Chapter 10: Quantifying the economic costs and benefits of an FTA: some industry case studies

If there were a bilateral free trade agreement between India and Bangladesh, or if SAFTA is eventually implemented in a comprehensive way, there would be economic costs and benefits for various groups in the two countries and for the two governments, and also repercussions affecting exporters and importers outside the South Asia region. The likely size of these effects and how they would be distributed is relevant for people involved in the discussions on preferential trade policies in the two countries, and also for trade policies more generally. In order to bring out these issues in a reasonably non-technical way, a methodology was developed for analysis at the level of individual industries, and applied in a number of industry case studies. It is hoped that these can serve as models for similar studies of the likely impact of an FTA or of SAFTA on other industries. The main features of the methodology are briefly summarised below. This is followed by an outline of the principal results of the empirical case studies, including some unexpected by-products that the case studies turned up. The concluding section then outlines the implications of the case studies for India's and Bangladesh's policies on preferential and free trade, and for their trade policies more generally.

Methodology.[100] Even though SAPTA and various bilateral preferential trade agreements have been operating in South Asia for a number of years, and it has been agreed to begin implementing SAFTA from January 2006, there is little no recognition of their potential economic costs and benefits, either in the texts of the agreements or in the general statements and discussions that have accompanied them. The negotiations and the debates have been almost entirely mercantilist, focusing on the extent to which under the agreements national industries do or do not obtain new export opportunities, resisting concessions that might provide serious competition for established local industries, and worrying about losses of Customs duty revenue. Little or no attention has been paid to the potential for trade diversion costs, by which trade may be diverted from low cost suppliers in other parts of the world to higher cost suppliers in South Asia, or to the potential consumer costs and benefits. One purpose of the methodology paper and of the applications of the methodology to some industry case studies of free trade between India and Bangladesh, is to make these basic issues clear, realistic and it is hoped easily understood by non-specialists in these two countries and in South Asia more generally. With this in mind a traditional and highly simplified comparative static framework has been used and applied to bring out the main points, fully recognizing that the simulated results for individual industries would need to be modified if general equilibrium including macro-economic repercussions (e.g. exchange rate effects) were considered. To simplify the presentation and also the empirical estimation of welfare changes, the models use linear demand and supply functions, and except where otherwise indicated, assume competitive behavior on both the supply and demand sides. Market structures in South Asia-especially in manufacturing-are often far from competitive, but as a first approximation it is useful to look at the outcomes on the assumption that firms behave *as though* they are competitive. This provides a benchmark which can be modified to allow for various forms of non-competitive behavior in simulating the likely outcome of an FTA.

Changes in "economic welfare" resulting from an FTA are treated as the sum of changes in consumers' surplus, producers' surplus and government revenue from tariffs (customs duties). Consumers' and producers' surpluses are a shorthand way of summarizing economic benefits that may accrue to a variety of economic agents, not just final consumers and producers[101]. For example,

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[100] The methodology is described in Pursell, Garry (2004, Dec 14): *Analyzing the Economic Welfare Consequences of a Free Trade Agreement; Partial Equilibrium Methods for Industry Level Studies.*

[101] On the welfare estimates, in principle, compensating variations should be estimated, not just areas under curves. However, that requires more reliable and complete information on both demand and supply parameters, and also better information on prices and industrial structures. The case studies are intended to illustrate some

governments normally share in producer surpluses through taxes on profits, and some shares may go to foreigners if there is portfolio and/or foreign direct investment (FDI). It is also likely that traders (e.g. wholesale distributors and exporters) may share in producer surpluses, especially exporters who undertake marketing functions. Consumers' surpluses may refer to benefits to buyers of intermediate goods and equipment, not only benefits to final consumers, and in practice they include increases or decreases in the number of specifications, qualities or brands of a given good that are available to consumers as a result of trade policy changes e.g. consumers may benefit just because of an increase in the number of brands and varieties that are available, even if there is no change in the prices of the existing varieties.

Only protective tariffs have been considered in estimating the fiscal costs of FTAs, not indirect domestic taxes such as the VAT in Bangladesh and the additional (excise) duties and sales taxes in India. The latter are general taxes which are applied to both imports as well as domestic sales, and imports under preferential agreements such as FTAs are not exempt. Therefore, if as a result of an FTA duty free imports into Bangladesh of product x from India replace imports of x from the rest of the world (ROW), the loss of Customs revenue is just the protective tariff (customs duty plus para-tariffs) that would have been paid on the imports from ROW, not the Bangladesh VAT on those imports, since that is also charged on the imports from India. However smuggled goods will usually avoid domestic indirect taxes as well as tariffs, so if there is smuggling this needs be taken into account in simulating the fiscal effects of an FTA.

The comparisons of pre and post-FTA situations are of standard comparative static "long run" equilibria which assume that all the short run adjustments have been made on both the supply and demand side. As with any comparative static analysis, in principle it is possible to estimate the likely path to a new equilibrium and to calculate the present value of the change, but the information required to do that with confidence is generally difficult to obtain. The main concern for policy-makers in this adjustment process is usually the employment consequences for industries that as a result of an FTA would face tougher competition and would be obliged to contract and/or improve their efficiency. If some quantitative estimates can be obtained on the scope for productivity improvements, this can be modelled and some rough estimates of the differences this might make to economic welfare outcomes are provided in the cement industry case study. However, it is much more difficult to estimate the likely contraction path of firms and industries which in the short run are likely to stay in business provided they can cover their variable costs, but which would eventually cease production. During this process the resulting annual producer surplus losses are likely to be higher than in the eventual long run equilibrium in which the macro-economy is assumed to have adjusted so that the equivalent of the labour, capital and other resources released by the contracting firms have found employment elsewhere. On the other hand, consumer benefits may be greater during the process than estimated for the long run equilibrium, if the prices of the exports from the partner FTA country (say Indian firms exporting to Bangladesh) charge lower prices in order to meet the competition of Bangladesh firms which base their prices on their variable rather than their total production costs. The continuing production of the Bangladesh firms would in general also mean that the government will continue to collect import duties on imported inputs, reducing the estimated government revenue loss during the adjustment process below the eventual revenue loss in the long run equilibrium when the Bangladesh firms will have ceased or cut production.

For convenience the case study comparisons of economic welfare use a common numeraire which could either be the currency of one of the countries or a common foreign exchange numeraire (e.g. the US dollar). This means that changes in consumer surpluses, producer surpluses, and customs revenue are valued equally, both within each country and across countries. These could obviously be valued

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general points about the likely levels and distribution of welfare changes. These could be refined in subsequent studies.

differently e.g. in Bangladesh a Taka or dollar of customs revenue could be valued more or less than a Taka or dollar of consumer benefits resulting from a reduced price of some commodity, and a dollar of producer surpluses in India could be weighted differently from a dollar of producer surpluses in Bangladesh. This is always possible in any kind of economic welfare analysis, but before this is done, it is useful to calculate a starting point with known weights to provide the direction and provisional size of the welfare changes.

The methodology recognizes that a free trade agreement is very different from a common market. In particular, whereas a common market will tend to equalize prices in the member countries, with an FTA domestic prices for a given commodity in participating countries can differ, perhaps substantially-in fact that is likely to be the norm rather than the exception. Apart from differing domestic indirect taxes, for internationally traded goods, this is principally because the member countries maintain their own tariff structures, and because duty free access to the markets of the other FTA member or members is always subject to rules of origin requiring minimum levels of national content which have to be verified with documentation presented as part of Customs clearance. Unless there is smuggling, these formal Customs requirements for trade prevent the kind of arbitrage that tends to equalize prices at all stages-ex factory, wholesale and retail-within a common market. Moreover, goods exported to an FTA partner country can normally be sold equally profitably at lower prices than the prices of the same goods sold domestically, because (as is the case with all exports) the tariffs on the imported inputs used in their production are rebated or exempt. For these and other reasons, how domestic prices are determined following an FTA, and the resulting repercussions on the economic welfare of the various groups that are affected, can be quite complex.

The methodology also recognises the importance of the informal and illegal trade, specifically the "bootleg" and the "technical" smuggling from India to Bangladesh. As pointed out previously, the "bootleg" smuggling across the border amounts to a *de facto* trade arrangement under which the Indian products being smuggled do not pay Bangladesh's customs duties and VAT, but are subject to various informal private payments to officials in both countries. Just as under a formal FTA or preferential agreement, the smuggled imports potentially divert imports that would have otherwise come from the rest of the world (ROW) and India by the formal channels, provide competition to Bangladesh producers, and potentially benefit Bangladesh buyers to the extent that the smuggling reduces prevailing prices and provides qualities and varieties that would otherwise not be available. The fact of this already pre-existing *de facto* informal preferential trade needs to be taken into account in assessing the likely consequences of a formal FTA, and various possible outcomes are discussed in the methodology paper.

One key consequence that the paper brings out is that the cost of smuggled goods by the "bootleg" route, on the Indian side includes Indian domestic taxes, wholesale and perhaps retail margins, Indian smuggling margins, plus bribes paid to Indian officials. These costs and economic rents can be expected to be included in the price charged for the smuggled goods when they arrive in Bangladesh, and so the trade involves possibly substantial economic benefits to the smuggling networks in India as well as in Bangladesh. However, if a formal FTA including the smuggled products is agreed, it is likely that the formal trade will substitute or perhaps completely replace the bootleg smuggling trade. This is because, like all exports, the exports under the FTA would be exempt from Indian domestic indirect taxes, would benefit from standard export duty neutralisation facilities such as duty drawback and DEPB, and - providing transport and Customs facilities are adequate-in principle can be shipped in larger quantities involving lower transport logistics costs and trader margins. Therefore one of the consequences of a formal FTA will be to reduce or perhaps eliminate the transaction costs and economic rents of the bootleg smuggling trade, both in the exporting country and in the importing country. In principle, these economic costs and benefits would need to be considered in assessing the likely overall economic consequences of the FTA.

The methodology paper also discusses the likely effects of an FTA in the case of products which are being smuggled by the "technical" smuggling route. The products going by this route are not subject to Indian domestic indirect taxes, but there are reports that at the Petrapole land border many forego the usual Indian duty neutralization rebates in order to avoid or minimise checks by Indian Customs officials. The principal consequence of an FTA for these products is that it would remove most if not all of the bribe extracting leverage of Bangladesh officials, so that in assessing the economic consequences of the FTA in Bangladesh, there would be two separate economic losses at the border, the loss of Customs revenue that was previously collected, and secondly the loss of the Customs and other officials' economic rents, which effectively are a form of privatised Customs revenue. A variant of this outcome, also discussed in the paper, is the possibility that the combined rate of Customs duties actually collected plus the bribe rate is less than the total formal import duty rate. In that case the leakage at Customs may be affecting the price level of the product in Bangladesh, so that the de facto protection to domestic producers may be lower than the apparent protection rate in theory made available by the official Customs duty and para-tariff rates. The in turn will reduce the potential consumer welfare benefits of the FTA in Bangladesh, since they are already benefiting to some extent from the smuggling. On the Indian side, another outcome of an FTA is that the Indian exporters would no longer have a motive to not collect the available export rebates such as DEPB and drawback, and this extra cost to the Indian government would need to be taken into account in assessing the net benefits (mainly increased Indian exporter producer surpluses). Depending on the competitiveness of the Indian exporters, there could also be welfare benefits in Bangladesh if the Indian exporters pass on the duty neutralization payments they receive to their Bangladesh customers.

By definition, free trade agreements (and more generally any kind of preferential agreement) discriminate against imports from rest of the world (ROW) countries that are not parties to the agreements. Insofar as the imports from the ROW countries that are excluded are traded at lower prices than the imports from the FTA countries, there is an economic welfare loss for the FTA members, and also an economic loss for the ROW exporters who lose their markets. These trade diversion effects need to be allowed for in any comprehensive evaluation of the costs and benefits of FTAs, but in practice those negotiating or managing most FTAs only pay attention to the Customs revenue losses from the diverted trade, and zero attention to the economic losses of the affected ROW exporters. This point is recognised in the methodology, but it notes that the information that would be needed to provide some quantification of the economic losses in ROW countries is normally not available, especially if a large number of ROW exporters are affected. However, the difficulty of quantifying these effects does not diminish their importance, and as a rule of thumb it might be plausible to assume that the per unit producer surplus losses resulting from the excluded ROW exports at least equal the producer surplus gains of the new exports from the FTA member that replaces them. This kind of calculation is discussed in the cement industry case study, where it appears that an India-Bangladesh FTA would exclude Indonesian, Malaysian and Thai clinker exporters from the Bangladesh market.

Summary of industry case studies[102] This section summarises some of the principal findings of case studies which simulated the likely effects of an India-Bangladesh FTA in the following industries[103]:

Cement
Light bulbs
Bicycle rickshaw tyres
Sugar

[102] At the time this synthesis was prepared final drafts of the case studies of fluorescent lights, bicycle rickshaw tyres and passenger cars were not available owing to missing and inconsistent data and various other loose ends that still needed attention. This summary is based on early working drafts

[103] Case studies also included fluorescent tube lights and passenger cars, but results were too preliminary to be cited here.

Ready made garments

In interpreting these case studies, an important caveat is that only very limited empirical survey work was done in preparing them, and so if only for this reason the estimates of economic welfare costs and benefits *are preliminary estimates only* which would be certain to change with more complete knowledge of the various parameters on both the demand and the supply side of these industries in both countries. Most of the simulations take as a base scenario the situation (i.e. demand, production, market structure, imports, tariffs, exports etc) during Bangladesh's 2002/03 fiscal year, as that was the latest year for which reasonably complete data was available when the studies were started. Among other things, the situation in these industries will have changed since 2002/03, and of course this would need to be allowed for in current thinking about the likely impact of an FTA.

In the simulations for the first four of these industries, it turned out that under an FTA there are expanded Indian exports to Bangladesh, but no exports from Bangladesh to India. This was not predicted in advance, but was a result of finding that in the 2002/03 base scenario (a) India was exporting all these products to the rest of the world and –except for cement-also to Bangladesh (b) Indian export prices were substantially lower than ex-factory before-tax prices of the same or similar products in Bangladesh (c) none of the products were being exported from Bangladesh (d) potential export supply prices in Bangladesh-defined as ex-factory prices minus estimated duty drawback for inputs subject to tariffs-in each case substantially exceeded ex-factory prices in India.

The results point to Bangladesh's apparent lack of comparative advantage viz a viz India, which is not surprising in that the broad comparative advantage of both countries is in relation to developed countries, but this is especially the case with Bangladesh which has a much less diverse industrial and agricultural structure than India. However, comparative advantage is not static and is changing all the time, so in the medium to long run there will be industries established in Bangladesh which will find it profitable to export to India, based on factors such as lower labour costs, resources such as natural gas, or transport costs and proximity (the latter especially in relation to the Indian NE states). The problem is that it is difficult to predict what these future exports might be: all we could do in the various studies was to look at the evidence from Bangladesh's actual present trade and industrial structure, and on that basis there doesn't seem to be many possibilities for substantial exports right away[104].

The simulations for ready made garments (using the example of mens' cotton shirts and trousers) predict increased Bangladesh exports to India, but also increased RMG exports from India to Bangladesh.

In the base simulations for cement, light bulbs, fluorescent tube lights, bicycle rickshaw tyres, and sugar, following an FTA production in Bangladesh ceases altogether and the entire Bangladesh market is supplied by imports from India. In each of these industries, this seemed to be the most plausible likely outcome *given* the information obtained on prevailing prices and costs in Bangladesh, even after allowing for cost reductions that would result from duty free imports of intermediate inputs from India that would also result from an FTA. It was not a surprising outcome in view of the very high protection rates all of these industries were receiving in Bangladesh, and the fact that –despite apparently substantial smuggling of a number of these products-actual domestic prices were approximately reflecting the tariff protection that had been provided. The protective tariff rates (Customs duties plus para-tariffs) in 2002/03 were:

[104] It is possible that the potential for Bangladesh exports to India is larger than can be inferred from the existing situation. But from the available evidence it is hard to argue convincingly for a large expansion of exports from Bangladesh to India for the time being. The rest is speculation, though plausible.

Cement	66.7%
Light bulbs	66.0%
Fluorescent tube lights	75.3%
Bicycle rickshaw tyres	35.5%
Sugar	86.4%
Automobiles	59% or 89% (2004/05 tariffs)
Ready made garments (cotton shirts & trousers)	65.5%

In the simulations for the first six of these industries, the duty free imports from India create economic welfare benefits for Bangladesh consumers which considerably exceed the economic welfare losses of Bangladesh producers plus the government fiscal losses which are a result of the zero tariffs on the imports from India. Hence, in each case, the FTA creates a substantial net welfare benefit for Bangladesh. Because of the very high Bangladesh tariffs and the resulting large gaps between the protected prices pre-FTA and India's export prices, these welfare rectangles and triangles are much larger than the welfare amounts often found in similar exercises in other countries. In particular the net quantifiable economic annual welfare benefit for Bangladesh from an FTA with India that includes sugar is estimated at $153 million, and for cement at $171 million.

Since Indian exports expand there are also economic benefits for the Indian producers (producer surpluses), so in each of these cases the net joint economic benefit to Bangladesh and India together exceeds the net economic benefits in Bangladesh alone. On the other hand the FTA diverts trade from the countries that were previously supplying Bangladesh with imports of the finished products or with inputs for the Bangladesh industries that cease production following the FTA. The case studies do not provide information that would allow the welfare losses in the ROW countries to be estimated, but in no case is the value of the excluded exports sufficient to generate plausible producer surplus losses that would be large enough to offset the joint benefits of the FTA in Bangladesh and India.

The simulations do not allow for the likelihood that efficiency improvements and cost reductions would take place in the Bangladesh industries under the spur of import competition, and therefore the local Bangladesh industries cease production. In only one case-cement-did the Bangladesh firms surveyed provide any indication of the likely scope for cost reductions-and in that case the estimated reduction was still not sufficient to prevent the demise of the industry under the simulated FTA. A useful supplement to these and similar studies would be to look more carefully at the potential for cost and price reductions in protected domestic industries in Bangladesh and the extent to which the industries would survive and prosper without protection. If they would, the economic welfare benefits of an FTA in Bangladesh would be larger than estimated in these case studies, because of lower producer welfare losses to be subtracted from consumer welfare benefits.

With the exception of the RMG case study, the economic welfare outcomes depend crucially on what is assumed about competition between Indian exporters to Bangladesh following an FTA. The base scenarios assume that the Indian industries are competitive and following an FTA would export to Bangladesh at the export prices they were charging prior to the FTA in selling to the rest of the world and to Bangladesh. But in signing on to an FTA with India, Bangladesh in effect would be extending its general tariff protection levels to Indian as well as to Bangladesh producers, and this raises the possibility for the Indian firms to collude and sell to Bangladesh at higher prices than their prevailing export prices to the rest of the world, and even at higher prices than their prevailing domestic prices. If that happens, as discussed in some of the case studies, the Indian industry extracts a share of the consumer welfare benefit that would have gone to Bangladesh consumers in a competitive scenario.

The simulations in which this possibility is modelled, drastically alter both the overall level of the economic welfare changes, and how they are distributed within and between the two countries. For

example, in the case of the cement industry, with a collusive profit maximising price for the Indian exporters there is still an overall substantial (although reduced) positive joint net benefit for Bangladesh and India together, but the net welfare change in Bangladesh is negative (minus $22 million) while there is a large positive welfare benefit (+$178 million) in India. Bangladesh cement consumers still benefit from lower prices than before the FTA, but these benefits are now less than they were in the first simulation, and are more than offset by the producer surplus losses of Bangladesh cement producers who still go out of business, plus the government's loss of tariff revenue. In advance, the likelihood of this happening is difficult to predict, but its possibility underlines a key difference between an FTA and unilateral general trade liberalisation, where the Indian exporters to Bangladesh are competing with ROW exporters, and as a result are unlikely to have much if any market power in Bangladesh.

The sample of industries studied does not include any cases in which, before the FTA, the Indian industry is not exporting but has lower costs than the Bangladesh industry. In that case it would be likely to export to Bangladesh following an FTA, but at higher prices than prevailing world prices, even though the industry is competitive and there is no collusion or price fixing in the Bangladesh market. This possibility is discussed in the methodology paper, which points out that in such a case the resulting terms of trade loss for Bangladesh is principally explained by the excess production costs (relative to world prices) of the Indian suppliers, whereas in the collusion case it is absorbed by economic rents (higher profits) which do not involve real resource costs. This increases the probability that the net welfare outcome for India and Bangladesh jointly will be negative, depending on the extent to which the preferential export prices exceed world prices. Following the reduction of India's general maximum industrial tariff to 15% in March 2005, the scope for welfare reducing exports of this kind under an FTA is less than it used to be, and the same tariff reduction also leaves reduced scope for similar welfare-reducing exports from Bangladesh to India, since the 15% tariff in principle constitutes an upper limit on the excess of the price at which the exports could sell in India, over cif import prices from the rest of the world.

Because of the prevalence bootleg and "technical" smuggling from India to Bangladesh, some economic welfare accounting is needed to allow for the effects of an FTA on the economic rents earned in these activities. There is an extensive discussion of this topic in the sugar case study and it is also dealt with in some of the others e.g. in the rickshaw tyre case study. The sugar case study recognizes that economic rents from smuggling also exist in the exporting country, and points out that an FTA will reduce these rents, partially or even fully offsetting the economic benefits of the FTA to Indian exporters.

The RMG industry case study was chosen to explore the possibility of Bangladesh exports to India following an FTA and the economic welfare consequences. As expected, lower wages in Bangladesh than in India combined with similar labour productivity mean that RMG production costs in Bangladesh are lower than they are in India. Moreover, some Bangladesh exports to India of mens' and boys' woven shirts started in the late 1990s and were growing fairly rapidly up to 2003/04, although starting from a very low level. Since these exports were taking place over fairly high Indian tariffs (28.4% for shirts in 2003/04) it seemed plausible that exports would increase at a faster rate under an FTA, and the economic welfare consequences were estimated for alternative annual export levels to India of $8.5 million and $41 million. The paper argues that higher export levels for Bangladesh shirts than these are unlikely because of evidence that the Indian domestic market for RMGs is highly competitive, with domestic prices not far above fob export prices. It also argues that some part of increased Bangladesh exports to India would be diverted from exports to other countries, so that the net export increase from the opening to the Indian market provided by the FTA would be less than the increased exports going to India. It then calculates some illustrative economic welfare benefits that the exports would generate in Bangladesh, estimating them at between $1.1 million and about $5.6 million annually. Most of this is attributable to producer surplus benefits of Bangladesh RMG exporters, offset to a minor extent by consumer surplus losses due to consequent small increases in domestic RMG prices in Bangladesh. There

is a welfare benefit for Indian consumers resulting from the Bangladesh exports to India, but a somewhat larger loss for Indian RMG producers, who (as in all FTA arrangements) are obliged to compete on unequal terms in their domestic market with the Bangladesh producers, since the Bangladesh producers obtain their inputs duty free, whereas the prices of the inputs of the Indian producers selling domestically are raised by tariffs.

As noted in the general methodology and as applied in the case studies, costs and benefits to the consumers, producers and the governments in both India and Bangladesh are weighted equally by expressing and comparing them in money terms. In most of the case studies there is a net welfare gain from the FTA because the benefits to consumers are greater than the losses of producers plus the revenue losses of the governments. These net outcomes would change if the effects on the various groups were to be weighted differently. In this regard, however, it is relevant to note that if low income and poverty considerations were to be take into account in deciding on the weights, the preponderance of consumer benefits might be even greater than is the case with equal weights. For example, in the rickshaw tyre case study, benefits of lower tyre prices to the rickshaw wallahs and their customers would probably have high weights and the economic welfare calculation in this case would favour the FTA even more. Similarly, the high prices of sugar and cement created by the high protection policies being followed in Bangladesh towards these industries are very regressive, and unequal welfare weights designed to take account of poverty and low incomes would also increase the estimated net welfare improvement in Bangladesh from an FTA.