.07	-549.53	377.01

AFTA 2

1 AGR	0.01	0.41	0.01	4.38	0.01	0.22	11.68	16.71
2 NATFUEL	0	-0.01	0	0	0	0	-0.11	-0.13
3 FOOD	11.76	38.58	0.94	27.45	0	-0.74	-13.78	64.2
4 BEVTAB	0.02	0.11	0	0.26	0	0.03	4.69	5.11
5 LIGHMANU	63.74	5.7	2.49	92.57	70.76	-16.03	-155.15	64.09
6 FUELS	0.01	0.26	0.41	1.59	1.18	1.35	6.23	11.03
7 BASMANU	38.26	38.55	1.23	128.16	77.26	-22.36	-167.66	93.43
8 AUTO	0.05	0.02	0.02	0.03	0.51	3.06	3.44	7.12
9 ELECMACH	5.66	136.89	0.23	256.67	51.29	-91.06	-261.31	98.36
10 Svces	0.27	0.12	0.12	0.11	0.2	5.92	32	38.74
Total	119.78	220.62	5.44	511.22	201.21	-119.63	-539.98	398.66

AFTA 3

1 AGR	0.01	0.37	0.01	4.25	0.01	0.18	9.64	14.47
2 NATFUEL	0	0.15	0.02	0	0.03	-0.01	-0.19	0.01
3 FOOD	11.35	36.47	0.83	26.41	0	-1.01	-18.8	55.25
4 BEVTAB	12.32	48.69	0	158.38	0	-0.54	-87.49	131.35
5 LIGHMANU	65.84	6.47	2.62	95.01	71.63	-13.07	-127	101.49
6 FUELS	-0.35	36.45	-9.34	220.17	130.64	-56.35	-260.7	60.51
7 BASMANU	35.93	37.41	0.72	124.24	73.12	-24.23	-182.17	65.03
8 AUTO	33.52	7.12	-0.57	-3.41	628.22	-248.55	-280.07	136.26
9 ELECMACH	5.5	134.03	0.16	244.85	48.9	-97.38	-279.92	56.14
10 Svces	0	0	0.02	-0.01	-0.04	0.49	2.46	2.91
Total	164.11	307.15	-5.51	869.9	952.5	-440.48	-1224.24	623.44

Source: Author's simulation results.

b) Change in Output by sector in Vietnam.

Theoretically, reciprocal trade liberalization provides incentive to exportable goods producing sector, at the same time it raises competition to import competing industries. With the natural comparative advantage lie in foods and light manufacturing sectors, Table 7 shows the changes in output by sector in Vietnam after AFTA liberalization. Foods and light manufacturing sectors, at which Vietnam have gained comparative advantage illustrate the largest expansion in output after AFTA 1 liberalization, by about US\$ 268 million and US\$30 million, respectively. The liberalizations of unprocessed agricultural products under AFTA 2 and AFTA 3 scenarios bring most fruitful impacts to agricultural sector in Vietnam. Besides, the electronics and machinery sector also expand slightly, particularly after AFTA 3.

However, because import competing industries have to face with strong competition from cheaper foreign products, output in those industries, such as fuels, basic manufacturing and motor vehicle sectors in Vietnam, should decrease. The output of basic manufacturing sector, which is included in AFTA 1, show the sharp contrasts in AFTA 1 and AFTA 2, while the motor vehicle sector, which is included in the GEL, show the strong inversion only in AFTA 3 scenario.

Table 7. The effects on output in Vietnam by sector (in US\$ mil)

Sector	Output values by trade-goods sectors in 1997	Changes after AFTA liberalization		
		AFTA 1	AFTA 2	AFTA 3
1 AGR	4555.47	17.04	47.02	72.34
2 NATFUEL	2452.34	-27.41	-31.86	-6.03
3 FOOD	2945.74	268.36	182.08	236.08
4 BEVTAB	437.07	-5.02	-6.51	-125.91
5 LIGHMANU	4717.58	30.86	32.1	193.04
6 FUELS	6.82	-0.25	-0.29	-1.5
7 BASMANU	3048.99	-119.1	-134.47	-68.95
8 AUTO	212.51	-1.88	-3.29	-77.54
9 ELECMACH	1915.4	21.46	9.15	77.17

Source: Author's simulation results.

c) Change in Production Factors Incomes.

According to the simplified Heckscher-Ohlin model¹⁰, it is expected that due to the liberalization with ASEAN members, returns to capital skilled labors to fall since Vietnam is a capital-scare economy, while the returns to land and unskilled labor to rise. As the GTAP 5.4 data and model allowed us to disaggregate the factor of production into five sectors, Table 8 shows the changes in returns to production factors after each liberalizations under CEPT scheme. As it is what expected, returns to land and unskilled labors, which is relatively abundant in Vietnam gain the most, by 6.8%, 13.16% and 16.7% for land and 3.7%, 4.17 and 2.68% for unskilled labors.

The change in return to natural resources surprised us mostly. No body can imagine that Vietnam is a natural resources-scare country. Given the fact that natural resource is relatively abundant in Vietnam, the question is that why trade liberalization in AFTA 1 and AFTA 2 reduce the return to that factor. One hypothesis may be proposed here. As Vietnam is still at the initial stage of economic development, most of its natural resources are exported in the crude types. They are not processed and are use for domestic industrial production. There are a large portion of industrial inputs for manufacturing sectors imported every year. For instant, while Vietnam exports a large amount of crude oil, the country has to import all of its domestic petroleum products demands. Besides petroleum products, iron and still, and even about 80% of material inputs for apparel, leather industries¹¹ are imported. The industrialization and trade policy of Vietnam government provide many kinds of supports and incentives to nurture the

¹⁰ Paul Krugman & Maurice Obsfel. 2000. *International Economics: Theory and Policy*, Fifth Edition, Addison-Wesley.

¹¹ Those are the biggest manufacturing export products of Vietnam so far.

development of basic manufacturing industries to substitute for importation. The fact reflected in Table 7, when Vietnam liberalizes the basic manufacturing sector in AFTA1 scenario, output of the sector sharply contrasted. It might be interpreted from the results that before the AFTA liberalization, natural resources (for domestic manufacturing production) seem to be relatively scarce rather than abundant.

Table 8. Change in Returns to Production Factors in Vietnam (in 1997 US\$ mil)

Factor	Values of returns to production factors in 1997	Changes after AFTA liberalization		
		AFTA 1	AFTA 2	AFTA 3
1 Land	1078.58	73.1(6.8%)	141.94(13.16%)	179.85(16.67%)
2 Unskilled Labors	6004.58	222.49(3.7)	250.77(4.17)	161.15(2.68)
3 Skilled Labors	1727.96	60.35(3.5)	66.83(3.86)	35.07(0.58)
4 Capital	8975.04	297.11(3.3)	335.3(3.73)	170.66(1.9)
5 Natural Resources	586.27	-13.1(-2.2)	-7.47(-1.27)	25.75(4.39)
Total	18372.42	639.96(3.5)	787.38(4.28)	572.48(3.1)

Source: Author's simulation results.

e) The Effects on Macroeconomic Indicators.

So far, we have considered the economic impacts of AFTA liberalization on selected aspects of Vietnam economy. Now, we move to evaluate the impacts on macroeconomic condition of Vietnam as a whole. Looking at the results provided in Table 10, both exports and imports of Vietnam increase in the real term as the results of AFTA liberalization, especially, in the AFTA 3 scenario, by 7% and 5.23%, respectively. However, we can see that the rate of changes in imports is relatively higher than that of exports, except for the AFTA 3 scenario case. Consequently, it is expected that trade account of Vietnam may be deteriorated slightly when AFTA 1 and AFTA 2 are fulfilled.

Concerning the impacts on real GDP, AFTA 1 and AFTA 2 show the positive impacts on GDP growth. This proves the positive impacts on Vietnam economy as a whole. In contrast, when AFTA 3 is included in the liberalization list, the impacts on the real GDP growth is negative. The real GDP reduces by about 1.35% after AFTA3 liberalization. It raises a serious concern for policy-makers in Vietnam government when considering the liberalization of the industries included in the GEL at the present economic structure and development situation of Vietnam. The removes of protections for some infant industries may in fact destroy the domestic production and reduce production and the rate of economic growth. However, at this point, I have to remind that the GTAP 5.4 model is a comparative static general equilibrium model, while it can tell us the numerical results of static aspects of policy change, it can not tell us the dynamic impacts such as the higher competition improves efficiency of investment and raise real income in the future.

Due to a large import tariff cut, tariff revenue, which account for about 18.5% of total government revenue in 2003 (IMF 2003), decreases. However, the impacts of AFTA 1 and AFTA 2 are not so serious compare with the impact of AFTA 3. As Fukase and Martin (2001) pointed out that the items in the GEL account for some 37 percent of Vietnam's imports from ASEAN and the average tariff rate on these goods is high at 42.3 percent. This mean that some of the items with high trade volume and high tariff rate are excluded from the AFTA 1 and AFTA 2 commitments, implying that about 65 percent of tariff revenue from ASEAN are shielded from AFTA1 and AFTA 2 tariff liberalization.

Table 11 shows the change in components of final demand. Both in AFTA 1 and AFTA 2 scenarios, all components of final demand increase along with the increase in total demand. The current account is slightly deteriorated and private.

The situation turns inversely in AFTA 3 scenario, when all components of final demand decrease with the total GDP, except exports and imports. The exports sharply increase by US\$ 691 million, while imports expand only about US\$ 647 million, the impacts may improve the current account situation a bit.

Table 10. Change in Macroeconomic Indicators (%)

Variables	AFTA 1	AFTA 2	AFTA 3
Total export changes	2.8	2.1	7
- To ASEAN	43.1	52.15	59.71
- To ROW	-3.3	-5.48	-1.02
Total import changes	3.16	3.34	5.23
- From ASEAN	41.87	42.25	91.37
- From ROW	-7.1	-7.01	-17.7
Changes in real GDP	1.7	2.44	-1.35
Changes in Tariff Revenue	-0.2	-0.45	-31.66

Source: Author's simulation results.

Table 11. Change in Final Demand Structure (in 1997 US\$ mil).

	Value of final demands in 1997	Change after liberalization		
		AFTA 1	AFTA 2	AFTA 3
Consumption	15469	298	411	-200
Investment	7247	107	149	-99
Government	2203	40	56	-41
Exports	9303	333	334	691
Imports	-12376	-391	-414	-647
Total	21846	388	565	-296

Source: Author's simulation results.

V. Conclusions.

As a further attempt to open the domestic market and integrate in to the regional and the world economy, Vietnam has joined ASEAN and became the member of AFTA since 1995. Together with other members, Vietnam is preceding its commitments to create a free trade area within the region. Base on the results of

this study, some conclusions about the economic impacts of Vietnam trade liberalization under CEPT scheme could be drawn.

Firstly, in general speaking, taken into account the economic structure of Vietnam in 1997 (the based year of the data base), trade liberalization under CEPT scheme (the IL and TEL) brings somewhat fruitful impacts on economic growth of Vietnam. However, it is worth being cautious to go another step to liberalize the industries include in the GEL. Without further improvement of the competitiveness of those industries, stiff competition after trade liberalization will threat the development of those industries as well as other negative impacts that Vietnam is still unready to cope with by restructuring the domestic economy such as the reduction of tariff revenue and deterioration of trade account, may create inverse effects on GDP growth.

Second, as the nature of trade liberalization under AFTA commitment is discriminatory, the crowding out effect on trade volume with the rest of the world and in favor of ASEAN member countries will reduce the total change in the expansion of trade due to the trade liberalization. From this point of view, the other negative effect may be considered. The lower rates of protection against imports from ASEAN members may force domestic producers to change their sources of inputs toward ASEAN market with lower quality, which previously they could source from any cheapest suppliers with relevant quality from the world market, when protection rates remained the same between ASEAN members and the rest of the world. It is strongly recommend from this analysis that Vietnam should expand its AFTA commitment to the rest of the world, on the reciprocal basic, as soon as possible.

Thirdly, even though overall incomes increase in all sectors due to more

efficiently uses of production factors, the most fruitful impacts of trade liberalization toward agricultural sectors and labor intensive sectors, which accounts for the most portion of the poorest population of Vietnam. In other word, trade liberalization directly contributes to the poverty reduction of Vietnam.

Fourth, due to the static nature of the working model, this study could not evaluate the aspects of the dynamic effects that induced from CEPT scheme trade liberalization in long-run economic growth of Vietnam. The increasing competition followed trade liberalization will force domestic producers to improve their competitiveness by more investment and more efficiently utilizing of inputs, more investment in research and development and as a result improvement in technology and productivity is expected. All of those dynamic impacts will maintain the long-term and permanent high growth rate of the economy.

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