How desirable Is the South Asian Free Trade Area?

A quantitative economic assessment

Bandara, Jayatilleke S.; Yu, Wusheng

Publication date:
2001

Document version
Publisher's PDF, also known as Version of record

Citation for published version (APA):

Bandara, J. S., & Yu, W. (2001). *How desirable Is the South Asian Free Trade Area? A quantitative economic assessment*. Statens Jordbrugs- og Fiskeriøkonomiske Institut. SJFI Working Paper Vol. 2001 No. 16

How Desirable is the South Asian Free Trade Area?

- A Quantitative Economic Assessment

Jayatileke S. Bandara and Wusheng Yu

SJFI – Working Paper no. 16/2001

How Desirable is the South Asian Free Trade Area? A Quantitative Economic Assessment¹

By

Jayatilleke S Bandara*

and

Wusheng Yu**

E-mail: Wusheng@sjfi.dk

October 2001

Abstract

The proliferation of preferential trading agreements (PTAs) in different regions of the world has been a significant development over the last two decades. South Asian countries are slowly moving towards a South Asia Free Trade Area (SAFTA) in recent years.

The desirability of SAFTA has been questioned by some observers recently. Do necessary conditions exist for a successful PTA in South Asia? Will SAFTA create gains for its members or not? Is it better for South Asian countries to promote non-discriminatory trade liberalisation rather than promote SAFTA? The main objective of this paper is to address the above questions, especially the desirability of SAFTA, using trade data and a global computable general equilibrium (CGE) model. From the existing empirical and theoretical studies, we have identified three viewpoints on the desirability (or viability) of SAFTA: pessimistic, optimistic, and moderate. Our discussion of the necessary conditions for forming a SAFTA, and the present political climate in South Asia seem to support the pessimistic view. Results from two policy scenarios (unilateral liberalisation and preferential liberalisation) confirm the pessimistic view by showing that unilateral liberalisation would benefit South Asia countries much more than preferential liberalisation. In fact, under preferential liberalisation, small countries in the region would gain little or even lose.

Keywords: South Asia, preferential trading agreements

* Senior Lecturer, School of Economics, Griffith University, Australia

** Research Fellow, Danish Institute of Agricultural and Fisheries Economics, Rolighedsvej 25, 1958 Frederiksberg C, Denmark

¹ The authors thank Søren E. Frandsen for his valuable suggestions. Helpful comments by T.N. Srinivasan, H.D. Evans and S. Robinson and other participants of the 4th Annual Conference on Global Economic Analysis at Purdue University and the 77th EAAE seminar at Helsinki are appreciated. Wusheng Yu acknowledges the financial support by the Royal Danish Ministry of Foreign Affairs, DANIDA, Denmark, under the project "WTO negotiations and the impact on developing countries".

1. Introduction

The proliferation of preferential trading agreements (PTAs) in different regions of the world has been a significant development over the last two decades (see Panagariya, 2000 for a detailed survey on the theoretical work). The South Asian region is no exception. Seven South Asian countries (Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka) formed the South Asian Association of Regional Cooperation (SAARC) in 1985 as a first step toward the regional cooperation. After a decade's existence, the South Asian Preferential Trading Agreement (SAPTA) was launched by the SAARC in 1995 as the second step and the end of year 2001 has been declared as the deadline to finalise a treaty for the South Asian Free Trade Association (SAFTA).

There is a large body of literature on PTAs in Europe, North America, South America and South East Asia. However, the literature on the South Asian regional grouping is limited. While many of the studies on PTAs in other parts of the world are quantitative, quantitative studies on SAARC are very limited. However, even within a limited volume of literature on South Asian economic integration, there are some controversies over the desirability of SAFTA. The existing literature raises some questions. Do necessary conditions exist for a successful PTA in South Asia? Will SAPTA or SAFTA create gains for its members or not? Is it better for South Asian countries to promote non-discriminatory trade liberalisation rather than promote SAFTA? Does SAFTA (or SAPTA) encourage unilateral trade liberalisation in the South Asian region?

The main objective of this paper is to address the above questions using trade data and a global computable general equilibrium (CGE) model. The next section of the paper provides a brief overview of the progress of economic integration in South Asia. Section 3 attempts to analyse whether the necessary conditions exist in the region for a successful PTA. A brief review of previous quantitative assessments of regional integration in the region is presented in Section 4 and the analytical framework of this study is introduced in Section 5. The policy scenarios and simulation results of these scenarios are presented in Sections 6 and 7, respectively. Alternative policy options are also examined in section 7. The final section presents concluding remarks.

2. Evolution of Economic Integration in South Asia

a. South Asia at a Glance

In recent years, South Asia has been the second fastest growing region in the world. Yet it remains as the region with the largest number of people living in poverty. Having more than 22 per cent of the world's population living on only 3.8 per cent of the total land area of the world, it is home for more than half a billion poor people, or 40 per cent of world's poor (see Table 1 for a comparison with other regions). As shown in Table 1, its shares of world nominal GNP and GNP measured at purchasing power parity (PPP) are very small (around 2 and 7 per cent, respectively). Its share in total world trade is even smaller, only about one percent. Although trade barriers are high, recent economic reforms have lowered some barriers on trade and investment, and have raised economic growth considerably (see Bandara and McGillivray, 1998 and Panagariya, 1999 for an overview of trade reforms in the region). With recent economic reforms, countries in the region are promoting economic integration for economic prosperity under the banner of SAARC.

Table 2 summarises basic macroeconomic data for individual countries in the region to identify member countries' special features. There are differences between countries in the region in terms of the size of population, area and GNP. As shown in Table 2, it is obvious that India is the biggest economy in the region in terms of shares of population, area and GNP (76, 33 and 76 per cents, respectively). On the other extreme, countries like Bhutan and Maldives are very small and their sizes of population, area and GNP are rather negligible. In between these small economies and India, only Pakistan can be identified as an influential country in the region. Economic growth rates of all these countries in recent years have been satisfactory, if not excellent (see Table 2).

b. From SARC to SAFTA – Evolution

The establishment of the SAARC is not a new concept and, in fact, it is an attempt to restore the economic union that existed between India and Pakistan before their independence in 1947 (see Khan, 1999, p.490). The chronicles of regional integration in South Asia are summarized in Box 1.

In the early 1980s, Bangladesh has taken the initiatives to establish regional co-operation, which led to the first South Asian foreign secretaries' meeting, held in April 1981 in Co-

TABLE 1. South Asian in the World: a Comparison of Population, Land Area and GNP (1998)

Region	Population		Number of Poor*		Surface Area		People per Sq km	GNP		GNP (PPP)		GNP per capita (US\$)	GNP (PPP) per capita (US\$)
	Total (million)	%	Total (million)	%	Sq Km (000)	%		Billion US\$	%	Billion US\$	%		
Low & Middle Income	5011	85.0	n/a	n/a	101,485	76.0	50	6,243	21.6	16,515	44.3	1250	3300
East Asia & Pacific	1817	30.8	278.3	23.2	16,384	12.3	114	1,802	6.3	5,959	16.0	990	3280
Europe & Central Asia	475	8.1	24.0	2	24,208	18.1	20	1,044	3.6	2,617	07.0	2200	5510
Latin America & Caribbean	502	8.5	78.2	6.5	20,462	15.3	25	1,933	6.7	3,182	8.6	3860	6340
Mid East & N. Africa	286	4.9	5.5	0.5	11,023	8.3	26	581	2.0	1,324	3.5	2030	4630
South Asia	1305	22.1	522	43.5	5,140	3.8	273	560	1.9	2,531	6.8	430	1940
Sub-Saharan Africa	627	10.6	290.9	24.3	24,267	18.2	27	323	1.1	902	2.4	510	1440
High Income	886	15.0	0	0	32,082	24.0	29	22,592	78.4	20,745	55.7	25480	23420
Total	5897	100	1189.9	100	133,567	100	45	28,835	100	37,260	100		

Note: Poor is measured as the person who lives with under US\$1 a day.

Source: World Bank (2000, 2001).

TABLE 2. South Asia: Basic Economic Indicators

Country	Population			Surface Area			GNP			GNP (PPP)			GNP Growth (%): 1997-98	
	Total		Growth p.a.	Total		Population Share per sq. km	Total		per capita (US\$)	Total		per capita (US\$)	Total	per capita
	(million)	Share		(1000 sq. km)			(billion US\$)	Share		(billion US\$)	Share			
Bangladesh	126	0.098	2.1	144	0.028	965	44.2	0.079	350	177	0.070	1407	5.9	4.2
Bhutan	0.76	0.001	2.9	47	0.009	16	0.4	0.001	480	n/a	n/a	n/a	7.1	2.4
India	980	0.765	2.0	3288	0.640	330	427.4	0.763	440	2018	0.797	2060	6.2	4.3
Maldives	0.26	0.000	2.6	0.3	0.000	874	0.4	0.001	1171	n/a	n/a	n/a	6.8	3.6
Nepal	23	0.018	2.5	147	0.029	160	4.9	0.009	210	27	0.011	1181	2.7	0.3
Pakistan	132	0.103	2.6	796	0.155	171	61.5	0.110	470	217	0.086	1652	3	0.5
Sri Lanka	19	0.015	1.3	66	0.013	291	15.2	0.027	810	55	0.022	2945	4.6	3.3
Total	1281	1.000		5140	1.0	273	560	1.0	430	2531	1.0	1940	5.7	3.7

Source: World Bank (2000, 2001).

Box 1
Evolution of Economic Integration in South Asia

First South Asia Foreign Secretaries' Meeting, 1981

Technical Co-operation in five selected areas (agricultural, telecommunication, rural development, meteorology, and health and population)

First South Asia Foreign Ministers' Meeting, 1983

Launched the Integrated Programs of Actions through South Asian Regional Cooperation foreign ministers began to meet on a regular basis

Establishment of SAARC, 1985

Objectives are defined on a wide range of issues, including: promoting welfare, accelerating economic growth, strengthening collective self-reliance, etc

A Secretariat was set up in Nepal

A set of IPAs is discussed under SAARC

South Asian Preferential Trading Arrangement (SAPTA), 1995

Signed in 1993 by the Council of Ministers

Operational in December 1995; notified the WTO as a PTA

Three rounds of tariff cut under SAPTA

SAPTA-1 (226 6-digit HS items) concluded in 1995

SAPTA-2 (1800 6-digit HS items) concluded in 1997

SAPTA-3 (2700 6-digit HS items) concluded in 1998

SAPTA-4 initiated in 1999 but postponed

Working toward a Free Trade Area (SAFTA) by 2001

Agreed in a summit in 1997 but seems to be difficult to implement by the deadline

lombo. At this meeting it was decided not to attempt to do too much too soon but to adopt a gradual confidence building approach by focusing only on non-contentious areas. Initially, five selected areas (agriculture, telecommunication, rural development, meteorology, and health and population) were selected for technical co-operation, while more complex issues were left out.

With the progression of this technical co-operation, countries in the region identified the necessity for institutionalising the ad hoc arrangements of technical co-operation. As a result, the first foreign ministers meeting held in 1983 formally launched the Integrated Programs of Actions (IPA) through the adoption of South Asian Regional Cooperation (SARC). Since then the foreign ministers of seven member countries began to meet on a regular basis. These meetings and technical co-operations led to the establishment of the SAARC. Its Charter was adopted in 1985 and the first summit was held in the Bangladesh capital of Dhaka in December 1985.

The main objectives of SAARC as stated in the charter are: "(a) to promote the welfare of the peoples of South Asia and to improve their quality of life; (b) to accelerate economic growth, social progress and cultural development in the region and to provide all individuals the opportunity to live in dignity and to realise their full potentials; (c) to promote and strengthen collective self-reliance among the countries of south Asia; (d) to contribute to mutual trust, understanding and appreciation of one another's problem; (e) to promote active and mutual assistance in the economic, social, cultural, technical and scientific fields; (f) to strengthen cooperation with other developing countries; (g) to strengthen cooperation among themselves in international forums on matters of common interests; and (h) to cooperate with international and regional organisations with similar aims and purposes." (<http://www.saarc-sec.org>).

To facilitate activities within SAARC, a Secretariat was set up in the capital of Nepal, Kathamandu, with a Secretary-General and one director from each member country in 1986. From 1986 onwards, some complex issues such as promotion of people to people contacts have been discussed. At present, the IPA covers (i) agriculture, (ii) communication, (iii) education, culture and sports, (iv) environment and meteorology, (v) health and population activities, (vi) prevention of drug trafficking and drug abuse, (vii) rural development, (viii) science and technology, (ix) tourism, (x) transport, and (xi) women development (<http://www.saarc-sec.org>).

Until the 1990s economic integration was not much considered within SAARC and the first attempt towards moving to this direction was the commission of a study on Trade, Manufactures and Services by the SAARC Secretariat. The report of this study and recommendations were then endorsed by the Council of Ministers at its Ninth Session in Male in July 1991, where it was decided to set up a high level Committee on Economic Cooperation (CEC). The CEC at its meeting in New Delhi in November 1991 recommended a draft agreement on SAPTA. The Heads of State at the Colombo summit in December 1991 approved the establishment of the Inter-Governmental Group (IGG) to examine the institutional framework for South Asian Preferential Trading Arrangement (SAPTA). The Council of Ministers signed an agreement to form the SAPTA in April 1993. This agreement became operational in December 1995, marking the completion of a decade of SAARC existence.

SAPTA mainly focuses on preferential trade within the region and it has notified the WTO to operate as a PTA. At the Male summit in 1997, member countries agreed to work towards forming a South Asian Free Trade Area (SAFTA) by 2001. Despite this envisaged

deadline of 2001, the team of experts has met only once by the end of 2000. The latest reports indicate that the treaty text has to be finalised by the end of 2001 and the experts have identified a number of issues to be addressed before signing the SAFTA treaty. However, SAARC failed to hold a scheduled summit in November 1999 because relations between the two key members, India and Pakistan, worsened in the wake of their “tit-for-tat” nuclear tests and the military takeover in Pakistan. The political bickering between India and Pakistan has severely hampered the progress of SAARC and SAPTA. According to the SAARC charter, all decisions are taken unanimously. Therefore, it is impossible to hold a summit without complete consensus among member countries. The Sri Lankan president has been the official head since July 1998 and there is no sign for a SAARC summit in the near future. With the worsening relationship between Indian and Pakistan, the formation of SAFTA before the end of 2001 seems to be a distant dream.

c. Progress of SAPTA

After launching SAPTA in 1995, three rounds of preferential tariff reductions have been implemented, namely SAPTA-1 (concluded in 1995), SAPTA-2 (concluded in 1997) and SAPTA-3 (concluded in 1998), under the preferential trading agreement. The Consolidated National Schedules of Concessions (CNSC) of SAPTA have been published on the SAARC web page. The negotiations for the fourth round were initiated in 1999 and they have been postponed due to the inability of having a SAARC summit.

Tariff reductions have been offered on the basis of two categories of members, namely the Least Developed Countries (LDCs) and non-LDC countries. The LDCs are Bangladesh, Bhutan, Nepal and Maldives while non-LDCs are India, Pakistan and Sri Lanka. The tariff concessions received by LDCs are higher than that of non-LDC members and many of the products under concession lists for the LDCs are different from those under non-LDC members' products lists. The coverage of SAPTA-1 was very modest as only about 6 per cent of traded goods (about 226 products at 6-digit HS level) were covered by SAPTA-1. The issue of non-tariff barriers was not taken into account in this round and the proposed tariff cuts were also relatively small considering the higher tariff rates in the region. The product coverage and proposed tariff cuts were somewhat significant under SAPTA-2. Concessions were offered for all countries on around 1800 6-digit HS items. The important feature of this round is that it considered non-tariff measures as well. The SAPTA-3 was more significant. Under SAPTA-3 Concessions were granted for all countries on about 2700 6-digit HS items.

To evaluate the magnitude of preferential trade under SAPTA, Mukherji (2000) has estimated the extend of trade preference under all SAPTA rounds in terms of trade values and the percentages of preferential imports to total values of imports related to all member countries. Mukherji's estimates show that the region's total preferential imports amounted to about US \$ 479.8 million, nearly half of which went to Pakistan. India's share of preferential trade out of total regional preferential imports was about 26 per cent while that for Sri Lanka was about 16 per cent. Mukherji (2000) has also estimated percentages of each member country's total preferential imports in terms of its total regional imports. Pakistan has the highest coverage of preferential imports (about 40 per cent), followed by Nepal (35 per cent), India (30 per cent), Bhutan (17 per cent) and Sri Lanka (12 per cent).

3. Do Necessary Conditions Exist for a Successful PTA in South Asia?

Some of important conditions highlighted in the PTA literature are (a) geographical proximity; (b) high pre-PTA tariffs; (c) high level of intra-regional trade; (b) the existence of trade complementarity; and (e) differences in economic structure based on competitiveness and (f) less political tensions among member countries. Examining these conditions helps to analyse the desirability of forming a PTA within a certain region.

a. Geographical proximity

Following the natural trading blocs argument, as suggested in Krugman (1991) and supported by others (Frankel, 1997, Frankel and Wei (1997) and Frankel, et al, 1995), geographical proximity does promote trade. Regional trading arrangements should be initiated on the basis that it is natural for neighbours to engage in trade with each other. In supporting the natural blocs concept, Frankel (1997) and others use their empirical work based on the gravity model to argue that the proximity is in general an important determinant of bilateral trade around the world. According to their work, however, only one case, i.e., South Asia, behaves against the natural blocs argument. Although India and Pakistan are neighbours, historically trade between two countries has been low. The estimates of Frankel and Wei (1997) indicate that trade between India and Pakistan is 70 per cent lower than two otherwise identical economies. Supporters of natural trading blocs argue that historical political differences have reduced trade between India and Pakistan and that this is a rare case. Considering quantitative and administrative restrictions and political process, Lahiri (1998) uses the case of trade between India and Pakistan as an example for "inverse regionalism". Some critics of the natural trading blocks have used this example, the trade between India

and Pakistan, to support their points that geographical proximity does not necessarily promote trade (Bhagwathi 1992 and 1993).

In summary, despite the difference regarding their general attitude toward the natural trade argument, all the above studies do recognize that the geographical proximity is not necessarily in favour of creating a PTA in South Asian.

b. High pre-PTA tariffs

South Asian countries have long maintained high tariff rates and other protection measures despite their recent efforts to liberalise trade. In the three large countries in the region (Bangladesh, India and Pakistan), tariffs are still higher than Southeast Asian countries. This point has been well documented in the literature. For example, Panagariya (1999) provides a comparison of tariff of the countries in this region with the South East Asian countries and shows that average tariffs are still higher in the former. Figure 1 illustrates that the average nominal tariff rate has declined in the South Asian region with trade liberalisation attempts over the last two decades. However, the average for South Asia is still higher compared with other regions in the world. It shows that high pre-PTA tariffs as a precondition for forming a PTA does indeed exist in South Asia.

FIGURE 1. Simple Average of Regional Import Tariff Rates, per cent

Source: World Bank (2001).

c. Level of intra-regional trade

Despite difficulties of obtaining reliable data on South Asian intra-regional trade, mainly because of illegal cross-border trade, available published trade data indicate that the level of intra-regional trade in South Asia is insignificant. Compared to the high level of intra-regional trade in other regions in the world, the low level of South Asian intra-regional trade is not an encouraging sign for establishing a FTA.

Figure 2 provides a comparison of intra-regional exports in South Asia with some other regional initiatives around the world. It shows that South Asia has the lowest intra-regional exports share in the world. While the share of intra-regional trade in South Asia's total trade has declined from 3.5 per cent to 2.4 per cent between 1970 and 1990, it has shown moderate rise from 2.4 per cent in 1990 to 4.6 per cent in 1999 (exact numbers in Table 3). Still, the share of intra-regional trade in South Asia is well below that of other PTAs. The other important trend, as can be seen from Table 3, is India's growing trade surplus with other SAARC countries. India is the biggest country in the region and its exports to other SAARC countries (except Pakistan) have continuously increased. While the share of India's exports

FIGURE 2. Shares of Intra-Regional Export in Total Regional Export, per cent

Source: World Bank (2001)

TABLE 3. Share of Intra-regional Trade in South Asia, per cent

Country	1970	1975	1980	1985	1990	1994	1995	1999
Exports								
Bangladesh	n.a	2.4	9.1	7.7	3.6	2.3	2.6	2.2
India	3.9	3.7	3.5	2.9	2.7	3.9	5.0	5.5
Nepal	61.9	81.1	38.1	38.5	6.9	4.6	8.7	27.7
Pakistan	1.5	6.8	6.3	5.3	4.0	3.2	3.3	3.3
Sri Lanka	3.2	9.0	6.8	3.7	3.1	2.3	2.7	2.6
South Asia	3.7	5.1	4.8	4.0	3.1	3.5	4.4	4.9
Imports								
Bangladesh	n.a	7.9	3.7	1.3	7.0	13.3	17.7	14.7
India	1.4	0.9	1.0	0.7	0.4	0.5	0.6	0.9
Nepal	73.6	62.0	48.0	32.5	11.5	19.2	9.9	33.4
Pakistan	0.5	2.8	2.1	1.7	1.6	1.6	1.3	1.8
Sri Lanka	12.4	6.9	6.3	6.3	6.6	9.0	10.3	13.8
South Asia	3.3	3.2	2.3	1.7	1.8	3.1	3.6	4.3
Total Trade								
Bangladesh	n.a	6.9	4.9	3.0	5.9	9.3	10.1	8.5
India	2.7	2.0	1.9	1.5	1.4	2.1	2.8	3.2
Nepal	70.3	67.0	45.7	34.4	10.0	13.8	9.3	30.6
Pakistan	0.9	4.1	3.5	2.9	2.6	2.3	2.3	2.6
Sri Lanka	8.1	7.8	6.5	5.2	5.1	6.3	6.5	8.2
South Asia	3.5	3.9	3.2	2.6	2.4	3.3	4	4.6

Source: Computed from Direction of Trade Statistics Yearbook (various issues), IMF.

to the region in its total exports has increased from 3.9 per cent in 1970 to 5.5 per cent in 1999, its import share from the region has declined from 1.4 per cent to 0.9 per cent during the same period. This shows that India's role in attracting imports from the other South Asian countries is limited. Overall, very small South Asian intra-regional trade is not favourable for a PTA within the region.

d. Trade Complementarity

Trade complementarity is also another important pre-condition for a successful PTA. The trade complementarity indices developed by Drysdale (1967, 1969) can be used to check the existence of trade complementarity in South Asia. Kemal, et. al., (2000) have estimated these indices for all five leading South Asian countries using time series trade data. They find that there is a lack of strong trade complementarity in the bilateral trade structures of South Asia. This point has also been supported by an early study of Aggarwal and Pandey (1992) and a recent study of Samaratunga (1999).

e. Differences in Economic Structures and Competitiveness

The main issue related to South Asian economic integration is that countries in the region are producing and trading similar commodities. To identify different country's competitiveness among different commodity groups, the Export Revealed Comparative Advantage indices have been estimated by two recent studies for commodities at the three-digit level using recent UN trade data (Samaratunga, 1999 and Kemal, et. al., 2000). These indices show the comparative advantage in terms of the share of a particular industry in a country's total exports relative to the industry's share in total world exports. The results of the above two studies indicate that countries in South Asia have an almost identical pattern of comparative advantage in a relatively narrow band of commodities and that these countries do not have comparative advantages in a wide range of capital goods and advanced manufactured products.

The lack of trade complementarity in bilateral trade flows and the similarity of the pattern of comparative advantage in the region have been the main constraints for the growth of intra-regional trade (see Kemal, et. al., 2000).

f. Political Harmony in the Region

Some analysts believe that the political tension between two large countries in the region (i.e., India and Pakistan) is another main constraint to the regional integration. Recent nuclear tests conducted by India and Pakistan, the border war and the political change in Pakistan are major obstacles for regional cooperation. As mentioned earlier, SAARC failed to hold a previously scheduled summit in November 1999 because political situations in this region. There is no sign for the next summit in the near future despite the deadline for SAFTA (end of 2001) is approaching very fast.

In summary, the discussion in this section indicate that many generally accepted pre-conditions required for creating a successful, trade promoting PTA might be lacking in the South Asian region.

4. Review of Selected Studies on the Impact of Regional Integration in South Asia

As noted in the introduction, in comparison with quantitative assessments of PTAs in other parts of the world, the effects of South Asian economic integration have not been investigated extensively. While there are some qualitative studies on SAARC and SAPTA, quanti-

tative studies on economic integration in South Asia are very limited with few exceptions. There are a number of possible reasons for this limitation. Firstly, many trade analysts have not paid much attention to this region until recently since it is not important in terms of global trade, investment and growth. Secondly, data on trade and other variables related to countries in this region is sparse. Thirdly, the volume and value of illegal trade is very high in the region and published data do not reflect the real picture of the trade structure in the region. Finally, non-tariff barriers on trade are very important in this region compared to many other regions in the world, while the recognition and quantification of non-tariff barriers are difficult. Despite these constraints, there are several empirical and analytical studies that have generated a debate over the desirability of SAFTA. This section attempts to synthesise some of these studies and thereby to provide a starting point for our study.

Some studies on the impact of a regional trading arrangement in South Asia have been undertaken even before the SAARC was formed in 1985. Jayaraman (1978) examined the effects of a hypothetical South Asia custom union that comprises of Bangladesh, India, Nepal, Pakistan and Sri Lanka. The results of this study suggested that gains from a South Asian PTA would be insignificant for small nations. A study of Rahman (1981) confirms some results of the study by Jayaraman and concluded that small countries like Nepal and Sri Lanka would lose as a result of the establishment of the custom union.

In the 1990s, in order to examine the trade effects of regional integration in South Asia, Govindan (1994) estimated the price elasticities of demand for food imports for a number of South Asian countries within a partial equilibrium framework. The results of this study suggest that the South Asian PTA will lead to a welfare increase in the region through expansion of intra-regional trade. It further points out that economic integration can increase food security in the region. This study, however, focused only on food security and agriculture and ignored the effects on manufactures and services trade. DeRosa and Govindan (1995 and 1996) have further extended Govindan's early work by employing the Armington system of bilateral trade demands. They have examined alternative approaches to trade liberalisation in South Asia within a partial equilibrium framework. These studies focused on three policy approaches: (a) preferential trade liberalisation with the SAARC region, (b) preferential trade liberalisation between SAARC countries and APEC countries and (c) unilateral trade liberalisation by the SAARC countries. The last two approaches have been the main addition to the original study of Govindan (1994). Once again the results support SAPTA in terms of expansion of intra-regional food trade. What differs these studies from the previous one (Govindan 1994), however, is that they suggest that welfare gains may in-

crease significantly as a result of much broader trade liberalisation with other parts of the world.

Srinivasan (1994) and Srinivasan and Canonero (1995) have used the well-known gravity model to assess the impact of regional integration in South Asia. These studies also suggest that the unilateral trade liberalisation would yield much more gains for the region compared to preferential trade liberalisation. They have found that small economies in the region would gain much more from preferential trade liberalisation than larger economies. The gravity model has also been used by Samaratunga (1999) to investigate the effects of SAARC-APEC trade links. The results of this study indicate that the potential for export expansion of SAARC region into APEC countries is limited within the 1991-1995 policy framework. Rajapakse and Arunatilake (1997) have used the same approach to investigate the implications of SAPTA for Sri Lanka and have found that Sri Lanka would gain from SAPTA.

Besides the above mentioned analytical and partial equilibrium studies on SAPTA, to the best of the authors' knowledge, only one simple quantitative assessment of SAPTA within a general equilibrium framework has been undertaken so far. Pigato, et al (1997) have briefly assessed the effects of SAPTA using a global CGE model, the Global Trade Analysis Project model (GTAP, see Hertel 1997). This study has found that SAPTA would create some welfare gains for its member countries. However, unilateral trade liberalisation would create larger gains for the region. The summary of this study, however, states that the creation of SAFTA "would be highly desirable" and "economic gains would be significant, especially for the smaller countries" (p.2). This study also states that organisations like SAARC or SAPTA would reduce political and border tension in the region and would have a positive effect on South Asian regional integration.

In contrast to the above studies some observers have a much more negative view on SAFTA. They believe that SAFTA is largely 'trade diverting' and hence an efficiency reducing PTA. Recently, Panagariya (1999, p.373) has illustrated this point by using a simple two-dimensional trade diagram. He rejects the idea that forming SAFTA is beneficial for the region and argues that "it is in the region's interest to push ahead with its non-discriminatory liberalisation rather than promote trade preferences" (p.373). Moderate observers believe that despite trade diversion and negative or small gains, SAPTA would help the countries in the region to engage in faster and deeper unilateral liberalisation, and to keep the momentum of the process of trade liberalisation (Srinivasan, 1998). Panagariya (1999) points out that this is a misguided argument and SAFTA is "likely to become a bind-

ing constraint on true, non-discriminatory liberalisation” (p.376). He uses examples of Mexico and Brazil joining the Southern American Common Market (MERCOSUR) and states that these two countries have virtually abandoned unilateral trade liberalisation and raised their tariffs.

All the studies reviewed in this section have contributed valuable inputs to the debate on the desirability of SAFTA. Three different viewpoints on SAFTA can be summarized as follows:

Optimistic View: This group believes that the SAFTA would be "highly desirable" and economic gains would be significant, especially for small economies in the region. Many South Asian politicians hold this view. Some empirical studies also support this viewpoint (for example, Pigoto et al, 1997).

Pessimistic View: This group believes that the SAFTA is "highly undesirable" and it will lead to trade diversion and will slow down unilateral trade liberalisation (for example, Panagariya, 1999).

Moderate or Intermediate View: This group believes that potential gains from SAFTA, though less than those from unilateral liberalisation, are significant for small countries in the region and preferential trade liberalisation is good as part of a coordinated liberalisation in countries in the region, and will lead to unilateral trade liberalisation (for example, Srinivansan and Canonero, 1995 and Srinivansan, 1998).

The above literature review indicates that the issue of desirability of SAFTA warrants further quantitative investigation. The rest of this paper is devoted to this purpose.

5. Methodology and Data

The increasing demand for quantitative assessments of PTAs such as EU, NAFTA and AFTA has given rise to the extensive use of global modelling by policy analysts. Multi-regional computable general equilibrium (CGE) models have been used as a tool for better understanding of the effects of a PTA. In the trade literature one can find that many CGE modelling applications deal with issues related to PTAs. These applications have been surveyed by Flam (1992), Baldwin and Venables (1995), Francois and Shields (1994), De Rosa (1998), Bandara (1998) and Robinson and Thierfelder (1999). Despite the criticism levelled at CGE evaluations of PTAs (see Panagariya, 2000 and Panagariya and Dattagupta,

1999), Baldwin and Venables (1995), De Rosa (1998) and Robinson and Thierfelder (1999) have clearly recognised the contributions made by CGE models in evaluating PTAs.

These surveys indicate that global CGE models are more useful than econometric models and partial equilibrium models in analysing issues related to PTAs. Firstly, these models incorporate the necessary links between different agents in each country (or region). Secondly, these models are based on the input-output structures of each country (or region), which link industries together. Thirdly, all individual countries (or regions) are linked through international trade flows to form a general equilibrium model in which prices and quantities supplied and demanded are determined simultaneously in all primary factor markets and domestic and international commodity markets. Finally, a global CGE model structure reflects the fact that all parts of the world economy hinge together in a network of direct and indirect linkages. This means that any changes in any part of the system will in principle affect the entire world.

At present, the GTAP model and database are widely used by individual researchers and national and international organisations to quantify the effects of PTAs. There are numerous GTAP related CGE evaluations of PTAs (see Bandara, 1998). These quantitative assessments have provided valuable inputs into policy debate on PTAs. However, GTAP has rarely been used to address issues of South Asia (with rare exceptions such as Pigato et al, 1997). One of the main reasons for this is the inadequate treatment of the member countries of SAARC in earlier versions of the GTAP database. South Asia (except India) was only an aggregated region in the earlier versions of GTAP database until 1998. Recently an attempt has been made to disaggregate South Asian in the GTAP database by incorporating Sri Lanka as a separate region. This has been followed up by adding Bangladesh as separate region to GTAP-version 5 database. As a result, Bangladesh, India, Sri Lanka and the rest of South Asia are separate regions in the new database, which has 1997 as its base year. This new version provides us with an opportunity to use the GTAP model in a sensible way to illustrate the quantification of the effects of regional integration in South Asia.

In order to perform policy simulations we aggregate the recently released GTAP version 5 database into 12 regions, keeping India, Sri Lanka, Bangladesh and the rest of South Asia as separate regions (see Appendix 1) and 17 industries (see Appendix 2). We identify some agricultural sectors separately and three manufacturing sectors separately: textiles, wearing apparels and other manufacturing.

Before going further into the details of the policy scenarios, some key characteristics of South Asia from the database are discussed first. These characteristics will help us to understand the consequence of possible trade liberalisation scenarios.

As discussed earlier, intra-regional trade in South Asian is very small and South Asian countries are exporting similar goods. Some excerpts from the GTAP database, summarized in Tables 4 and 5, show the major exporting commodities and major export destinations of South Asian countries and confirm these points. As shown in Table 4, manufacturing goods other than wearing apparels and textiles account for 41 per cent of India's total exports and the textile sector accounts for about 14 per cent. The wearing apparel sector has been the most dominating export product in Sri Lanka and Bangladesh (36 per cent and 42 per cent, respectively). In the rest of South Asia's (mainly Pakistan) the major export item is textiles (see Table 4). Table 5 indicates that the main trading partners of South Asia's main exporting goods are NAFTA and EU rather than South Asian countries themselves. For example, 80.3, 97, 96.8 per cent of export of wearing apparels from India, Sri Lanka and Bangladesh, respectively, goes to NAFTA and EU, while export of this good inside this region is very small.

Import tariff rates in South Asian remains relatively high, even after the three rounds of tariff cut under SAARC. Table 7 shows the bilateral import tariff rates of South Asian countries levied on three most important aggregated goods (manufacturing, wearing apparels and textiles) in the year of 1997. India is still highly protecting its manufacturing sector with the tariff rate around 25 to 30 per cent, while its tariff rates for wearing apparels and textiles are generally over 35 per cent. Sri Lanka and Bangladesh are less protective in manufacturing, compared to India, but their tariff rates in wearing apparels and textiles are on par with India. The rest of South Asian, mainly Pakistan, is generally more protective than India, Sri Lanka and Bangladesh, especially on imports from NAFTA and the EU.

TABLE 4. Shares of export by commodities in South Asia in 1997, per cent

	India	Sri Lanka	Bangladesh	Rest of South Asia
Manufacturing	41.1	24.9	11.2	9.5
Wearing apparels	9.4	36.0	46.6	14.5
Textiles	14.0	9.6	18.8	41.8
Other crops	3.6	5.2	2.3	1.1

Source: GTAP database Version 5.

TABLE 5. Bilateral export shares by commodities and destination in 1997, per cent

		NAFTA	India	Sri Lanka	Bangladesh	Rest S. Asia	EU
Wearing appeals	India	35.3	0.0	0.1	0.0	0.0	45.0
	Sri Lanka	66.3	0.0	0.0	0.0	0.0	30.7
	Bangladesh	53.2	0.0	0.0	0.0	0.0	43.6
	Rest S. Asia	43.1	0.0	0.0	0.0	0.0	45.6
Textiles	India	17.9	0.0	1.2	4.7	0.3	36.2
	Sri Lanka	39.7	0.4	0.0	0.1	0.2	46.9
	Bangladesh	17.6	0.8	0.2	0.0	0.2	62.3
	Rest S. Asia	19.0	0.6	0.7	1.2	0.1	29.3
Manufacturing	India	27.1	0.0	1.2	1.8	0.8	26.5
	Sri Lanka	28.5	1.7	0.0	0.8	0.9	37.1
	Bangladesh	28.1	2.7	0.0	0.0	0.1	29.6
	Rest S. Asia	15.3	6.1	0.7	1.6	0.1	40.5
Other crops	India	14.6	0.0	0.6	1.4	1.6	29.2
	Sri Lanka	15.7	1.7	0.0	0.0	4.8	35.3
	Bangladesh	0.6	0.3	0.0	0.0	31.8	4.9
	Rest S. Asia	3.7	6.8	2.7	6.6	0.5	13.1

Source: GTAP database Version 5.

In addition to these tariff rates and the initially trade structure, the relative size and openness of the economies will also determine the results of alternative trade liberalisation scenarios. According to the GTAP database, India, whose economy size is many times of the smaller economies in the region, has the highest self-sufficient rate in manufacturing goods, while Sri Lanka and Bangladesh are net exporters of wearing apparels. Also, India and rest of South Asia are net exporters of textiles.

TABLE 6. Bilateral import tariff rates for selected commodities in South Asia, per cent

Importer	Sector	NAFTA	ASEAN	India	Sri Lanka	Bangladesh	Rest S. Asia	EU
India	manufacturing	26.1	25.5	0.0	29.9	31.5	35.0	22.4
	wearing apparels	37.7	40.0	0.0	40.0	40.0	14.7	36.3
	textiles	37.9	37.8	0.0	36.2	40.0	37.6	35.2
Sri Lanka	manufacturing	13.7	15.1	16.4	0.0	12.0	9.4	15.7
	wearing apparels	32.6	34.9	35.0	0.0	35.0	34.6	33.2
	textiles	31.5	27.2	20.7	0.0	30.3	22.0	28.9
Bangladesh	manufacturing	11.8	21.0	17.5	14.4	0.0	17.5	13.9
	wearing apparels	31.3	34.4	10.2	0.0	0.0	10.2	35.2
	textiles	31.7	27.5	10.4	34.8	0.0	10.4	31.6
Rest S. Asia	manufacturing	33.6	39.7	27.2	1.0	39.0	7.0	40.8
	wearing apparels	57.1	39.0	30.2	2.3	65.0	2.3	57.8
	textiles	56.0	44.2	21.5	8.1	64.6	5.0	52.7

Source: GTAP database, Version 5. These tariff rates reflect the applied rates at the year 1997. Note these are not the actual tariff rates at actual line level. Rather they are highly aggregated rates using trade data as weights.

6. Policy Scenarios

We use the standard GTAP model (available from the GTAP website <http://www.gtap.org>) in this study to evaluate the effects of SAFTA. As opposed to quantify the effects of actual tariff concessions given by SAPTA members during SAPTA-1, SAPTA-2 and SAPTA-3, we look at hypothetical policy scenarios involving 100 percent tariff cut², in which the scope of trade liberalisation widens from a small South Asian PTA to multilateral trade liberalisation. These scenarios are intended to provide a benchmark for comparing the differential impact of unilateral and preferential trade liberalisation on South Asian countries.

The design of these scenarios is summarized in Box 2. To begin with, we perform two opposite policy simulations: a unilateral trade liberalisation scenario, where we assume that all

Box 2 **Policy Scenarios**

Six hypothetical trade liberalisation scenarios are simulated in this study. Each of the six scenarios involves a 100 per cent cut of the South Asia countries' tariffs against the specific trade partners.

Scenario 1: Unilateral Trade Liberalisation by South Asian Countries

All the South Asia countries unilaterally remove all their tariffs against all other countries in the world, while the rest of the world retains its tariff against South Asia.

Scenario 2: Preferential Trade Liberalisation in South Asia

All the South Asia countries remove their bilateral tariffs, while the tariff rates against countries outside of the region remain unchanged, i.e. the case of a SAFTA.

Scenario 3: Preferential Trade Liberalisation between South Asia and ASEAN

Preferential trade liberalization in Scenario 2 is extended to the ASEAN countries, i.e. a SA-ASEAN FTA.

Scenario 4: Preferential Trade Liberalisation between South Asia and NAFTA

Preferential trade liberalization in Scenario 2 is extended to the NAFTA countries, i.e. a SA-NAFTA FTA.

Scenario 5: Preferential Trade Liberalisation between South Asia and EU

Preferential trade liberalization in Scenario 2 is extended to the EU, i.e. a SA-EU FTA.

Scenario 6: Multilateral Trade Liberalisation

Each of the countries in the study cut it tariff rates by 100 per cent to all the other countries in the world.

² There are a number of reasons for that. First, tariff concessions under SAPTA rounds are moderate. Second, the product items considered under these rounds are very narrowly defined (at 6-digit HS code level) and it is very difficult to aggregate them in a sensible way according to the GTAP commodity classification. Third, hypothetical simulations can be used to evaluate the possible effects of the SAFTA and to provide some inputs to the debate of the desirability of SAFTA.

four regions in South Asia (India, Sri Lanka, Bangladesh and the rest of South Asia) remove all import tariffs and export duties (or subsidies), and a preferential trade liberalisation scenario, where we assume that all tariffs and export duties (or subsidies) between the four trading partners in South Asia are removed while keeping the same variables against other regions outside South Asia constant. In addition to these two major policy simulations we also consider other hypothetical options available for South Asian countries by extending preferential trading treatment to ASEAN, NAFTA and EU separately. Finally, we consider multilateral trade liberalisation or global trade liberalisation in order to illustrate the importance of a broader trade liberalization effort.

7. Simulation Results

Welfare results, in particular allocation efficiency and terms of trade effects, from the first two scenarios are discussed in this section. Then changes in production and trade are documented to explain the welfare changes. Welfare changes from the alternative scenarios (scenarios 3-6) are also summarized in this section.

a. Aggregated Welfare Results

In general, we can see from the welfare results of the first two simulations shown in Table 7 that the biggest gainer in South Asia from both unilateral and preferential trade liberalisation would be India. While Rest of South Asia is expected to lose from the unilateral trade liberalisation, Bangladesh is expected to lose from the preferential trade liberalisation.

Under the unilateral liberalization scenario, India would gain substantially, while NAFTA and EU, the two biggest trading partners of South Asian countries, would also gain although these welfare gains are marginal considering the size of these two economies. Sri Lanka and Bangladesh would also gain considerably while the rest of South Asia would lose. Regions like the ASEAN and Rest of East Asia would be expected to lose because these countries are main competitors in South Asian export markets.

Under the SAFTA scenario, India would be the only significant welfare gainer (\$756 million or 0.21 per cent increase in utility), while small countries gain marginally. Bangladesh is even expected to lose. This is not surprising given the fact that during the last three

TABLE 7. Welfare Changes under Preferential and Unilateral Liberalisation (EV in \$million)

Regions	Unilateral liberalisation				SAPTA			
	Efficiency	TOT	Total ¹	Utility ² (%)	Efficiency	TOT	Total	Utility(%)
Australia	1	97	147	0.0	-1	-5	-12	-0.0
NAFTA	1519	1759	2509	0.0	-4	-33	-114	-0.0
Japan	29	58	439	0.0	-7	-55	-157	-0.0
Rest E Asia	-824	-261	-1092	-0.1	-3	-53	-123	-0.0
ASEAN	-231	203	95	0.0	-1	-45	-70	-0.0
India	4523	-2370	2332	0.6	81	323	756	0.2
Sri Lanka	150	-108	84	0.6	-5	8	4	0.0
Bangladesh	542	-519	174	0.4	-6	-28	-41	-0.1
Rest S. Asia	1333	-1001	-511	-0.8	2	39	52	0.1
EU	204	767	1125	0.0	-22	-95	-170	-0.0
EIT	-44	-78	-124	-0.0	-3	-11	-20	-0.0
Rest of World	428	1481	2455	0.1	-38	-47	-114	-0.0

Note 1: sum of allocation efficiency and terms of trade does not add up to the “total” column as total welfare also includes other components. See Hertel (1997) for the welfare decomposition in the GTAP model.

Note 2: percentage change in regional utility.

Source: Tables 7-12 are the results from the experiments.

decades India’s export to other South Asian countries continued to rise, while share of export from other South Asian countries (such as Bangladesh) to India fell, as shown in Table 3. All the regions outside of South Asia lose marginally due to the slightly diverted trade and unfavourable terms of trade effect.

b. Decomposing Allocation Efficiency and Terms of Trade Effects

Analysing the real income effects of these two policy scenarios is quite a complex task and we need to trace the major factors that cause these welfare changes. As illustrated by the welfare decomposition shown in Table 7, welfare gains from both policy scenarios are mainly determined by two factors, i.e., the change in efficiency as a result of resource reallocation, and the change in a country's terms of trade (TOT).

First, we focus on the allocation efficiency effect. As we expect, all countries in the region are expected to have efficiency gains from the unilateral trade liberalisation and India is the biggest winner. The removal of all tariffs leads to an increased access to cheaper imported goods and an increase in gains in consumption. On the other hand, the improved resource utilisation, as a result of trade liberalisation also gives rise to welfare gains. It is not surprising to see that India as the biggest winner with its initial high tariff levels and bigger manufacturing sector. These gains are reflected under the “Efficiency” column in Table 7. The

preferential trade liberalisation (SAFTA) does not give rise to much efficiency gains in the region. In fact, small countries such as Sri Lanka and Bangladesh are expected to lose from inefficient resource utilisation.

Table 8 provides a decomposition of allocation efficiency effects by commodities. From this table, we can see that under the unilateral trade liberalisation, resource reallocations between manufactures, wearing apparels and textiles cause the bulk of the efficiency gains. India, in particular, gains \$3.24 and \$0.41 billion from wearing apparels and textiles, respectively. In fact, unilateral trade liberalisation improves welfare by moving resource from the other manufacturing sector to the more efficient clothing and textile sectors in South Asian countries (see also Table 10 for the declines in other manufacturing output and rises in wearing apparels and textiles). Under the preferential liberalisation, however, the changes in efficiency are much smaller or even negative. Only India shows modest gain in the manufacturing sector under preferential liberalisation.

TABLE 8. Decomposition of allocation efficiency effect by commodities (\$million)

	Unilateral Liberalisation			SAFTA		
	Manufacturing	Wearing apparels	Textiles	Manufacturing	Wearing apparels	Textiles
India	559	3235	410	132	-52	-10
Sri Lanka	99	-100	75	-2	-10	-8
Bangladesh	133	157	174	-19	13	-15
Rest S. Asia	685	143	229	-4	-5	-2

The second important component of welfare gains is the TOT effect, as shown in Table 9. For the two most important commodities in South Asia (WAP and TEX), Table 9 traces TOT effects from world price, export price and import price and demonstrates that all countries in the South Asian region would expect to lose as a result of TOT deterioration after unilateral trade liberalisation. This is due to the initial high tariff levels in this region. When the countries in the region liberalise trade regime, imports into the region, especially other manufacturing goods from their main trading partners (EU and NAFTA), will increase. These countries need to export more of their own products such as wearing apparels and textiles to finance their increased import bills. This, in turn, depresses their export prices and passes South Asia's efficiency gains to other regions. Table 9 clearly demonstrates this point. Export prices of textiles and wearing apparels are expected to decline in all the countries in the region. The negative TOT effect reduces welfare gains in this region compare to other regions.

TABLE 9. **Decomposition of terms of trade effects* (\$million)**

Sector	Regions	Unilateral Liberalisation			SAFTA		
		pworld	pexport	pimport	pworld	pexport	pimport
Wearing Apparels	India	-308	-2359	-3	0	28	0
	Sri Lanka	-52	-110	-1	0	-7	-0
	Bangladesh	-97	-368	-1	0	-18	0
	Rest S. Asia	-61	-211	-1	0	5	0
Textiles	India	-27	-192	-4	2	43	0
	Sri Lanka	2	-26	-6	-0	1	-1
	Bangladesh	2	-100	-15	0	-5	-2
	Rest S. Asia	-25	-499	-2	1	13	-0

Note: The terms of trade effects are decomposed into world price effect, export price effect and import price effect. For each region, the sum of TOT effects across all commodities is equal to its total terms of trade effect, as shown in Table 7.

Under the preferential liberalisation, the world price effect is minimal as expected. However, India and Rest of South Asia (mainly Pakistan) enjoy some positive export price effects, mainly from increased export to the other South Asian countries in wearing apparels and textiles and favourable export price in these two sectors.

c. Production

Table 10 shows the impact on industry output levels under both policy scenarios. Unilateral trade liberalisation would give rise to a decline in output levels of most industries other than wearing apparels and textiles in all countries in the region. On the other hand, wearing apparels and textiles would expand significantly as South Asian countries have comparative advantage in producing wearing apparels and textiles over manufacturing goods (see Kemal et. al. 2000). Under preferential liberalisation, however, there would be no major changes in output, confirming the relative similarity in the production structure among these countries.

d. Export

Table 11 shows changes of trade value at base price (1997) under both scenarios. The unilateral trade liberalisation would lead to an increase in exports of South Asia's main products to NAFTA and EU, as expected. Changes in intra-South Asia trade would be insignificant, except the moderate increase in manufacturing export from India to the other countries in South Asia, and the import into India from the other countries in South Asia. Under the preferential trade liberalisation scenario, exports from South Asia countries (except Bangladesh) to NAFTA and EU would drop. In this scenario, India would step in by increasing its

TABLE 10. **Percentage changes in regional output from the base year**

	Unilateral Trade Liberalisation				SAFTA			
	India	Sri Lanka	Bangladesh	Rest S. Asia	India	Sri Lanka	Bangladesh	Rest S. Asia
Ser	0.6	-1.6	-0.9	1.8	0.0	-0.1	0.0	0.0
Omf	-11.2	-5.9	-21.5	-21.5	0.0	1.2	-1.1	0.9
Wap	206.7	45.5	111.3	68.0	-2.0	3.8	5.1	-1.7
Tex	12.1	-3.0	19.5	22.9	-0.1	-1.0	1.8	0.7
b_t	-8.6	-83.0	-6.5	-4.4	-0.1	3.4	-0.1	0.6
Ofd	-10.5	-10.3	-5.2	-3.8	-0.7	-1.2	-1.9	1.7
Mil	-0.5	3.9	-16.6	-1.1	0.1	0.9	-2.2	0.1
Vol	-4.3	-5.6	-21.6	-13.0	0.1	44.6	-0.9	-0.8
Min	-10.1	-31.0	-18.2	-4.9	-0.3	-0.7	-0.5	-0.2
f_f	-3.0	-2.4	-1.2	-2.9	0.0	-0.1	0.1	-0.4
Wol	-19.1	49.0	1.0	-9.2	-0.8	2.8	-0.1	0.0
Ctl	-0.9	-1.0	-2.9	-3.4	0.0	0.2	-0.2	0.1
Ocr	-1.4	1.6	2.3	-3.4	0.1	6.5	2.0	-1.7
Sgr	-0.3	-25.9	-6.4	-3.2	0.6	-2.3	-2.2	-1.6
veg	-3.1	-2.8	-1.3	-1.2	0.0	-0.2	-0.1	0.5
gro	-0.2	-32.0	-9.5	0.6	0.0	-1.1	-1.6	0.0
ric	-0.6	-8.1	-0.7	1.2	0.1	-5.5	-0.4	0.4

TABLE 11. **Changes of bilateral export (\$ Millions) from base year at base price**

	Unilateral Trade Liberalisation						SAFTA					
	NAFTA	IND	LKA	BGD	RAS	EU	NAFTA	IND	LKA	BGD	RAS	EU
India (exporter)												
Omf	193	0	67	92	-36	211	-158	0	284	428	475	-156
Wap	13943	0	1	-1	0	2601	-54	0	25	1	6	-87
Tex	217	0	-3	-48	1	804	-29	0	81	126	21	-56
Sri Lanka (exporter)												
Omf	57	23	0	3	-7	74	-8	97	0	14	10	-11
Wap	445	2	0	0	0	312	39	4	0	0	0	19
Tex	90	2	0	1	-0	6	-1	5	0	2	0	-2
Bangladesh (exporter)												
Omf	-14	13	0	0	0	-14	2	69	0	0	6	3
Wap	1319	0	0	0	1	1599	69	0	0	0	5	58
Tex	132	17	1	0	7	231	3	25	4	0	16	10
Rest of South Asia (exporter)												
Omf	116	195	4	19	-1	310	-2	328	4	23	0	-6
Wap	627	1	1	-0	-0	1009	-16	1.6	3.6	1	0	-17
Tex	848	66	12	8	-1	739	-9	78	38	26	-0	-14

Note: omf, wap and tex stand for, respectively, manufacturing, wearing apparels and textiles.

export to the other South Asia countries, especially in manufacturing, and attracting more imports from the other South Asia countries. Consequently, India's gain from this scenario would be bigger than other countries, despite that the tariff cuts are similar across South Asian countries, as shown in Table 4. Part of the reason is that India's economic size is much bigger and that it is able to produce more manufacturing goods. Much of the diverted trade will be centered on India. This, in some sense, creates some intra-regional trade, but only marginally, compared to the expanded trade under unilateral trade liberalisation.

e. Welfare Results from Alternative Scenarios

To complete the evaluation of a South Asian PTA, we perform scenarios 3-6 (as shown in Box 2) to test whether or not it is better for small regions like South Asia to widen trade liberalisation rather than integrating within themselves. We only consider welfare results of these policy simulations together with previous two major policy simulations. The welfare changes under these policy simulations are summarised in Table 12.

Table 12 shows that only India gains significantly from a South Asian FTA in terms of welfare while other regions are marginally or even negatively affected by it. As the scope of preferential trade liberalisation widens from SAFTA to ASEAN plus SAFTA, the welfare results change remarkably. This policy scenario indicates that it is not a good idea for South Asian countries to join ASEAN because all South Asian countries including India would be adversely affected in terms of welfare. On the other hand, the ASEAN region would gain and the rest of regions in the world would lose. The possible reason for this is that ASEAN countries such as Thailand, Malaysia and Indonesia are producing competing goods against South Asian countries and some advanced manufactured goods. A FTA between these two regions will allow ASEAN countries to get access to the South Asian market in both competing and complementary goods.

While preferential trade between South Asia and ASEAN is expected to create adverse effects on South Asia, preferential trade between South Asia and EU or NAFTA is expected to be beneficial to South Asia. Under these two cases, welfare gains for almost all South Asian economies would be bigger than the gains from unilateral liberalisation by South Asia. As noted earlier, South Asia's two major export destinations are the NAFTA and the EU. The preferential trade would allow South Asia to get access to these markets. The trade between South Asia and these regions are also complementary. These are the main possible reasons for the South Asia-NAFTA or the South Asia-EU preferential trade liberalisation to

TABLE 12. **Welfare Effects under Alternative Liberalisation Scenarios: Allocation Efficiency and Terms of Trade Effects: (EV in \$million)**

	Unilateral liberalisation			SAFTA			Multi-liberalisation		
	Efficiency	TOT	Total	Efficiency	TOT	Total	Efficiency	TOT	Total
AUS	1	97	147	-1	-5	-12	59	2631	3635
NAFTA	1518	1759	2509	-4	-33	-114	8435	-11905	-6091
JPN	29	58	439	-7	-55	-157	14834	6248	33638
REA	-823	-261	-1092	-3	-53	-123	14968	5545	27345
ASE	-231	203	95	-1	-45	-70	3147	3934	7324
IND	4523	-2370	2332	81	323	756	4483	-1250	3521
LKA	150	-108	84	-5	8	4	204	-3	274
BGD	542	-519	174	-6	-28	-41	543	-451	289
RAS	1333	-1001	-511	2	39	52	1392	-540	97
EU	204	767	1125	-22	-95	-170	14317	2306	9097
	SA-ASEAN FTA			SA-NA FTA			SA-EU FTA		
	Efficiency	TOT	Total	Efficiency	TOT	Total	Efficiency	TOT	Total
AUS	-1	-27	-26	-14	-8	-96	-13	-35	-72
NAFTA	93	-216	-42	96	2448	1295	-149	-546	-1089
JPN	-23	-116	-33	-64	-565	-2011	-59	-417	-1088
REA	-92	-287	-378	-1007	-985	-3309	-172	-455	-1076
ASE	66	2138	3039	-246	-442	-1059	-57	-322	-518
IND	-323	-412	-1313	3156	1475	10064	-280	404	1355
LKA	-8	-15	-30	68	196	416	-32	165	211
BGD	3	-80	-152	187	55	551	186	178	776
RAS	-282	-326	-791	-141	175	110	-318	-39	-525
EU	-9	-340	-396	-496	-1250	-2687	670	2952	4212

become much better options than that of South Asia-ASEAN. Another interesting observation is that a FTA between SAFTA and NAFTA (between SAFTA and EU) would create strong trade diversion against EU (NAFTA) as the region (either NAFTA or EU) left out of the hypothetical FTA with South Asia would suffer welfare loss. Also shown in Table 12 is the effect of a full multilateral trade liberalization scenario, which would bring gains to almost every region in the study. The welfare gains for South Asian countries are all substantial. However, these gains to South Asia are smaller than the case of forming a SA-NA free trade area. While for the world as a whole the best option is clearly the multilateral trade liberalisation than preferential trade liberalisation, our analysis cannot completely rule out the desirability of a PTA with either NAFTA or the EU from the view of South Asia, even when this is compared to multilateral liberalisation.

f. Summary

In general, while the impact of preferential trade liberalisation is very small, the impact of unilateral trade liberalisation is significant for South Asia. Under preferential liberalisation, small countries will lose or gain marginally, while the biggest country in the region, India, will likely be the sole significant winner. These illustrative results contradict the findings of some of previous studies. According to some previous studies, small countries in the region would gain from preferential trade liberalisation more in comparison with India's gain. Some other previous studies have indicated some significant gains from SAFTA. However, our study demonstrates a different story. Our results are more close to the pessimistic view on SAFTA highlighted in the previous section, and in general confirm our discussion on the lack of the necessary conditions to form a desirable PTA in South Asia.

Some limitations of our study should be noted. We do not consider quantitative restrictions in this study and we are mainly focusing on import duties and export duties (or subsidies). Although the implementation of the Agreement on Textiles and Clothing (ATC) under the Uruguay Round is very important to South Asia's main export products, we are not focusing on it in details. However, we intend to extend our analysis to cover the ATC in the future. The results in this study under both scenarios are conservative and they underestimate welfare gains since the standard static GTAP model does not capture the dynamic effects of both unilateral and preferential trade liberalisation. It also does not capture the economies of scale effects of trade liberalisation since the standard GTAP model is based on constant returns to scale assumption. This study also ignores the potential productivity gains from South Asia's integration into the world economy as a result of trade liberalisation. As noted before, the results of the simulations should not be interpreted as predictions or forecasts

under different policy scenarios. The representation of our policy simulations is quite crude. For example, we assume all tariffs between members of SAARC are removed under the preferential trade liberalisation scenario. However, under the SAPTA, tariffs are reduced over time under different rounds. Our main focus is on trade, production and welfare effects of preferential trade liberalisation and unilateral trade liberalisation. All these limitations should be kept in mind when interpreting our results.

8. Concluding Remarks

In this study we reviewed the background and the controversies related to the desirability of SAPTA. To illustrate whether the SAFTA is a desirable PTA, we analyse the necessary conditions for forming a PTA and later use the GTAP model as a tool to quantify the effects of SAPTA, in comparison with the effects of unilateral liberalisation and some other policy options. From previous empirical literature, we identify three different viewpoints on SAFTA (optimistic, pessimistic and moderate). Our results support the pessimistic view. As our results indicate, South Asian countries may gain much more from unilateral trade liberalisation and multilateral trade liberalisation than from the current SAPTA or the proposed SAFTA. However, the hypothetical preferential trade arrangements between South Asia and the NAFTA and the EU would be beneficial for the region.

As our economic analysis shows that SAFTA would not benefit this region economically, the recent progress of SAFTA is not very encouraging, either. The experience of last 15 years demonstrates that it is very difficult to achieve a meaningful regional cooperation in economic and social matters in South Asia without proper resolutions of political conflicts between member countries. Since 1999 the member countries could not meet at a SAARC summit because of political conflict, which seems to jeopardize the formation of SAFTA before the end of 2001. In this environment, some member countries in the region have chosen another option, i.e., entering into bilateral trade agreements. For example, Sri Lanka signed a bilateral trade agreement with India in 1998 and it is effective now. At present, it is also negotiating with Pakistan to sign another bilateral trade agreement with Pakistan. These developments reflect more pessimistic future about SAFTA. Therefore, it might be a more practical strategy for policy makers in the region to participate broader multilateral trade liberalization efforts, and at the same time to try to solve other constraints such as political difference within the region.

Reference

- Aggarawal, M. and Pandey, P. (1992), 'Prospects of Trade Expansion in the SAARC Region', *The Developing Economies*, 30, 1, 3-23.
- Bhagwati, J. (1992), 'Regionalism vs. Multilateralism', *The World Economy*, 15, 5, :535-6.
- Bhagwati, J. (1993), 'Regionalism and Multilateralism: An Overview', J. de Melo and A. Panagariya (eds), *New Dimensions in Regional Integration* (New York: Cambridge University Press).
- Baldwin, R. E. and Venables, A. J. (1995), 'Regional Economic Integration', in Grossman, G. M. and K. Rogoff (eds), *Handbook of International Economics Volume III*, (Amsterdam: Elsevier).
- Bandara, J. S. (1998) 'A survey on Applications of the GTAP Model and Data Base to the Analysis of Global Issues', Paper presented to the First Annual Conference on Global Economic Analysis. Purdue University. Indiana, USA.
- Bandara, J.S. and M. McGillivray (1998), 'Trade Liberalisation in South Asia', *The World Economy*, 21, 7, 881-96.
- DeRosa, D. A. (1998). Regional Integration Arrangements: Static Economic theory, Quantitative Findings, and Policy Guidelines, background paper for a World Bank Policy Research Report, Regionalism and development, Virginia: ADR International, Ltd.
- DeRosa, D. A. and K. Govindan (1995) 'Agriculture, Trade, and Regionalism in South Asia', Food, Agriculture, and the Environment Discussion Paper 7, International Food Policy Research Institute, Washington, D.C.
- DeRosa, D.A. and K. Govindan (1996). 'Agriculture, Trade, and Regionalism in South Asia', *Journal of Asian Economics*, 7, 2, 293-316.
- Drysdale, P. D. (1969), 'Japan and Australia: The Prospect for Closer Economic Integration', *Economic Papers*, 30, 12-28.
- Drysdale, P. D. (1967) *Japanese-Australia Trade*, PhD. Dissertation, Australian National University, Canberra.
- Flam, H. (1992), 'Product Markets and 1992: Full Integration, Large Gains?', *Journal of Economic Perspective*, 6, 7-30
- Francois, J. F. and C. R. Shiells (1994), 'AGE Models of North American Free Trade' in J. F. Francois and C. R. Shiells, (eds) *Modeling Trade Policy, Applied General Equilibrium Assessments of North American free Trade*, (Cambridge: Cambridge University Press).
- Frankel, J. A. with E. Stein and S.J. Wei (1997), *Regional Trading Blocs in the World Economic System*, (Washington, D.C.: Institute for International Economics).

- Frankel, J. A., E. Stein and S.J. Wei (1997), '*Trading Blocs and the Americas: The Natural, the Unnatural and Super Natural*', *Journal of Development Economics*, 47, 1, 61-96.
- Frankel, J. A. and S.J. Wei (1997), 'The New Regionalism and Asia: Impact and Options' in A. Panagariya, M.G. Quibria and N. Rao (eds), *The Global Trading System and Developing Asia* (Hong Kong: Oxford University Press).
- GTAP Website <http://www.gtap.org>.
- Hertel, T.W. (ed) (1997), *Global Trade Analysis: Modeling and Applications* (New York: Cambridge University Press).
- IMF, Direction of Trade (Various Issues), Washington DC: International Monetary Fund.
- Jayaraman, T. K. (1978), *Economic Cooperation in the Indian Sub-continent - A Customs Union Approach* (New Delhi: Orient Longman).
- Kemal, A.R., M. Din, K. Abbas, and U. Qadir (2000), 'A Plan to Strengthen Regional Trade Cooperation in South Asia', Paper Presented to the Second Conference of the South Asia Network of Economic Research Institute (SANEI), August 28-29, Kathmandu.
- Khan, S.M. (1999), 'South Asian Association for Regional Cooperation', *Journal of Asian Economics*, 10, 3, 489-95.
- Kojima, K. (1964), 'The Pattern of International Trade among Advanced Countries', *Hitotsubashi Journal of Economics*, 5, 1, 16-36.
- Krugman, P (1991), 'The Move Toward Free Trade Zones', in *Policy Implications of Trade and Currency Zones*, (Wyoming: Federal Reserve Bank of Kansas City).
- Lahiri, S. (1998), 'Controversy: Regionalism Versus Multilaterlism', *The Economic Journal*, 108, 1126-27.
- Mukherji, I.N. (1997), 'South Asian Preferential Trading Arrangement: Indetifying Products in India's Regional Trade', (mimeographed) (as cited in Pigato, et. al, 1997).
- Mukherji, I.N. (2000), 'Charting a Free Trade Area in South Asia: Instruments and Modalities' Paper presented to the Second Conference of the South Asia Network of Economic Research Institute (SANEI), August 28-29, Kathmandu.
- Panagariya, A. (2000), 'Preferential Trade Liberalization: The Traditional Theory and New Development', *Journal of Economic Literature*, XXXVIII, 2, 287-331.
- Panagariya, A. (1999), 'Trade Lberalisation in South Asia: Recent Liberalisation and Future Agenda', *The World Economy*, 22, 3, 353-378.

- Panagariya, A and Duttagupta, R. (1999), 'The 'Gains' from Preferential Trade Liberalization in the CGEs: Where from Do They Come?', University of Maryland, mimeo, Forthcoming in *Regionalism and Globalization: Theory and Practice*, S. Lahiri, (ed), (London: Routledge).
- Rahman, M. (1997), 'Recent Policy of Trade Liberalisation in Bangladesh and Issues for Regional Cooperation in South Asia', *Journal of Asian Economics*, 8, 1, 117-141.
- Rajapakse, P. and Arunatilleke, N. (1997), 'Would a Reduction in Trade Barriers Promote Intra-SAARC Trade? A Sri Lankan Perspective', *Journal of Asian Economics*, 8, 1, 95-115.
- Robinson, S. and K. Thierfelder (1999), 'Trade Liberalization and Regional Integration: The search for Large Numbers', TMD Discussion Paper No. 34 (Washington, D.C.: International Food Policy Research Institute).
- Pigato, M., Farah, C., Itakura, K., Jun, K., Martin, W., Murrell, K. and T.G. Srinivasan (1997), *South Asia's Integration into the World Economy* (Washington, D.C.: World Bank).
- SAARC Website <http://www.saarc-sec.org>.
- Samaratunga, R. H. S. (1999), *Essays in Trade Policy and Economic Integration with Special Reference to South Asia*, Unpublished PhD Thesis, La Trobe University, Melbourne.
- Srinivasan, T.N. (1994), 'Regional Trading Arrangements and Beyond: Exploring Some Options for South Asia, Theory, Empirics, and Policy', Report No. IDP-142 (Washington, D.C.: World Bank).
- Srinivasan, T.N. (1998), *Developing Countries and the Multinational Trading System: From GATT to the Uruguay Round and the Future* (New Delhi: Oxford University Press).
- Srinivasan, T.N. and G. Canonero (1995), 'Preferential Agreements in South Asia: Theory, Empirics and Policy', Yale Growth Centre, Yale University (mimeographed) (as cited in Pigato, et al, 1997).
- World Bank (2000), *Global Economic prospects and the Developing Countries* (Washington D.C: The World Bank).
- World Bank (2001), *World Development Indicators* (Washington D.C: The World Bank).

Appendix 1. Regional Aggregation of the GTAP database

Code	Aggregated region	Comprising old regions
AUS	Australia	Australia.
NAFTA	North American FTA	Canada; United States; Mexico.
JPN	Jpn	Japan.
REA	Rest of East Asia	China; Hong Kong; Korea; Taiwan.
ASE	Asean-6	Indonesia; Malaysia; Philippines; Singapore; Thailand; Vietnam.
IND	India	India.
LKA	Sri Lanka	Sri Lanka.
BGD	BGD	Bangladesh.
RAS	Rest of South Asia	Rest of South Asia.
EU	European Union	EU 15
EIT	Economies in Transition	Hungary; Poland; Rest of Central European Assoc; Former Soviet Union.
ROW	Rest of the world	Rest of World

Appendix 2. Commodity Aggregation of the GTAP database

code	Aggregated sector	Comprising old sectors
ser	service	Electricity; Gas manufacture, distribution; Water; Construction; Trade; Transport nec; Sea transport; Air transport; Communication; Financial services nec; Insurance; Business services nec; Recreation and other services; PubAdmin/Defence/Health/Educat; Dwellings.
omf	Manufacturing	Leather products; Wood products; Paper products, publishing; Petroleum, coal products; Chemical, rubber, plastic prods; Mineral products nec; Ferrous metals; Metals nec; Metal products; Motor vehicles and parts; Transport equipment nec; Electronic equipment; Machinery and equipment nec; Manufactures nec.
wap	Wearing apparel.	Wearing apparel.
tex	Textiles.	Textiles.
b_t	Beverages and tobacco products.	Beverages and tobacco products.
ofd	Food products nec.	Food products nec.
mil	Raw milk; Dairy products.	Raw milk; Dairy products.
vol	Oil seeds; Vegetable oils and fats.	Oil seeds; Vegetable oils and fats.
min	Coal; Oil; Gas; Minerals nec.	Coal; Oil; Gas; Minerals nec.
f_f	Forestry; Fishing.	Forestry; Fishing.
wol	Wool, silk-worm cocoons.	Wool, silk-worm cocoons.
ctl	ctl	Cattle, sheep, goats, horses; Animal products nec; Meat: cattle, sheep, goats, horse; Meat products nec.
ocr	ocr	Plant-based fibers; Crops nec.
sgr	sgr	Sugar cane, sugar beet; Sugar.
veg	veg	Vegetables, fruit, nuts.
gro	cereals	Wheat; Cereal grains nec.
ric	rice	Paddy rice; Processed rice.

Working Papers

Statens Jordbrugs- og Fiskeriøkonomiske Institut

16/01	October 2001	Jayatilleke S. Bandara and Wusheng Yu	How Desirable is the South Asian Free Trade Area? - A Quantitative Economic Assessment
15/01	Oktober 2001	Kim Martin Lind	Food Stocks as Insurance
14/01	Oktober 2001	Christian Bjørnskov and Ekaterina Krivonos	From Lomé to Cotonou The new EU-ACP Agreement
13/01	August 2001	Søren E. Frandsen, Hans G. Jensen, Wusheng Yu and Aage Walter-Jørgensen	Modelling the EU Sugar Policy A study of policy reform scenarios
12/01	August 2001	Poul P. Melgaard	En afviklingsstrategi for den di- rekte støtte i EU's fælles land- brugspolitik - muligheder og begrænsninger
11/01	Juli 2001	Steffen Møllenberg	EU's regnskabsstatistik for jord- brug
10/01	Maj 2001	Jørgen Dejgård Jensen, Connie Nielsen og Martin Andersen	ESMERALDA som formodel til makromodellen ADAM Dokumentation og anvendelser
9/01	Maj 2001	Jens Hansen	Overskuds- og indkomstbegreber i regnskabsstatistikken for landbrug
8/01	May 2001	Chantal Pohl Nielsen	Social Accounting Matrices for Vietnam: 1996 and 1997
7/01	May 2001	Aage Walter-Jørgensen and Trine Vig Jensen	EU Trade Developing Countries
6/01	April 2001	Søren Marcus Pedersen og Morten Gylling	Lupinproduktion til fermenterings- industrien – vurdering af teknologi og økonomi

5/01	April 2001	Mona Kristoffersen, Ole Olsen og Søren S. Thomsen	Driftsgrenøkonomi for økologisk jordbrug 1999
4/01	February 2001	Søren Marcus Pedersen and Morten Gylling	The Economics of producing quality oils, proteins and bioactive products for food and non-food purposes based on biorefining
3/01	Januar 2001	Lars Otto	Metoder til datakonstruktion i Bayesianske netværk – udvikling af beslutningsstøttesystem til sundhedsstyring i svinebesætninger
2/01	January 2001	Søren Marcus Pedersen, Richard B. Ferguson and R. Murray Lark	A Comparison of Producer Adoption of Precision Agricultural Practices in Denmark, the United Kingdom and the United State
1/01	January 2001	Chantal Pohl Nielsen, Karen Thierfelder and Sherman Robinson	Consumer Attitudes Towards Genetically Modified Foods The modelling of preference changes
17/00	December 2000	Hild Rygnestad, Jørgen D. Jensen og Tommy Dalgaard	Mårettede eller generelle politiske virkemidler? Økonomiske analyser i geografisk perspektiv
16/00	December 2000	Stine Hjarnø Jørgensen og Jørgen Dejgaard Jensen	Estimation af priselasticiteter for gødnings- og pesticidkomponenter
15/00	December 2000	Søren E. Frandsen and H.G. Jensen	Economic Impacts of the Enlargement of the European Union. Analysing the importance of direct payments
14/00	December 2000	Jesper Levring Andersen	Beregningsgrundlag for indtjeningen i det danske fiskeri: Arbejdsrapport til ”konjunkturrapport” for dansk fiskeri 2000
13/00	December 2000	Jens Hansen	Landbrugets nettokapitalomkostninger fastsat under hensyntagen til inflation og beskatning

12/00	December 2000	Niels Tvedegaard	Omlægning til økologisk slagtekyllingeproduktion – en analyse af de økonomiske konsekvenser på udvalgte bedrifter
11/00	November 2000	Kim Martin Lind	Consumer Demand in a Developing Country with Special Regard to Food – The Case of India
10/00	November 2000	Erik Lindebo	Capacity Development of the EU and Danish Fishing Fleets
9/00	October 2000	Max Nielsen	Calculations of Danish prices of unprocessed seafood
8/00	August 2000	Paul Rye Kledal	Økologisk jordbrug for fremtiden? – en økonomisk analyse af de potentielle økologiske jordbrugere
7/00	Juli 2000	Steffen Møllenberg	Gartnerierhvervets produktivitetsudvikling – samt udviklingen i mængder og priser, herunder bytteforhold, mellem 1980 og 1998/99
6/00	July 2000	Henning Porskrog	Calculation SGM. How we do it in Denmark
5/00	Juli 2000	Arne Lauridsen, Ole Olsen og Svend Sørensen	Driftsgrenøkonomi for økologisk jordbrug 1998/99
4/00	June 2000	Hild Rygnestad	Integrating environmental economics and policy analyses in a geographical information system
3/00	May 2000	Chantal Pohl Nielsen and Kym Anderson	GMOs, Trade Policy, and Welfare in Rich and Poor Countries
2/00	Februar 2000	Niels Tvedegaard	Omlægning til økologisk planteavl – analyse af de økonomiske konsekvenser på udvalgte planteavlsbedrifter

1/00	February 2000	Tove Christensen & Hild Rygnestad	Environmental Cross Compliance: Topics for future research
------	---------------	--------------------------------------	---