CHAPTER IV

IMPACT OF SOUTH ASIAN TRADE LIBERALIZATION ON THE SRI LANKAN ECONOMY: A SIMULATION ANALYSIS

4.1 Introduction

This chapter investigates the economic impact of the South Asian trade liberalization with special reference to the Sri Lankan economy. A simulation analysis is conducted to discern the impacts of South Asian trade liberalization by removing trade barriers among South Asian economies. The welfare impacts of different trade policy scenarios are quantified using the standard Global Trade Analysis Project (GTAP) model developed by Hertel (1997) in the long run framework. Sri Lanka's economic structure and the trade pattern in the context of the world economy will be presented in section 4.2. The simulation results will be presented by illustrating the impact of the South Asian trade liberalization on GDP, employment, household utility and welfare of the Sri Lankan economy in section 4.3 and section 4.4 presents the impact of trade liberalization on sectoral trade and its implications for trading partners and trade redirection effects.

4.2 Sri Lanka's Trade Pattern and Economic Structure in the Context of the World Economy

4.2.1 Macroeconomic Characteristics

Table 4.1 presents data on GDP, external trade, trade dependence, factor endowments, and the relative size of the economies of the countries/regions in the model. It could be seen that the data are remarkably asymmetrical among regions with respect to their size of GDP, exports and imports. The economic prominence of high income entities (USA, EU and Japan) is evident. These three regions together account for about 71 percent of world GDP, 56 percent of exports and 58.8 percent of imports.

Table 4.1 Macroeconomic Characteristics of Different Regions: 2001

Region	IND	LKA	BDG	XSA	USA	CAN	EU	ASE	HIA	JPN	CHN	XME	AUS NZL	RUS XSU	ROW
GDP & Trade Flow (Billion US$)															
GDP	477.5	15.9	46.8	83.4	10082.3	715.1	7929.6	537.1	872.0	4177.6	1159.0	644.7	407.9	414.4	3715.3
Exports	60.6	6.5	7.9	14.0	888.9	267.2	2514.5	438.1	410.8	453.0	379.5	210.1	90.9	145.6	1010.1
Imports	75.9	7.1	12.1	17.4	1321.0	246.1	2592.3	394.0	411.5	430.1	313.8	219.3	92.1	131.7	1111.4
Relative Size in the World (%)															
GDP	1.5	0.1	0.1	0.3	32.2	2.3	25.4	1.7	2.8	13.4	3.7	2.1	1.3	1.3	11.9
Exports	0.9	0.1	0.1	0.2	12.9	3.9	36.5	6.4	6.0	6.6	5.5	3.0	1.3	2.1	14.6
Imports	1.0	0.1	0.2	0.2	17.9	3.3	35.1	5.3	5.6	5.8	4.3	3.0	1.2	1.8	15.1
Trade Dependence Ratio (%)															
Export/GDP	12.7	40.7	17.0	16.6	8.8	37.4	31.7	81.6	47.1	10.8	32.7	32.6	22.3	35.1	27.2
Import/GDP	15.9	44.5	25.8	20.7	13.1	34.4	32.7	73.4	47.2	10.3	27.1	34.0	22.6	31.8	29.9
Export+ Import/GDP	28.6	85.2	42.8	37.2	21.9	71.8	64.4	154.9	94.3	21.1	59.8	66.6	44.9	66.9	57.1
Factor Share in Value Added															
Land	0.102	0.115	0.064	0.111	0.005	0.007	0.006	0.042	0.014	0.003	0.047	0.008	0.010	0.032	0.018
Unskilled Labour	0.345	0.402	0.372	0.373	0.318	0.336	0.249	0.284	0.311	0.358	0.445	0.247	0.322	0.358	0.312
Skilled Labour	0.108	0.108	0.108	0.108	0.224	0.163	0.171	0.105	0.180	0.218	0.107	0.113	0.220	0.116	0.143
Capital	0.435	0.364	0.438	0.394	0.450	0.478	0.570	0.546	0.491	0.420	0.383	0.568	0.431	0.430	0.509
Natural Resources	0.010	0.010	0.019	0.013	0.003	0.015	0.003	0.023	0.003	0.002	0.018	0.063	0.017	0.063	0.017
Factor Proportions (%)Unskilled/Total Labour	76.2	78.8	77.6	77.5	58.6	67.3	59.3	72.9	63.3	62.1	80.6	68.6	59.4	75.5	68.5

Source: Derived from GTAP Version 6 (Database 2001)

When examining macroeconomic data on the South Asian region, it accounts only 2 percent of the world GDP, 1.3 percent of exports and 1.5 percent of exports. Therefore, judging by these figures, any change in trade policy in South Asia is likely to have negligible impact on the world economy.

In comparison with the other countries in South Asia, it is apparent the relative size of India is significantly higher than the other South Asian economies. It accounts for about 75 percent of GDP, 69 percent of exports and 67 percent of imports in the South Asian region and Sri Lanka contributes only 5 percent of GDP, exports and imports in the region and therefore, Sri Lanka is a minor player in South Asia. However, as mentioned in section 1.2.1 it clears that Sri Lanka has the highest trade dependence ratio in the region. From this, it is evident that Sri Lanka has more open economy in the world and the trade dependence ratio is 85.2 percent. Table 4.1 also suggests that a significant variation in the factor endowments between the South Asian economies and other economies in the world, reflecting that there is an ample scope for Heckscher-Ohlin type trade to occur. The South Asian region has relatively higher shares of unskilled labour in the labour force in comparison with the other economies.

4.2.2   Sectoral Exports and Imports in the World Trade

Table 4.2 reports the share of each country's/regions exports and imports by sector in the total world trade. The 27 industries have been aggregated into 7 categories for the analysis purpose. The agricultural sector represents paddy rice, processed rice, wheat, cereal grains, vegetables, fruits and nuts. All other food products are included under the processed foods. The other manufacturing sector includes, leather and wood products, chemical, rubber and plastic products, metal products and other primary products. Electronic equipment, machinery and equipment necessaries, petroleum and coal products are included under the capital intensive manufacturing.

From the figures in the table it can be seen that the South Asian countries represents relatively small shares in the world trade which are consistent with their small GDP levels. It appears that textiles and wearing apparel are the leading exports from the region and it accounts 8.09 percent of exports to the world market. Though, in Sri Lanka's main export product is wearing apparel its share in the world is less than 1 percent.

Table 4.2   **Exports and Import Shares in World Trade by Sector in 2001**

(Percentage)

| Region	IND	LKA	BDG	XSA	USA	CAN	EU	ASE	HIA	JPN	CHN	XME	AUS NZL	RUS XSU	ROW
Shares in World Exports (%)															
Agricultural Products	2.28	0.56	0.08	0.67	16.65	4.23	24.61	9.15	0.51	0.72	3.44	1.92	3.51	2.26	29.40
Processed Foods	1.01	0.06	0.10	0.17	10.26	4.17	44.78	6.02	1.37	0.80	3.34	1.16	5.56	1.73	19.47
Textile and Wearing Apparel	3.54	0.85	1.62	2.08	5.06	1.23	25.53	6.91	11.44	2.75	16.08	1.49	0.26	0.88	20.29
Other Manufacturing	0.83	0.04	0.04	0.07	10.69	5.04	42.76	4.73	4.41	4.85	6.07	1.52	1.50	3.26	14.19
Capital Intensive Manufacturing	0.49	0.02	0.00	0.03	14.41	3.89	35.79	7.81	6.64	11.19	6.30	0.38	0.38	0.81	10.63
Services	1.00	0.09	0.07	0.24	17.65	2.74	40.93	4.99	8.53	3.19	1.80	2.04	1.41	1.14	14.19
Natural Resources	0.50	0.02	0.03	0.05	4.15	4.72	15.24	5.11	0.71	1.58	2.90	22.28	3.44	10.10	29.17
Total Exports (%)	**0.88**	**0.09**	**0.11**	**0.20**	**12.89**	**3.87**	**36.46**	**6.35**	**5.96**	**6.57**	**5.50**	**3.05**	**1.32**	**2.11**	**14.64**
Shares in World Imports (%)															
Agricultural Products	2.66	0.23	0.79	0.87	8.10	2.16	31.33	4.77	7.26	8.72	5.29	5.24	0.43	2.47	19.68
Processed Foods	0.26	0.11	0.13	0.19	10.96	2.77	39.23	4.33	4.91	11.01	2.12	3.91	0.97	3.28	15.81
Textile and Wearing Apparel	0.34	0.36	0.64	0.18	21.98	2.18	31.18	3.04	4.72	6.68	5.95	3.05	1.16	1.75	16.80
Other Manufacturing	1.12	0.09	0.15	0.26	15.79	3.50	37.26	4.43	5.29	4.37	4.79	2.81	1.30	1.83	17.02
Capital Intensive Manufacturing	0.75	0.07	0.11	0.20	21.42	4.07	32.12	6.67	5.63	4.43	4.50	2.88	1.36	1.14	14.65
Services	0.95	0.07	0.06	0.21	14.11	2.65	42.22	4.85	4.92	6.80	3.15	3.32	1.30	2.30	13.08
Natural Resources	2.98	0.09	0.15	0.24	18.89	2.02	30.88	4.44	8.21	10.75	3.54	1.57	0.88	2.89	12.48
Total Imports (%)	**1.03**	**0.10**	**0.16**	**0.24**	**17.91**	**3.34**	**35.15**	**5.34**	**5.58**	**5.83**	**4.25**	**2.97**	**1.25**	**1.79**	**15.07**

Source: Derived from GTAP Version 6 (Database 2001)

The agricultural products shows relatively high percentage in exports and imports from South Asia and its share of exports in the world is 3.59 percent whereas the same of imports is 4.55 percent. Of the world total exports South Asia accounts only 1.28 percent out of which India's share is 0.88 percent, which is 68.75 percent of the total South Asia's share of world exports; showing its dominant position in the region. More over, South Asia's share of world imports 1.53 percent and again India's share of the region is 67.3 percent.

4.2.3   Trade Relationships with Trading Partners

The figures below illustrate the trade relationships of South Asian countries with their trade partners. The matrices of exports and imports are depicted in table A.7 and A.8 in appendix respectively. As mentioned in section 3.3.1 in chapter 3 it could be seen that USA and EU remained as the major destinations for South Asia's exports.

Figure 4.1   **Sri Lanka's Trading Partners**
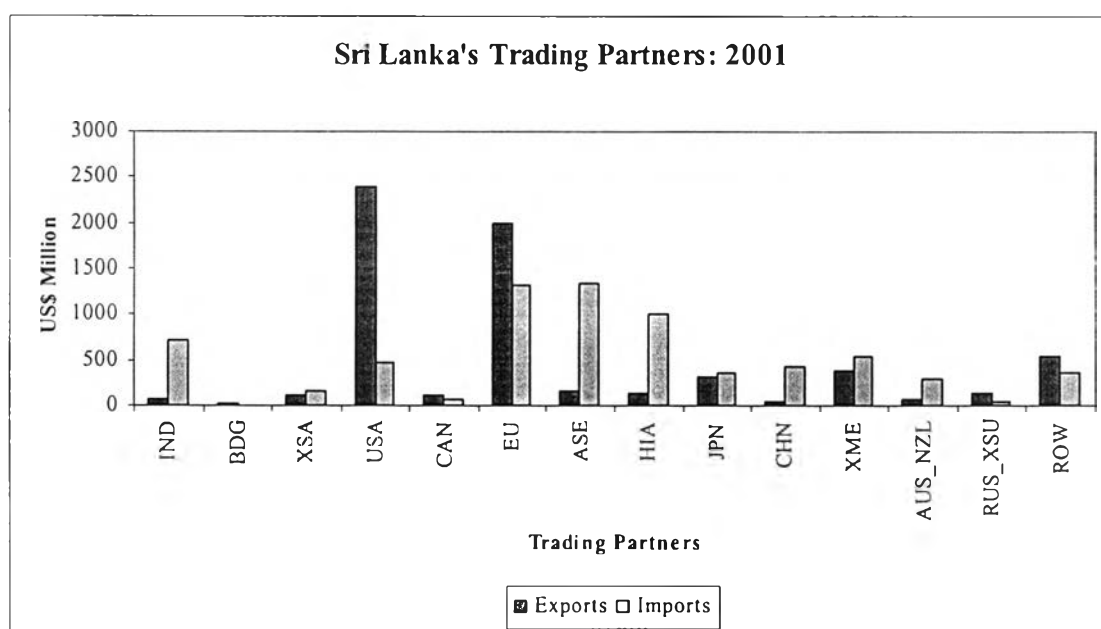
Source: Derived from GTAP Version 6 (Database 2001)

Figure 4.2   India's Trading Partners

India's Trading Partners: 2001
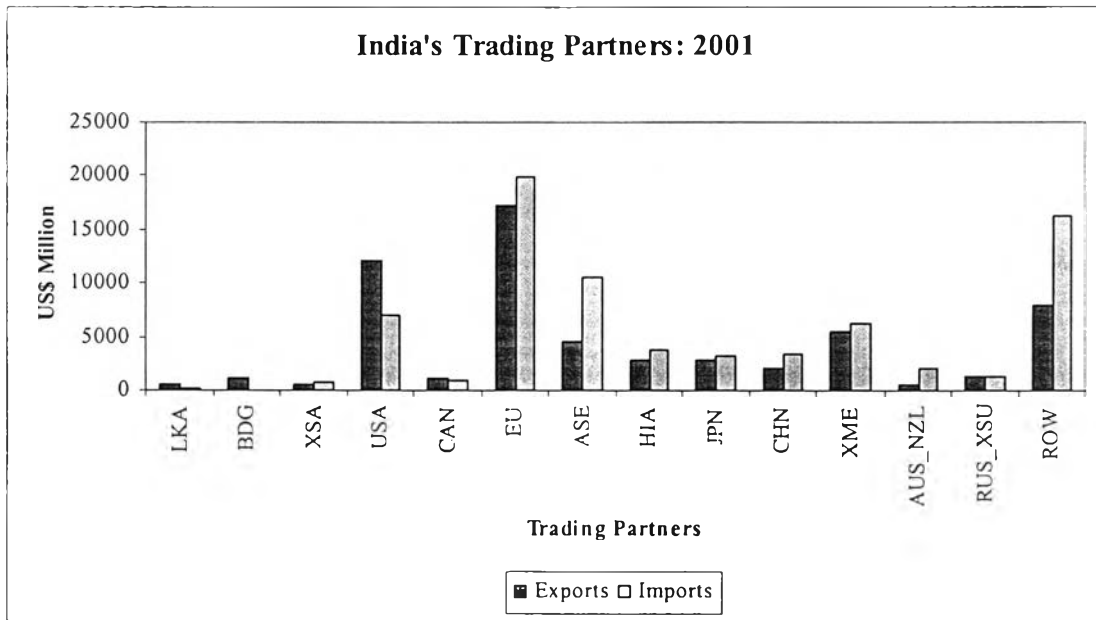
Source: Derived from GTAP Version 6 (Database 2001)

Figure 4.3   Bangladesh's Trading Partners

Bangladesh's Trading Partners: 2001
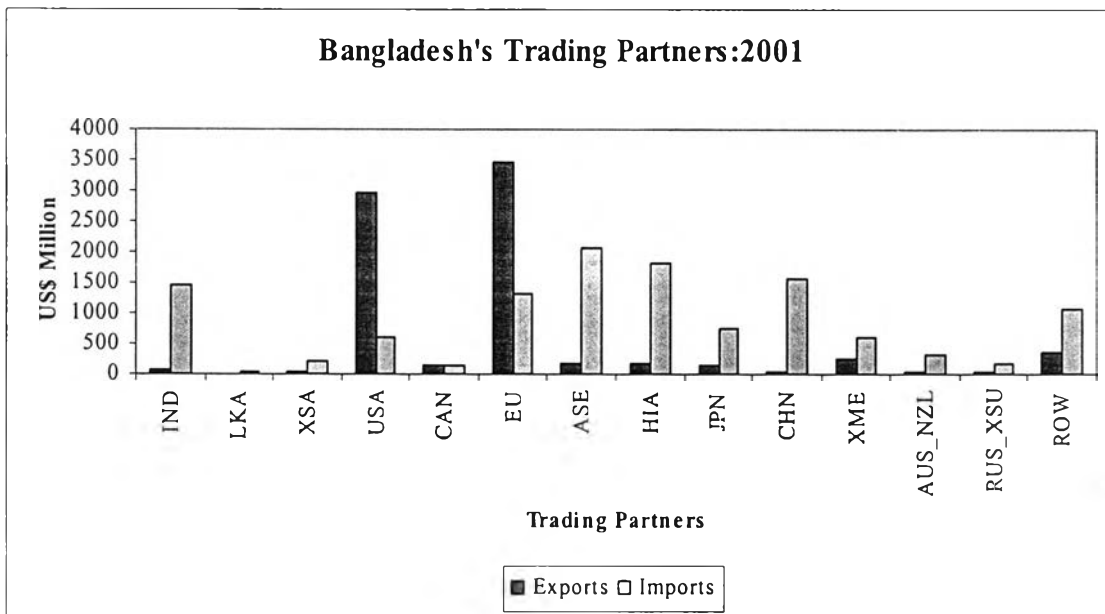
Source: Derived from GTAP Version 6 (Database 2001)

Figure 4.4 **Rest of South Asia's Trading Partners**

Rest of South Asia's Trading Partners :2001
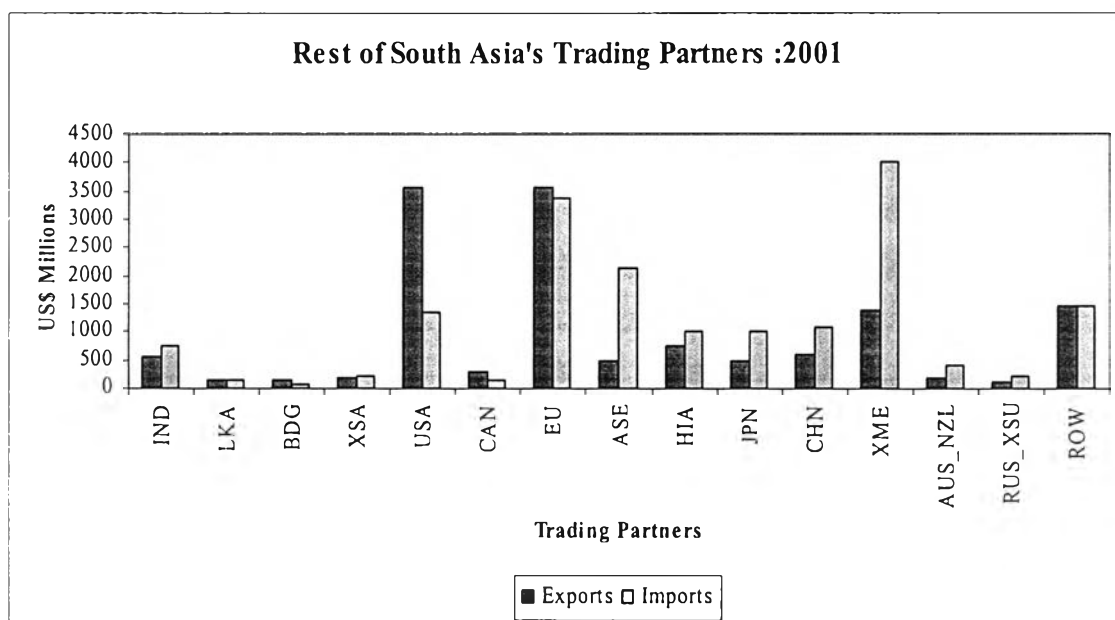
Source: Derived from GTAP Version 6 (Database 2001)

According to the GTAP version 6 (database 2001), from the matrices of export and imports in table A.7 and A.8 in appendix, it could be determined that the intra trade share among the South Asian countries is 4.2 percent in 2001, which is substantially low and the trade between the main two countries in South Asia i.e. India and Pakistan (the Rest of South Asian region mainly represents Pakistan) is also significantly low. This is also a serious threat to economic integration in South Asia. Figure 4.2 indicates that, India being the largest member in the region has significantly low share of trade with the regional trading partners in comparison with the other trading partners.

4.2.4 Ad Valorem Tariffs on Different Commodities

In examining the ad valorem tariff rates on different commodities on bilateral basis[1] in Sri Lanka, which depicted in table 4.3 below, it could be seen that there is a significant variation in tariff rates between the sectors. Particularly, in agricultural sector, paddy and rice has highest ad valorem tariff, which ranges between 35 percent to

[1] These tariff rates reflect the applied rates in the year 2001. It should be noted that these are not the actual tariff rates at actual line level. Rather they are highly aggregated rates using trade data as weights.

25 percent. However, tariffs on wheat and cereal grains are very low, as wheat is one of the major import commodity in Sri Lanka. In manufacturing sector textiles has the lowest tariff as the Sri Lanka's main export industry is wearing apparel and textiles are the major intermediate input that Sri Lanka import mainly from the Southeast Asian countries. The import tariffs in the textile sector ranges from 0 percent to 3 percent and wearing apparel sector 4 percent to 15 percent. Except for beverage and tobacco industry, most of the manufacturing sectors' bilateral tariff rates are low; which ranges from 0 percent to 15 percent.

Tables A.9, A.10 and A.11 that are demonstrated in appendix depict the bilateral tariff rates of India, Bangladesh and the Rest of South Asia with its trading partners respectively. In comparison with Sri Lanka's bilateral tariff rates India's agricultural tariff rates are quite high and indeed it is the highest in the region. When examining the tariff rates of the manufacturing sector in the other South Asian countries, it also clears the rates are higher than in comparison with Sri Lanka. In the textile industry the tariff rates in India ranges from 10 percent to 30 percent and in wearing apparel sector tariff rates ranges from 35 percent to 25 percent. Even in Bangladesh import tariffs in wearing apparel sector ranges from 25 percent to 37 percent. The same for the Rest of South Asia ranges from 10 percent to 25 percent. Like in the case of Sri Lanka in all the other South Asian countries beverage and tobacco sector has the highest tariffs rates among the manufacturing sector.

From this analysis it is evident that Sri Lanka has the lowest tariff rates among the other countries in the region. This indicates that Sri Lanka is more trade dependent country in the region and adopt more liberalize trade policies.

Table 4.3   **Sectoral Bilateral Tariffs Rates (Ad Volorem) between Sri Lanka and its Trade Partners (Percentage)**

		IND	BDG	XSA	USA	CAN	EU	ASE	HIA	JPN	CHN	XME	AUS_NZL	RUS_XSU	ROW
1	Paddy Rice & Processed Rice	35.0	0.0	35.0	0.0	0.0	34.8	24.6	0.0	35.0	0.0	28.0	35.0	0.0	19.5
2	Wheat, Cereal Grains	1.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	5.0	24.2	0.3	0.0	3.3
3	Vegetables, Fruits & Nuts	23.9	24.1	31.1	19.3	11.9	14.9	22.9	12.7	25.0	16.8	12.4	17.9	0.0	14.7
4	Oil Seeds, Vegetable oil	23.9	0.0	21.1	24.7	24.7	20.1	20.6	10.7	0.0	9.2	24.8	24.9	0.0	12.1
5	Plant based fibers & Crops Nec.	25.0	4.2	5.8	62.6	5.0	55.1	60.5	1.8	2.7	24.1	20.9	1.3	5.1	28.0
6	Sugar	19.2	0.0	24.2	19.2	0.0	17.2	21.4	0.0	20.8	0.0	17.8	20.4	0.0	13.4
7	Milk Products	10.3	0.0	12.3	18.1	10.0	17.0	10.6	3.2	0.0	8.6	23.4	10.6	7.3	3.0
8	Fish Products	8.5	0.0	8.0	0.0	0.0	0.8	6.8	0.0	0.0	0.0	6.5	7.7	0.0	1.1
9	Meat products	24.6	0.0	9.8	21.4	0.0	13.9	15.8	16.2	24.3	25.0	21.8	18.1	0.0	16.2
10	Food Products Nec.	15.9	0.0	6.7	20.8	8.6	13.0	10.5	1.7	8.0	9.6	14.6	15.3	0.0	5.8
11	Beverage & Tobacco	98.4	0.0	0.0	62.8	0.0	30.6	75.6	229.5	90.8	250.0	29.6	80.3	64.3	95.9
12	Other Food Products	14.9	0.0	12.9	13.7	12.5	11.4	11.6	9.9	6.5	6.0	0.0	10.5	0.0	3.7
13	Textiles	0.9	2.8	1.5	1.7	1.3	0.8	0.8	1.4	1.3	0.6	4.1	0.6	0.0	0.3
14	Wearing Apparel	8.8	10.0	9.9	14.7	10.0	4.8	8.8	4.1	3.9	9.3	4.2	12.5	4.2	5.5
15	Leather & Wood Products	16.2	5.0	11.2	17.5	11.5	16.8	10.2	17.2	10.9	20.0	20.6	7.4	5.9	4.7
16	Paper Products & Publishing	7.6	8.9	10.3	7.2	7.1	8.8	9.8	10.3	8.4	10.9	8.3	7.7	8.3	4.8
17	Chemical, Rubber and Plastic Products	5.0	0.0	3.6	4.6	3.2	6.4	7.9	9.1	8.6	6.8	4.6	8.0	0.1	4.2
18	Metal Products	4.4	7.9	9.3	7.0	5.2	8.9	9.2	8.7	11.9	9.9	6.1	2.8	5.6	3.0
19	Electronic Equipment	1.8	2.1	0.7	2.4	1.8	2.2	2.6	4.5	1.4	6.4	4.7	1.8	4.0	4.1
20	Machinery & Equipment Nec	3.9	11.3	5.5	5.1	3.8	5.2	7.2	8.1	5.3	7.9	4.5	5.3	5.7	5.5
21	Other Manufacturing	8.9	9.4	2.1	7.4	7.5	1.1	8.6	10.2	8.4	12.3	4.2	8.4	0.0	2.3
22	Petroleum and Coal Products	6.3	0.0	0.0	9.5	0.0	10.7	6.9	11.8	10.1	9.0	15.5	8.5	4.6	3.9
23	Capital Intensive Manufacturing	8.8	7.0	5.8	6.5	5.0	8.3	7.6	6.5	10.3	6.4	0.5	11.4	5.0	7.4
24	Tradeable Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	Non Tradeable Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	Other Primary Products	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.0	0.0	0.0	0.0	0.0
27	Natural Resources	8.4	24.9	5.6	12.2	7.5	13.3	7.7	9.1	13.7	16.4	0.8	7.9	6.1	9.2

Source: GTAP Version 6 (These tariff rates are the tariff rate that applied in year 2001)

4.3 Impact of Trade Liberalization on Macroeconomic Variables, Welfare, Output and Employment

For the policy analysis purpose six simulations are performed as illustrated in section 2.3.5 in chapter two. The welfare impacts will be ascertained and decomposed into different effects as mentioned in the same section. The best policy outcome will be determined on the basis of the equivalent variation that arises under each of the policy outcome. In conducting policy simulations we use the latest version of GTAP version 6, which captures the world economic flows of 2001. On the basis of GTAP model simulations this section reports the results of the estimated impacts of the trade liberalization on important macroeconomic variables, industry outputs, trade relationships and economic welfare. The simulation results will be presented with the objective of evaluating the best policy outcome of the South Asian trade liberalization with special reference to the Sri Lankan economy.

4.3.1 Impact of Trade Liberalization on Macroeconomic Variables

The macroeconomic effects of trade liberalization in South Asia are illustrated in the table 4.4 below. Further, macroeconomic effects on the other regions are depicted in table A.12 in appendix. Several important points emerged from these projections. The removal of tariff in the South Asian countries under the SAFTA leads to an increase in GDP in all countries except in Bangladesh. Moreover, there is a positive impact on house hold utility for all countries. In Sri Lanka percentage increase in value of the GDP is 0.39 and percentage change in the house hold utility is 0.27. In addition the percentage change in real wage rate is positive for both skilled and unskilled labour in all South Asian countries. When examining the trade balance it seems that all countries are net importers. However, it can be seen that there is an improvement in terms of trade in all countries except in Bangladesh. From theses macroeconomic indicators it is clear that Sri Lanka is benefiting under the SAFTA.

Table 4.4　　　　　　　　　　Macroeconomic and Trade Performance Results of Different Policy Scenarios

Policy Scenarios	Change in Value of GDP (%)	Change in Volume of Exports (US$ Million)	Change in Volume of Imports (US$ Million)	Terms of Trade (% change)	Trade Balance (US$ Million)	Change in Household Utility (% change)	Change in Real Returns to Skilled Labour (% change)	Change in Real Returns to Unskilled Labour (% change	Change in Return on Capital (% change)
1. South Asian Free Trade　Agreement (SAFTA)									
India (IND)	0.23	434.43	519.53	0.16	-46.76	0.06	0.07	0.07	0.06
Sri Lanka (LKA)	0.39	5.52	34.95	0.35	-14.08	0.27	0.50	0.41	0.35
Bangladesh (BDG)	-0.15	264.23	238.70	-0.41	-34.51	0.05	0.35	0.38	0.31
Rest of South Asia (XSA)	0.99	205.91	365.09	0.71	-91.00	0.27	0.09	0.04	0.22
2. South Asian Custom Union									
India (IND)	-0.52	5285.98	5114.9	-1.02	-993.3	0.78	1.71	1.20	1.28
Sri Lanka (LKA)	0.17	-341.60	-729.4	0.86	452.9	0.43	-3.13	-3.53	-4.03
Bangladesh (BDG)	1.26	718.47	613.2	-1.01	-42.4	1.01	0.87	0.71	0.68
Rest of South Asia (XSA)	1.16	-158.31	5.1	0.83	-113.9	0.79	0.91	0.24	0.58
3. Indo-Lanka Full Trade Liberalization Scenario									
India (IND)	0.06	60.9	83.5	0.04	-5.5	0.01	0.00	0.01	0.05
Sri Lanka (LKA)	0.15	19.7	46.6	0.17	-26.8	0.17	0.64	0.55	0.45
Bangladesh (BDG)	0.00	-0.2	-0.5	0.00	0.1	0.00	0.00	0.00	0.00
Rest of South Asia (XSA)	-0.02	-1.5	-2.7	-0.01	0.1	0.00	0.01	0.00	0.00

Table 4.4 (Continued)

Policy Scenarios	Change in Value of GDP (%)	Change in Volume of Exports (US$ Million)	Change in Volume of Imports (US$ Million)	Terms of Trade (% change)	Trade Balance (US$ Million)	Change in Household Utility (% change)	Change in Real Returns to Skilled Labour (% change)	Change in Real Returns to Unskilled Labour (% change	Percentage change in Return on Capital
4 Indo-Lanka FTA (with negative list)									
India (IND)	0.01	21.958	28.694	0.00	-6.35	0.00	0.01	0.01	0.01
Sri Lanka (LKA)	0.23	-0.733	14.193	0.14	-6.88	0.08	0.11	0.05	0.18
Bangladesh (BDG)	0.00	0.054	0.048	0.00	-0.01	0.00	0.00	0.00	0.00
Rest of South Asia (XSA)	0.00	-0.406	-0.710	0.00	0.11	0.00	0.00	0.00	0.00
5. Proposed Sri Lanka Bangladesh FTA									
India (IND)	0.00	-0.135	-0.28	0.00	0.07	0.00	0.00	0.00	0.00
Sri Lanka (LKA)	0.08	-0.755	3.35	0.04	-1.23	0.03	0.02	0.01	0.00
Bangladesh (BDG)	0.00	3.067	2.62	0.00	-0.87	0.00	0.01	0.01	0.01
Rest of South Asia (XSA)	0.00	-0.128	-0.19	0.00	0.01	0.00	0.00	0.00	0.00
6. Multilateral Trade Liberalization									
India (IND)	-2.5	17975.0	18328.7	-3.07	-2979.6	1.24	3.67	3.45	2.94
Sri Lanka (LKA)	5.6	1.3	573.8	4.25	-334.2	2.71	4.30	4.46	3.69
Bangladesh (BDG)	-1.8	2624.1	2334.2	-4.48	-220.2	0.97	3.57	3.87	3.08
Rest of South Asia (XSA)	-1.5	2488.5	2841.1	-1.06	-667.6	0.94	3.54	3.31	2.70

Source: Simulation results derived from GTAP Version 6 (Database 2001)

In the case of the South Asian Customs Union scenario, it can be seen that the GDP in Sri Lanka increases by 0.17 percent and the household utility increases by 0.43 percent. Further, the figures indicate that Bangladesh and the Rest of South Asia gain more than the other regions. Moreover, it can be revealed that Sri Lanka is a net exporter and terms of trade improve considerably. According to the tariff rates depicted in table 4.3 it can be seen that in Sri Lanka most of the commodities, in manufacturing sector have tariff rates below 15 percent. Therefore, if the South Asian countries maintain common external tariff rate of 15 percent on imports, Sri Lanka's imports will reduce more than its exports. This is clear from the figures in the columns of change in volume of exports and volume of imports. This leads to Sri Lanka being a net exporter and leave a trade surplus under this policy outcome. Further, the percentage change in real wages in both skilled and unskilled labour is negative. This is due to the fact that in Sri Lanka most of manufacturing industries depend on imported intermediate inputs; mainly the garment industry in Sri Lanka and therefore, if the South Asian countries maintain common external tariff rate of 15 percent, cost of imports in most of intermediate products will increase and this can lead to a negative impact on the manufacturing industries which depends on the imported intermediate inputs. However, there is a positive impact on the house hold utility as a result of lowering tariffs on agricultural products as presently high tariff rates are prevailed in the agricultural sector in Sri Lanka.

Under the third policy scenario, i.e. Indo Lanka full trade liberalization scenario, Sri Lanka's GDP increases by 0.15 percent where as the same for India is 0.06 percent. This finding is consistent with Siriwardene's research article who used the GTAP version 5 (database 1997) to assess the impact of Indo Lanka FTA, as the researcher mentioned that the FTA has much bigger impact on the Sri Lankan economy than on the Indian economy. This is further evident when examining the household utility, in Sri Lanka, which increases by 0.17 percent as against in India only 0.01 percent. Further, increase in real wages in both skilled and unskilled labour is higher in Sri Lanka. However, the trade balance is negative leaving Sri Lanka being a net importer under the FTA. This clears from the figure 1.10 in chapter 1 that presently, Sri Lanka has a trade deficit against India. Even Sri Lanka has trade deficit under this situation it can be seen that there is an improvement in the terms of trade; this is because after the FTA Sri Lanka can import most of the intermediate products from India at cheaper price and

export to other countries and thereby leaving a positive impact on terms of trade. India has become the main supplier to Sri Lanka four years after entering into the FTA in the year 2004.

The fourth policy scenario; Indo Lanka FTA with negative list shows that Sri Lanka's GDP increases by 0.23 percent whereas in India there is a marginal improvement in the GDP by 0.01 percent. When examining the negative lists in both the countries it can be seen that in Sri Lanka most of the agricultural products are on the negative list and in the case of India most of the agricultural products are on the positive list. In this situation household utility in Sri Lanka will improve marginally, which is of 0.03 percent. Like in the case of full trade liberalization scenario, Sri Lanka and India experiences a trade deficit and there is a marginal improvement in the terms of trade in Sri Lanka. Further, the real wage rate for both skilled and unskilled labour and return on capital will also increase in Sri Lanka under the FTA.

In the case of proposed Sri Lanka Bangladesh FTA impact on macroeconomic variables are quiet insignificant for both the countries. It can be seen that Sri Lanka's GDP will improve by 0.08 percent and household utility will improve by 0.03 percent. Impact on real wages is negligible in both the countries.

Under the multilateral trade liberalization it can be seen that there is a significant improvement in Sri Lanka's GDP which is of 5.6 percent where as in all other South Asian countries there is a negative impact on the GDP. However, it can be seen that the house hold utility will improve in all the countries, again in Sri Lanka household utility will increase considerably in comparison with all the other South Asian countries. Further, it is revealed that Sri Lanka's terms of trade will improve irrespective of leaving a trade deficit whereas in all the other South Asian countries terms of trade will deteriorate. It seems that high trade dependent country like Sri Lanka will benefit more than a country with low openness under the multilateral trade liberalization. However, the real returns in both skilled and unskilled labour will improve in all the countries and the return on capital will also increase in all the countries under this policy scenario.

In order to understand welfare impacts of different policy outcomes the next section presents the equivalent variation of six trade liberalization scenarios.

4.3.2   Impact of Trade Liberalization on Welfare

The equivalent variation (EV) is an absolute monetary measure of welfare improvement in terms of income that results from the fall in import prices when tariffs are reduced or eliminated. The tariff simulations are conducted in the standard long run framework with capital mobility across each region. This implies that changes in rates of returns are also equalized across regions. Investments takes place in each economy during the period of tariff reductions making sure that sum of the regional investments matches with the global savings.

Table 4.5 presents the estimated results of the decomposition of EV under each trade liberalization scenario for the South Asian region. In addition the table A.13 depicted in appendix illustrates the EV for all regions. Further, commodity decomposition of allocative efficiency for the South Asian countries under each policy outcome will be illustrated in the table A.14 in appendix and decomposition of terms of trade for the same is demonstrated in table A.15 in appendix. The welfare impacts of each trade liberalization scenario can be discussed as follows according the magnitude of the level of welfare under those policy options.

- **Multilateral Trade Liberalization**

From the figures in the table 4.5 it could be seen that the best policy outcome is multilateral trade liberalization and all South Asian countries maximize the welfare under this policy scenario. However, the sources of gains are different for each country. In the case of Sri Lanka much of gains occur due to improvement in terms of trade, where as in India much of gains occur due to efficiency of allocation of resources. The same is true for Bangladesh and the Rest of South Asian region. Further, table A.13 in appendix demonstrate that EU, Japan, China, High Income Asia, Middle East countries and ASEAN are significant winners under the multilateral trade liberalization.

According to the commodity decomposition of allocative efficiency depicted in table A.14 in appendix, it can be seen that in the case of Sri Lanka the efficiency will improve in all most all the industries, and the efficiency in agricultural sector especially paddy rice and processed rice, plant based fibers and crops, meat products will increase. Further, it can be seen that substantial efficiency improvement in machinery and

equipment and tradable services as well. Moreover, the figures in table A.15 in appendix demonstrate that the terms of trade improvement in Sri Lanka due to significant improvement in exports prices and decline in import prices.

- **South Asian Customs Union**

The second best policy outcome for the South Asian region is South Asian Custom Union. Under this policy scenario India will become a significant winner due to substantial increase in efficiency gains. In the case of Sri Lanka much of the gains accrue due to improvement in terms of trade like in the case of multilateral trade liberalization scenario. It appears that in the case of the Rest of South Asia (mainly represents Pakistan) there is a substantial improvement in terms of trade and allocative efficiency under this situation. Bangladesh gains due to improvement in efficiency in allocation of resources. In the case of Sri Lanka, allocative efficiency gains are not significant because of high common external tariff rate of 15 percent and import mainly textiles mainly from outside the region.

When examining the efficiency gains for Sri Lanka depicted in table A.14 in appendix, it could be seen that there are negative impact on certain industries, especially efficiency of textiles and wearing apparel sector will decline due the reason mentioned before. However, it is apparent that the agricultural sector, especially in the industries such as paddy rice and processed rice, food products, beverage and tobacco allocative efficiency will improve. Though in this situation import prices increase in Sri Lanka, from the figures in the table A.15 in appendix demonstrates that the prices of exports increase substantially than prices of imports and hence Sri Lanka's terms of trade will improve under this policy scenario and consequently Sri Lanka's overall welfare increases due to improvement in the terms of trade.

According to the figures depicted in table A.13 in appendix, it could be seen that except USA and Canada, all other regions gain under this policy scenario.

- **SAFTA**

The third best policy scenario for the South Asian region is SAFTA and the estimated EV for India and Rest of South Asia is significantly higher than the other

countries in the region. Subsequent to India and the Rest of South Asia, Sri Lanka stands to gain. Under this situation too, it is clear that much of Sri Lanka's gains occur due to improvements in the terms of trade than allocative efficiency gains. Further, it shows that in Sri Lanka the efficiency of the agricultural sector will improve including paddy rice, processed rice, vegetables, fruits and nuts. Further, the allocative efficiency in industries such as chemical, rubber and plastic and tradable services also will also improve. However, under this option it reflects that the efficiency in textile and wearing apparel industry in Sri Lanka will decline marginally. The same in the Bangladesh will improve significantly. This is due to Bangladesh possesses large pool of unskilled labour due to high population in the country comparing to Sri Lanka and thereby Bangladesh will be able to utilize its large pool of labour efficiently under this policy option. In India the allocative efficiency in the manufacturing sector will improve more when comparing with the agricultural sector. In the case of the Rest of South Asian region capital intensive manufacturing sector will gain significantly in comparison with the other sectors.

The decomposition of the terms of trade effect indicates that Sri Lanka's terms of trade will improve due to increase in export prices and decline in import prices. This gain is substantial when comparing that of India and Rest of South Asia. However, the figures in the table A.15 in appendix indicate that in Bangladesh terms of trade deteriorates due to decline in export prices substantially than decline in import prices.

According to the figures depicted in table A.13 in appendix it indicates that the estimated EV for other regions is negative under this policy scenario. However, the magnitude of these losses depends on the relative size of the respective economies. According to the figures illustrated in section 4.2.3 it could be seen that ASEAN 6, High Income Asia, EU, Rest of Middle East are main importers of the region. The estimated results show that these regions incur marginal welfare losses and much of the losses arise due to deterioration of terms of trade in such regions. This indicates that there can be some trade diversion effects of the SAFTA, and this will further investigate in subsequent section under implications for trading partners.

Table 4.5　　　　　　　Simulation Results: Decomposition of Equivalent Variation

(US$ Million)

| | Policy Scenarios | | | | | | | | | | | |
| Region | SAFTA | | | | South Asian Customs Union | | | | Indo-Lanka Full FTA | | | |
	Allocative Efficiency	TOT Effect	I-S Effect	Total	Allocative Efficiency	TOT Effect	I-S Effect	Total	Allocative Efficiency	TOT Effect	I-S Effect	Total
India (IND)	173.36	103.58	-1.64	275.30	4035.27	-646.26	14.73	3403.74	21.47	27.99	-0.37	49.08
Sri Lanka (LKA)	14.88	22.89	0.26	38.04	1.49	56.56	2.81	60.85	12.18	11.33	-0.01	23.49
Bangladesh (BDG)	59.28	-32.94	-3.90	22.43	493.83	-77.43	11.65	428.06	-0.06	-0.32	0.02	-0.36
Rest of South Asia (XSA)	100.06	103.61	2.52	206.19	487.15	122.12	0.32	609.59	-0.19	-1.63	-0.04	-1.86

| | Indo-Lanka FTA (with negative list) | | | | Proposed Sri Lanka-Bangladesh FTA | | | | Multilateral Trade Liberalization | | | |
	Allocative Efficiency	TOT Effect	I-S Effect	Total	Allocative Efficiency	TOT Effect	I-S Effect	Total	Allocative Efficiency	TOT Effect	I-S Effect	Total
India (IND)	10.42	2.68	-0.05	13.04	-0.07	-0.11	0.00	-0.18	7250.48	-1941.94	90.47	5399.02
Sri Lanka (LKA)	1.68	9.50	0.05	11.24	0.91	2.92	0.04	3.88	101.01	280.04	2.90	383.94
Bangladesh (BDG)	-0.01	-0.02	0.01	-0.03	2.00	-0.21	-0.03	1.77	809.08	-354.10	-44.39	410.59
Rest of South Asia (XSA)	-0.14	-0.31	-0.01	-0.46	-0.01	-0.06	0.00	-0.07	895.26	-156.72	-12.40	726.14

Source: Simulation results derived under different policy scenarios from GTAP version 6 (Database 2001)

- **Indo Lanka Full Trade Liberalization Scenario**

The estimated results of Indo Lanka full trade liberalization scenario suggests that both India and Sri Lanka would gain from this FTA. As former researchers mentioned our findings also indicate that gains for India is much higher than that of Sri Lanka. This is mainly due to the asymmetries in the relative size of economies. Under this situation much of gains for Sri Lanka occur due to improvement in allocative efficiency. This is evident from the fact that presently, India becomes number one supplier to Sri Lanka subsequent to implement of the FTA. In the case of India much of gains arise due to improvement in terms of trade.

The decomposition of allocative efficiency gains in the table A.14 in appendix reflect that the agricultural sector will improve its efficiency and the allocative efficiency in the manufacturing sector will also improves marginally. Under this policy option the efficiency gains in the textiles and wearing apparel sector in Sri Lanka is higher than that of Bangladesh. This is due to Sri Lanka is in a better position to access cheaper raw materials from India under the FTA. In India efficiency in both agricultural and manufacturing sectors will improve. However, the total allocative efficiency will decline marginally in Rest of South Asia and Bangladesh due to Indo Lanka FTA.

The decomposition of terms of trade effects indicate that in both India and Sri Lanka's terms of trade will improve. In the case of Sri Lanka terms of trade will improve due to improvement in export prices and slightly decline in import prices. In the case of India terms of trade will improve due to increase in export prices substantially than that of import prices.

However, the estimated figures show that there are marginal negative welfare impacts on the other South Asian countries as a result of this FTA.

- **Indo Lanka FTA (with negative list)**

Indo Lanka FTA with negative list policy scenario also indicates positive welfare impacts for both India and Sri Lanka. However, the figures are considerably lower than under full trade liberalization scenario. For instance in Sri Lanka, the estimated welfare gain under full trade liberalization scenario is US$ 23.49 million, whereas with negative

list the same is only US$ 11.24 million. This is mainly due to both countries include the commodities which they have comparative advantage on the other countries negative list. For instance, in the case of most of the textiles items India offers only 25 percent tariff preference, which is an important intermediate input for Sri Lanka's garment industry. Therefore, both India and Sri Lanka need to take steps to remove those items from the negative lists to reap full benefits of the FTA.

The allocative efficiency gains for both Sri Lanka and India though positive; it is well below the allocative efficiency gains that occur under Indo Lanka full trade liberalization scenario. This shows that the impact of protection cost of the FTA with negative list. The decomposition of terms of trade also illustrates that terms of trade will improve in both the countries and in Sri Lanka's terms of trade improves due to increase in prices of exports than that of prices of imports.

- **Proposed Sri Lanka-Bangladesh FTA**

In the case of proposed Sri Lanka-Bangladesh FTA the results indicate that both countries have positive welfare impacts from the FTA. However, this simulation has been performed on the assumption of full trade liberalization scenario. Therefore, the estimated gains are not much significant like in the case of Indo Lanka full trade liberalization situation. The welfare impact of this FTA for Sri Lanka is considerably less than even in the case of Indo Lanka FTA with negative list. However, under this FTA much of the gains occur due to improvement in terms of trade than the efficiency gains. This is clear due to the fact that presently, Sri Lanka has trade surplus with Bangladesh as illustrated in the figure 1.12 in chapter 1.

The decomposition of allocative efficiency gains reflects that there are marginal efficiency gains for both the countries and the efficiency gains for Bangladesh is higher than that of Sri Lanka. However, the decomposition of terms of trade effects indicate that in Sri Lanka's terms of trade will improve due to increase in export prices than that of import prices and Bangladesh's terms of trade will deteriorate due to decline in export prices than that of import prices. Moreover, the figures in the table A.13 in appendix illustrate there are marginal welfare losses for the other South Asian countries due to the FTA.

4.3.3 Impact of Trade Liberalization on Sectoral Output and Employment

Sectoral output projections and percentage change in demand for unskilled labour and skilled labour from the industries in Sri Lanka under each policy option will be presented in this section. Further, sectoral output changes and demand for unskilled and skilled labour in the other South Asian countries will be illustrated in table A.16 , table A.17, table A.18 in appendices respectively.

a)   Impact on Sectoral Output

The percentage change in industry output in Sri Lanka under each policy option can be illustrated as follows.

- **SAFTA**

Figure 4.5   Change in Sectoral Output in Sri Lanka: SAFTA
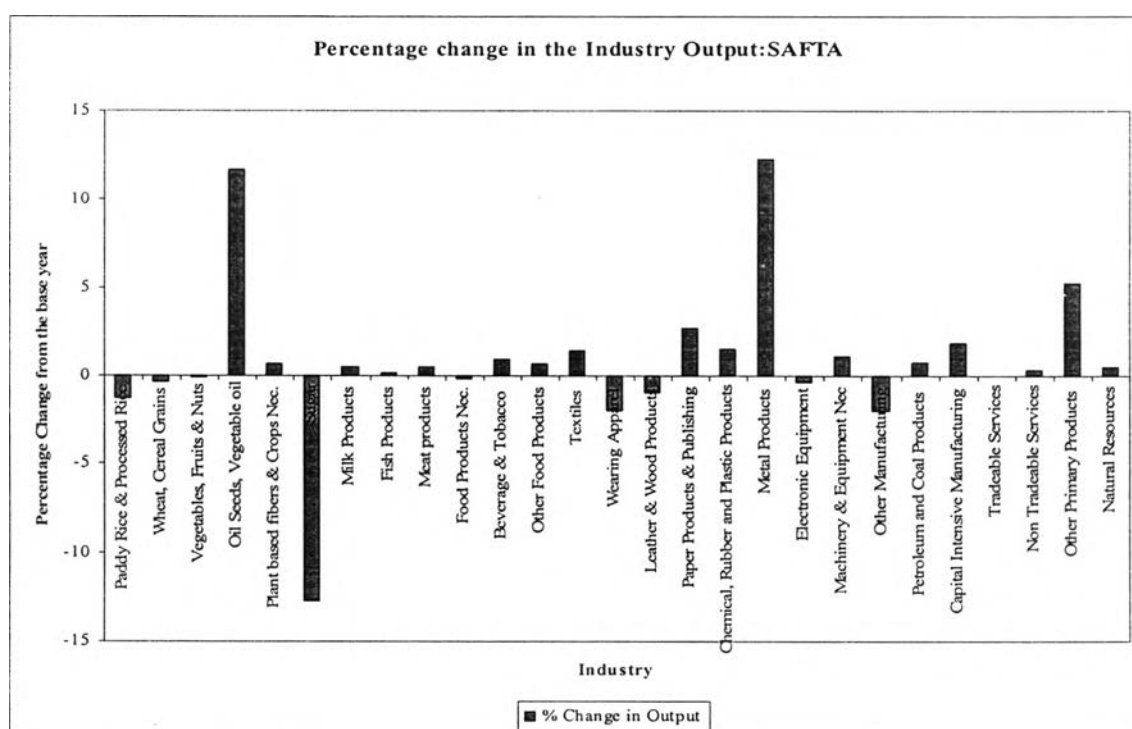
Source: Simulation results derived from GTAP version 6 (Database 2001)

According to the figure 4.5 it could be seen that under the SAFTA, the output of metal product, oil seeds and vegetable oil industries gain substantially. Further, the output of other primary products, paper products and publishing, beverage and tobacco, other food products, textiles, capital intensive manufacturing increase marginally. It

could be seen that the output of sugar industry decline substantially. In addition to that the output of paddy rice and processed rice, wearing apparel, other manufacturing, leather and wood products decline marginally. From this it is clear that Sri Lanka has the potential in producing more metal products and vegetable oil and other primary products and export to other countries.

From the figures in the table A.16 in appendix it indicates that impact on the output of India is marginal under the SAFTA scenario except in meat products industry output will decline by 12.6 percent. It can be seen that the SAFTA will not make significant impact on the output of the Indian economy. In the case of Bangladesh output of meat products, wearing apparel and other primary product will increase and in the Rest of South Asian region the output of meat products increases by 20 percent.

- **South Asian Customs Union**

Figure 4.6   Change in Sectoral Output in Sri Lanka: South Asian Customs Union
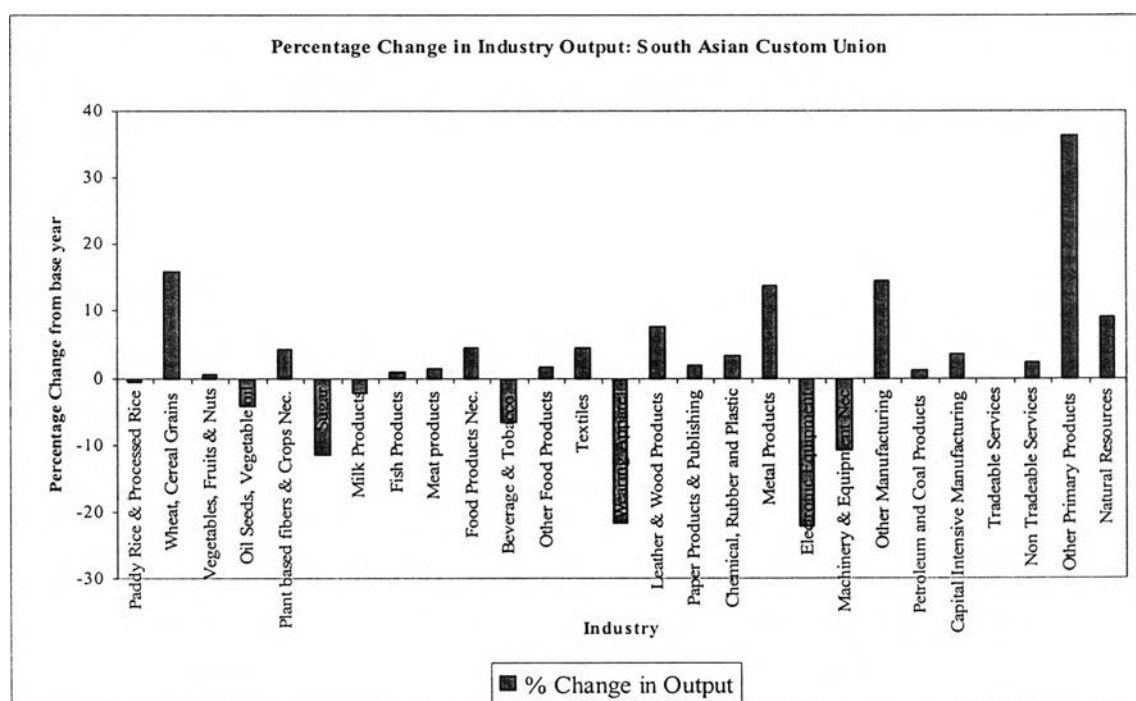
Source: Simulation results derived from GTAP version 6 (Database 2001)

The sectoral output projections indicate that in Sri Lanka, there is a potential of increase in output in the industries such as cereal grains, leather and wood products, metal products, other manufacturing, primary products and textiles. In this case it could

be seen that the output of wearing apparel sector will decline by 21.63 percent and the output of electronic equipment industry also declines by 22.16 percent. This is mainly due to high common external tariff rate of 15 percent, the output of which heavily depends on imported intermediate inputs.

When examining the impact on other South Asian countries, it could be seen that in India output of wearing apparel sector, textiles, and electronic equipment will increase. In Bangladesh the output of wearing apparel sector will increase significantly by 17.08 percent. In Rest of South Asia output in the industries such as meat products, electronic equipment and other primary products will increase.

- **Indo Lanka Full Trade Liberalization Scenario**

Figure 4.7   Change in Sectoral Output in Sri Lanka: Indo Lanka FTA

Percentage Change in Industry Output:Indo Lanka FTA
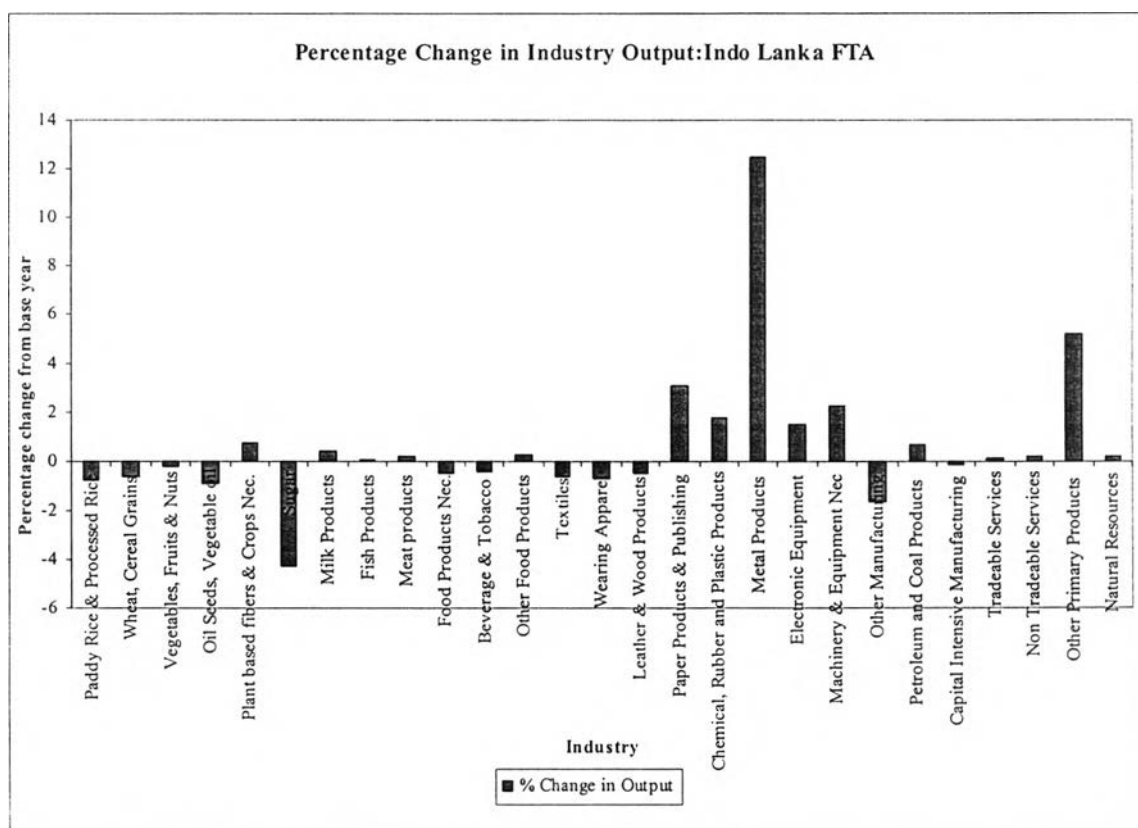
Source: Simulation results derived from GTAP version 6 (Database 2001)

Under this policy scenario it could be seen that there is a significant improvement in the output of metal products, which will increase by 12.48 percent. Moreover, the output of the industries such as paper products and publishing, electronic equipment, machinery and equipment necessaries, other primary products will increase. According

to table A.16 in appendix it could be revealed that, in the case of India there is no magnitude impact on sectoral output.

- **Indo Lanka FTA (with negative list)**

Figure 4.8　　　　　**Changes in Sectoral Output in Sri Lanka:**
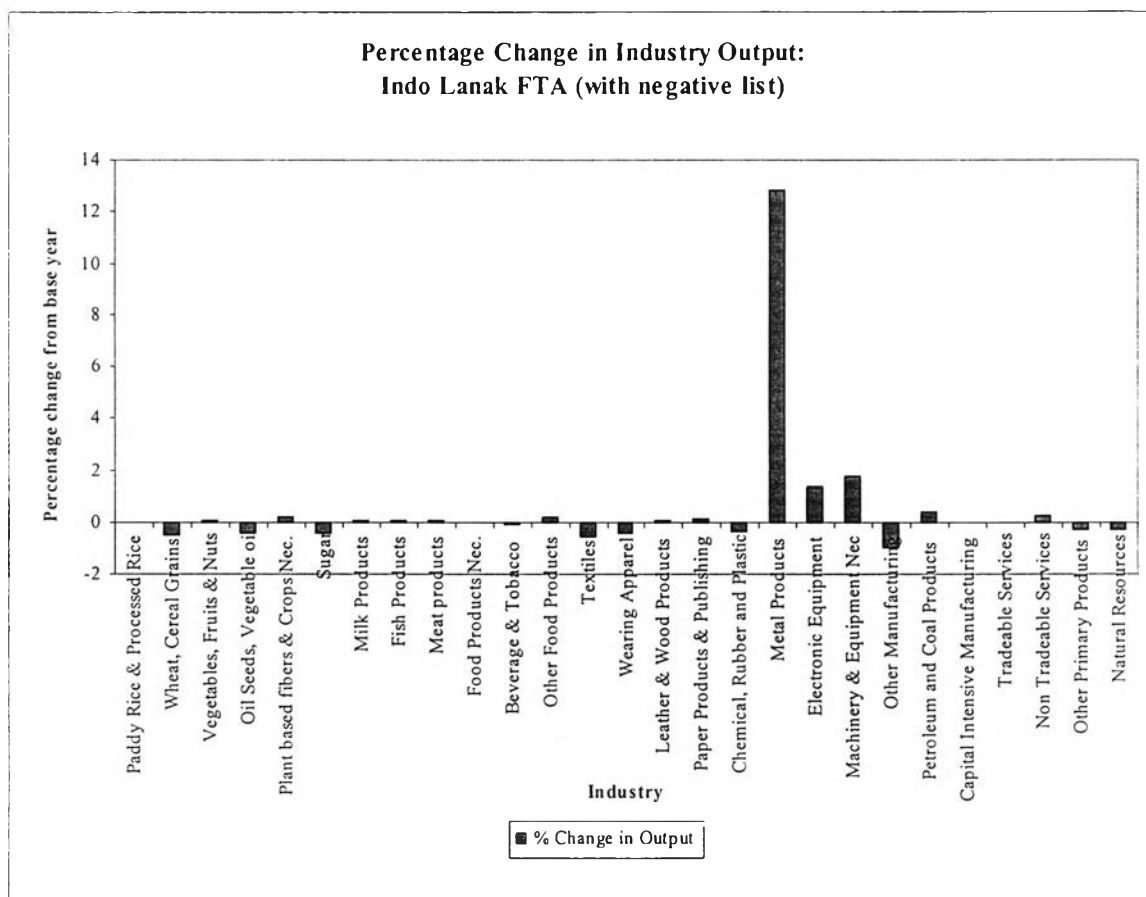
Indo Lanka FTA (with negative list)

Source: Simulation results derived from GTAP version 6 (Database 2001)

Like in the case of Indo Lanka full trade liberalization scenario the output of metal products will increase under this scenario. The other products that output increase are electronic equipment, machinery and equipment necessaries. However, the percentage of increase in output is less than that of Indo Lanka full trade liberalization scenario as a result of negative lists.

• **Proposed Sri Lanka Bangladesh FTA**

Figure 4.9   Change in Sectoral Output in Sri Lanka:

                   Proposed Sri Lanka Bangladesh FTA
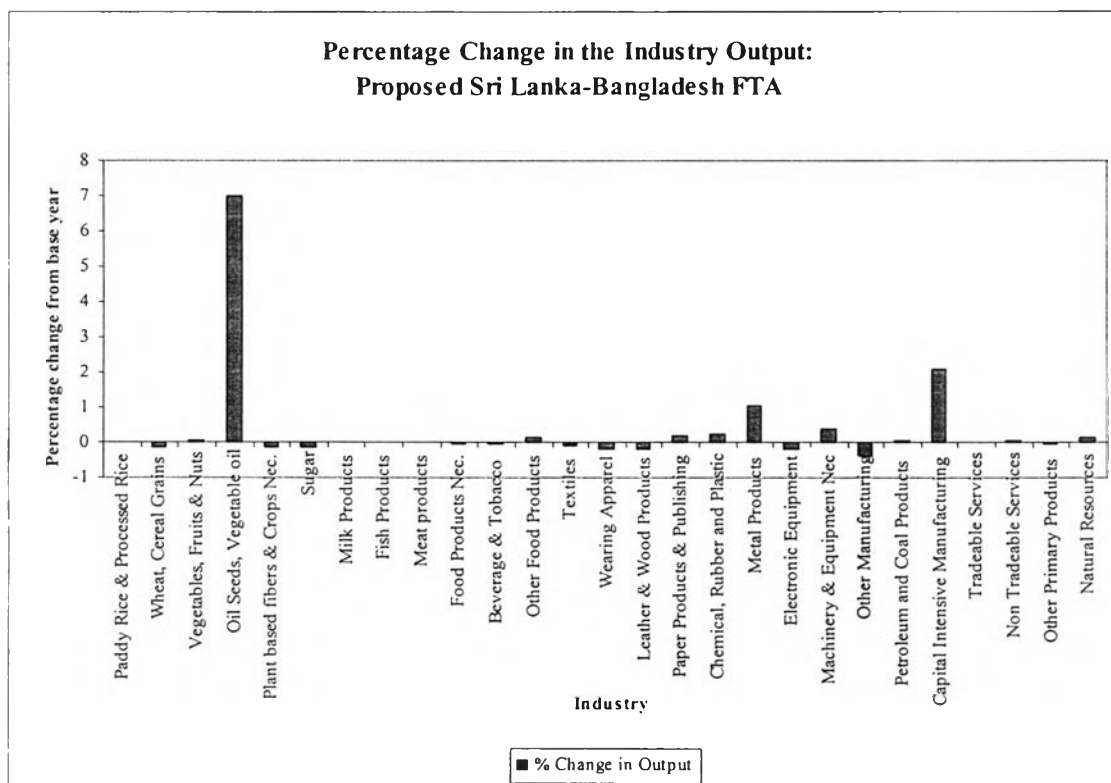
Source: Simulation results derived from GTAP version 6 (Database 2001)

The sectoral output protections indicate that the output of oil seeds and vegetable oil, metal products and capital intensive manufacturing will increase in Sri Lanka. However, the impact on output of other industries are not significant under this FTA. The figures in the table A.16 in appendix indicate that impact on the industries in Bangladesh is negligible in this scenario.

• **Multilateral Trade Liberalization**

The diagram below illustrates that under multilateral trade liberalization in Sri Lanka, the output of wearing apparel sector, textiles, electronic equipment and other primary products will increase. Since, these industries are heavily depends on imported intermediate inputs tariff reduction on all regions causes to increase in output of such industries. Under this situation the output of metal products, wheat and cereal grains, sugar, other manufacturing products, capital intensive manufacturing industries output

will decline. As a result of tariff reduction in all regions it is cheaper for Sri Lanka to import these products from other regions rather manufacturing domestically. Hence, the output of the above mentioned industries will decline.

Further, the figures in the table A.16 in appendix indicate that the output of wearing apparel sector will improve substantially in other South Asian countries; in Bangladesh it will increases by 45.85 percent, India 32.39 percent and Rest of South Asia by 21.44 percent. In Sri Lanka the output of wearing apparel sector will increase only by 13.49 percent. This is due other regions possess large pool of unskilled labour relative Sri Lanka and the especially this is important in the case of apparel industry which is heavily labour intensive industry.

Figure 4.10   **Change in Sectoral Output in Sri Lanka :**
                         Multilateral Trade Liberalization
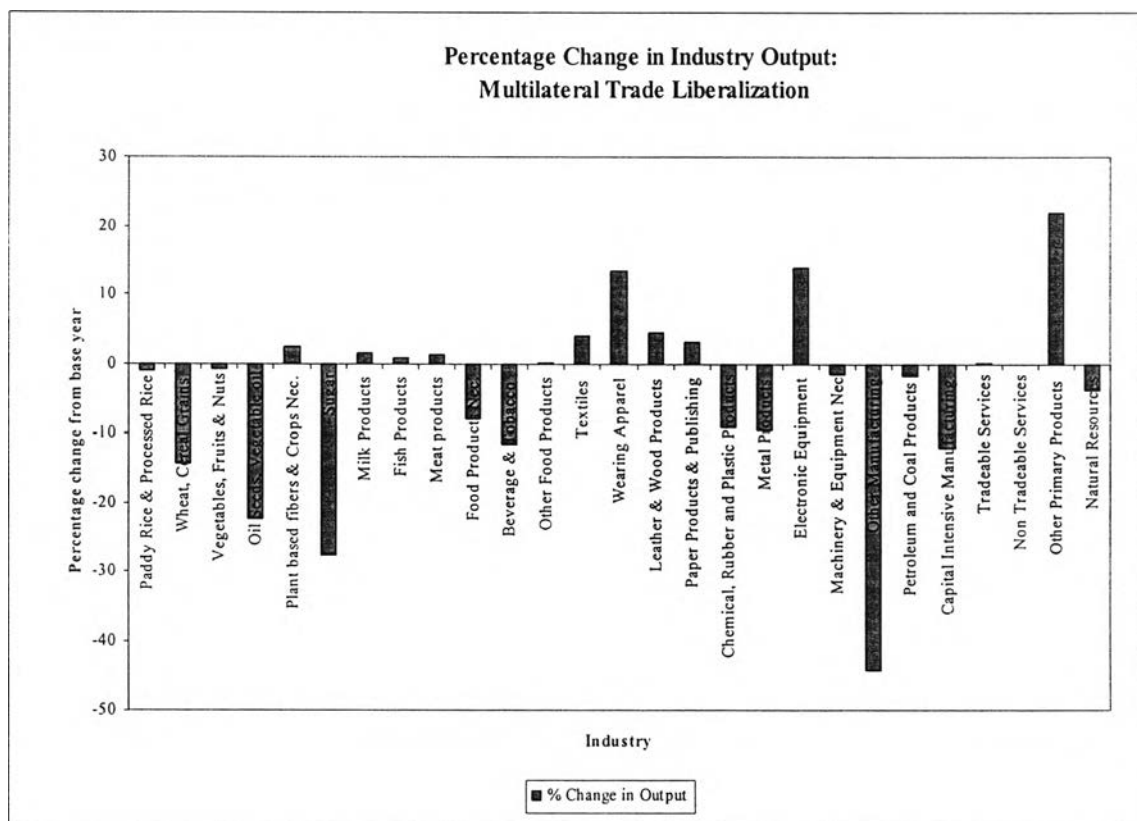
Source: Simulation results derived from GTAP version 6 (Database 2001)

b)   Impact on Sectoral Employment

The percentage change in demand for unskilled and skilled labour in the industries in Sri Lanka under each policy option can be illustrated as follows.

- **SAFTA**

Figure 4.11   Change in Demand for Labour in Sri Lanka: SAFTA

Percentage change in Demand for Unskilled and Skilled Labour:SAFTA
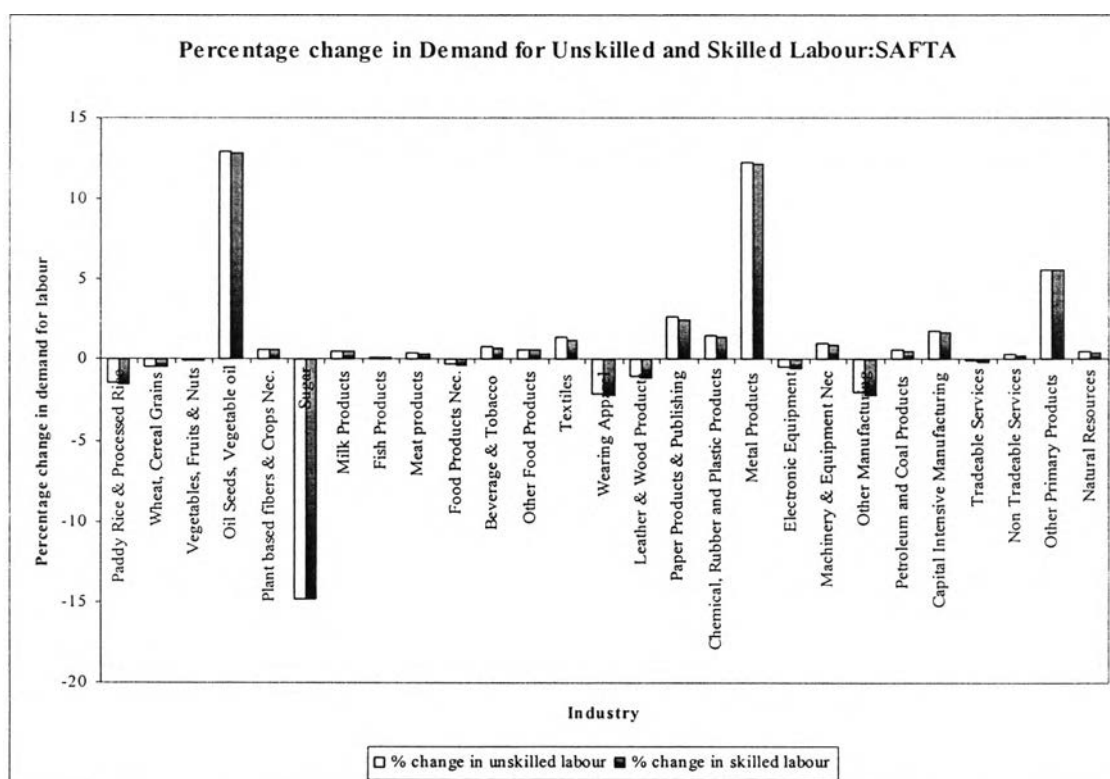
Source: Simulation results derived from GTAP version 6 (Database 2001)

It appears that demand for labour will increase in the same industries that output increases under this policy option. Consequently, the demand for unskilled labour and skilled labour in oil seeds and vegetable oil industry will increase by 12.93 percent and 12.87 percent respectively. The same for the metal products industry is 12.27 percent and 12.15 percent.

- **South Asian Customs Union**

According to the figure 4.12 depicted below, under this policy option it appears that in Sri Lanka both unskilled and skilled labour in wearing apparel industry will decline by 22.03 percent and 22.53 percent respectively. Presently, large pool of labour

is employed in wearing apparel industry in Sri Lanka and it appears that this policy option will brings negative impacts on the labour employed in the apparel industry. However, the demand for labour in other primary products, cereal grains, metal products, other manufacturing products and leather and wood products will increase.

Figure 4.12   **Change in Demand for Labour in Sri Lanka:**

South Asian Customs Union
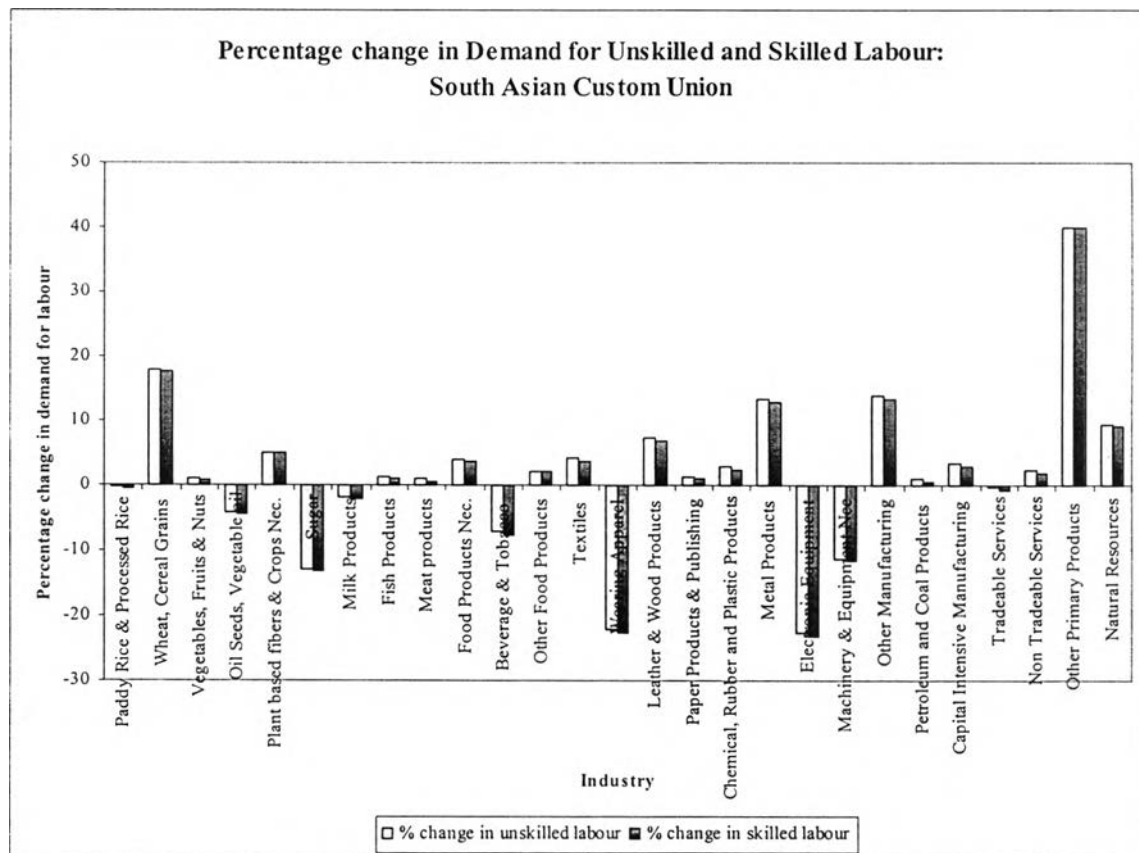
Simulation results derived from GTAP version 6 (Database 2001)

- **Indo Lanka Full Trade Liberalization Scenario**

In this policy scenario the model projects that demand for unskilled and skilled labour in metal products sector will increase substantially by 12.39 percent and 12.29 percent respectively. Further, it appears that the demand for labour in other primary products, paper products and publishing, electronic equipment will also increase under this scenario. In addition, it could be seen that the demand for labour in sugar industry will decline under this situation due to decline in output under the FTA.

Figure 4.13   Change in Demand for Labour in Sri Lanka: Indo Lanka FTA
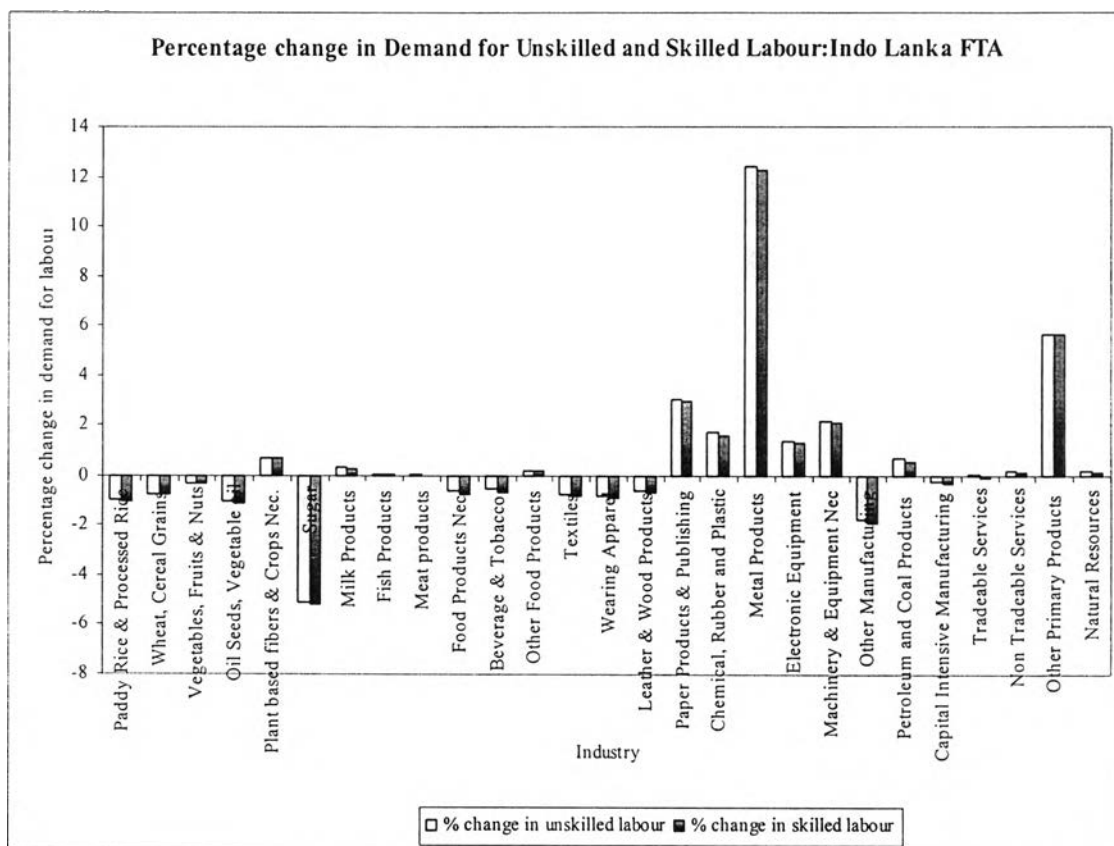
Source: Simulation results derived from GTAP version 6 (Database 2001)

- **Indo Lanka FTA (with negative list)**

The figure 4.14 below illustrates the percentage change in demand for labour in Sri Lanka under Indo Lanka FTA (with negative list). Under this policy scenario it also appears that demand for labour in metal products will increase for skilled and unskilled labour by 12.75 and 12.69 percent respectively. Similarly, the demand for labour in electronic equipment industry and machinery and equipment necessaries industry will also increase. The increase in demand for labour is consistent with the increase in output in the industries.

Figure 4.14 **Change in Demand for Labour in Sri Lanka:**
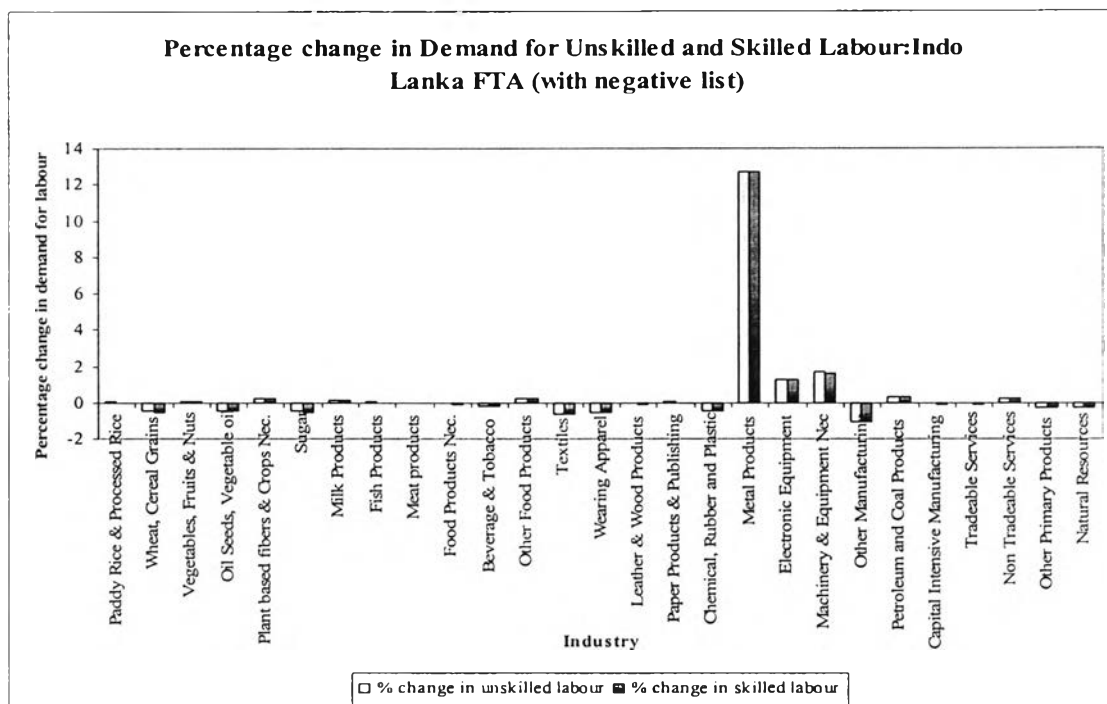
Indo Lanka FTA (with negative list)

Percentage change in Demand for Unskilled and Skilled Labour:Indo Lanka FTA (with negative list)

Source: Simulation results derived from GTAP version 6 (Database 2001)

- **Proposed Sri Lanka Bangladesh FTA**

Figure 4.15 **Change in Demand for Labour in Sri Lanka:**

Proposed Sri Lanka-Bangladesh FTA
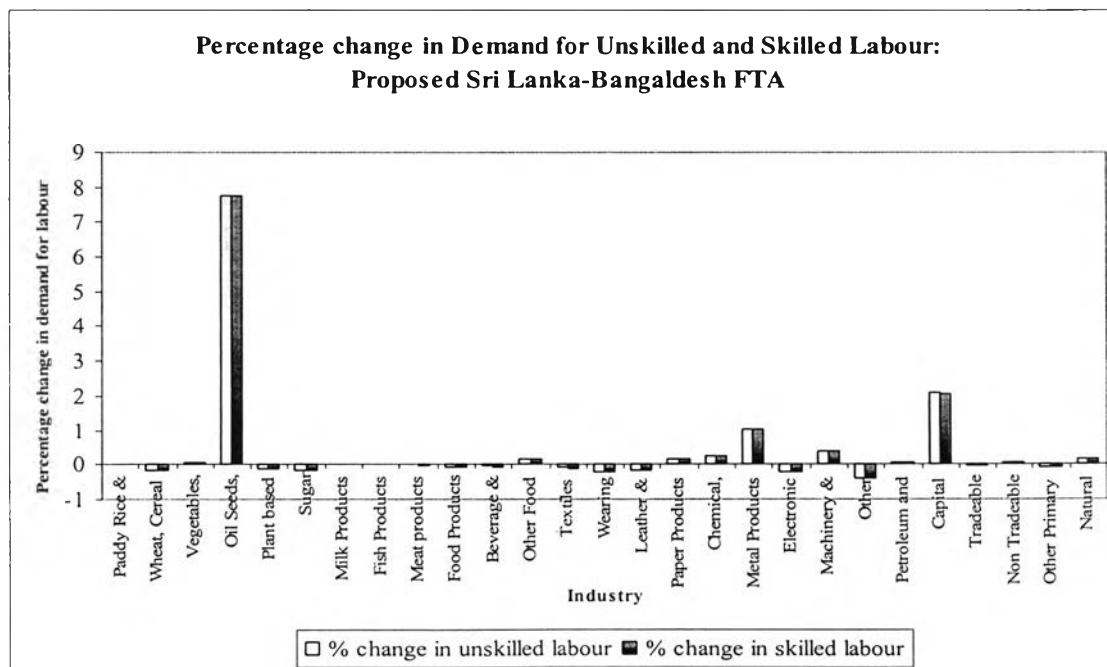
Percentage change in Demand for Unskilled and Skilled Labour: Proposed Sri Lanka-Bangaldesh FTA

Source: Simulation results derived from GTAP version 6 (Database 2001)

The simulation results under this policy option reflect that both the demand for unskilled and skilled labour in oil seeds and vegetable oil industry will increase by 7.74 percent. Further, the demand for labour in capital intensive manufacturing and metal products will also increases marginally. The impact on demand for labour in the other industries is negligible in this policy scenario.

- **Multilateral Trade Liberalization**

Figure 4.16   **Change in Demand for Labour in Sri Lanka:**
                         Multilateral Trade Liberalization
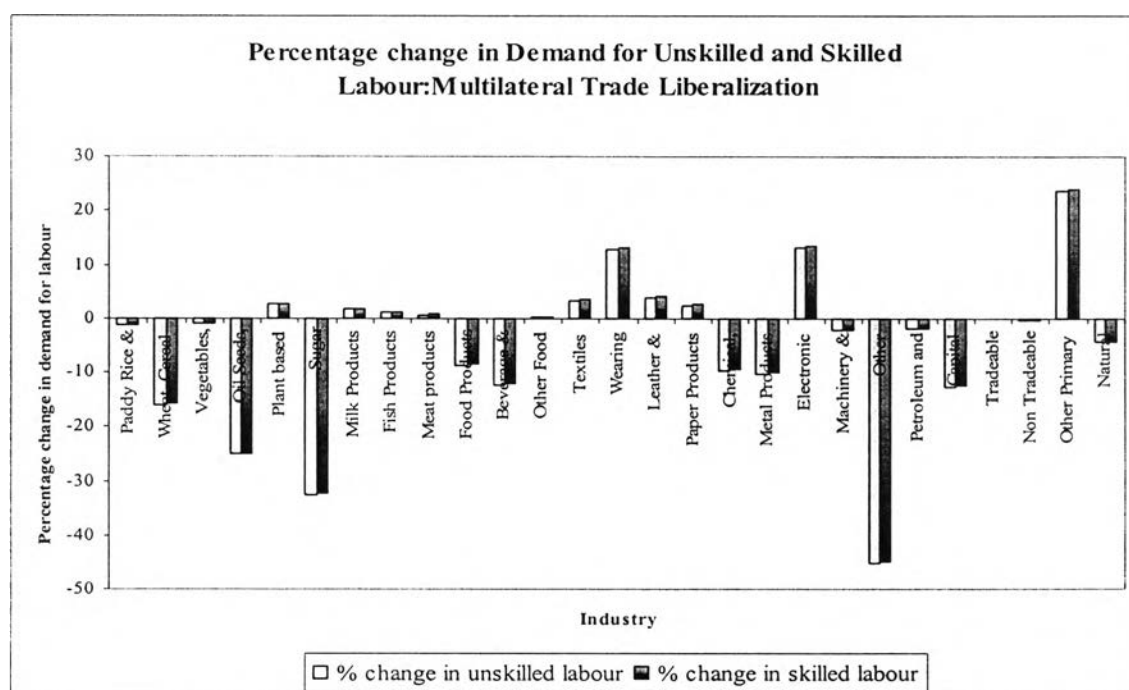
Source: Simulation results derived from GTAP version 6 (Database 2001)

Under the multilateral trade liberalization it appears that demand for unskilled labour and skilled labour in apparel industry of Sri Lanka will increase by 12.83 percent and 13.04 percent respectively. Further, the demand for labour in electronic equipment industry and other primary products industry will also increase. However, the demand for labour in oil seeds and vegetable oil, cereal grains, food products, sugar, beverage and tobacco, metal products, chemical and rubber products and capital intensive manufacturing industries will decline as the projected output in these industries decline under this policy option.

4.4   Impact of Trade Liberalization on Trade Structure and Trading Partners

This section investigates the impact of the above mentioned policy scenarios on sectoral exports and imports and its implications on trade partners and trade redirection effects. From this analysis it can ascertain the trade creation, trade diversion and trade redirection effects of different trade liberalization scenario.

4.4.1   Effects on Structure of Exports and Imports

The trade liberalization scenarios mentioned above will lead to change in structure of exports and imports in Sri Lanka. Therefore, it is worth to identify the percentage change in total exports and imports of each industry due to trade liberalization. Further, it is vital to determine the percentage change in sectoral bilateral trade in Sri Lanka with the regional trading partners under each policy option.

a)   Percentage change in Total Sectoral Exports and Imports

The tables A.19 and A.20 illustrated in appendix present the percentage change in total sectoral exports and imports of the South Asian countries under each trade liberalization scenario respectively. The following graphs demonstrate the percentage change in the total sectoral export and imports in Sri Lanka under different trade policy options.

• SAFTA

From the figure 4.16 below it appears that under this policy option export of metal products records highest percentage change in exports sales which accounts for 57.9 percent as a total. Further, oil seed and vegetable oil exports will expect to increase by 40.16 percent. In addition to that meat products, other food products, paper products and publishing will also illustrate a substantial increase in export sales. This result is consistent with the output projection under the SAFTA option as the output of oil seeds vegetable oil, metal products, paper products and publishing are expected to increase.

On the imports side, percentage increase in paddy rice and processed rice reports the highest percentage among import commodities which accounts 70.29 percent. This is

due to the fact that the present rice production in Sri Lanka is inefficient to meet the domestic consumption requirement. Moreover it shows that percentage change in imports of vegetable, fruits and nuts will also increase marginally.

**Figure 4.17   Change in Sectoral Exports and Imports in Sri Lanka: SAFTA**
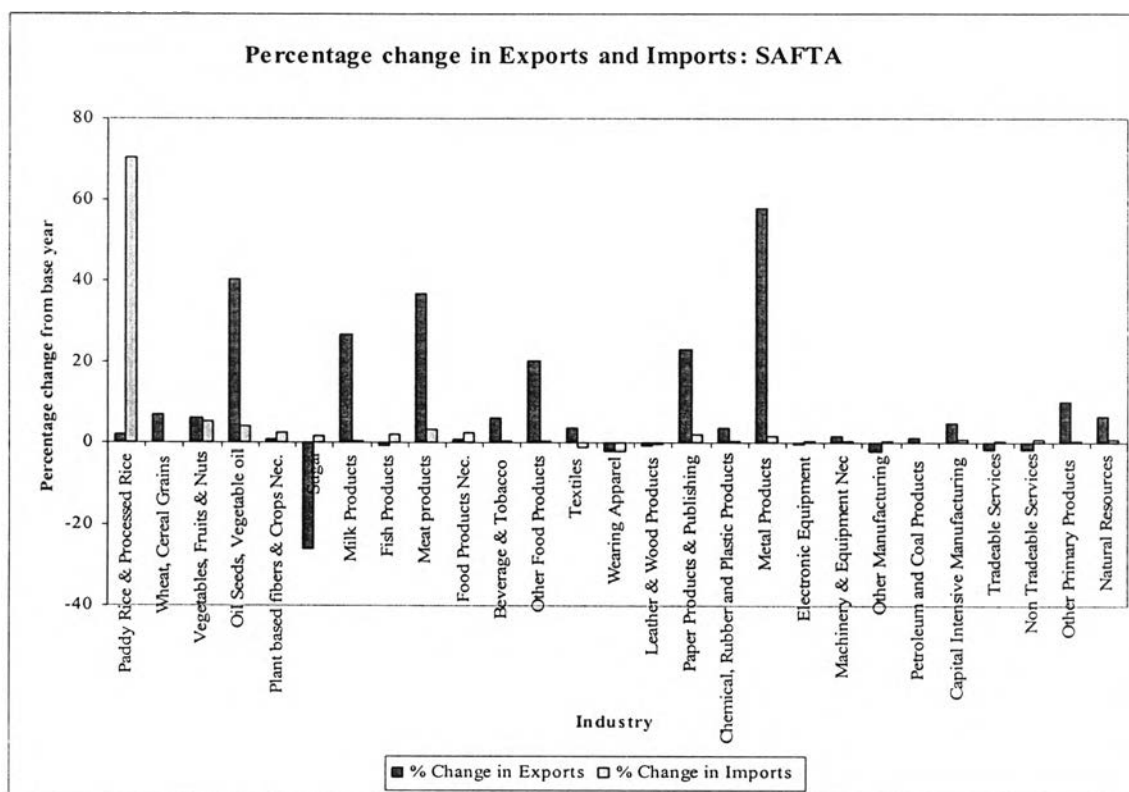
Simulation results derived from GTAP version 6 (Database 2001)

- **South Asian Customs Union**

Under this policy option from the figure 4.18, it appears that other primary products account the highest percentage of increase in export sales of 82.69 percent which includes wool, silk worm and cocoon. Further, it can be seen that exports of meat products, metal products, milk products and other food products will also increase in this situation. However, it appears that export of wearing apparel will decline by 18.97 percent which is Sri Lanka's main export industry. The prime reason for this, as mentioned before, the high cost of import of textiles, which is the primary intermediate input requires to manufacture garments and presently, Sri Lanka import textiles mainly from countries such as Hong Kong, Indonesia, Singapore and China. This is further, evident from decline in percentage of import of textiles by 22.96 percent.

When examining the percentage change in imports, it appears that import of rice will increase under this policy option as in the case of the SAFTA, however, in this case it will increase by 68.17 percent. Moreover, it can be seen that import of services will decline under this policy scenario.

Figure 4.18   Change in Sectoral Exports and Imports in Sri Lanka:
South Asian Customs Union
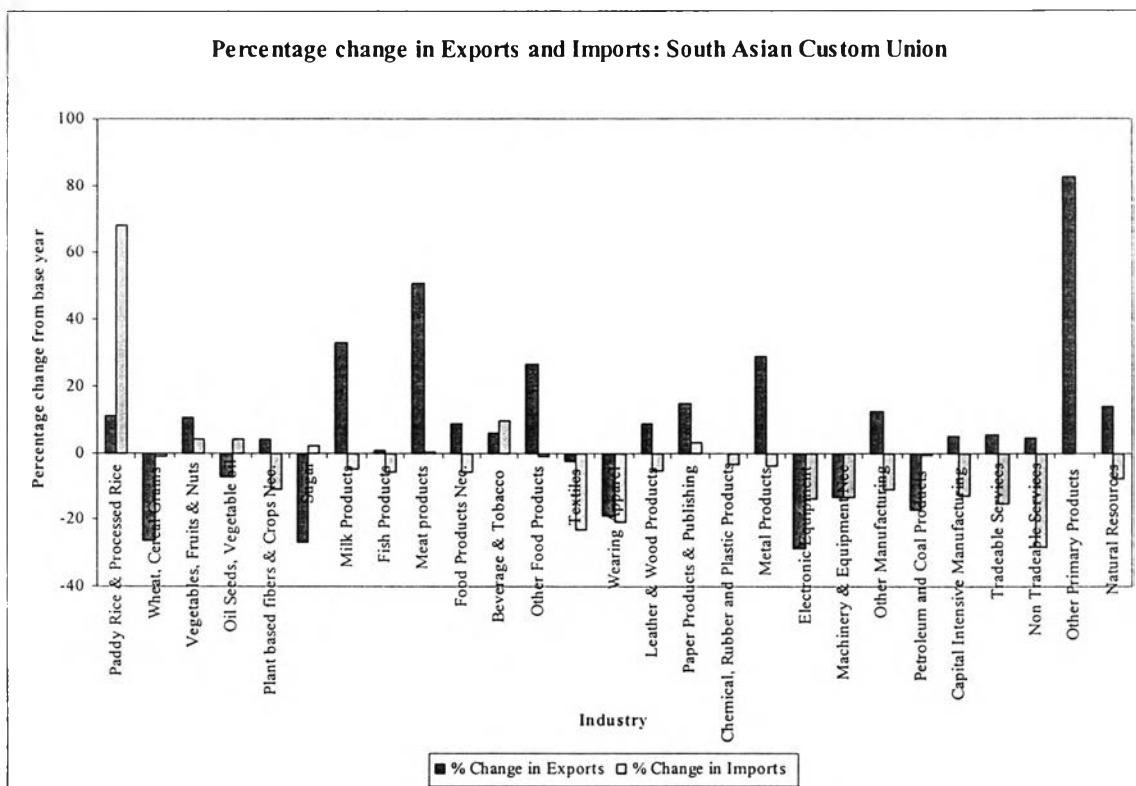
Source: Simulation results derived from GTAP version 6 (Database 2001)

- **Indo Lanka Full Trade Liberalization Scenario**

From the figure 4.19 it appears that export of metal products will increase by 62.13 percent. Moreover, the export sales of paper product and publishing, other primary products and other food products necessaries will be also expected to increase. It could be seen that there is no significant impact on export sales of wearing apparel sector in Sri Lanka under this FTA.

On the other hand import of paddy rice and processed rice will increase by 44.37 percent. Moreover, import of vegetables, fruits and nuts, oil seeds and vegetable oil, plant based fibers and crops will also increase marginally.

Figure 4.19   **Change in Sectoral Exports and Imports in Sri Lanka:**
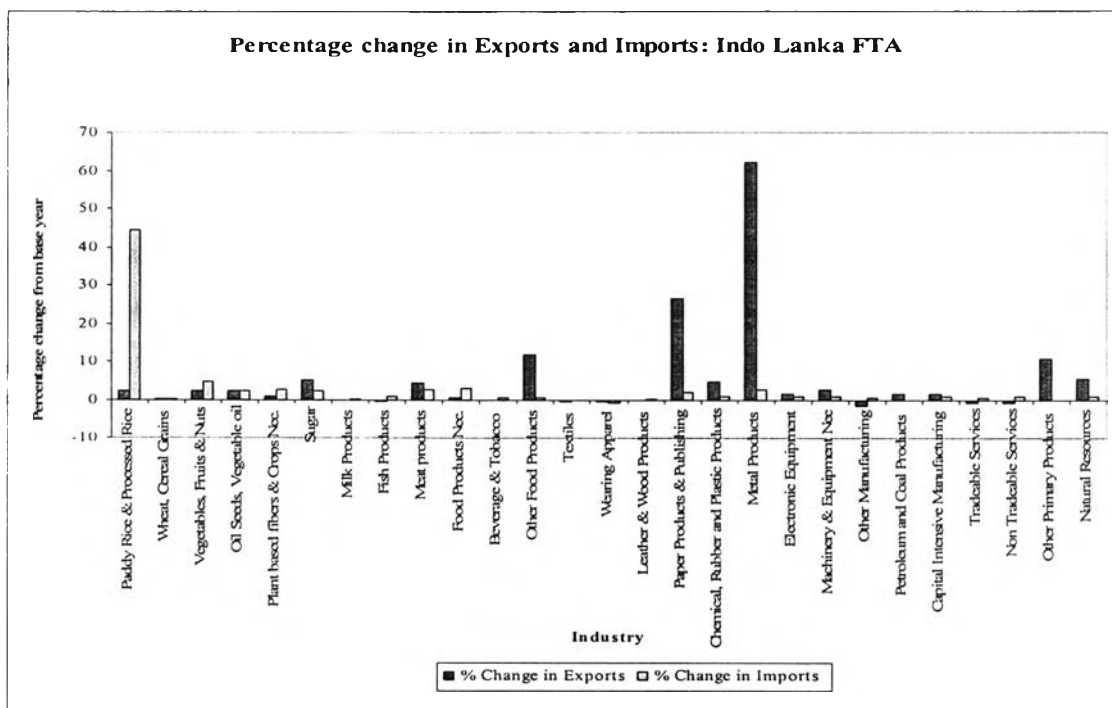
Indo Lanka FTA

Percentage change in Exports and Imports: Indo Lanka FTA

Source: Simulation results derived from GTAP version 6 (Database 2001)

- **Indo Lanka FTA (with negative list)**

Figure 4.20   **Change in Sectoral Exports and Imports in Sri Lanka:**

Indo Lanka FTA (negative list)
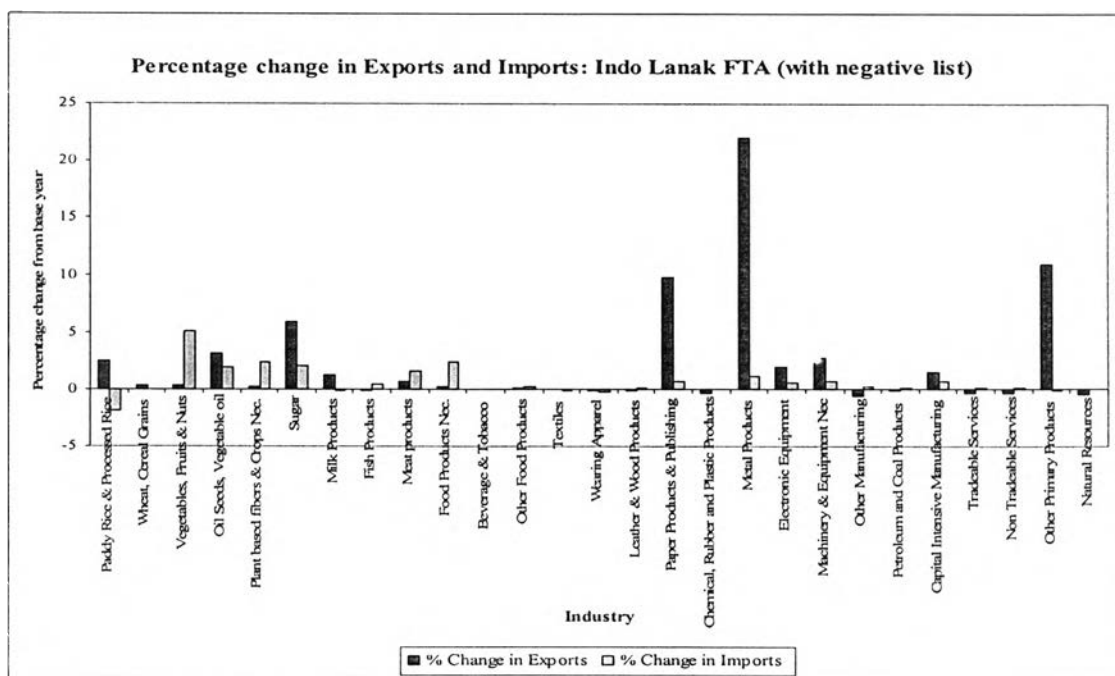
Percentage change in Exports and Imports: Indo Lanak FTA (with negative list)

Source: Simulation results derived from GTAP version 6 (Database 2001)

Like in the case of Indo Lanka full trade liberalization scenario metal products record the highest percentage increase in export sales from Sri Lanka, which is of 61.37 percent. In addition the other products which increase in export sales are other food products, meat products, machinery and equipment necessaries and electronic equipment. In addition, import of other manufacturing products, electronic equipment, and machinery and equipment necessaries appear to increase. In this situation it reflects that Sri Lanka's exports to India will increase in most of the sectors as in India most of the items are on the positive list. However, in Sri Lanka since many items are on the negative list is could not be seen increase in preferential imports substantially under the FTA.

- **Proposed Sri Lanka Bangladesh FTA**

Figure 4.21   **Change in Sectoral Exports and Imports in Sri Lanka: Proposed Sri Lanka-Bangladesh FTA**
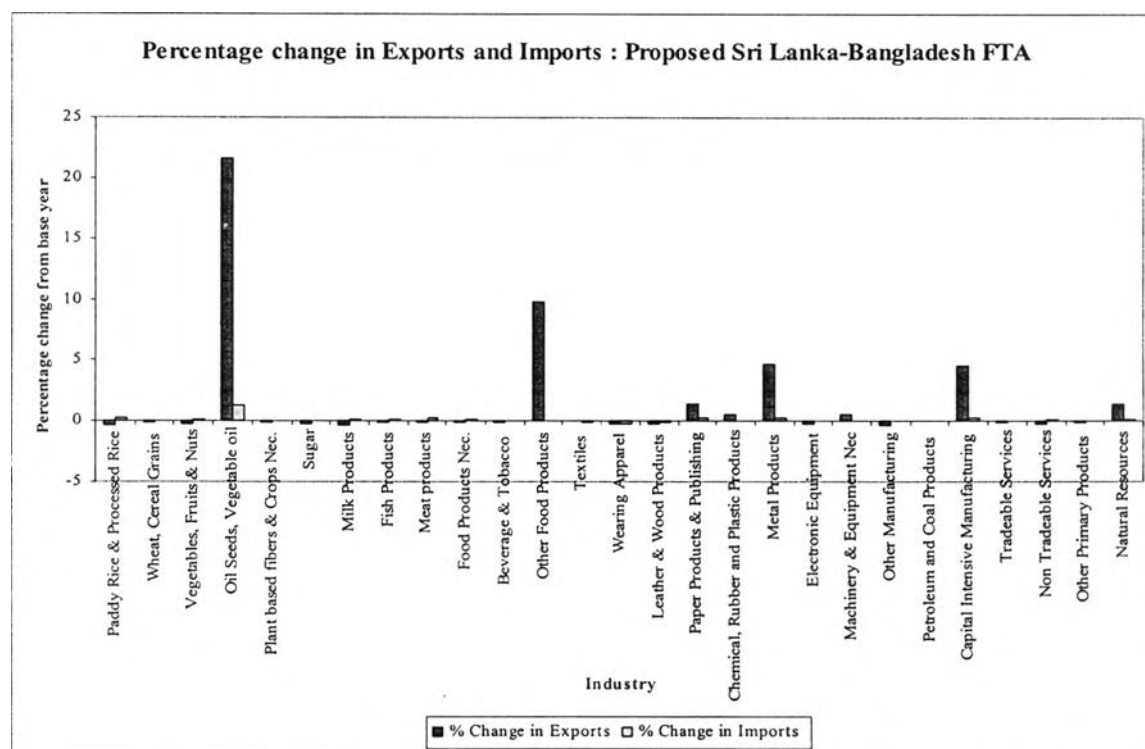
Source: Simulation results derived from GTAP version 6 (Database 2001)

The above figure shows that export sales of oil seeds and vegetable oil will increase by 21.56 percent, other food products by 9.84 percent and capital intensive manufacturing industry by 4.56 percent and metal products by 4.67 percent. However, under the FTA it

could be seen that there is no significant impact on sectoral imports from Sri Lanka. It reflects that Sri Lanka will become a net exporter under this policy scenario.

- **Multilateral Trade Liberalization**

Figure 4.22   Change in Sectoral Exports and Imports in Sri Lanka:
Multilateral Trade Liberalization
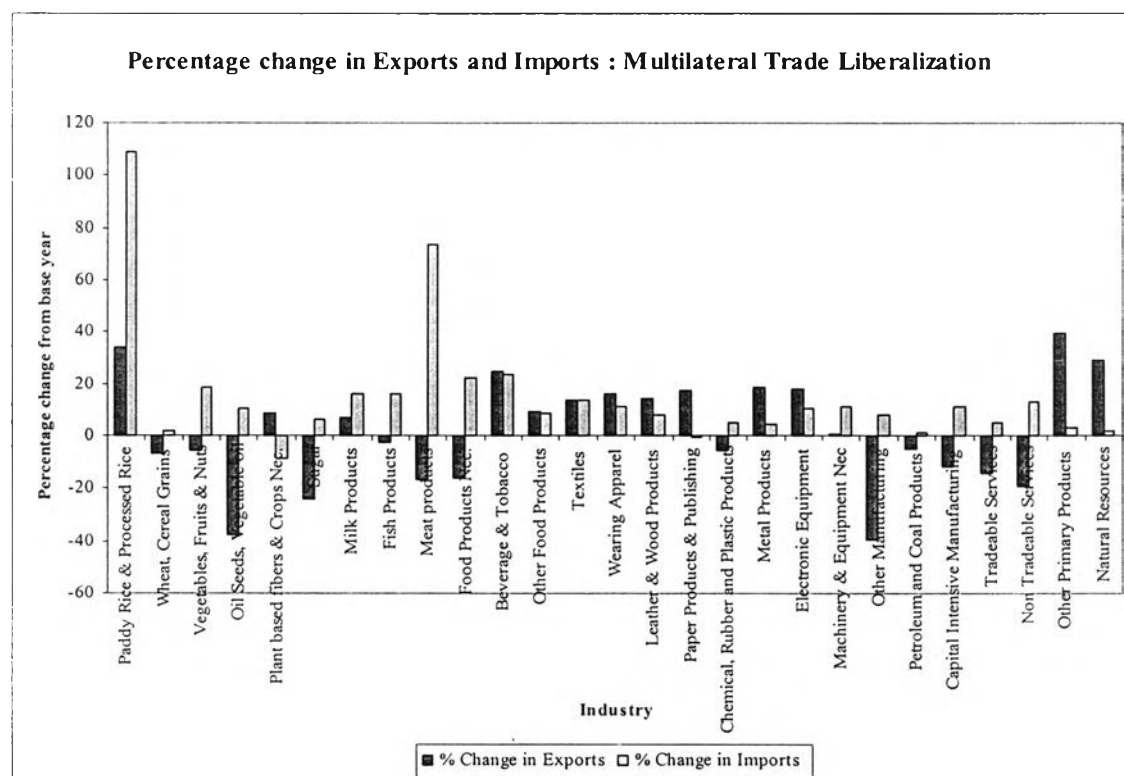
Source: Simulation results derived from GTAP version 6 (Database 2001)

Under the multilateral trade liberalization it appears that export sales in industries such as beverage and tobacco, other primary products, leather and wood products, paper products and publishing, metal products, textiles, electronic equipment and natural resources will be expected increase. Export sales of wearing apparel industry in Sri Lanka will also reflects an increase of 43.78 percent under this policy option. However, the export sales of oil seeds and vegetable oil, other manufacturing products, sugar and services are expected to decline.

On the other hand, it can be seen that imports of rice will increase substantially by 108.89 percent. Further, import of meat products, vegetable, fruits and nuts, textiles, food products necessaries and capital intensive manufacturing will also expect to increase in this scenario.

b)   Effects of Bilateral Trade between Sri Lanka and its Trading Partners

The diagrams below illustrate the percentage change in bilateral sectoral trade in Sri Lanka with her regional trading partners under each policy option.

- **SAFTA**

Figure 4.23   Change in Bilateral Sectoral Trade in Sri Lanka: SAFTA

Sri Lanka's Trade with India : SAFTA

Sri Lanka's Trade with Bangladesh :SAFTA
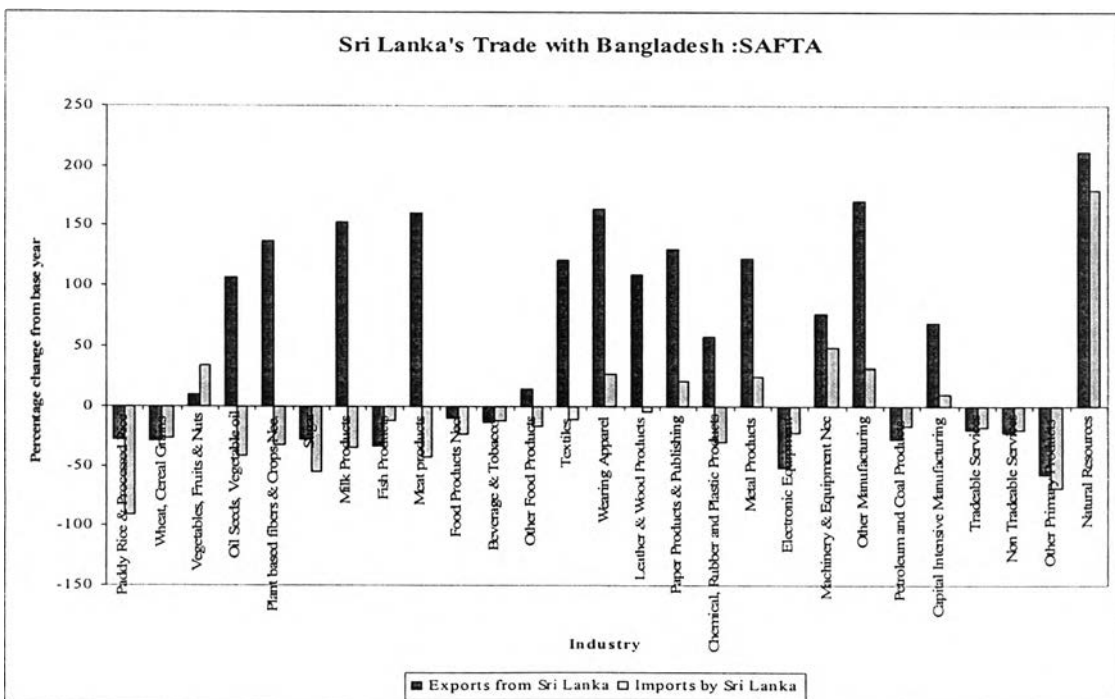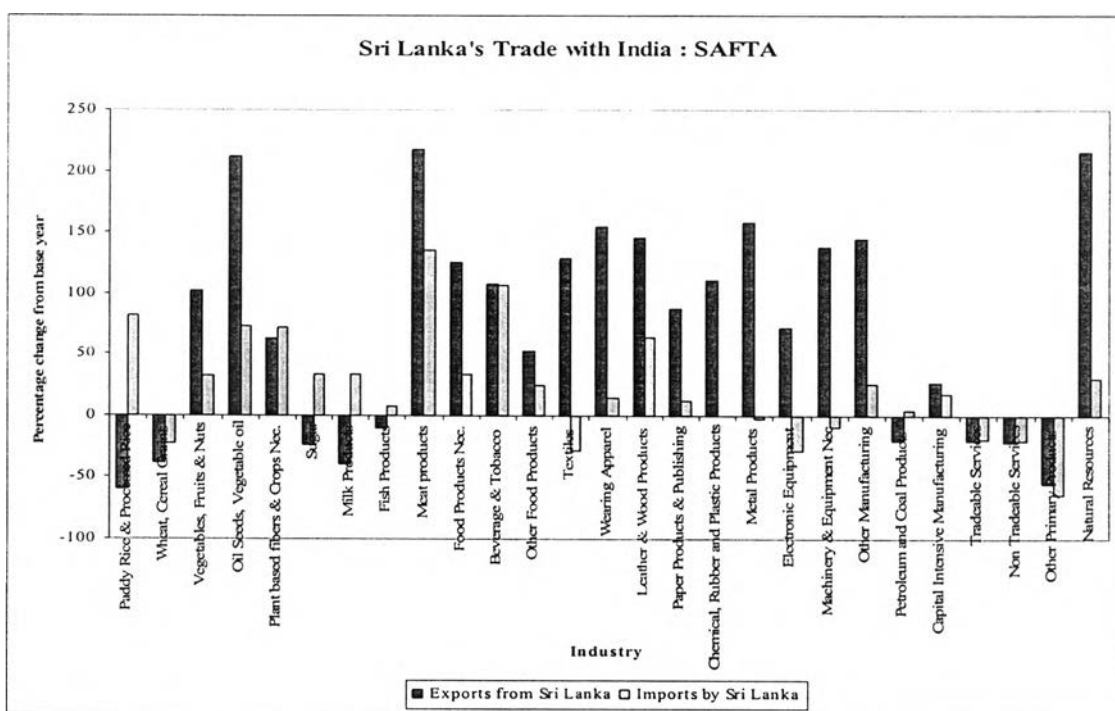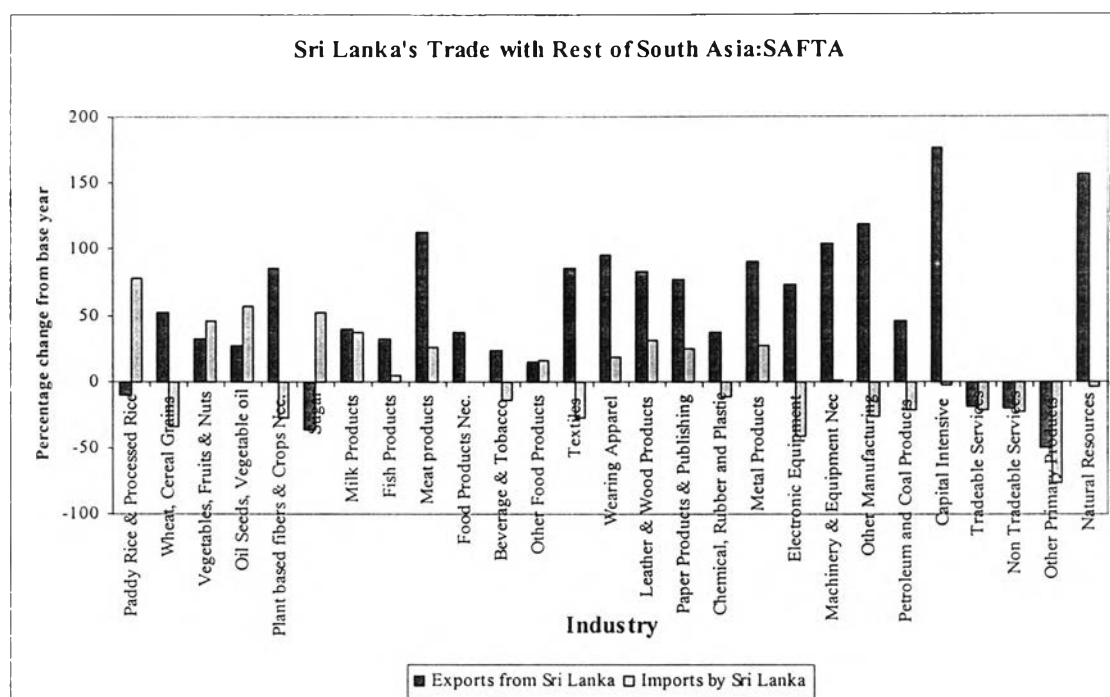
Source: Simulation results derived from GTAP version 6 (Database 2001)

According to the above figures it appears that Sri Lanka's bilateral trade with India, percentage change in export of meat products, oil seeds and vegetable oil, leather and wood products, chemical, rubber and plastic, natural resources, capital intensive manufacturing, electronic equipment, metal products will increase substantially. Further, the percentage change in export of wearing apparel sector is expected to increase by 154.12 percent to India. Moreover, in this case it is estimated that export of services, milk products, sugar and other primary products will decline. Regarding bilateral imports, it can be seen that import of paddy rice and processed rice will increase by 81.73 percent; beverage and tobacco will also increase by 106.65 percent.

In the case of Sri Lanka's trade with Bangladesh it appears that export of oil seeds, vegetable oil, plant based fibers and crops, milk products, meat products, textiles, wearing apparel, paper products and publishing, leather and wood products, metal products, other manufacturing and natural resources will increase significantly. Moreover, it can be seen that import of natural resources will also increase by 179.21 percent as Bangladesh possesses gas and other natural resources. In this situation, it is apparent that export and import of paddy rice and processed rice, other primary products and service will expect to decline.

When examining the Sri Lanka's trade with the rest of South Asia, it can be identified that export of capital intensive manufacturing, machinery and equipment, meat products, wearing apparel, natural resources, metal products, other manufacturing, leather and wood products, paper products and publishing will increase. On the other hand export and import of other primary products and services will expect to decline marginally. In this situation also, it can be seen that import of paddy rice and processed rice will increase by 78.15 percent.

When examining the estimated results in the table A.21 and A.22 in appendices it could be noticed that Sri Lanka's exports to regional trading partners will increase significantly as Sri Lankan exporters get opportunity to access the large markets in India, Pakistan and Bangladesh. Moreover, since majority of Sri Lankan exporters are small and medium scale entrepreneurs, they could be able to offer products which suits to the South Asian countries. On the other hand Sri Lanka's imports from India and the rest of South Asia will increase whereas its import from the rest of the world will decline in most of the products.

- **South Asian Customs Union**

Figure 4.24   **Change in Bilateral Sectoral Trade in Sri Lanka: South Asian Customs Union**
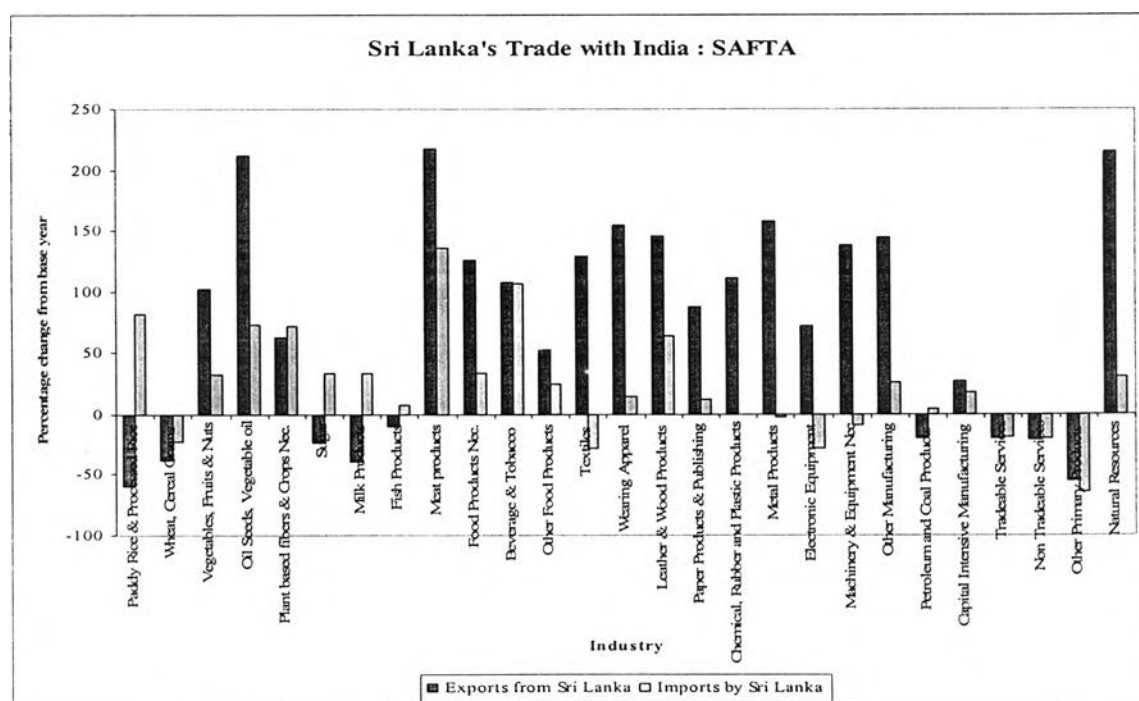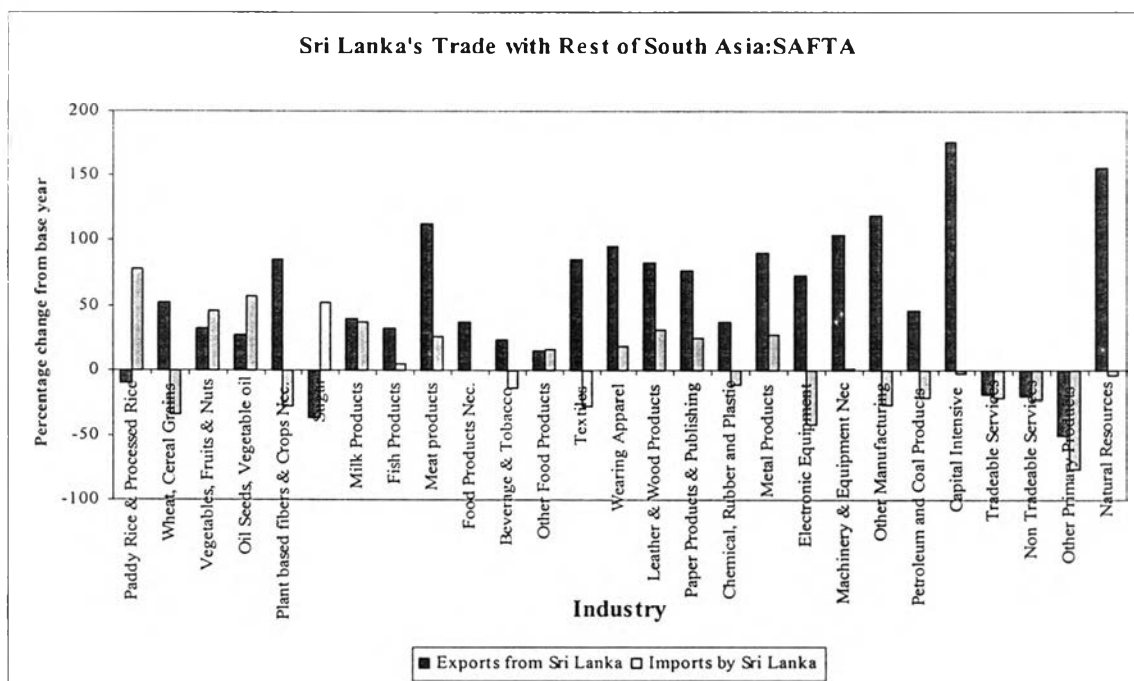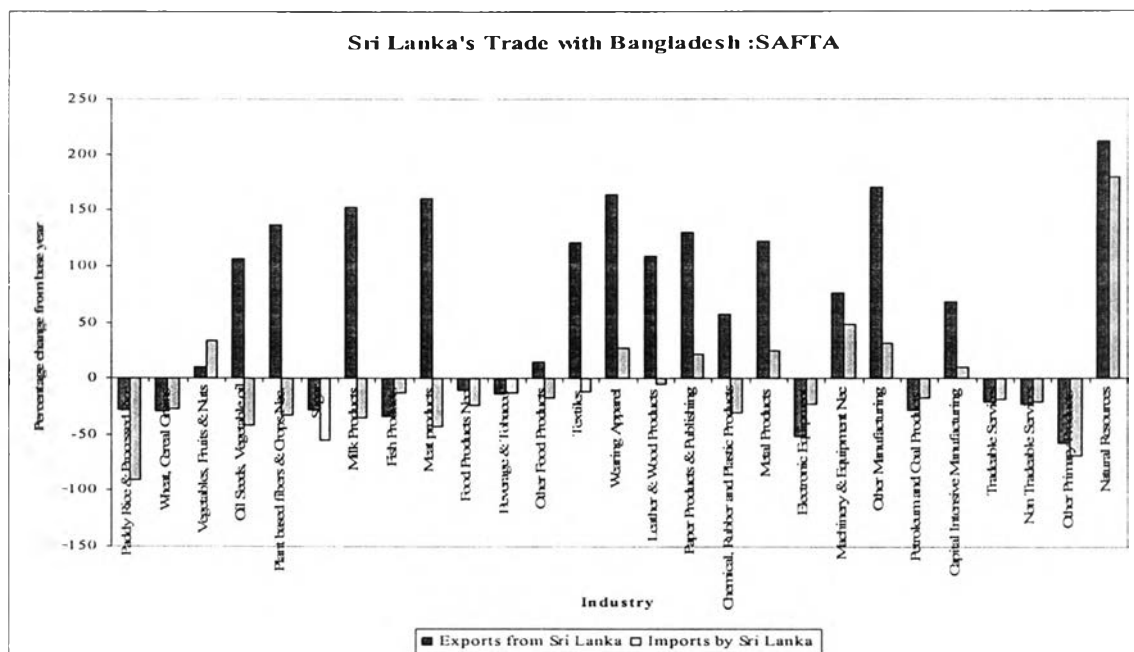
Sri Lanka's Trade with Bangladesh :SAFTA

Sri Lanka's Trade with Rest of South Asia:SAFTA

Source: Simulation results derived from GTAP version 6 (Database 2001)

South Asian Custom Union policy scenario depicts that Sri Lanka's sectoral bilateral trade will increase in many industries. For instance, in the case of plant based fibers and crops, food products necessaries, textile and wearing apparel, leather and wood products, metal products, paper products and publishing, machinery and equipment necessaries and natural resources the percentage increase in export sales are higher than that of imports. However, Sri Lanka is net importer in the industries of paddy rice and processed rice, wheat and cereal grains, sugar, meat products, milk products, fish

products, electronic equipment, capital intensive manufacturing and other primary products.

Sri Lanka's bilateral trade with Bangladesh illustrates that export sales of plant based fibers and crops will increase by 178.21 percent, milk products by 106.76 percent, paper products and publishing by 108.72 percent. Further, export sales of oil seeds and vegetable oil, other manufacturing and metal products will also expect to increase. In addition to that it appears that import of natural resources will increase by 276.74 percent.

In the case of bilateral trade with the Rest of South Asia, it is apparent that export sales of plant based fibers and crops, meat products, textiles, wearing apparel, other manufacturing, capital intensive manufacturing, natural resources will increase. Moreover, import of paddy rice and processed rice, oil seeds and vegetable oil, sugar, milk products and other primary products will increase.

- **Indo Lanka Full Trade Liberalization Scenario**

Figure 4.25   Change in Bilateral Sectoral Trade in Sri Lanka: Indo Lanka FTA
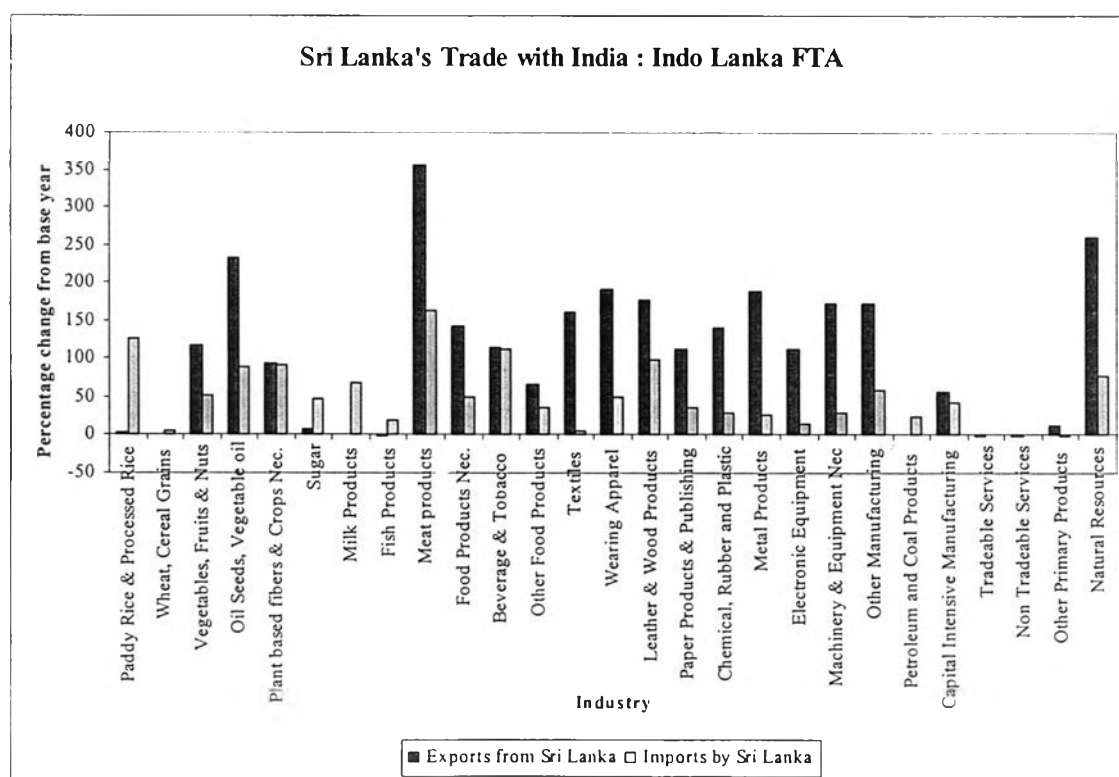
Source: Simulation results derived from GTAP version 6 (Database 2001)

Under Indo Lanka full trade liberalization scenario it appears that export of meat products will increase substantially by 355 percent. In addition, export of metal products will increase by 187.98 percent. Further, exports sales of oil seeds and vegetable oil, wearing apparel, textiles, electronic equipment and natural resources will also expect to rise. The model projects an appreciable performance for most of manufacturing sectors which have export market in India. In addition it could be seen that import of paddy rice and processes rice will increase by 126.77 percent. Moreover, import of beverage and tobacco, plant base fibers and crops will also increase. As a whole it could be seen that sectoral exports from Sri Lanka to India appear to increase under Indo Lanka full trade liberalization scenario.

- **Indo Lanka FTA (with negative list)**

Figure 4.26 **Change in Bilateral Sectoral Trade in Sri Lanka: Indo Lanka FTA (with negative list)**
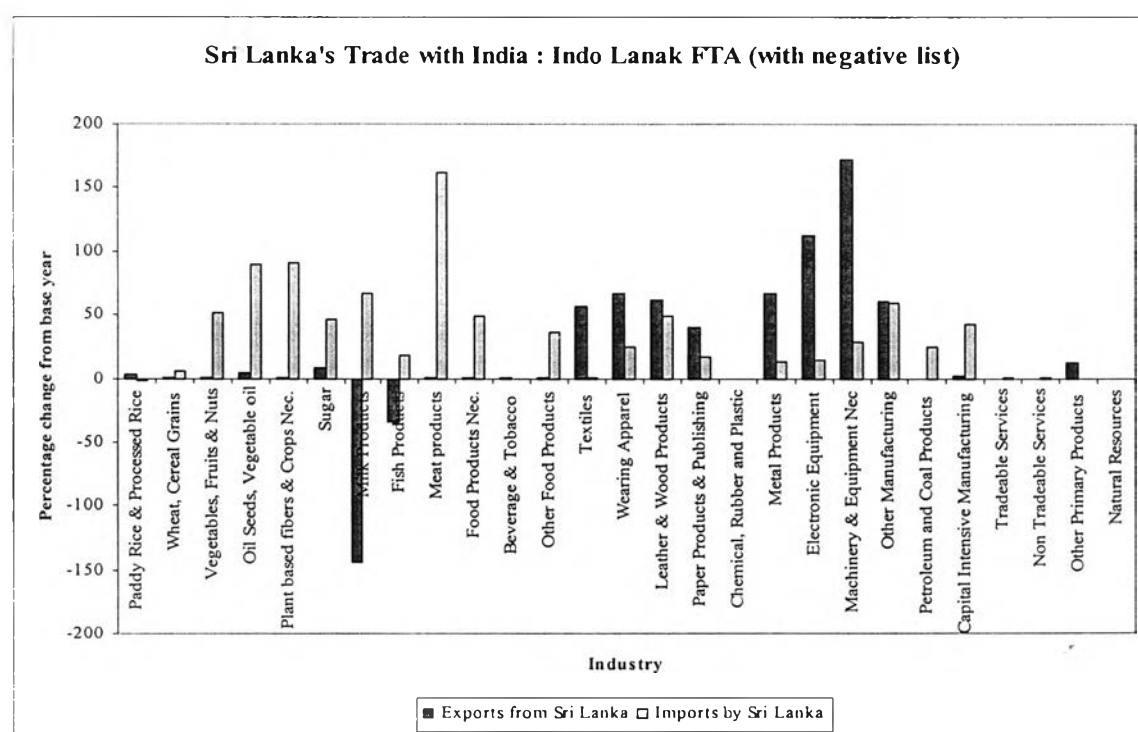
Source: Simulation results derived from GTAP version 6 (Database 2001)

The estimated simulation results indicate that in the case of Indo Lanka FTA (with negative list), export sales of metal products will increase by 187.06 percent, electronic equipment by 112.05 percent, machinery and equipment necessaries by 172.06 percent other manufacturing industries by 174.01 percent and leather and wood products by

176.95. From the statistics of exports to India under FTA in table 3.19 in section 3.4.2 of chapter 3, it is evident that presently, these products fall within top 20 exports products from Sri Lanka to India.

The model projects that export of wearing apparel will increase by 95.38 percent as the simulations performed with the assumption of absence of non tariff barriers. However, presently, there is a quota in export of wearing apparel from Sri Lanka to India and it is subject to the condition that 4 million of the 8 million pieces have to be manufactured from Indian fabrics. In order to increase export sales from Sri Lanka to India, the policy makers in Sri Lanka need to negotiate with India and remove these non tariff barriers.

Moreover, in this scenario it could be seen that import of intermediary products such as textiles, machinery and equipment necessaries, other manufacturing and leather and wood products increase. However, it could be seen that import of agricultural products increase only marginally as most of the agricultural products are on the Sri Lanka's negative list.

- **Proposed Sri Lanka Bangladesh FTA**

Figure 4.27   **Change in Bilateral Sectoral Trade in Sri Lanka:**
                         Proposed Sri Lanka-Bangladesh FTA
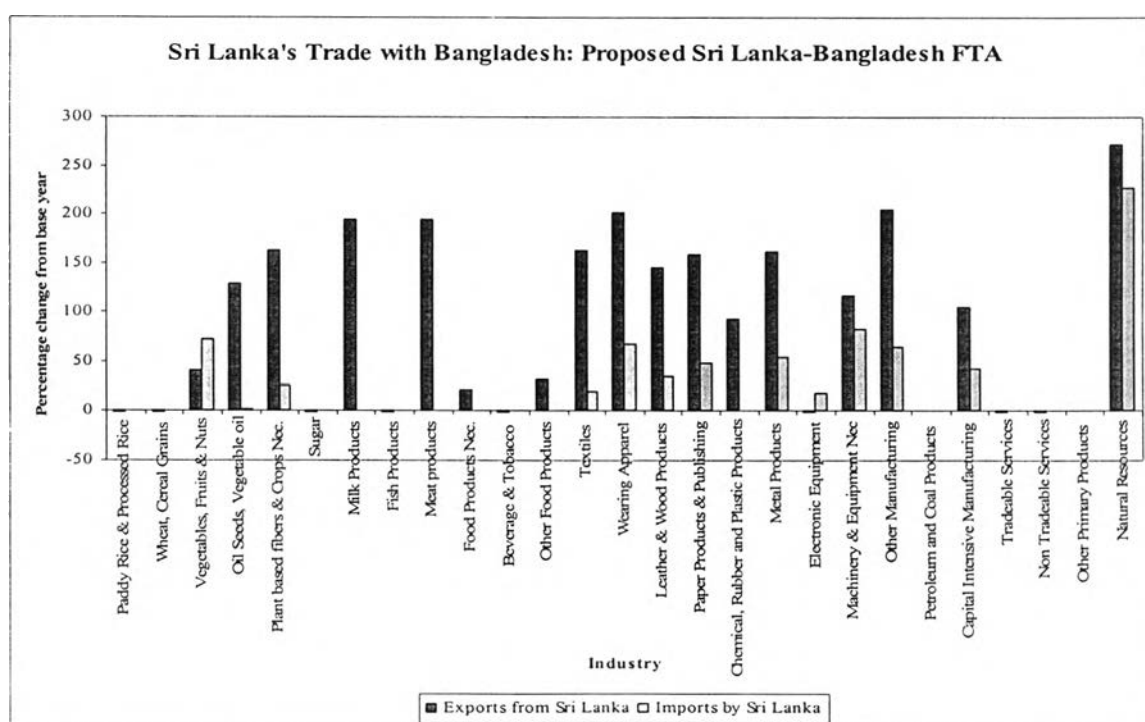
Source: Simulation results derived from GTAP version 6 (Database 2001)

The model projects that Sri Lanka's export to Bangladesh in both the agricultural as well as manufacturing sector will increase in this situation. For instance export of plant based fibers and crops, milk products, meat products, textiles, wearing apparel, paper products, other manufacturing products and natural resources will expect to increase under the FTA. In the case of Sri Lanka's import from Bangladesh, the products such as vegetable, fruits, and nut and machinery and equipment necessaries will expect to increase. Further, it could be seen that Sri Lanka's import of natural resources will increase 227.38 percent where as its export will increase by 271.78 percent.

- **Multilateral Trade Liberalization**

Figure 4.28   Change in Bilateral Sectoral Trade in Sri Lanka:
Multilateral Trade Liberalization

Sri Lanka's Trade with Bangladesh:Multilateral Trade Liberalization

Percentage change from base year

Industry

- Paddy Rice & Processed Rice
- Wheat, Cereal Grains
- Vegetables, Fruits & Nuts
- Oil Seeds, Vegetable oil
- Plant based fibers & Crops Nec
- Sugar
- Milk Products
- Fish Products
- Meat products
- Food Products Nec
- Beverage & Tobacco
- Other Food Products
- Textiles
- Wearing Apparel
- Leather & Wood Products
- Paper Products & Publishing
- Chemical, Rubber and Plastic Products
- Metal Products
- Electronic Equipment
- Machinery & Equipment Nec
- Other Manufacturing
- Petroleum and Coal Products
- Capital Intensive Manufacturing
- Tradeable Services
- Non Tradeable Services
- Other Primary Products
- Natural Resources

■ Exports from Sri Lanka □ Imports by Sri Lanka

Sri Lanka's Trade with Rest of South Asia: Multilateral Trade Liberalization

Percentage change from base year

Industry

- Paddy Rice &
- Wheat, Cereal
- Vegetables,
- Oil Seeds,
- Plant based
- Sugar
- Milk Products
- Fish Products
- Meat products
- Food Products
- Beverage &
- Other Food
- Textiles
- Wearing
- Leather &
- Paper Products
- Chemical,
- Metal Products
- Electronic
- Machinery &
- Other
- Petroleum and
- Capital
- Tradeable
- Non Tradeable
- Other Primary
- Natural

■ Exports from Sri Lanka □ Imports by Sri Lanka

Source: Simulation results derived from GTAP version 6 (Database 2001)

In the case of the multilateral trade liberalization scenario, Sri Lanka is a net importer of the products such as paddy rice and processed rice, wheat and cereal grains, sugar, milk products, meat products, beverage and tobacco, chemical, rubber and plastic products, electronic equipment, other manufacturing, petroleum and coal products, capital intensive manufacturing, services and other primary products with respect to Indian market. The model projects that Sri Lanka is a net exporter in the products such as oil seeds and vegetable oil, food products necessaries, other food products, textiles and wearing apparel, paper products and publishing, metal products, machinery and equipment necessaries and natural resources.

Sri Lanka's trade with Bangladesh in this scenario indicates that Sri Lanka is a net exporter in the products such as oil seeds and vegetable oil, plant based fibers and crops, milk products, leather and wood products, metal products and paper products and publishing. However, in this case the estimated results indicate that Sri Lanka is a net importer of textiles and wearing apparel, electronic equipment, machinery and equipment necessaries, other manufacturing and natural resources.

When examining the Sri Lanka's trade with Rest of South Asia it can be seen that Sri Lanka is a net exporter in the products such as plant base fibers and crops, fish products, textiles and wearing apparel, paper products and publishing, metal products, electronic equipment, machinery and equipment necessaries, other manufacturing products, capital intensive manufacturing and other primary products. The results demonstrate that Sri Lanka is a net importer in the products such as paddy rice and processed rice, vegetables, fruits and nuts, oil seeds and vegetable oil, sugar, milk products, meat products, other food products, services and natural resources.

4.4.2 Impact of Trade Liberalization on Trading Partners and Trade Redirection Effects

This section presents the impact of South Asian trade liberalization on trading partners of the South Asian countries. Thereby it can determine the whether formation of RTAs will have any negative impact on any trading partner or in other words whether RTA can form without having significant trade diversion effects.

a)   Implications for the Trading Partners

•   **SAFTA**

Figure 4.29   Change in Trade Direction of Sri Lanka: SAFTA
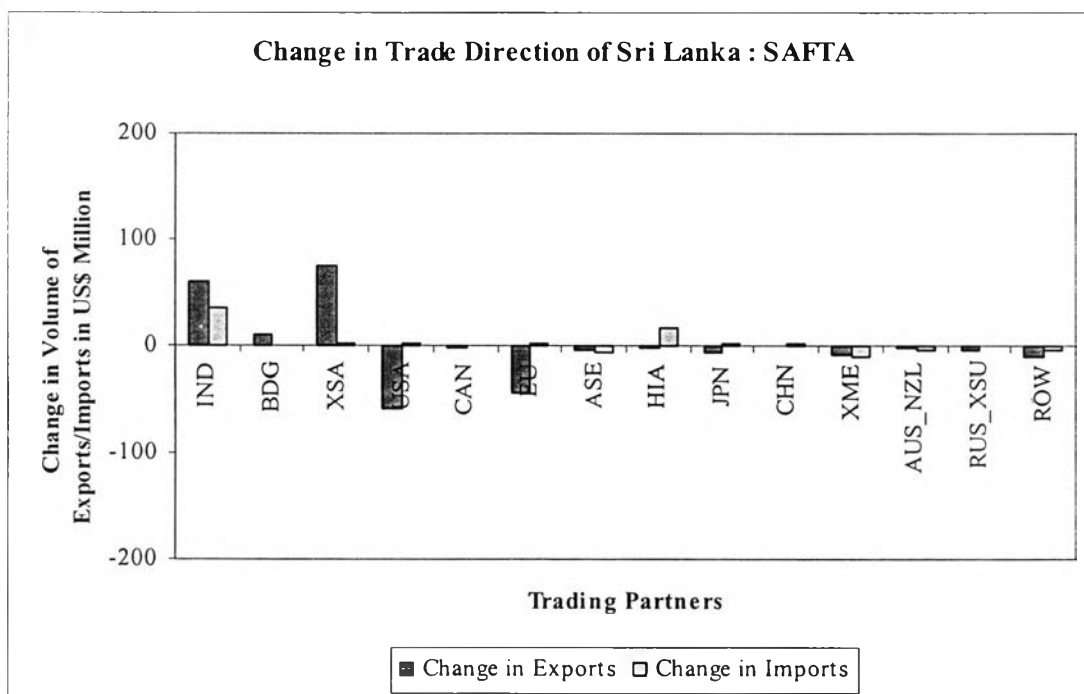
Change in Trade Direction of Sri Lanka : SAFTA

Trading Partners

■ Change in Exports   □ Change in Imports

Source: Simulation results derived from GTAP version 6 (Database 2001)

According to the estimated results depicted in table A.33 in appendix it can be determined that total volume of exports in Sri Lanka will increase by US$ 5.52 million which is 0.08 percent increase from the base year (2001), where as volume of imports will increase by US$ 34.95 million which is 0.49 percent increase from the base year. In this case it is apparent that Sri Lanka's trade with the South Asian regional trade partners will increase. Moreover, Sri Lanka's export to two major trading partners; i.e

USA and EU will decrease by US$ 59.27 million and US$ 44.16 million respectively. In addition, Sri Lanka's import from ASEAN and Middle East will reduce by US$ 5.69 million and US$ 11.05 million in this situation.

Figure 4.30   Change in Trade Direction of India: SAFTA
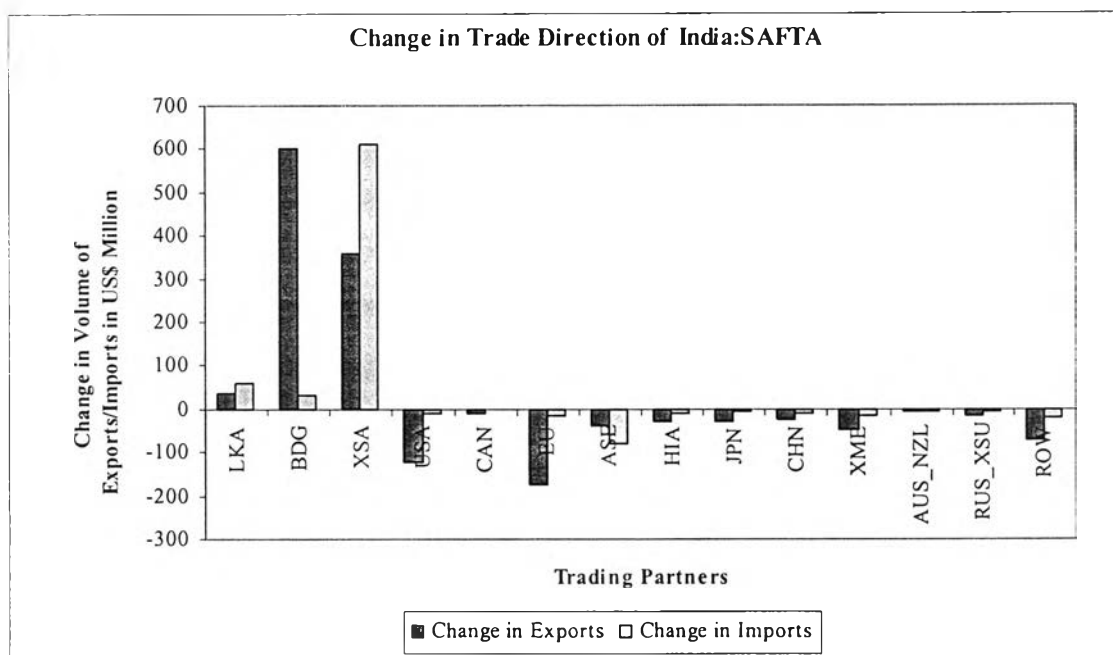
Source: Simulation results derived from GTAP version 6 (Database 2001)

The diagram above illustrates that in India under the SAFTA scenario total exports will increase by US$ 434.43 million which is of 0.72 percent from the base year and total imports will increase by US$ 519.53 million which is of 0.69 percent from the base year. It is interesting to note that trade between India and South Asian trade partners will increase substantially in this situation and especially it can be seen that trade between two large countries in South Asia i.e. India and Pakistan (Rest of South Asia) will increase significantly. Moreover, as in the case of Sri Lanka it can be seen that export to two major trading partners i.e. USA and EU will decline and also imports from ASEAN region will also decline.

The figure 4.31 illustrates that under this policy option Bangladesh exports will increase by US$ 264.23 million, which is of 0.03 percent increase from the base year and imports by US$ 238.70 million which is of 0.02 percent increase from the base year. It can be noted that Bangladesh import from India will increase substantially where as imports from EU, ASEAN, High Income Asia, Japan, China, Middle East will decline.

Further, it can be seen that Bangladesh volume of exports to two major partners i.e USA and EU will increase in this situation.

Figure 4.31   Change in Trade Direction of Bangladesh: SAFTA
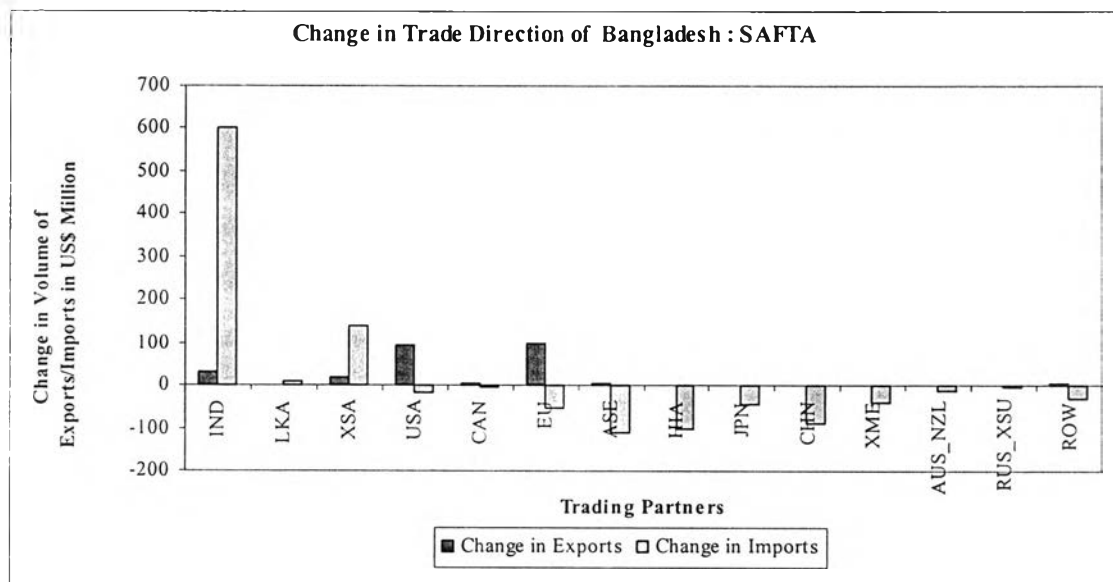
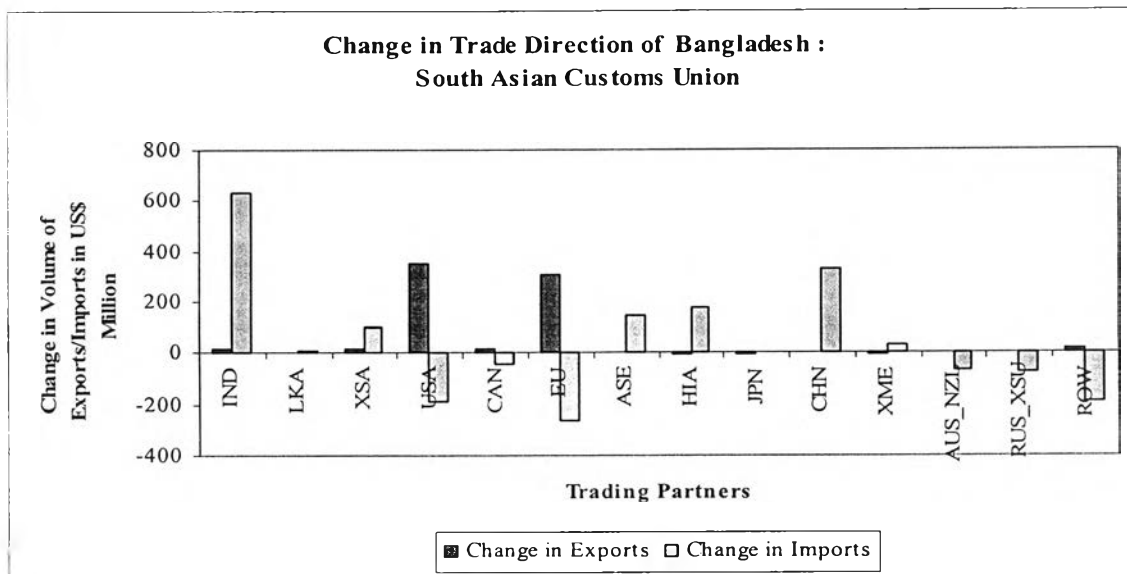Source: Simulation results derived from GTAP version 6 (Database 2001)

Figure 4.32   Change in Trade Direction of the Rest of South Asia: SAFTA
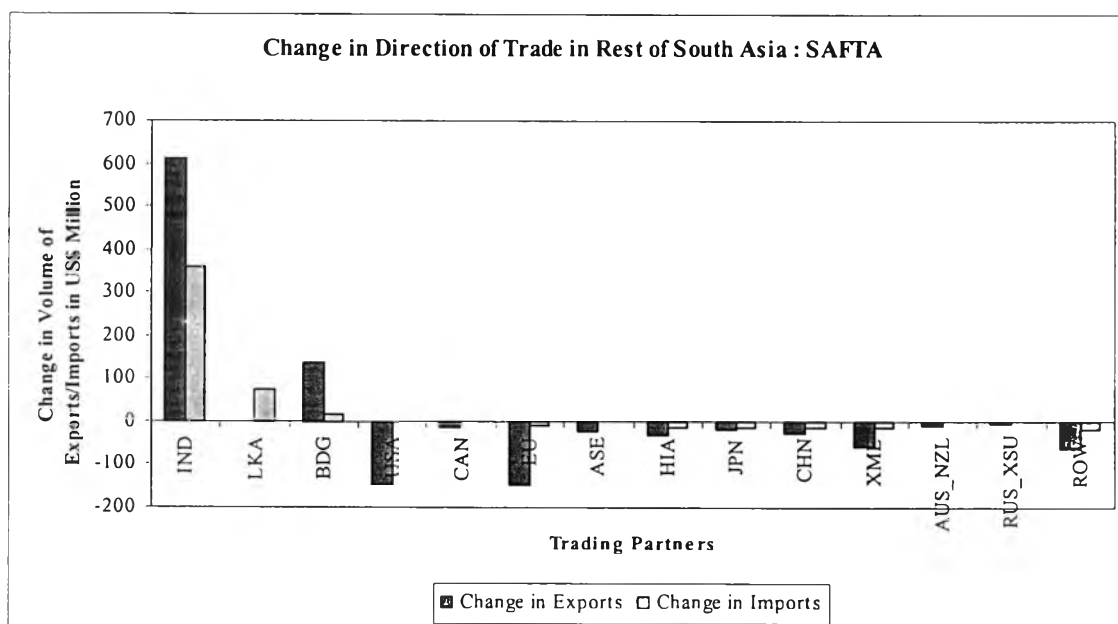
Source: Simulation results derived from GTAP version 6 (Database 2001)

From the estimated results it can be determined that the Rest of South Asia's exports will increase by US$ 205.91 million, which is of 0.014 percent increase from the base

year, and imports will increase by US$ 365.09 million, which is of 0.02 percent from base year. It is clear that trade between Pakistan and India will increase substantially under the SAFTA. Moreover, in this case also it can be seen that export to main trading partners, i.e. USA and EU will decline and there is marginal impact on other trade partners.

From this analysis it could be revealed that under the SAFTA option there is significant trade creation effect is the South Asian region. Though it reflects some trade diversion effects, it will not significantly harmful for those trade partners due to relative large size of trade in their economies. According to the estimated results it can be determined that the total intra trade level in the region is US$ 12,614.78 million. Further, it can be projected that under the SAFTA scenario intra trade share in the region will increase to 6.2 percent.
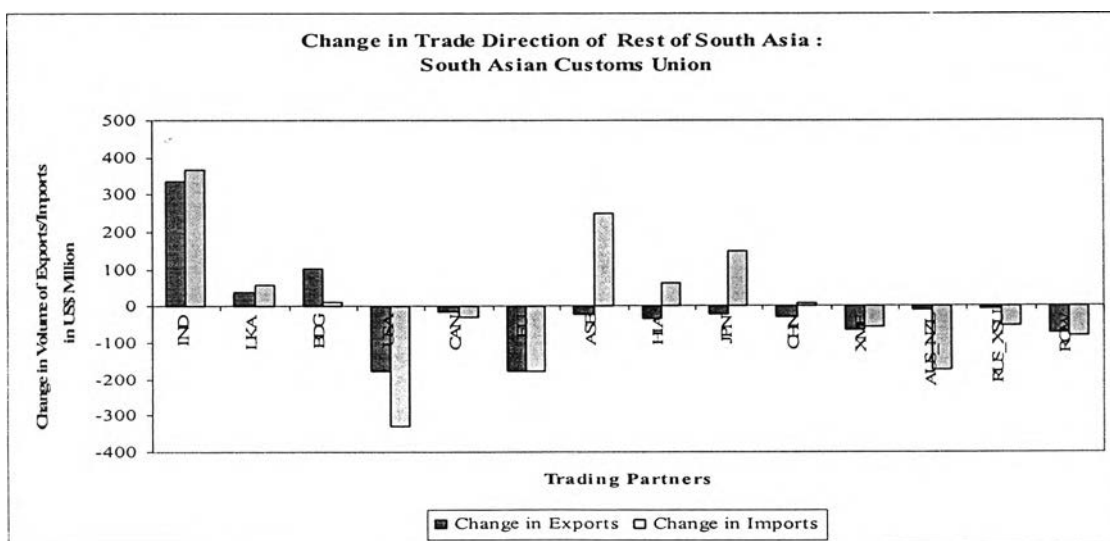
- **South Asian Customs Union**

Figure 4.33   Change in Trade Direction of Sri Lanka: South Asian Customs Union
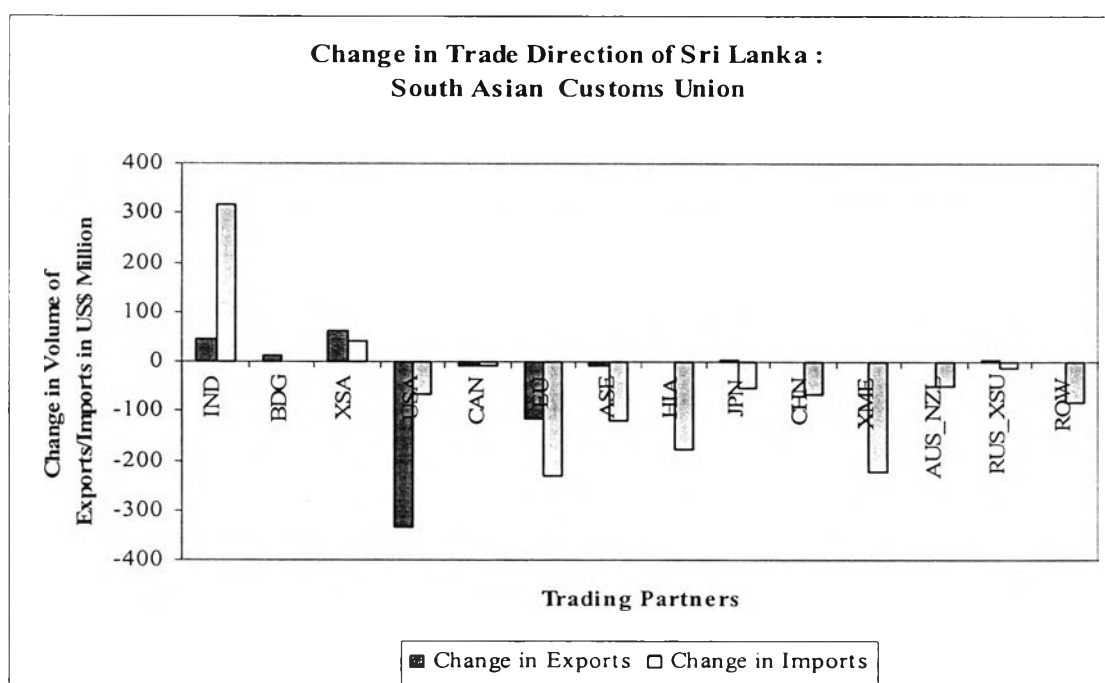
Source: Simulation results derived from GTAP version 6 (Database 2001)

The simulation results depicted in table A.34 appendix revealed that Sri Lanka's total exports will decline by US$ 341.60 million, which is 5.2 percent of total exports from the base year, and total imports will decline by US$ 729.35 million which is of 10.3 percent of imports from the base year. As mentioned before, this is due to high common

external tariff rate of 15 percent and this is consistent with the findings of change in sectoral exports and imports. However, it can be seen that Sri Lanka's import from India will increase substantially in this case and Sri Lanka's import from the other regions such as EU, ASEAN, High Income Asia, China, Middle East will decline considerably, which shows some trade diversion effects of this trade liberalization scenario.

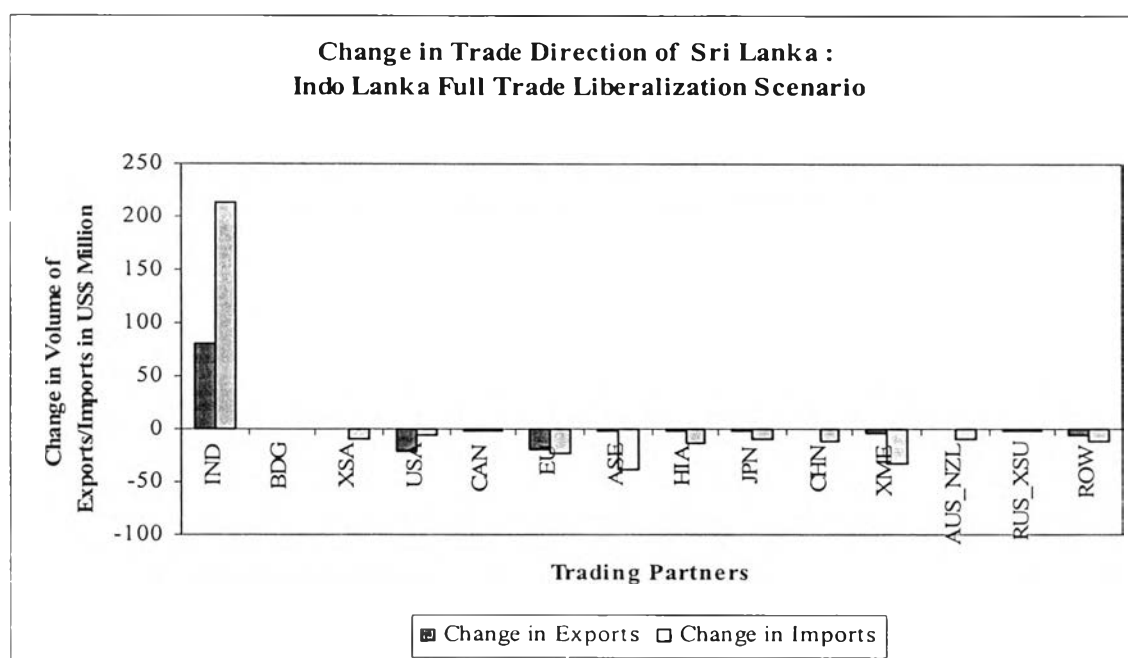**Figure 4.34   Change in Trade Direction of India: South Asian Customs Union**
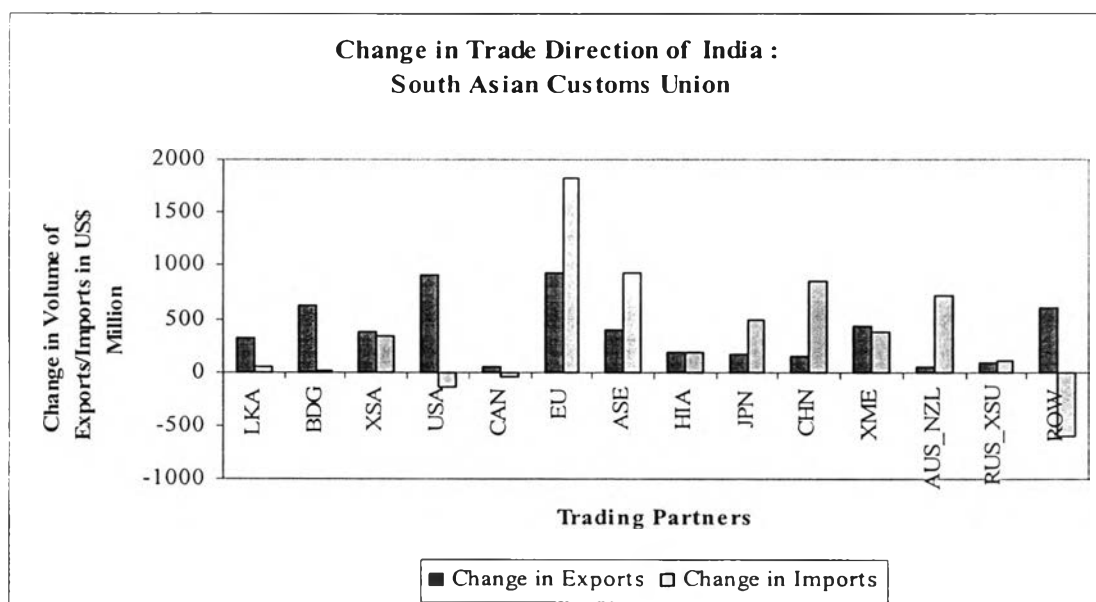
Source: Simulation results derived from GTAP version 6 (Database 2001)

According to the estimated results it can be revealed that in India total exports will increase by US$ 5285.98 million, which is of 8.7 percent increase from base year. Moreover, India's imports will increase by US$ 5114.92 million, which is of 6.7 percent increase from base year. Among the total trade India's regional exports will increase by US$ 1314.11 million and regional imports by US$ 401.93 million. From the figure 4.33 it is clear that though India's trade with regional trade partners appears to increase, her trade with other trading partners considerably increase under this policy option. The model projects that India's import from EU will increase by US$ 1823.97 million. Import from ASEAN and China also increase considerably. When examining the change in direction of trade in India it is apparent that there are some trade creation effects with no trade diversion effects in analyzing the India's trade with trading partners.

Figure 4.35 Change in Trade Direction of Bangladesh: South Asian Customs Union

Change in Trade Direction of Bangladesh :
South Asian Customs Union

Source: Simulation results derived from GTAP version 6 (Database 2001)

From the above diagram it clears that Bangladesh's imports from India will increase substantially, and it can be seen that increase in imports from the other trading partners such as China, ASEAN and High Income Asia. Further, it is apparent that under this policy option also, Bangladesh's export to main trading partners; USA and EU will increase and imports will decease. When examining the change in trade direction of Bangladesh it can be seen that there is less trade diversion effects.

Figure 4.36   Change in Trade Direction of the Rest of South Asia:

South Asian Customs Union

Change in Trade Direction of Rest of South Asia :
South Asian Customs Union

Source: Simulation results derived from GTAP version 6 (Database 2001)

According to the simulation results it can be seen that Rest of South Asia's trade with regional trading partners will increase, especially it is worth to note that trade between Pakistan and India will increase substantially. Further, it is apparent that the Rest of South Asia's trade with major trading partners will decline and imports from ASEAN, Japan and High Income Asia will increase. When examining the Rest of South Asia's change in trade direction it can be seen that there are significant trade creation effects, and also it reflects some trade diversion effects. However, as in the case of the SAFTA magnitude of such trade diversion effects are not substantial when look at the relative size of the respective economies.

According to the projected results it can be ascertained that the share of intra regional trade in the region under the South Asian Customs Union is US$ 12, 357.53 million. However, the share of intra regional trade in the region is lesser than under the SAFTA and this is due to substantial increase in trade between India and the other regional trading partners. Consequently, the share of intra regional trade under this policy option will increase to 5.8 percent from the base year. However, as a whole it can be seen that the South Asian Customs Union can be formed without having much trade diversion effects.
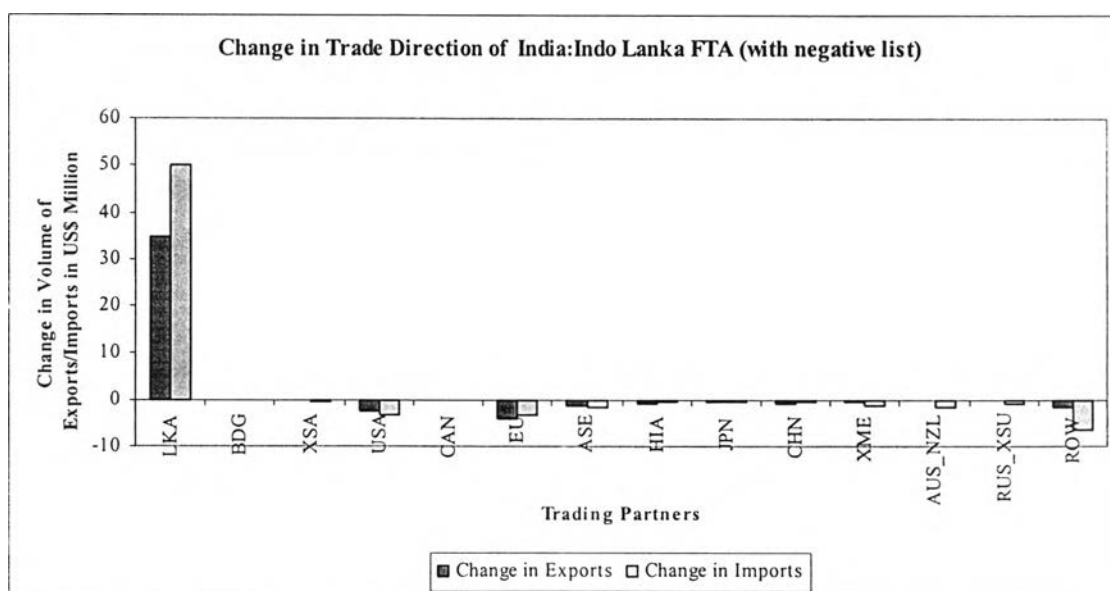
- **Indo Lanka Full Trade Liberalization Scenario**

Figure 4.37   Change in Trade Direction of Sri Lanka: Indo Lanka FTA

Source: Simulation results derived from GTAP version 6 (Database 2001)

According to the projected results shown in table A.35 in appendix, it can be seen that Sri Lanka's import from India increases substantially by US$ 214.07 million, and exports also increase by US$ 80.47 million. However, in this case Sri Lanka's imports form ASEAN, High Income Asia, China and Middle East will decline marginally.

Figure 4.38   Change in Trade Direction of India: Indo Lanka FTA
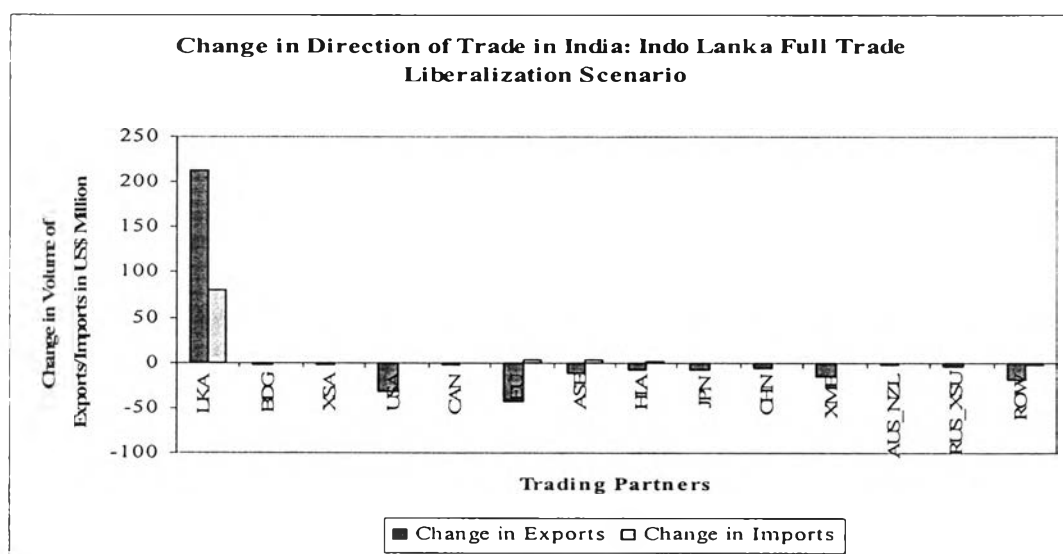
Source: Simulation results derived from GTAP version 6 (Database 2001)

The above diagram illustrates that India's export to Sri Lanka under FTA will increase substantially than increase in its imports from Sri Lanka. Further, it can be seen that there is only insignificant impact on other regional partners due to this FTA. Moreover, it can be seen that India's exports to USA and EU will decline marginally. Therefore, it can be seen that Indo Lanka FTA has no harmful effects on members of the RTA. The total intra trade level in the region under this scenario is US$ 8983.58 million and as a percentage 4.5 percent.

- **Indo Lanka FTA (with negative list)**

The figure 4.39 below illustrates that there is a significant impact on the volume of Sri Lanka's export to India under the FTA. It could be seen from the figures in table 3.15 after the FTA India become third largest buyer in Sri Lanka, however before that India was not among the top ten exporters of Sri Lanka. Further, it can be seen that there are no substantial implications for other trading partners under the FTA.

Figure 4.39   **Change in Trade of Trade in Sri Lanka:**

Indo Lanka FTA (with negative list)
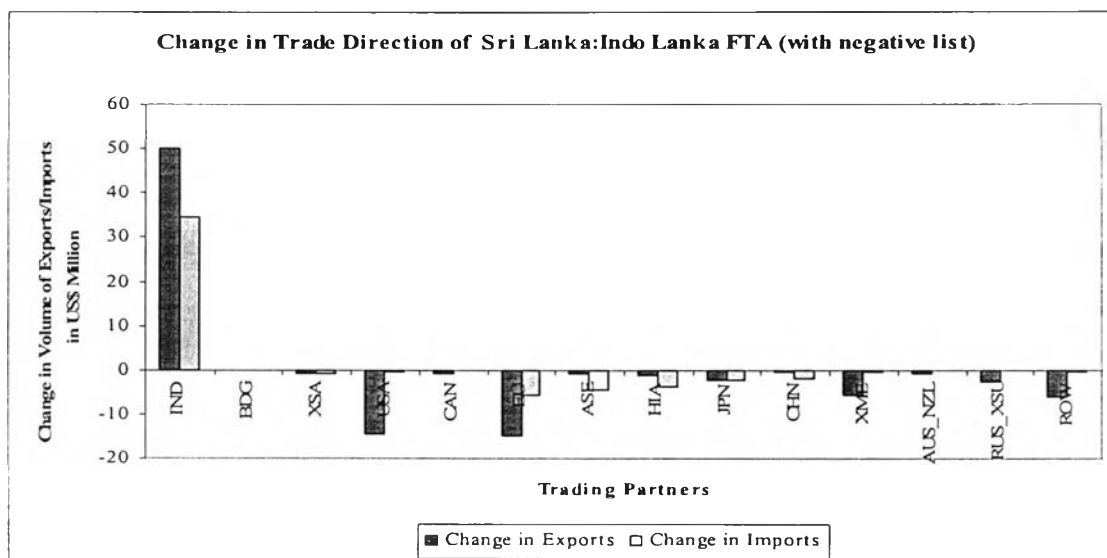
Source: Simulation results derived from GTAP version 6 (Database 2001)

In the case of India, it can be seen that imports from Sri Lanka increase after the FTA. Moreover, from the diagram below it can be seen that there are no significant impact on the other regional trading partners under the FTA. It can be ascertained that the share of intra trade in the region is US$ 8577.38 million and as a percentage 4.3 percent.

Figure 4.40   **Change in Trade Direction of India:**

Indo Lanka FTA (with negative list)

Source: Simulation results derived from GTAP version 6 (Database 2001)

• Proposed Sri Lanka-Bangladesh FTA

Figure 4.41   Change in Trade Direction of Sri Lanka:

Proposed Sri Lanka-Bangladesh FTA
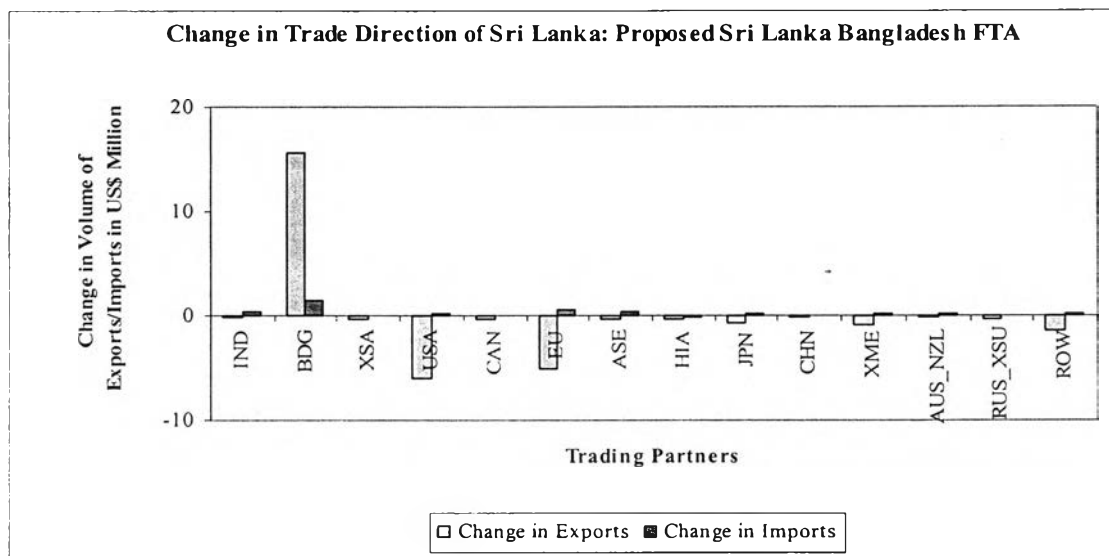
Source: Simulation results derived from GTAP version 6 (Database 2001)

Under the proposed Sri Lanka-Bangladesh FTA, the results indicates that Sri Lanka's exports to Bangladesh will increase by US$ 15.68 million and imports by US$ 1.42 million. Further, it can be seen that there is no significant impact on the other trading partners under this trade policy option.

Figure 4.42   Change in Trade Direction of Bangladesh:

Proposed Sri Lanka Bangladesh FTA
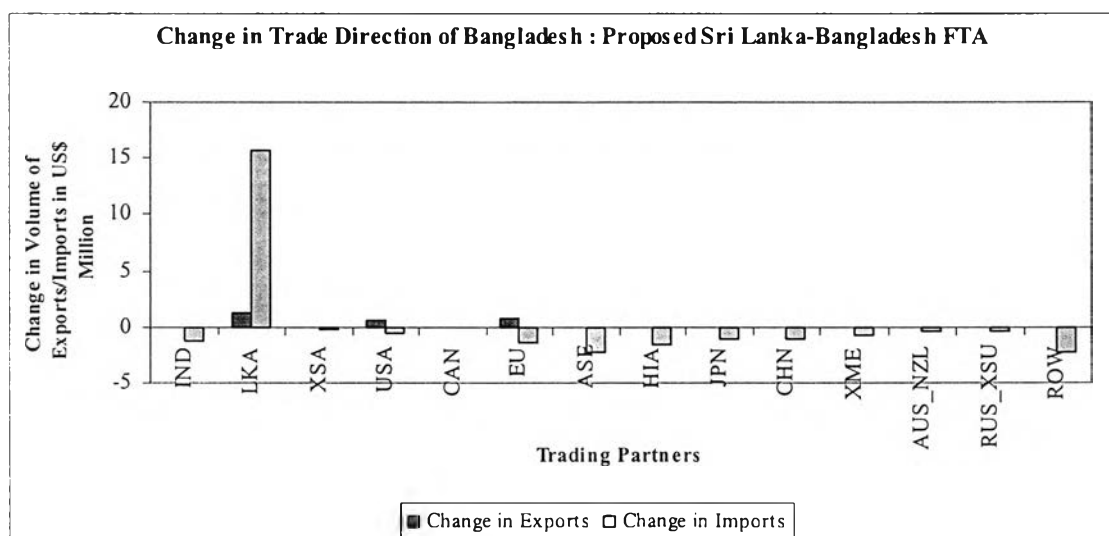
Source: Simulation results derived from GTAP version 6 (Database 2001)

It can be seen that Bangladesh's imports from Sri Lanka will increase where as its imports from other trading partners will decline marginally in this situation. However, such effects will not bring significant harmful effects to other trading partners. Further, it can be determined that the share of intra regional trade in the region is only US$ 8441.95 million and as a percentage only 4.2 percent which is same as the base year.

- **Multilateral Trade Liberalization**

**Figure 4.43** **Change in Trade Direction of Sri Lanka:**
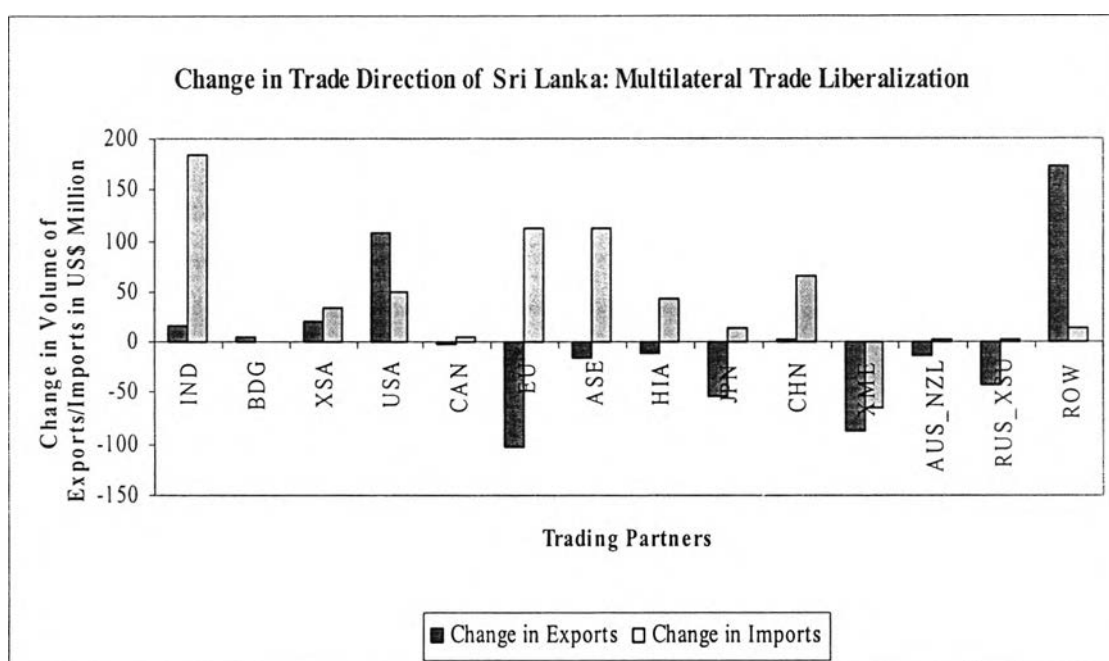
Multilateral Trade Liberalization

Change in Trade Direction of Sri Lanka: Multilateral Trade Liberalization

Source: Simulation results derived from GTAP version 6 (Database 2001)

The simulation results indicate that Sri Lanka's imports from India will increase by US$ 184.2 million and India become main Importer in Sri Lanka. Further, Sri Lanka's imports from EU, ASEAN, High Income Asia, and China will also increase in this situation. Further, it can be seen that Sri Lanka's exports to USA will increase. However, her exports to EU will decline under the multilateral trade liberalization.

Figure 4.44   Change in Trade Direction of India:

Multilateral Trade Liberalization
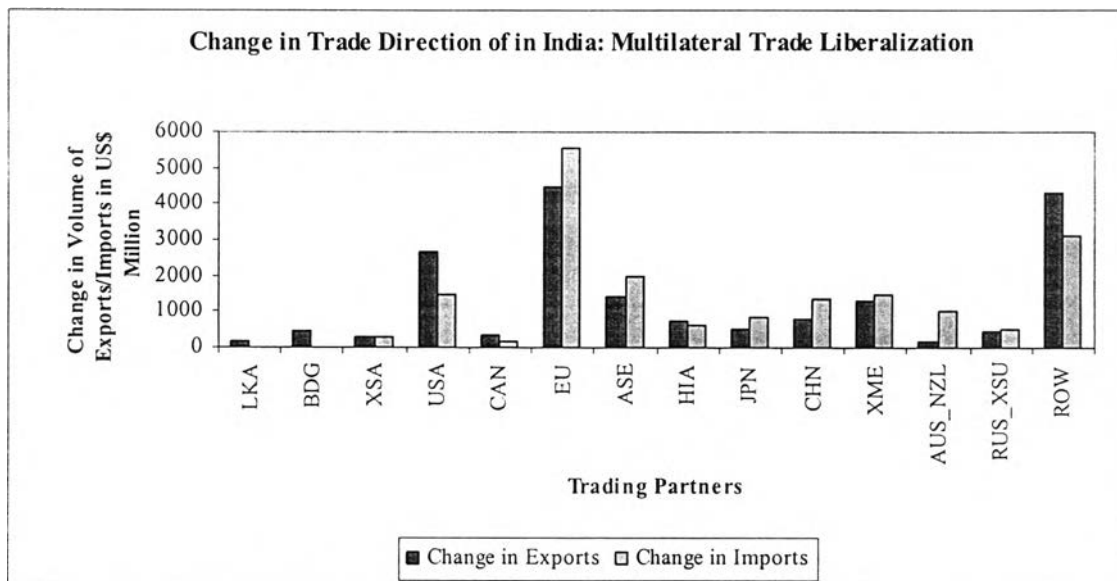
Change in Trade Direction of in India: Multilateral Trade Liberalization

Source: Simulation results derived from GTAP version 6 (Database 2001)

The model projects that India's trade with South Asian regional trade partners will increase marginally under the multilateral trade liberalization in comparison with the SAFTA. However, India's trade with the rest of the world will increase substantially under this policy option.

Figure 4.45   Change in Trade Direction of Bangladesh:
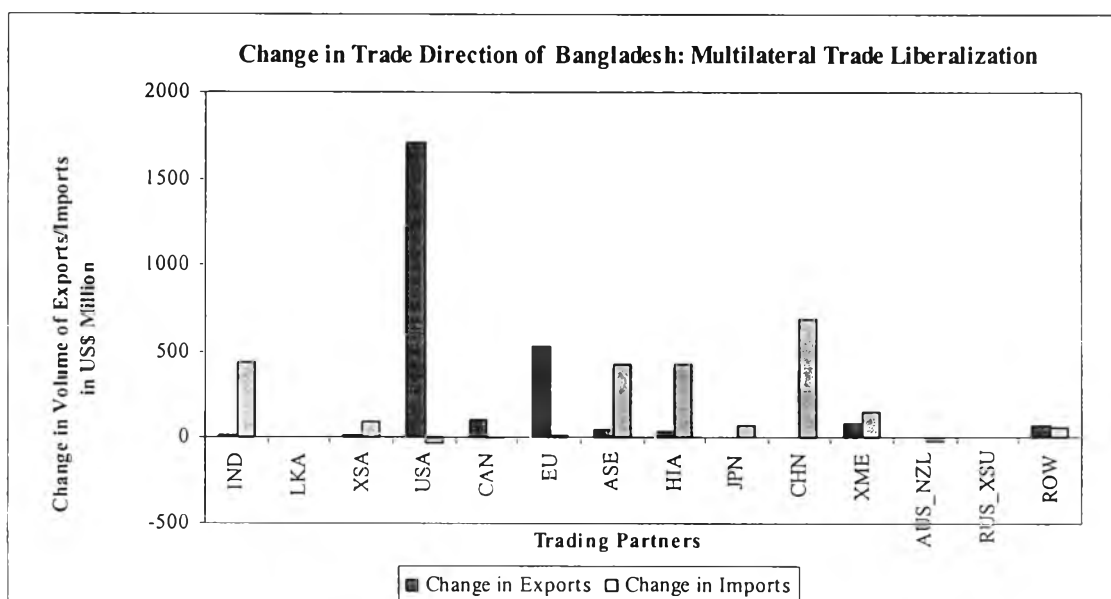
Multilateral Trade Liberalization

Change in Trade Direction of Bangladesh: Multilateral Trade Liberalization

Source: Simulation results derived from GTAP version 6 (Database 2001)

From the above diagram, it can be seen that Bangladesh's imports from India and the Rest of South Asia will increase. However, the model projects that Bangladesh trade with the other trading partners will increase considerably than with the regional trading partners.

Figure 4.46   Change in Trade Direction of the Rest of the South Asia:

Multilateral Trade Liberalization
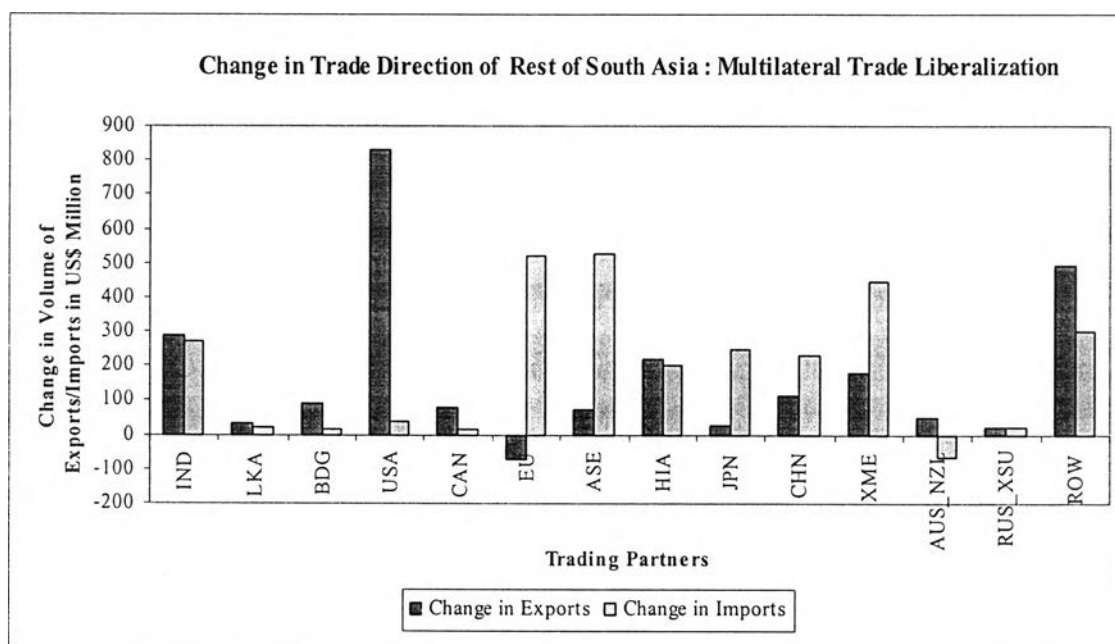
Source: Simulation results derived from GTAP version 6 (Database 2001)

In the case of the rest of South Asia also, it reflects that trade with the other trading partners will increase substantially than with the regional trading partners. However, it can be seen that its trade with India will increase considerably under this policy option.

From the projected results it can be seen that there is no much trade is created among South Asian regional trade partners rather the South Asian countries' trade with the other trading partners will increase significantly. According to the projected results it can be estimated that the share of intra regional trade in the South Asian region is US$ 10,824.03 and as a percentage 4.6 percent increase from the base year.

b) Trade Redirection Effects

When member countries form a RTA trade diversion can occurs if lower cost imports from outside the members of the RTA are being replaced by the higher cost imports from a member of the RTA due to tariff reduction. Therefore, it is worth to ascertain whether such outside members are low cost producers before forming the RTA or not to determine the trade diversion effects. If such outside members are not low cost producers before forming the RTA then, it could not be regarded as trade diversion effect of forming the RTA; rather it could be treated as trade redirection from outside members to member of the RTA. In order to examine these effects we can consider the multilateral trade liberalization scenario as the bench mark, as under this policy scenario tariffs in all countries reduce to zero. Then it can be compared with the change in direction of imports under the different trade policy options to determine trade diversion or trade redirection effects.

- **SAFTA**

Figure 4.47   Change in Direction of Imports under SAFTA and Multilateral Trade Liberalization: Sri Lanka
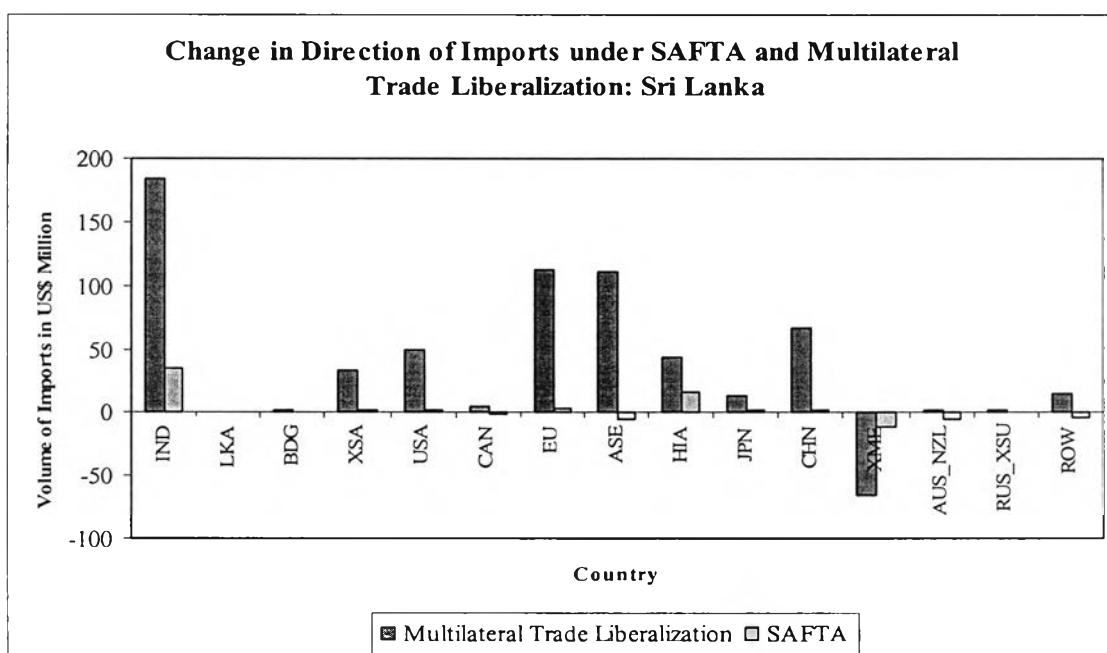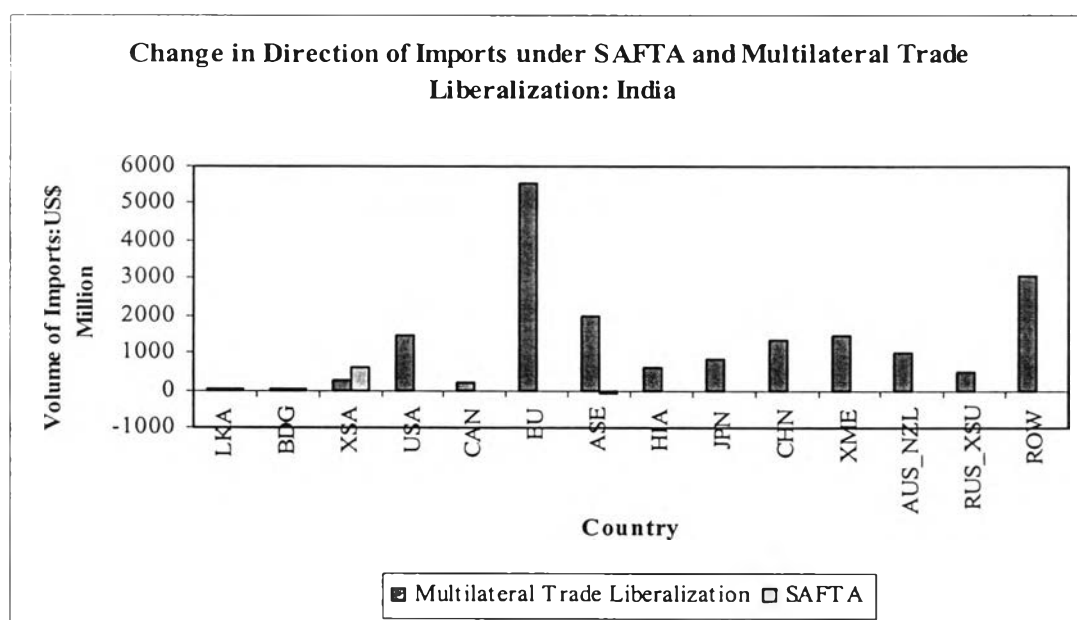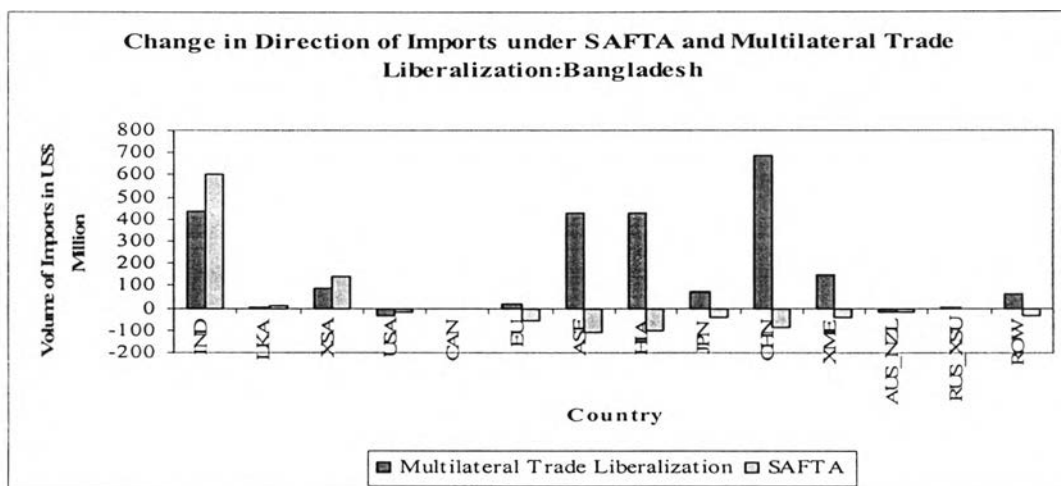

Source: Simulation results derived from GTAP version 6 (Database 2001)

Under the SAFTA policy option it could be seen that Sri Lanka's imports from India will increase whereas its imports from Middle East countries, ASEAN region and

Australia and New Zealand will reduce marginally. However, under the multilateral trade liberalization it could be seen that Sri Lanka's imports from ASEAN will increase substantially and imports from Middle East countries will decline. Hence, it appears that the ASEAN region is a not low cost supplier from Sri Lanka's point of view, rather under the SAFTA option it can be considered as trade has been redirected from the ASEAN region to India. Further, it could be noticed that Sri Lanka's imports from the Middle East countries will decline under the multilateral trade liberalization option, which implies that Middle East countries are considerably high cost producers from Sri Lanka's point of view and this decline in imports being redirected to India under the SAFTA option.

Figure 4.48   Change in Direction of Imports under SAFTA and Multilateral

Trade Liberalization: India

Source: Simulation results derived from GTAP version 6 (Database 2001)

In the case of India under the SAFTA option its imports from the ASEAN region will decline marginally and increase imports from the Rest of South Asia. However, under the multilateral trade liberalization it could be revealed that India's imports from the ASEAN region will increase considerably due to tariff reduction. Hence, in this situation the ASEAN region could not be considered as the low cost producer under the SAFTA option rather the trade has been redirected to the Rest of South Asian region.
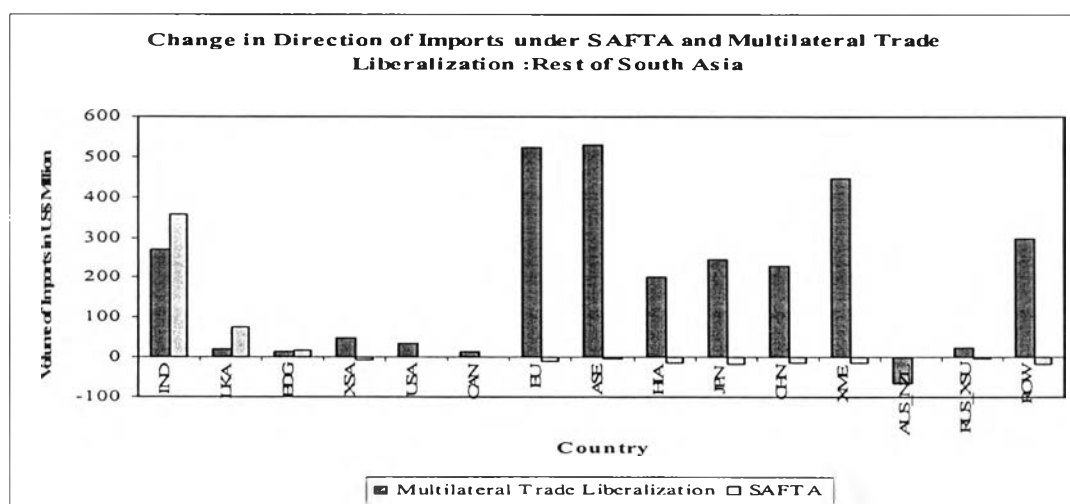
Figure 4.49   Change in Direction of Imports under SAFTA and Multilateral

Trade Liberalization: Bangladesh

Source: Simulation results derived from GTAP version 6 (Database 2001)

In Bangladesh under the SAFTA option it could be seen that its imports from the EU, ASEAN, High Income Asia, Japan, China and Middle East will decline and imports from India will increase substantially. When examining the change in direction of imports under the multilateral trade liberalization it could be noticed that its imports from all the countries and regions mentioned before will increase. It seems that from Bangladesh point of view such countries and regions are not low cost producers under the SAFTA option rather the trade being redirected from such countries and regions to India and the Rest of South Asia.

Figure 4.50   Change in Direction of Imports under SAFTA and Multilateral
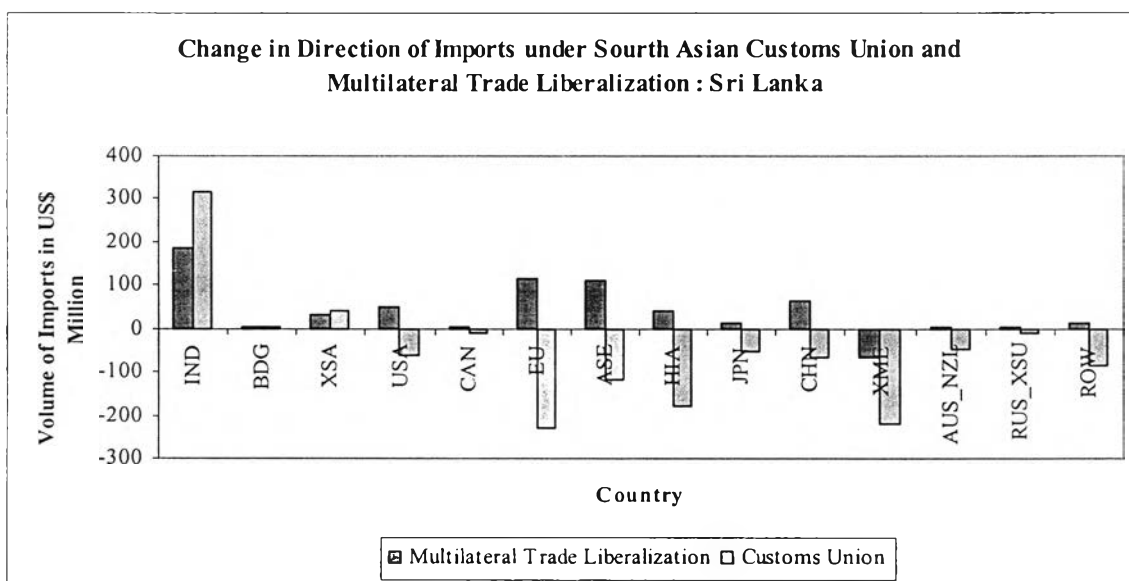
Trade Liberalization: Rest of South Asia

Source: Simulation results derived from GTAP version 6 (Database 2001)

The diagram above illustrates the change in direction of imports in the Rest of South Asia under the SAFTA and multilateral trade liberalization. It could be seen that under the SAFTA option there is only negligible amount of decline in imports from the outside the members of the RTA concern and significant increase in imports from India.
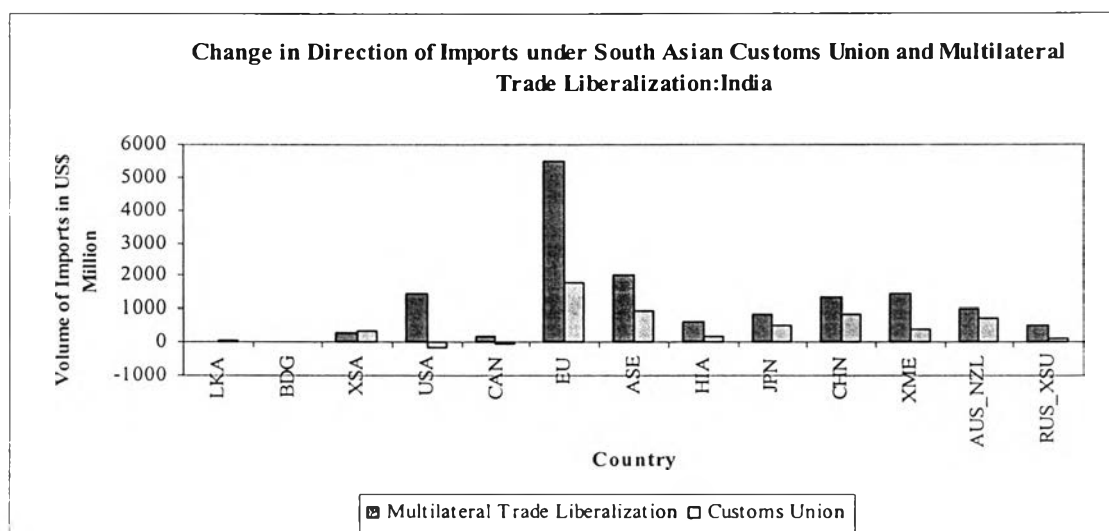
- **South Asian Customs Union**

Figure 4.51   Change in Direction of Imports under South Asian Customs Union and Multilateral Trade Liberalization: Sri Lanka

Change in Direction of Imports under Sourth Asian Customs Union and Multilateral Trade Liberalization : Sri Lanka

Source: Simulation results derived from GTAP version 6 (Database 2001)

The diagram above illustrates that under the South Asian Customs Union option Sri Lanka's imports from the outside members of the union will decline and import from India and the rest of the South Asia will increase. However, under the multilateral trade liberalization it could be noted that Sri Lanka's imports from the outside members of the union will increase except Middle East countries, which implies that under the South Asian Customs Union Sri Lanka's imports from the outside members of the union are redirected to India and to the rest of South Asia.

Figure 4.52   Change in Direction of Imports under South Asian Customs Union and Multilateral Trade Liberalization: India

Change in Direction of Imports under South Asian Customs Union and Multilateral Trade Liberalization:India

Source: Simulation results derived from GTAP version 6 (Database 2001)

The diagram above illustrates that under the South Asian customs union scenario, India's imports from the outside members of the union will increase and marginal increase in the imports from the members of the union. Further, under the multilateral trade liberalization also it could be noticed that India's imports form outside members of the union will increase substantially and slightly increase in imports from the rest of the South Asia. From India's point of view it could not be seen either trade diversion or trade redirection effects under this policy option.

Figure 4.53   Change in Direction of Imports under South Asian Customs Union and Multilateral Trade Liberalization: Bangladesh

Change in Direction of Imports under South Asian Customs Union and Multilateral Trade Liberalization: Bangladesh
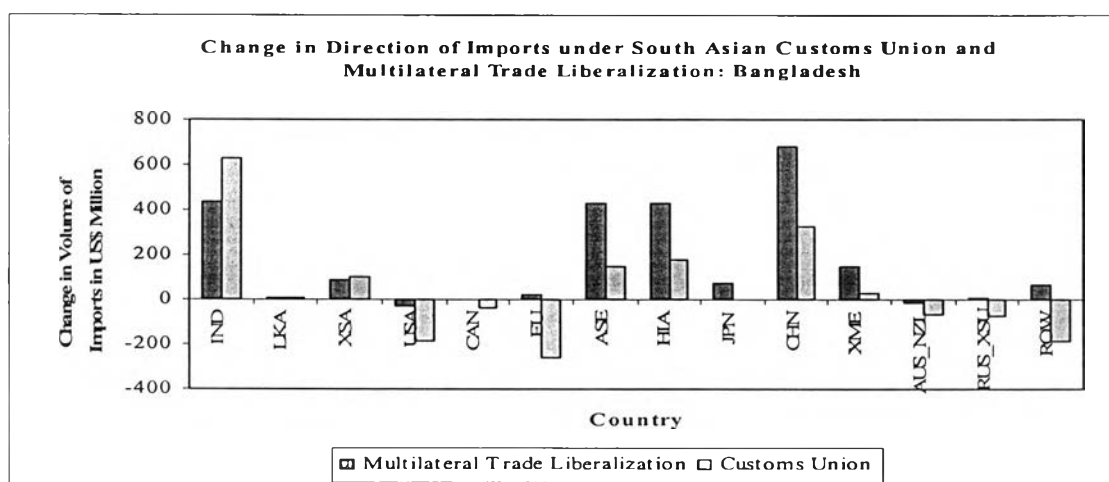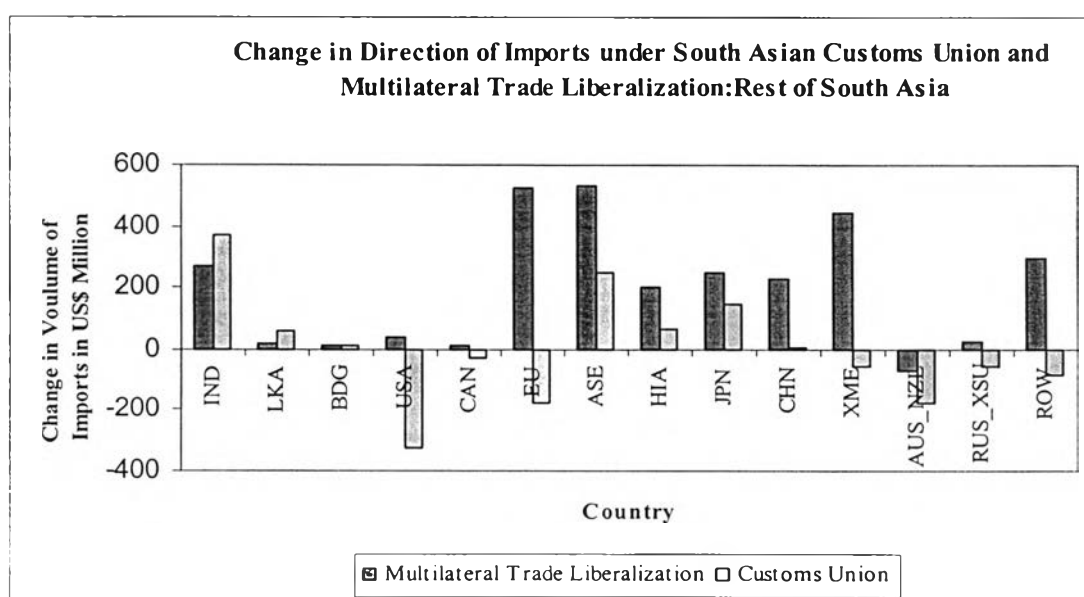
Source: Simulation results derived from GTAP version 6 (Database 2001)

The above diagram depicts that under the South Asian Customs Union Bangladesh's imports from India, the rest of South Asia, ASEAN, High Income Asia and China will increase. However, its imports from USA, EU, Australia and New Zealand, Russia and rest of the world will decline. Furthermore, it could be seen that under the multilateral trade liberalization its imports from USA, Australia and New Zealand will decline marginally and imports from EU will slightly increase. Therefore, it could be seen that USA, EU, Australia and New Zealand are not low cost producers rather the imports of Bangladesh from such countries have been redirected to India, the rest of South Asia, ASEAN, High Income Asia and China under the South Asian custom union scenario.

The figure 4.54 below illustrates that the rest of South Asia's imports form USA, EU, Middle East countries, Australia and New Zealand, Russia and rest of the world will decline under the South Asian Customs Union. However, under the multilateral trade liberalization it could be noticed that the rest of South Asia's imports from Australia and New Zealand will decline and imports from USA reflects a slight increase. Therefore, it is clear that USA, Australia and New Zealand are not low cost producers and the imports from such countries have been redirected to India, ASEAN, High Income Asia and Japan under the South Asian Customs Union scenario.

Figure 4.54   **Change in Direction of Imports under South Asian Customs Union and Multilateral Trade Liberalization: Rest of South Asia**

Source: Simulation results derived from GTAP version 6 (Database 2001)

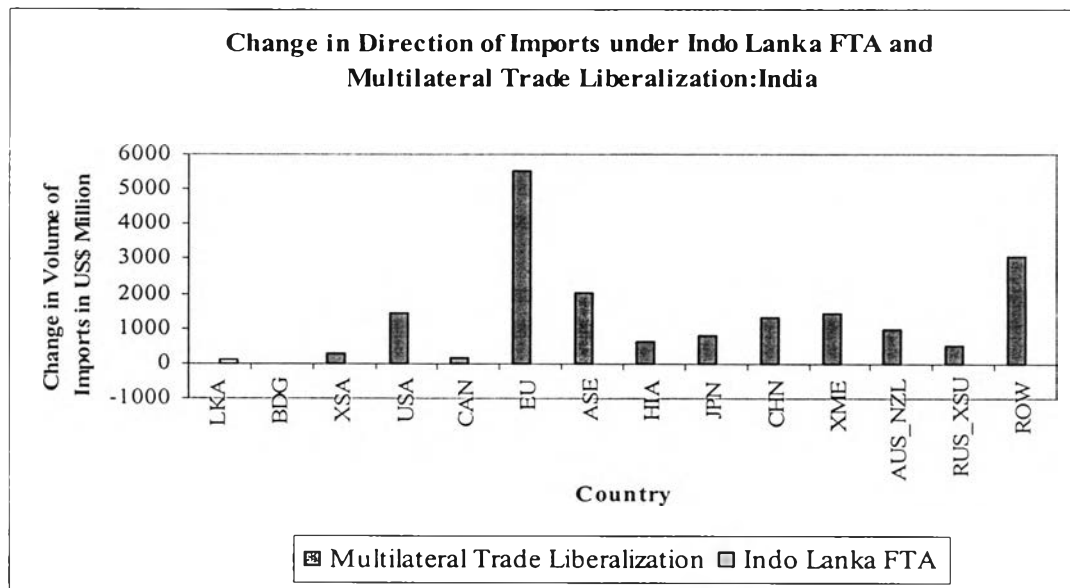• **Indo Lanka Full Trade Liberalization Scenario**

Figure 4.55   **Change in Direction of Imports under Indo Lanka FTA and Multilateral Trade Liberalization: Sri Lanka**

Change in Direction of Imports under Indo Lanka FTA and Multilateral Trade Liberalization: Sri Lanka
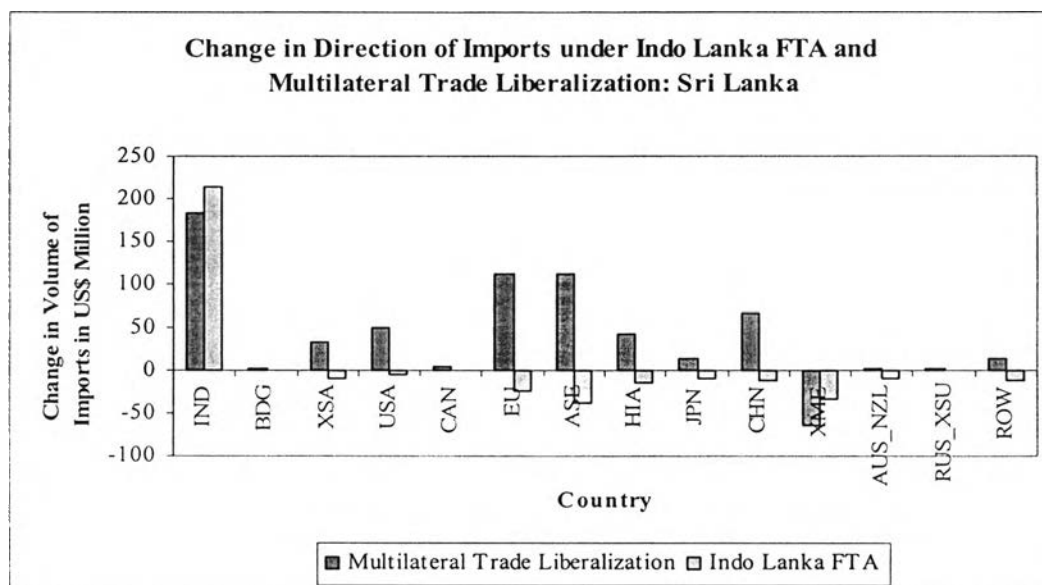
Source: Simulation results derived from GTAP version 6 (Database 2001)

Under the Indo Lanka FTA policy scenario it could be seen that Sri Lanka's imports from EU, ASEAN, High Income Asia, Japan, China and Middle East will decline. Furthermore, it reflects that under the multilateral trade liberalization Sri Lanka's imports from EU, ASEAN, High Income Asia, Japan and China will increase due to tariff reduction. Hence, it could appear that under the Indo Lanka FTA trade has been redirected from such countries to India and also it can be noticed that Middle East countries can be considered as very high cost producers from Sri Lanka's point of view as her imports from Middle East countries will decline under the multilateral trade liberalization.

Figure 4.56   Change in Direction of Imports under Indo Lanka FTA and

Multilateral Trade Liberalization: India

Change in Direction of Imports under Indo Lanka FTA and
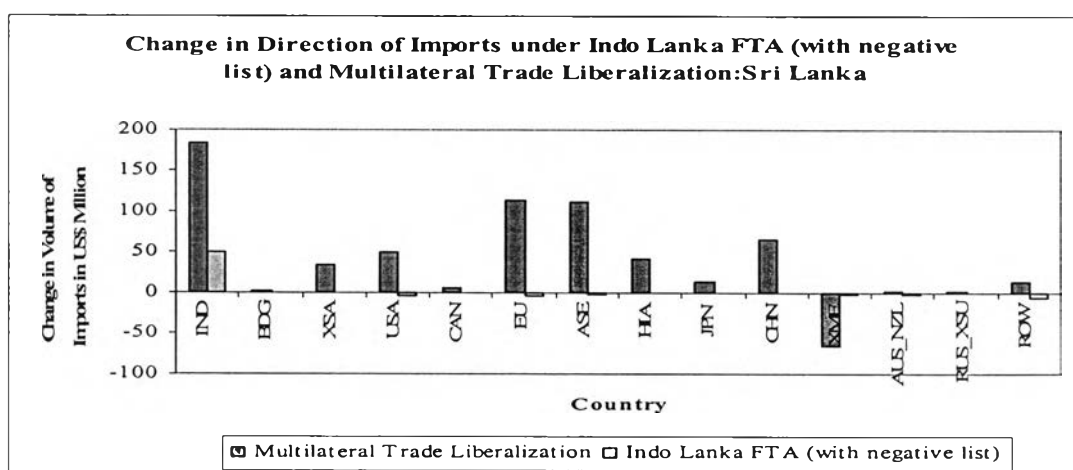Multilateral Trade Liberalization:India

Source: Simulation results derived from GTAP version 6 (Database 2001)

In examining change in direction of imports in India under Indo Lanka FTA it could not be seen trade diversion or trade redirection effects.

- **Indo Lanka FTA (with negative list)**

Figure 4.57   Change in Direction of Imports under Indo Lanka FTA (with

negative list) and Multilateral Trade Liberalization: Sri Lanka

Change in Direction of Imports under Indo Lanka FTA (with negative list) and Multilateral Trade Liberalization:Sri Lanka
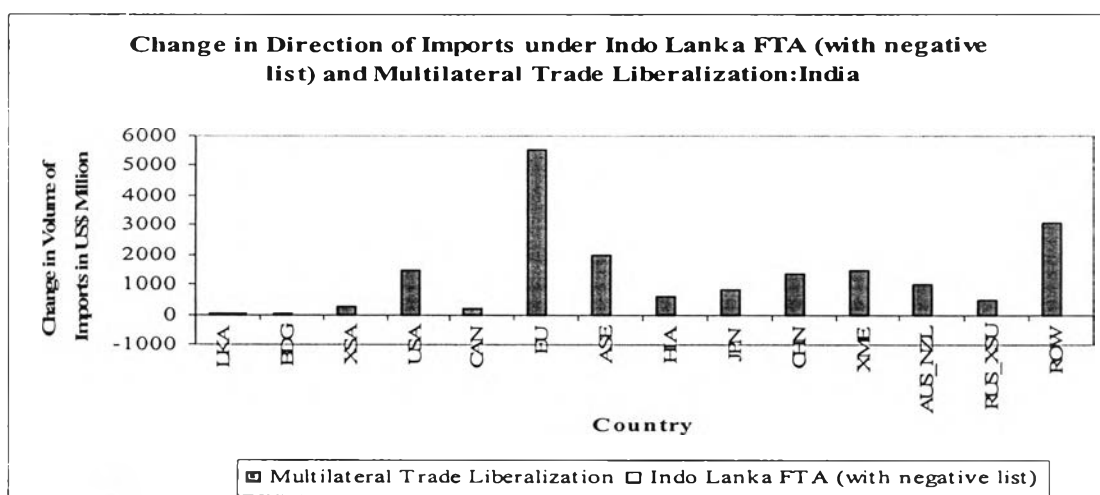
Source: Simulation results derived from GTAP version 6 (Database 2001)

Under the Indo Lanka FTA (with negative list) trade policy option Sri Lanka's imports from India will increase and there is marginal change decline in imports from

the other trading partners. Like in the case of the other policy scenarios under the multilateral trade liberalization Sri Lanka's imports from Middle East countries will decline. However, trade diversion or trade redirection effects could not be seen under this policy option.
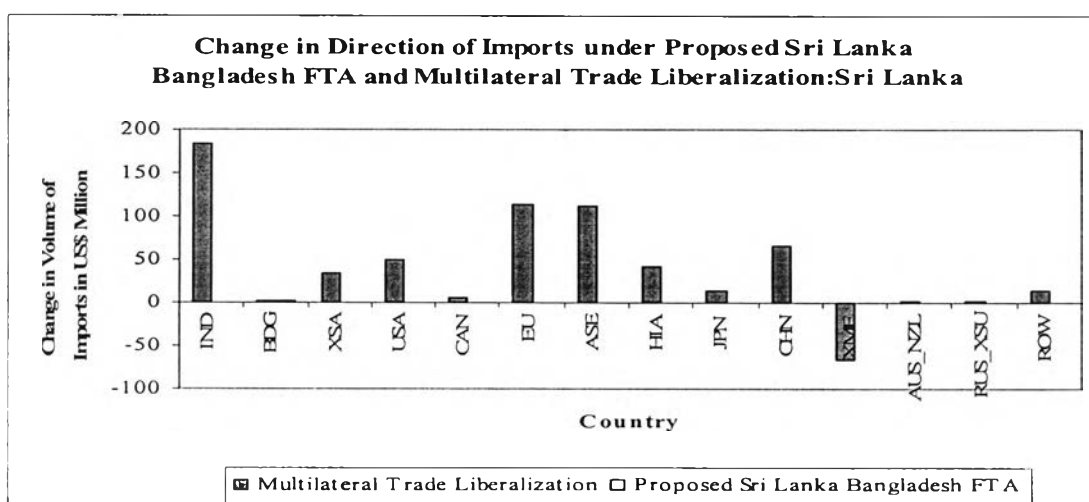
Figure 4.58   Change in Direction of Imports under Indo Lanka FTA (with negative list) and Multilateral Trade Liberalization: India

Source: Simulation results derived from GTAP version 6 (Database 2001)

Like in the case of Indo Lanka full trade liberalization trade policy option India's imports will not decline from the other trading partners under this policy option. Hence, it could not be seen any trade diversion or trade redirection effect under this scenario.

Figure 4.59   Change in Direction of Imports under Proposed Sri Lanka-Bangladesh FTA and Multilateral Trade Liberalization: Sri Lanka

Source: Simulation results derived from GTAP version 6 (Database 2001)

Under the proposed Sri Lanka-Bangladesh FTA Sri Lanka's imports from the other trading partners will not decline and therefore trade diversion or trade redirection effects could not be reflected under this policy scenario.

Figure 4.60   Change in Direction of Imports under Proposed Sri Lanka Bangladesh FTA and Multilateral Trade Liberalization: Bangladesh
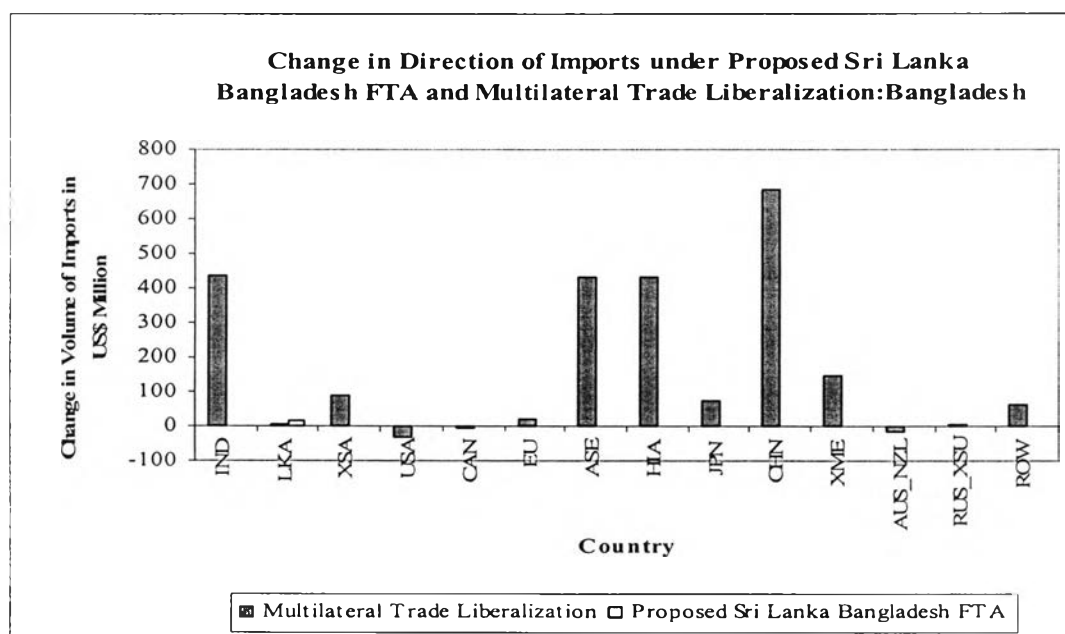
Source: Simulation results derived from GTAP version 6 (Database 2001)

Under the proposed Sri Lanka Bangladesh FTA Bangladesh's imports from the other trading partners will not decline and therefore, trade diversion or trade redirection effects could not be appeared under this policy option.

4.5   Summary

This chapter presented the simulation results under different trade policy scenarios using GTAP version 6 (Database 2001). At the outset of the chapter macroeconomic characteristics of the Sri Lankan economy had been presented in the context of the world economy. It could be identified that the South Asian region is a small player in the world market. Further, it was evident that India plays a dominant role in South Asia and Sri Lanka is a minor player in South Asia in terms of contribution to GDP and trade.

The estimated equivalent variation reflects that the multilateral trade liberalization ensures the highest welfare for Sri Lanka and to the other South Asian trade partners and next the South Asian Customs Union and the SAFTA will bring welfare to the South Asian regional trading partners respectively. Though, the model projects that welfare under the Indo Lanka full trade liberalization scenario both India and Sri Lanka will benefit, it brings lesser welfare than under the SAFTA. Moreover, the estimated equivalent variation under Indo Lanka FTA (with negative list) also brings welfare to the both trading partners which is less than that of under full trade liberalization scenario. Though, the projected welfare under the proposed Sri Lanka-Bangladesh FTA is positive for trading partners its magnitude is smaller than the other policy options.

The impact of trade liberalization on output and employment had been presented under each policy scenario with reference to the Sri Lankan economy. It could be revealed that the demand for labour will increase in those industries that output have increased. In addition the impact of trade liberalization on sectoral trade and trading partners were presented and determined the trade creation and trade diversion effects of the trade agreements.

From the simulation results it could be revealed that the SAFTA can be formed without having significant trade diversion effects and it was estimated that the share of intra trade in the region will increase up to 6.2 percent under this trade liberalization scenario. Moreover, it could determine that the South Asian Customs Union can also be formed without being harmful to the rest of the world and it was seen that the South Asian countries trade more with other trading partners than that of under the SAFTA and consequently, the share of intra trade in the region will increase only up to 5.8 percent in this situation. Furthermore, it was seen that under the multilateral trade liberalization South Asia's trade with the rest of the world will increase substantially than with the regional trading partners and the projected share of intra trade in the region is only 4.6 percent under this policy option.