Analysis of Trade Before and After the WTO: A Case Study of South Asia

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Abstract

Trade stimulates economic growth as well as create employment. The basic principles (of the WTO) make the system economically more efficient and cut the production and marketing costs. It gives consumers more choice, and a broader range of qualities to choose from. These are the basic benefits of world trading given by the WTO (WTO 2003). A number of studies have explained implications of the WTO with reference to developed and developing countries. How much trade has been increased by nations after the implementation of the WTO remained an ambiguous estimation. The increase in trade can result into benefits of the WTO. Generally, it is taken that developing economies have taken lesser tranche of the global trading. By applying the before-after approach we have tried to estimate that how much trade is increased in South Asian counties. How much the agriculture and industrial sectors were contributing in boosting the trade of the nations before the WTO and how it is doing after the WTO. It concluded that trade of the South Asian nations has not been increased up to the expectations that results in to low gaining of benefits from world trade.

Key Words: Exports, Imports, International Trade, South Asia, WTO, Agriculture, Industry.

1. Introduction

South Asian countries were following import-substituting industrialization strategies and were among the least globally integrated economies in the world. Since the mid-1980s, most of the countries of this region, with the possible exception of Nepal, moved away from inward looking economic policies and adopted a strategy of development based on export-orientation and liberalization. To make their economies more globally integrated, these countries initiated trade liberalization, started moving away from a regime of quantitative restrictions to tariff-based regime and initiated reducing their average level of protection. South Asian countries are currently more globally integrated than they were in 1995, however, they are the least globally integrated region in the world. This period of increased openness among the South Asian countries coincided with the implementation of World Trade Organization (WTO) in 1995. In fact, establishment of the WTO was one of the motivating factors behind the open economic policy pursued by the policymakers of these countries.

It is widely believed by the policymakers that the WTO would be a vast improvement over its predecessor GATT (General Agreement on Tariff and Trade) and the imposition of the new multilateral trading system would help developing countries to pursue export led growth. There were three main reasons behind this optimism. First, in the WTO, agriculture was brought for the first time under the effective purview of a multilateral trading system. Though agriculture was included in the original 1947 GATT agreement, but too many exemptions were allowed for this sector to make the GATT rules operationally effective. It was believed at that time that new WTO rules would bring about a structural change in the global agricultural trade and more efficient agricultural producers would stand to benefit from the WTO agreement. As most South Asian countries were low cost producers of agricultural goods, it was expected that these countries would significantly benefit from a more open and less distorted global agricultural trade regime. Secondly, prior to the WTO, market access for textile products in developed countries were constrained by the extremely restrictive Multi Fiber Agreement (MFA), which allowed the developed countries to selectively impose quantitative restrictions on imports of textiles and clothing from developing countries. WTO Agreement on Textiles and Clothing (ATC) intended to

phase out this agreement and integrate textiles and clothing within the general WTO rules that govern trade in manufacturing goods. It was projected that removal of quotas on exports of textiles and clothing would act as a big flip for developing countries as low labor cost of these countries make them efficient producers of these goods. Given the fact that labor cost in South Asia is among the lowest in the world, almost all the counties of this region expected to benefit from the phase out of MFA. The third aspect of the WTO which encouraged the developing countries was the attempt to liberalize trade in services. Traditionally trade in services was under very high level of protection and was kept out of any multilateral trading system. The General Agreement on Trade in Services (GATS) was considered to be a first step towards the eventual liberalization of trade in services. GATS were supposed to open up a huge market for developing countries. As GATS cover a huge range of services like tourism, education, consultancy services and manpower exports, the South Asian countries, which have abundant supply of skilled and unskilled labor, were expected to benefit from such an agreement.

In exchange of the promise of liberalization in these three key areas, developing countries had to give two crucial concessions to developed countries. First, they had to accept the WTO Trade Related Intellectual Property Rights (TRIPS) agreement, which proposed to impose many stricter patents laws globally. Secondly, they also had to remove all non tariff barriers on industrial goods and reduce tariff barriers on these products substantially. It was feared that these two agreements would have negative effect on the industrialization process of developing countries. On balance, it was projected that developing countries would be net gainers as the benefits accruing to them from the liberalization of the three key sectors like agriculture, textiles and services were likely to more than offset the expected losses from the other two areas. As almost all the South Asian countries posses comparative advantage in the three key areas, policymakers of these countries expect that increased market access in agriculture, textiles and services would allow these countries to follow an open and export led development policy. As an overwhelming proportion of workers in South Asia are involved in agriculture, textiles and services, it was also expected that there would be a significant boost in employment in these economies.

Most of the studies that looked at the impact of the Uruguay Round on developing countries noted that the implementation of the Uruguay Round may marginally increase agricultural commodity prices (Goldin and Dominque 996; Ingco 1997). However, analysis of agricultural commodity prices indicated that such increases did not occur. Studies on the Uruguay Round's impact also pointed out that the negative impacts of increased food prices on consumers could be more than offset by gains arising from reforms in domestic policy. All studies emphasized that the gains from multilateral trade agreements were particularly large in developing countries that open their trade regimes. For South Asia, the studies have estimated the impacts of the Uruguay Round to be positive (Ingco 1997; Sharma, et. al. 1999). For a major agricultural producing region such as South Asia, where yields (despite some improvements brought about by the Green Revolution) have remained well below the world average, increased commodity prices and reduction of trade barriers provide incentives for increased production and exports. Sharma, et. al. (1999) indicated that the Uruguay Round Agreement may result in a net trade surplus of over US$1.3 billion in South Asia, with food imports reduced by about $1 billion and additional exports of about $300 million.

The Uruguay Round on Textiles and Clothing 1994 provided for the phase-out of non-tariff restrictions under the MFA over 10 years in four stages. The acceleration in the growth of export quotas represents a significant expansion in market access opportunities for developing countries. The manufacturing sector of South Asia, which produces mainly textiles and apparel, had been estimated to benefit more from the Uruguay Round than agriculture (Majid 1995). The eventual elimination of the Multi-Fiber Arrangement (MFA) by 2005 would have been increased South Asia's textile output by 17 percent and exports by 26 percent.

Hertel, et. al. (1996) argued that the gains from MFA reform will amount to about 27 percent of South Asia's overall gains from implementation of the Uruguay Round Agreement. Martin (1999) points out that although South Asian textile and apparel industries are poised for rapid growth, South Asia will need to implement complementary domestic policy reform to take full advantage of the MFA reform. Quota growth for many of the products exported by South Asian countries were expected to increase to more than 11 percent a year by the end of implementation period.

In the perspectives of expected gains and current scenario of South Asian countries, they have some concerns, for instance, for Bangladesh, the major concern is the duty free access of garment and other products like fish and fish products, and leather and leather goods to the US and other countries. Readymade garment industry in Bangladesh, that has so far enjoyed preferential access in developed countries, is not only important for the poor but has also created a social space for the women in Bangladesh. India's concern is to gain greater market access

in the developed countries, not much through the reduction of their tariffs, which are already low but through the dismantling of Non-Tariff Barriers (NTBs) to trade and some General System of Preferences (GSP).

Pakistan, like the other South Asian countries, believes that the tariff peaks be removed, the tariff escalation minimized and the developing countries would be provided free market access. Pakistan is concerned on the issue that there is hardly any tariffs on the goods of developed countries and tariff only apply to goods of developing countries. The tariff rate for the goods of developing countries is almost four times that of the developed countries. This is creating problem for market access. Pakistan is also of the view that special consideration should be given for the products of export interest of the developing countries and there should be less than full reciprocity for developing countries. Sri Lanka wants that the developed countries should eliminate barriers to free market conditions and ensure duty free, quota free market access for non-agriculture products originating from developing and least developing countries. Sri Lanka also highlights the issues such as Formula Approach of tariff cuts, tariffs bindings, reduction or elimination of tariff peaks and tariff escalation, sectoral approach and reduction of NTBs (see also Kemal, et. al. (2005).

In the current study we are concerned with how much South Asia has gained after implementation of the WTO and which sector has propagated the international trade of each country. Whether the expected growth rate of trade due to advantages of the WTO has been attained or not, if not then the concerns of the South Asian nations become vital, that is also the part of the study.

2. Literature Review

There is substantial literature on the WTO covering different aspects of the subject. The effects of the WTO have also been analyzed by a number of studies by different methods and in different areas. Mustafa, et. al. (2001) has explored the WTO implications for agriculture, food security and poverty in Pakistan. The study elaborated the role of government policies that were influenced by the WTO. The policy measures mainly focused were government agriculture price policy, subsidies, credit, expenditures on agricultural research and development, corporate agricultural farming and their impact on food security and poverty. The study concluded that farming community was worse off due to the policy reforms, along with increase in poverty. Anderson, et. al. (2003) estimated the likely changes in agricultural and other product prices as a result of the WTO access to examine empirically the factor reward implication of China's succession. The results suggested that farm-nonfarm and western-eastern income inequality may well rise in China but rural-urban income inequality need not. Subramanian and Wei (2003) furnished evidence that the WTO has had a powerful and positive impact on trade. The impact has, however, been uneven. The WTO membership for industrial countries has been associated with a large increase in imports estimated at about 40 percent of world trade. The same has not been true for developing country members. Similarly, there have been asymmetric effects among sectors. Ahmed (2005) explored the relationship between governance, globalization and human development in Pakistan. The study probed the relationship between governance and benefits of globalization in Pakistan. It explained that governance has reduced the benefits of globalization. The indicators of globalization used in the analysis were information technology, finance, trade, personal communication, politics and international traveling. Chand (2006) explored the international trade and food security as response to the WTO in South Asian countries. The study explained that agriculture contributes substantially to output and employment in South Asian countries, therefore any change like trade liberalization, that impacts on agriculture sector has widespread ramifications in terms of employment, nutrition and livelihood and food security. The study concluded that the WTO caused serious concern to the performance of agriculture sector and food security mainly caused by increased dependence on food imports and deterioration in self-reliance in agriculture in post-WTO period.

South Asia has experienced high growth averaging close to 6 percent per year since the 1990s. This growth was triggered by first-generation policy reforms in 1991 (Bosworth and Collins 2007). It has also been driven by export growth and trade liberalization in the manufacturing and services sectors. But the export shares as percent of GDP of South Asian economies still fall below world average, and are comparatively low when compared with its South East Asian neighbors. It also appears that after 2001, the export shares' curves have been flat and in the case of Nepal the curve declines (ADB 2007). It highlights the issue of uneven distribution of export growth.

Majority of the studies have analyzed the impact of the WTO on poverty, income inequality, farmers' welfare, government policies, etc. One of the basic areas, i.e. whether international trade has increased up to the expectations in response to the WTO, needs attention, that is the core of the present study.

3. Methodology

The theoretical literature predicted that due to the WTO world trade has been increased in developing economies. Whether the WTO has affected the South Asian economies in the same way is focus of our study. We have taken four countries of South Asia, i.e. Bangladesh, India, Pakistan and Sri Lanka[1]. How much the trade volume of South Asian countries has increased after the WTO and how much the imports and exports of the countries have been changed? These are the questions to be answered in the current study.

Different methodologies may be adopted for the assessment of the regimes and programs. The first methodology is the before-after approach, which compares macro-economic variables before and after a program. The idea of measuring the counterfactual is problematic, however, the before-after approach unrealistically assumes that all else is equal. A second method is with-without approach. This method compares the macro-economic performance of countries with program to those without program. This approach assumes that countries with and without program are similar. It is also a problematic assumption. Third, the generalized evaluation approach aims to compare countries with a program and those without program by adjusting the exogenous influence, such as different growth rates. It requires researchers to gather information on many exogenous variables, that are difficult to quantify or approximate making it hard to arrive at robust conclusion. Finally, the simulation approach compares the situation with implementation of WTO to that under a simulated counterfactual without implementation of the WTO. This approach requires assumptions that cannot be tested in practice.

We will see the trade composition and volume of South Asian countries before and after the WTO using before-after approach. We have divided the analysis into two parts. In the first part, use of graphs and calculation of chain indices (before and after the WTO) will make us able to analyze the change in trade (percentage of GDP), exports (percentage of GDP) and imports (percentage of GDP)[2]. In the second part of the study we will do an econometric analysis. We will analyze how the trade bulk for each economy separately is related with world income, GDP of countries, agriculture (value added as percentage of GDP) and industry (value added as percentage of GDP) before and after the WTO[3]. For the purpose we create a series of the models that comprise of model for each country (Bangladesh, India, Pakistan and Sri-Lanka) before and after the WTO.

The analysis covers the data for the period 1985-2006, i.e. eleven years before and eleven years after the WTO that has been taken from World Bank (http://web.worldbank.org/WBSITE/EXTERNAL/STATISTICS). We have taken 1995 as the segregating point of the WTO, as in this year the implementation of the WTO was started.

The model specifications[4] are given as:

$$TRG = \beta_0 + \beta_1 IND + \beta_2 AGR + \beta_3 WIN + \beta_4 GDP \quad \ldots\ldots\ldots\ldots\ldots (1)$$

Where

TRG = Trade volume (exports + imports) as percentage of GDP

IND = Value added by industry in GDP in percentage.

AGR = Value added by Agriculture in GDP in percentage.

WIN = World Income (US $ Billions).

GDP = Gross Domestic Product of countries (US$ Million).

[1] The South Asia comprised of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri-Lanka. We have chosen four countries because they are developing economies of the South Asia. Maldives is least developed economy and Nepal and Bhutan joined the WTO later than its implementation.

[2] The other areas likely to be related with the WTO may be poverty, farm and non-farm income inequality (Anderson, et. al. 2003), food security (Mustafa, et. al. 2001), technological development and dissemination, regional disparity, employment, political and cultural changes, etc. but we are here concerned with only trade and its composition (imports and exports).

[3] The other factors that may affect the trade volume may be geographical location of the country (Crafts and Venables 2002), political stability, voice and accountability, government effectiveness (Ahmad 2005), foreign direct investment (Singh 2005), per-capita income growth (Bigsten 2003), monetary and fiscal policy and labor force participation, which are out of scope of current study.

[4] This is a general model for each country, i.e. the same model will be applied for eight times to the relevant data-sets of South Asian economies before and after the WTO.

Ordinary Least Square (OLS) will be used to see the effect of explanatory variables on trade volume before and after the WTO.

4. Results and Discussion

As we have divided the analysis into two parts, in the non-econometric analysis we have discussed the trend of trade volume of South Asian countries and trend of change in imports and exports before and after WTO. To see the overall change in all of these indicators before and after the WTO, we have calculated the chain indices of eleven years before and after the WTO. In the second part of analysis that is concerned with econometric estimation, we have regressed the volume of trade of each country (before and after the WTO) against the four explanatory variables as mentioned in the model.

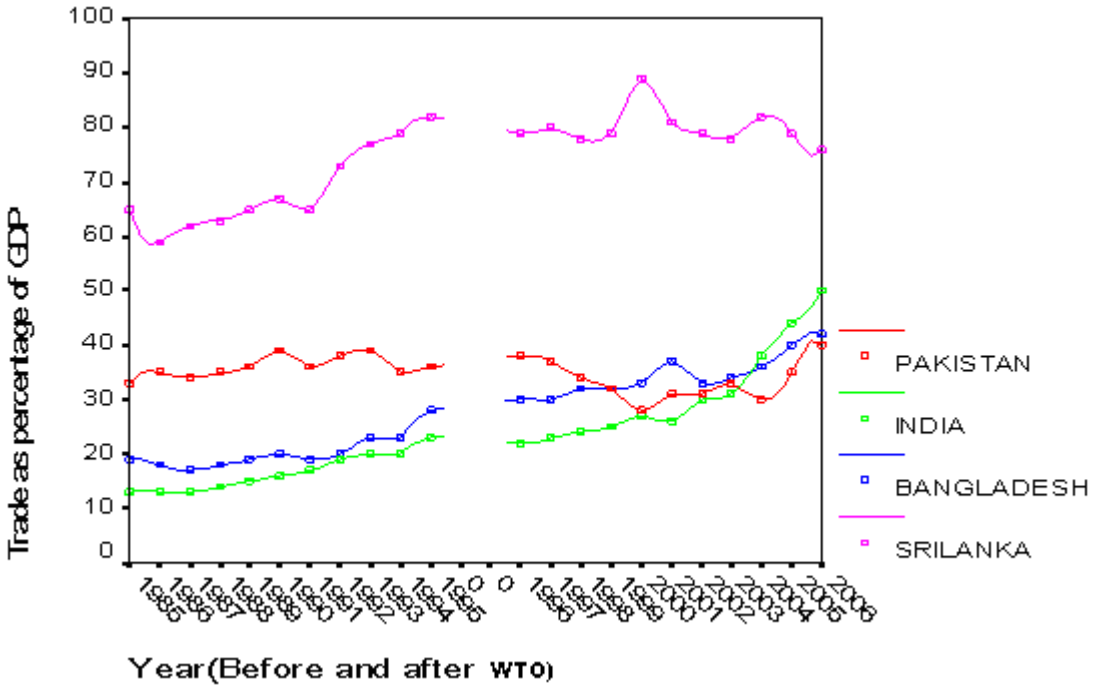
4.1 Non-Econometric Results

Non-econometric results have been obtained through chain indices and expression of the graphs.

4.1.1 Trade volume of South Asian Nations

The trend of trade volume (as percentage of GDP) of four countries before and after the WTO has been shown in figure-1. The trade volume of Bangladesh has continuously risen before and after the WTO. The trade volume in India has also continuously risen before and after the WTO. The trade volume of Pakistan was increasing before the WTO implementation, though not at so good rate but after 1995 it has shown a declining trend. It was higher than Bangladesh and Sri-Lanka before the WTO implementation but after that it become lesser than those. In 2000 it just becomes equal to Sri-Lanka and lower than Bangladesh. In the after years it increased but even up to 2006 it remained below Sri-Lnaka and Bangladesh. The trade volume of Sri Lanka has risen rapidly after the WTO.

Fig-1 Trade Volume (Percentage of GDP) of South Asian Countries Before and After the WTO



We have calculated the aggregate chain indices of trade of South Asia before and after the WTO. It covers the eleven years each before and after WTO. It was 139 before the WTO and it is 137 after the WTO. It revealed that South Asia faced disadvantages of the WTO. It contradicts the estimation by Kumar, et. al. (2002), and Robert (2007) who argued that the WTO has enhanced the trade bulk of developing countries. We have also calculated the chain indices of trade bulk of South Asian countries before and after the WTO. The chain index of trade (percentage of GDP) of Bangladesh before the WTO was 147 and after the WTO it is 140, which shows that trade has been reduced after the WTO. The same type of results is for Sri Lanka, i.e. before WTO it was 126 and after the WTO it is 96. Sri-Lanka has lost more than Bangladesh (see Annexure 1).

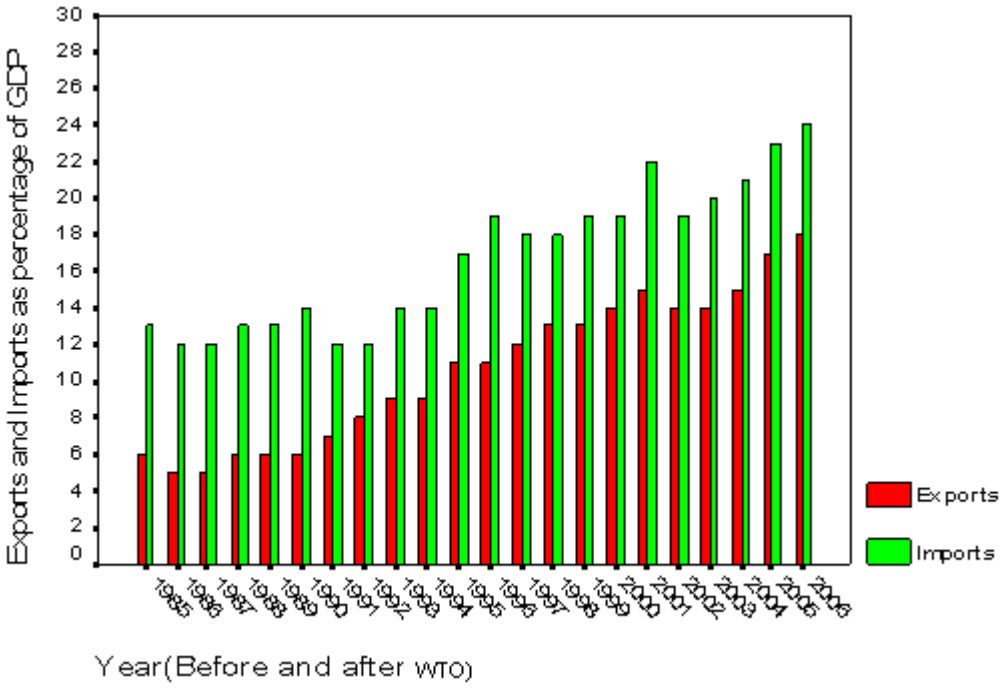
The chain index of trade of India before the WTO was 178 and after the WTO it is 227, which indicates that India's trade has risen after the WTO. The explanation may be that India has availed the opportunities maximally, i.e. improved resource allocation in line with social and marginal costs benefits, access to better technologies, use of inputs and intermediate goods efficiently, economies of scale and scope, promoting greater domestic competition, availing the favorable growth externalities, like the transfer of know-how, etc. (Thum 2002). Furthermore, India has improved the software technology and infrastructure for trade. That is why it has obtained the advantages of trade liberalization.

The chain index of Pakistan was 109 for eleven years (1985 to 1995) before the WTO and it is 105 for eleven years (1996 to 2006) after the WTO. It shows that the rate of increase in trade volume becomes slower after the WTO. It may be concluded that the WTO has affected the Pakistan's economy slightly negatively. Perhaps the country has availed less opportunities of openness. It may be explained that the country has not prepared itself to face the challenges of the WTO.

4.1.2. Imports and Exports of Bangladesh

We have seen the trend of trade of South Asian countries, which are composed of imports and exports. Now we will see the trend of imports and exports separately. For Bangladesh, chart 2 shows that ratio of imports and exports to GDP have risen before and after implementation of the WTO. But percentage of exports remained less than the imports, which shows that the country's balance of trade has remained in deficit before and after the WTO.

Fig-2 Import and Export Volume of Bangladesh Before and After the WTO

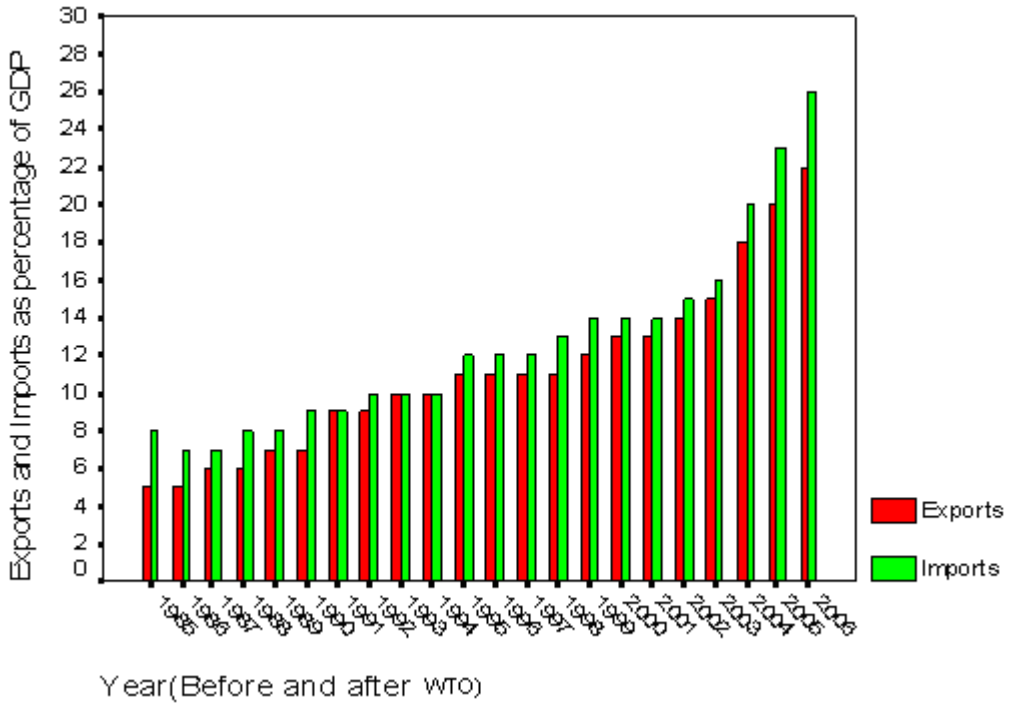


The chain index of exports for the years 1985 to 1995 was 183 while the chain index for the years 1995-2006 is 164 showing relatively less increase in exports after implementation of the WTO. While the chain index of imports for the same years before the implementation of WTO was 131 and after the WTO it is 126 showing again relatively lesser increase in imports after the WTO. It may be concluded that after the WTO the growth rate of exports as well as of imports has been decreased. It resulted into slower growth rate of volume of trade (see Annexure 1). We can say that trade liberalization has not affected the Bangladesh's trade positively.

4.1.3. Imports and Exports of India

For India, the imports and exports have been increased for all the years before and after the WTO. The exports remained more than imports for whole of the years before and after the WTO, except 1993 and 1994. They are the years before the WTO.

Fig-3 Import and Export Volume of India Before and After the WTO

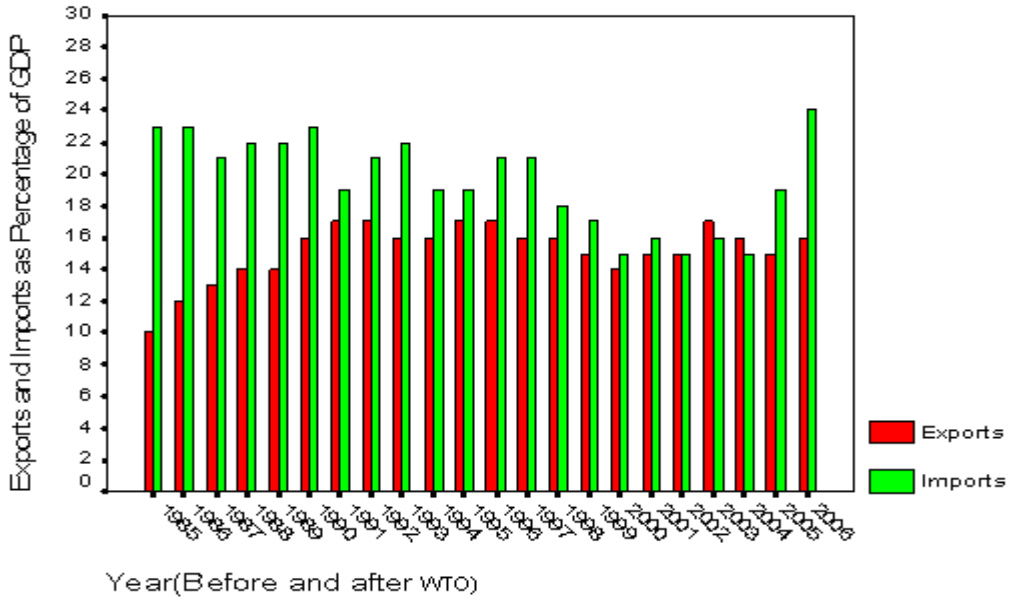


The chain indices of exports (as percentage of GDP) was 220 before the WTO and it is 200 after the WTO which reveals that rate of increase in exports in eleven years have been slided down after the WTO. While the chain index of imports (as percentage of GDP) before the WTO was 115 and after the WTO it is 217 (see Annexure 1), which shows that imports have been increased rapidly after the WTO. It is concluded that after the WTO the trade has been increased but that is totally contributed by increase in imports not exports.

4.1.4. Imports and Exports of Pakistan

For Pakistan, exports exceed the imports for all the years, before and after the WTO except 2002 to 2004, which are the years after the WTO.

Fig-4 Import and Exports Volume of Pakistan Before and After the WTO

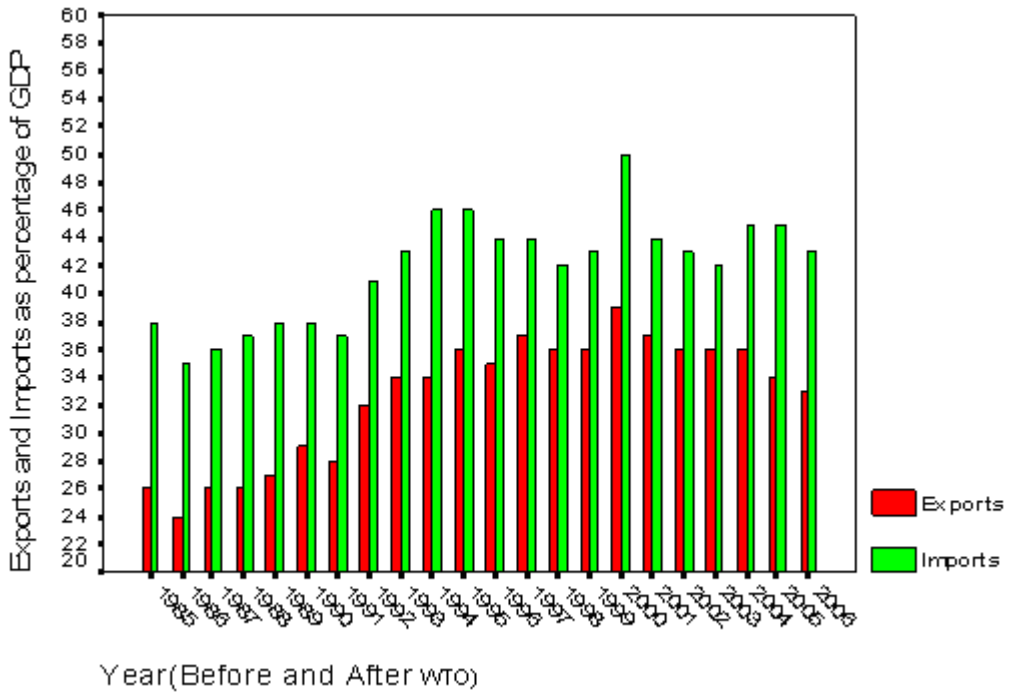


The chain index of exports (as percentage of GDP) for Pakistan before the WTO was 170 and after the WTO it is 94. It revealed that rate of increase of exports have been slided down within eleven years after the WTO. On the other hand, the chain index of imports (as percentage of GDP) before the WTO was 82 and after the WTO it is 114 (see Annexure 1). It means that the rate of increase in imports has been enhanced after the WTO. It is evident that within eleven years after the WTO, there remained higher growth rate of imports as compared to exports. However, trade bulk has declined, that may be due to decrease in exports.

4.1.5. Imports and Exports of Sri-Lanka

Sri-Lanka's balance of trade remained in deficit for both periods, i.e. before and after the WTO. Before the WTO imports as well as exports were rising but after the WTO both the imports and exports first rise then fall.

Fig-5 Import and Export Volume of Sri Lanka Before and After the WTO



The chain index of imports remained 138 before the WTO and it is 94 after the WTO showing that growth rate of exports has fallen within 11 years after the implementation of WTO. While the chain index of imports before the WTO was 120 and after the WTO it is 98. It revealed that import's growth rate has also fallen after 1995. It resulted into decrease in trade volume of Sri-Lanka (see Annexure 1). The relatively more slower growth rate of exports as compared to imports has contributed more towards the slower growth rate of trade. It may be concluded that the WTO has affected the trade of Sri-Lanka negatively.

4.2 Econometric Results

The econometric estimates have been obtained through OLS model, where trade bulk is a function of economic variables like the ratio of agriculture and industrial sector in GDP, global GDP and GDP of the South Asian nations. The agricultural[5] and industrial[6] sectors are the major contributors of trade bulk for South Asian countries as agriculture mainly contributes to exports and industry in the form of import of raw material mainly contribute to imports. Thus we have included these variables in our model along with GDP of the nations and global GDP. We have regressed the trade bulk of each South Asian country with these variables for the periods before and after the WTO to see the difference in impact of these variables on trade bulk.

[5] Sharma, et. al. (1999) concluded that South Asia may get advantage from agriculture sector.
[6] Majid (1995) estimated that South Asia will benefit more from industry mainly textile than agriculture. See also, Kemal, et. al. (2005) for gains from non-agricultural sector.

4.2.1 Determinants of International Trade Bulk of Bangladesh

The estimated results of OLS model for Bangladesh are shown in table-1(a) for the data-set of eleven years before the WTO and estimated results for the data-set of eleven years after the WTO are shown in table-1(b). The model has been expressed by equation No.1. For comparison before and after the WTO, we need the significant results for both data-sets, i.e. before and after the WTO. Probably due to small data-set we have only one explanatory variable having the significant values for the data-set before the WTO, i.e. ratio of production of industrial sector in GDP. For the data-set after the WTO we have three explanatory variables having significant results. They are, ratio of production of industrial sector in GDP, global GDP and the country's GDP. The role of industrial sector has been increased after the WTO. After the WTO, the global GDP and GDP of the country are positively affecting the trade volume of Bangladesh.

Table-1(a) OLS Model Results for Bangladesh (Before the WTO)

MODEL	UNSTANDARDIZED COEFFICIENT		STANDARDIZED COEFFICIENT	T	SIG
	B	Std. Error	Beta		
(constant)	51.520	123.159		0.418	.693
IND	1.164	0.829	0.540	1.703**	.100
AGR	7.529E-02	0.712	0.060	0.106	.920
WIN	-5.40E-06	0.001	-0.009	-0.010	.993
GDP	0.238	0.553	0.089	0.429	.686

Dependent Variable: Trade (percentage of GDP) R^2 = 87 percent No. of Observations = 11

* denotes significant at 5 percent level and ** denotes significant at 10 percent level.

Table-1(b) OLS Model Results for Bangladesh (After the WTO)

MODEL	**UNSTANDARDIZED COEFFICIENT**		**STANDARDIZED COEFFICIENT**	**T**	**SIG**
	B	**Std. Error**	**Beta**		
(constant)	**-349.260**	**248.314**		**-1.407**	**.232**
IND	**3.970**	**1.903**	**1.086**	**2.086****	**.081**
AGR	**0.818**	**1.087**	**0.513**	**0.752**	**.494**
WIN	**2.187E-04**	**0.000**	**0.555**	**1.914****	**.099**
GDP	**1.238**	**1.284**	**0.280**	**1.964****	**.099**

Dependent Variable: Trade (percentage of GDP) R^2 = 81 percent No. of Observations = 11

* denotes significant at 5 percent level and ** denotes significant at 10 percent level.

4.2.2 Determinants of International Trade Bulk of India

The estimated results of OLS model of India have shown in table-2(a) and 2(b) for the data-sets of before and after the WTO respectively. Only two explanatory variables, i.e. ratio of industrial sector in GDP and global GDP have statistically significant values for the data set before the WTO. For the data-set after the WTO, the explanatory variables which have significant values are the ratio of industrial sector in GDP and ratio of agriculture sector in GDP. So a before-after comparison is only possible for the role of industrial sector in

international trade. Like, Bangladesh the role of industrial sector has been increased after the WTO. It is important to note that agriculture sector is negatively affecting the international trade of India.

Table-2(a) OLS Model Results for India (Before the WTO)

MODEL	UNSTANDARDIZED		STANDARDIZED	T	SIG
	B	Std. Error	Beta		
(constant)	17.292	90.689		2.191	.059
IND	0.336	0.914	0.076	3.367*	.028
AGR	-0.426	0.793	-0.202	-0.537	.614
WIN	5.585E-04	0.000	0.900	-1.764**	.100
GDP	0.106	0.119	0.070	0.890	.414

Dependent Variable: Trade (percentage of GDP) R^2 = 88 percent No. of Observations = 11

* denotes significant at 5 percent level and ** denotes significant at 10 percent level.

Table-2 (b) OLS Model Results for India (After the WTO)

MODEL	UNSTANDARDIZED		STANDARDIZED	T	SIG
	B	Std. Error	Beta		
(constant)	-151.398	81.743		-.1852	.161
IND	2.122	0.368	0.354	5.765*	.010
AGR	-1.532	0.504	-1.099	-3.040*	056
WIN	9.512E-05	0.000	0.155	0.472	.669
GDP	0.229	0.261	0.078	0.878	.445

Dependent Variable: Trade (percentage of GDP) R^2 = 89 percent No. of Observations = 11

* denotes significant at 5 percent level and ** denotes significant at 10 percent level.

4.2.3 Determinants of International Trade Bulk of Pakistan

The estimated results of OLS model for Pakistan are shown in table-3(a) for the data-set before the WTO and in table-3(b) for the data-set after the WTO. Only two explanatory variables have shown significant results to explain the volume of trade before the WTO. They are ratio of production of industrial sector in GDP and the ratio of production of agriculture sector in GDP. For the data-set after the WTO, all the explanatory variables have shown significant results.

Table-3 (a) OLS Model Results for Pakistan (Before the WTO)

MODEL	UNSTANDARDIZED		STANDARDIZED	T	SIG
	B	Std. Error	Beta		
(constant)	-39.193	236.353		-.166	.875
IND	2.394	1.606	1.159	1.991**	.096
AGR	1.044	1.214	0.604	1.860**	.093
WIN	4.015E-05	0.000	0.114	0.152	.885
GDP	-.220	0.278	-0.217	-0.794	.463

Dependent Variable: Trade (Percentage of GDP) R^2 = 76 percent No. of Observations = 11

* denotes significant at 5 percent level and ** denotes significant at 10 percent level.

Table-3 (b) OLS Model Results for Pakistan (After the WTO)

MODEL	UNSTANDARDIZED		STANDARDIZED	T	SIG
	B	Std. Error	Beta		
(constant)	-1153.791	481.384		-2.397	.075
IND	1.646	.828	.665	1.987**	.109
AGR	3.576	2.075	2.162	1.724**	.100
WIN	-8.91E-04	.000	-2.140	-3.417**	.027
GDP	1.911	1.182	.910	1.618**	.101

Dependent Variable: trade (percentage of GDP) R^2 = 80 percent No. of Observations = 11

* denotes significant at 5 percent level and ** denotes significant at 10 percent level.

The results explain that industrial sector has contributed positively towards the international trade of the nation before and after the WTO but its contribution after the WTO has been decreased. However, the role of agriculture has been increased. The global GDP and GDP of the country are affecting the trade volume of the country after the WTO.

4.2.4 Determinants of International Trade Bulk of Sri Lanka

The estimated results of OLS model for data-sets of before and after the WTO for the same econometric model as Bangladesh, India and Pakistan are shown in table-4(a) and 4(b) respectively. For the data-set before the WTO, the agricultural sector was contributing positively to the trade bulk of the country but after the WTO the results are insignificant. Before the WTO, the industrial sector was affecting the international trade positively and strongly but after the WTO though the industrial sector is positively affecting the international trade but the effect is not as much stronger as it was before WTO. So against the results of Bangladesh and India, where the role of industrial sector towards international trade has been increased after the WTO, the role of the same sector in Sri-Lanka's international trade after WTO has been decreased.

Table-4(a) OLS Model Results for Sri Lanka (Before the WTO)

MODEL	UNSTANDARDIZED		STANDARDIZED	T	SIG
	B	Std. Error	Beta		
(constant)	423.933	140.351		3.021	.029
IND	6.636	3.061	0.453	2.168**	.082
AGR	4.010	1.614	0.758	2.485**	.056
WIN	9.610E-05	0.000	0.070	0.197	.852
GDP	-0.421	0.741	-0.100	-0.569	.594

Dependent Variable: Trade (percentage of GDP) R^2 = 96 percent No. of Observations = 11

* denotes significant at 5 percent level and ** denotes significant at 10 percent level.

Table-4(b) OLS Model Results for Sri Lanka (After the WTO)

MODEL	UNSTANDARDIZED		STANDARDIZED	T	SIG
	B	Std. Error	Beta		
(constant)	79.790	99.193		0.804	.466
IND	5.598	3.833	1.067	1.961**	.098
AGR	0.158	2.084	0.084	0.076	.043
WIN	8.843E-05	0.000	0.236	0.211	.843
GDP	9.664E-02	0.600	-0.068	0.161	.880

Dependent Variable: Trade (percentage of GDP) R^2 = 37 percent No. of Observations = 11

* denotes significant at 5 percent level and ** denotes significant at 10 percent level.

5. Conclusion

The qualitative and econometric analysis we presented above allows us to see the impact of the WTO on international trade of South Asian nations. The South Asian countries have mixed results. For some nations, the WTO has affected the trade slightly positively, but for some others it has negatively affected the nation. As a whole we can say that the WTO has not increased the international trade of the region, as it was expected (see Subramanian and Wei 2003 for developing economies). It may be derived from the results that the concerns of the South Asian economies, which we have discussed in the first section becomes important and expectations regarding the gains from the WTO becomes bleak. The conclusion of the study is summarized below.

- The rate of growth of trade bulk (as percentage of GDP) of South Asian countries has decreased after the WTO. It explained that implementation of the WTO has negatively affected the South Asian countries, in the perspective of international trade.
- The rate of increase in imports of South Asian countries is greater than rate of increase in exports even after the WTO, which shows that South Asian countries still face the deficits in their balance of trades.
- For Pakistan, the growth rate of trade volume has been decreased after the WTO. The industrial sector has positively contributed to trade volume of the country before the WTO but after the WTO, its role has been decreased.

- The trade volume of India was rising before the WTO. The country has not only maintained the trend but rate of growth in also increased. India is the only country in the current analysis, who has gained advantage of the WTO in the perspectives of international trade.
- The growth rate of international trade of Bangladesh has slided down slightly after WTO.
- The comparative figures before and after the WTO, of exports and imports of Pakistan have shown that the growth rate of exports has been decreased after the WTO while growth rate of imports has risen up after WTO.
- For India, both the growth rate of exports and imports has risen after the WTO. The contribution of industrial sector to the nation's international trade has been increased after the WTO.
- For Bangladesh, the growth rate of exports as well as imports has been decreased after the WTO. The role of industrial sector has been increased in international trade of the country after the WTO.
- For Sri-Lanka, the growth rate of international trade was positive before the WTO. It remained negative after WTO.

It needs further research to see why South Asia has not benefited from the WTO while the major speculated beneficiaries of the WTO were the developing countries. As concerned the econometric results, we have to wait for some years to have the robust results about the impact of different variables on international trade of the nations before and after WTO.

References

ADB (2007). Mobilizing Aid for Trade: Focus Asia and the Pacific. Background Paper for South Asia, Asian Development Bank, Manila, Philippines.

Ahmad, N. (2005). Governance, Globalization and Human Development in Pakistan, *Pakistan Development Review*, 41 (4): 585-594.

Anderson, K., Huang, J. and Janchovichina, E. (2003). Long-run Impact of China's WTO Accession on Farm Non-farm Income Inequality and Rural Poverty. Policy Reserve Working Paper 3052, Economic Policy Division, World Bank, Washington, D.C.

Bigsten, A. (2003). Globalization and Asia-Pacific Revival, Department of Economics, SE 405-0, Gotborg University, Gotborg.

Bosworth, B and Collins, S. M. (2007). Accounting for growth: comparing China and India", NBER Working Paper No. 12943.

Brittan, L. (1998). *Globalization v/s Sovereignty? The European Response.* Cambridge University Press. UK.

Chand, R. (2006). International Trade, Food Security and the Response to the WTO in South Asian countries. Research Paper No. 124.

Crafts, N. and Venables, A. (2002). Globalization in History: A Geographical Perspective. Discussion Paper: 524, London.

Golden, I. and Dominque, V. D. M. (1996). Assessing Agricultural Tarrification under the Uruguay Round, Cambridge University Press, UK.

Hertal, T., Christian, F.B. Betrina, D. and Will, M. (1996). Growth, Globalization and Gains from Uruguay Round, Working Paper No. 1694, World Bank.

Ingco, Melinda (1997). Has Agricultural Trade Liberalization Improved Welfare in the Least Developed Countries? Yes. Policy Research Working Paper No. 1748, World Bank, Washington, D.C.

Kemal, A.R. Muleh-ud-Din and Ghani, E. (2005). Non-agriculture Market Access: Priorities for South Asia. Briefing Paper No. 5. Pakistan Institute of Development Economics, Islamabad.

Kumar, N., Das, R.U. Chaturvedi, S. Roy, S.S. and Chaddha, A. (2002). South Asia Development and Cooperation Report. New Dehli, India.

Majid, N. (1995). The Uruguay Round on South Asia: An Overview of the Impact and Opportunities. Working Paper No. 1484. World Bank,

Martin, W. (1999). The Abolition of Multi-fiber Arrangement and Its Implications for Fiber Markets", Working Paper. World Bank, Washington, D.C.

Moore, M. (2002). Agriculture's State in WTO Trade Negotiations. [Online] Available, http://www.wto.org

Mustafa, U., Malik, W. and Sharif, M. (2005). Globalization and Its Implications for Agriculture, Food Security and Poverty in Pakistan. *Pakistan Development Review*, 40 (4): 767-786.

Robert, L.T. (2007). Globalization and the Benefits of Trade. Working Paper. Federal Reserve Bank of Chicago.

Sharma, R., Konandreas, P. and Greenfield, J. (1997). A Synthesis of Assessments of the Impact of Uruguay Round on Global and South Asian Agriculture. World Bank, Washington, D.C.

Singh, A. (2005). FDI, Globalization and Economic Development: Towards Reforming National and International Rules of the Game. Working Paper No. 304. Center for Business Research, University of Cambridge, UK.

Thum, C. (2002). Trade Liberalization Benefits Developing Countries. Working Paper, Mark Twain Institute Publications.

ANNEXURE I

Chain Indices of Volume of Trade, Imports and Exports of South Asian Countries

YEARS	BANGLADESH	INDIA	PAKISTAN	SRI LANKA	SOUTH ASIA
Volume of Trade (Before WTO)					
1985	**100**	**100**	**100**	**100**	**100**
1995	**147**	**177**	**109**	**126.07**	**140**
Volume of Trade (After WTO)					
1996	**100**	**100**	**100**	**100**	**100**
2006	**140**	**227**	**105**	**96**	**137**
Imports (Before WTO)					
1985	**100**	**100**	**100**	**100**	**-**
1995	**131**	**150**	**82**	**121**	**-**
Imports (After WTO)					
1996	**100**	**100**	**100**	**100**	**-**
2006	**126**	**217**	**114**	**98**	**-**
Exports (Before WTO)					
1985	**100**	**100**	**100**	**100**	**-**
1995	**183**	**220**	**170**	**138**	**-**
Exports (After WTO)					
1996	**100**	**100**	**100**	**100**	**-**
2006	**164**	**200**	**94**	**94**	**-**