

**WTO Agreements and Indian Agriculture:  
Retrospection and Prospects**

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### **1. Introduction**

Formation of the World Trade Organisation (WTO) in January 1, 1995 as a successor organisation for the General Agreement of Tariff and Trade (GATT) was a watershed event in the history of global trade reforms. Under the auspices of the WTO, many trade-related agreements were signed by the member countries (WTO 1995), and, for the first time, an Agreement on Agriculture (AOA) was reached to reform and dismantle trade barriers in the agricultural sector. As per the article 20 of the AOA, these reforms are an ongoing process and re-negotiations will start at the end of this year. These re-negotiations will take stock of the experience of the last five years and explore the potential for further commitments to the reform process. Recently, a WTO panel has ruled against India in a dispute with the United States (US) rejecting India's claim that balance of payment problem justifies its import restrictions (ITN, 1999). In this context, it is imperative that India takes a retrospective view of what has happened so far and ponder over her prospects for successful and pro-active re-negotiations at the end of this year.

Keeping this objective in mind, the paper is organised as follows. In Section 2, I critically examine the results of some of the macro-economic studies that have looked into the effects of trade liberalisation in general and of WTO agreements in particular. Attention is drawn to the empirical evidence that agricultural supply response to terms-of-trade is quite ambiguous. In Section 3, I focus on the implication of an important theoretical consideration in the international agricultural trade which the macro-level studies have missed out. Namely, I show that the assumption of perfectly competitive agricultural export markets need not be correct. Section 4 is devoted to examining the

particulars and significance of important issues in the AOA, the implications of which have become transparent only over the last five years, and, which could not have been incorporated in the macro-level studies conducted at the beginning of the implementation period. Also discussed are the issues related to the Agreement on Sanitary and Phytosanitary (SPS) measures and Technical Barriers to Trade (TBT) that will affect Indian agriculture. Finally, in the last section I summarise and draw conclusions.

## **2. A Critical Literature Review**

There have been studies that try to measure the impact of import liberalisation in general, and there are others that measure the impact specifically in regard to the recent WTO agreements. Studies by Anderson and Tyres (1993), Subramanian (1993) and Parikh *et al.* (1995) use macro techniques like computable general equilibrium models to study the effects of policy liberalisation. Anderson and Tyres predict that Indian farmers, including landless rural labourers, will benefit to the tune of 1.6 billion and the net increase in the economic welfare would be 1.1 billion in 1985 US dollars. They expect a net change in foreign exchange earnings to the tune of 3.3 billion dollars from food trade alone. According to Subramanian's study, India stands to gain from higher world prices in the long-run as India also liberalises agricultural trade, however, the increase in the domestic food prices skews the distribution of gains only in favour of large farmers. Real incomes of landless labourers and small farmers fall. This is contrary to what Anderson and Tyres have predicted. If true, this is an important result as proportion of small farmers and landless labourers is quite large in India. Further, Parikh *et al.* have reached a still different conclusion. Their study shows that if agriculture alone is liberalised, then terms-of-trade will improve for Indian agriculture by about two

percent, and, if both the agriculture and non-agricultural sectors are liberalised, then the terms-of-trade will improve for agriculture by twenty-seven percent. Nevertheless, they predict that only the rural poor (farmers) will gain from liberalisation and the rich and large farmers will lose. Clearly, the results of these studies are contradictory to each other.

The WTO-agreement-specific models by GATT and Organisation of Economic Co-operation and Development (OECD) estimate that world GDP will rise by 230 to 275 billion US dollars and developing countries will receive 30 to 40 percent of the global economic growth (Sharma, 1997). A study by National Council of Applied Economic Research (NCAER, 1997) estimates the export demand and supply elasticities to predict the effects of WTO agreements on agricultural exports but qualifies the findings by saying that domestic non-price supply constraints may impede agricultural exports. While the direction of the change in the welfare of the developing countries like India, as predicted by the various economic studies may be correct, certainly, the same cannot be said about the magnitude and distribution of these changes. If one takes into account some empirical and some theoretical considerations of the Indian agricultural trade and the WTO agreements, the gains to Indian agriculture will be severely lower than what has been anticipated.

The predictions of the above mentioned studies rest on the assumption that supply response and productivity growth are price-responsive. This may not be the case. As shown in Table 1, almost all studies conducted on supply response in agriculture in the developing countries show that agricultural supply response is highly inelastic to changes/improvement in the terms-of-trade. In fact, some of the studies show that the response is negative. Thus, the impact of improved terms-of-trade is quite ambiguous. The economic reasoning for this is to be found in substitution effect,

income/wealth effect and the impact of non-price factors. While substitution effect will cause agricultural supply to increase, the income and wealth effects will cause it to decline. The net effect is ambiguous. Moreover, farmer cannot respond

**Table 1: Price Elasticity of Supply Response**

Author (year)	Country	Supply elasticity
Binswanger <i>et al.</i> (1987) <sup>1</sup>	India	0.20
Chibber (1989) <sup>1</sup>	"	0.30
Desai (1999) <sup>2</sup>		
Non-foodgrains	"	0.30
Foodgrains	"	-0.15
Yotopoulos and Lau (1974) <sup>3</sup>	"	-0.15
Herdt (1970) <sup>4</sup>	"	-0.06
Bond (1983) <sup>2</sup>	Kenya	0.16
Bond (1983) <sup>2</sup>	Ghana	0.34

<sup>1</sup> Time-series estimates. <sup>2</sup> Nerlovian time-series estimates. <sup>3</sup> Cross-farm estimates. <sup>4</sup> Based on aggregation of input demand elasticities

to higher prices because of constraints due to inadequate irrigation, lack of agricultural extension services and poor transport facilities. Therefore, gains to agricultural sector as portrayed by the studies mentioned earlier will not materialise. It is the Improvement in irrigation, research, extension and transport facilities that will do more for agriculture than waiting for liberalisation induced improved terms-of-trade to materialise. It must be noted that WTO allows expenditures on such items to be exempt from domestic support reduction commitments. We must take advantage of such a provision. Moreover, expenditure on such items will not be inflationary as it will promote agricultural productivity, a point shared by Desai (1999).

So far, I have been making the point that even if the prices for agricultural commodities rise as a consequence of liberalisation, it will not have effect on Indian agriculture due to low supply response. However, whether the agricultural prices will rise significantly is also an important question. Theory suggests that trade liberalisation may not lead to complete pass-through of prices if trade is imperfectly competitive in structure. I turn to this issue next.

### **3. Imperfect Competition**

Almost all the studies that calculate the welfare gains and its distribution in developing countries, make an implicit assumption that the international agricultural markets are perfectly competitive. Increase in the terms of trade for the developing countries, as envisaged by the agricultural reforms process, are based on the assumption that in a perfectly competitive world pass-through of improved terms-of-trade to the farmers will be complete. However, in all likelihood this may not happen. Circumstantial evidence suggests that the international agricultural markets are imperfectly competitive in structure. As reported by Gill and Brar (1996), Table 2 shows that agricultural exports are dominated by a few large multinational companies and trading agencies. Empirical studies also suggest that multinational firms enjoy a certain degree of market power in the agricultural export markets (e.g. Deodhar and Sheldon; 1995, 1996). Thus, there may be many countries importing and exporting agricultural commodities in the international market, but what matters is the market structure and performance of each of these export markets.

What trade liberalisation achieves is the removal of tariff and non-tariff barriers to trade. It does not guarantee perfectly competitive market structures. The existence of pronounced economies of scale and scope as well as irreversibility of investments, may lead to imperfect market

structures even after liberalisation (WTO, 1997). Characterised as few buyers and few sellers of agricultural products, the multinational firms and trading agencies enjoy a unique position as oligopolists-cum-oligopsonists in the international agricultural markets. Economic theory would tell us that in the export market these oligopolists would charge a price higher than marginal cost, and, while sourcing the products from the developing countries, these oligopsonists will pay a price much lower than what they would have paid under perfectly competitive conditions. Moreover, the multinationals and trading agencies belong to the Western Europe, the US and Japan. Therefore,

**Table 2: Multinational Market Share in Agricultural Export Markets\***

Commodity	World Exports (\$ million)	Market Share of 3-6 multinationals
Wheat	17, 851	85-90
Sugar	10, 636	60
Coffee	9, 636	85-90
Rice	3, 613	70
Tea	1, 844	80
Bananas	1, 324	70-75
Cotton	6, 567	85-90
Jute	135	85-90

\* Adapted from Gill and Brar (1996).

rise in international prices due to agricultural trade reforms, as predicted by many studies, may not pass-on fully to the farmers and/or the developing countries<sup>1</sup>.

In fact, one does not see a consistent increase in the spot export prices of agricultural commodities. Despite the implementation of the reforms, there have been fluctuations in the spot export prices of agricultural exports. Table 3 shows that from 1994-95 till 1997 export prices of cereals, coffee, agricultural raw materials, food, beverages and tobacco have been fluctuating. The



percentage increase in the prices of oilseeds, oils, fats and meals has suddenly dropped in 1997. This should not, however, come as a surprise as the international markets are very thin. Exogenous supply shocks (over-production or shortage) in countries like India, can cause sharp fluctuations in export prices as the markets are inherently thin. However, these are facts of life, and, therefore, in the re-negotiation process, India may want to emphasise these points and bargain for concessions somewhere else. If agricultural prices are not expected to rise, higher reduction commitments by the developed countries in various forms of price and non-price support could be suggested.

**Table 3: Percent Change in Export Prices of Agricultural Commodities, 1994-97\***

Commodity	1995	1996	1997 (Jan-June)
Food, beverages & tobacco	6	6	-4
Cereals	17	20	-26
Oilseeds, oils, meal etc.	8	11	2
Coffee	2	-24	39
Agricultural raw materials	5	-4	-3

\* adapted from WTO (1997)

#### **4. Issues Arising out of Agreement Implementation**

There is quite a distance between the cup and the lip. Even if we assume that the macro-modelling studies predict the *ex-ante* direction of change, if not the magnitude of the gains to be made through WTO agreements; the *ex-post* gains to a country would depend on how the rules of the agreement were framed, who could take maximum benefit out of it, and, finally, who could

successfully re-negotiate some of the commitments to its advantage. In this context I highlight some of the issues that have surfaced, based on the country experiences of the five years of implementation of the agreement.

Under market access provisions of the AOA, countries were required to convert non-tariff barriers into tariffs, and commit to reduction of tariffs by an unweighted average of 36 percent with a minimum rate of reduction of 15 percent for each tariff line. However, the spirit of these measures was lost as developed countries engaged in 'dirty tariffication,' i.e. there was tendency to use data which allowed tariffs to be bound as high as possible. Hathaway and Ingco (1995) show that some European Union (EU) tariffs and the US tariff on sugar contain considerable 'dirt'. In contrast, though the bound tariff on sugar is 150 percent, India has never exercised this option completely. Moreover, Japan, EU and US have reduced low tariffs more than the high tariffs. As a result, average rate of reduction was 36 percent, but average tariff levels were reduced by less than 36 percent. In contrast, India has agreed to tariff bindings of 0 percent on commodities like milk powder long ago, and has high tariff on liquid milk which is hardly traded. If possible these rates need to be re-negotiated, and suggestion could be made to have the Swiss Formula of steeper reductions of high rates by the developed world.

As per the AOA, member countries are required to calculate the total aggregate measure of domestic support (AMS) extended to the agricultural sector every year. The current measure of AMS should not exceed the base AMS (1986-88 period), and it has to be reduced by at least 13.3 percent in ten years in the case of developing countries and by 20 percent during a period of six years for developed countries. Interestingly, most of the developing countries including India have net-taxed their agricultural sector, and as a result their AMS are negative. Therefore, there are no

reduction commitments on this issue for India. However, the rules have been framed in such a way that for most of the developed countries the current level of AMS are very low. Table 4 show the AMS levels of a number of developed countries. Figures show that the current levels of AMS are already substantially lower than the base AMS, and are very close to the final bound levels of AMS.

This situation has become possible due to various reasons. The base year AMS was calculated for the period 1986-88 when the world prices were very low. As a result, the base AMS are quite high for the developed countries. Moreover, while Green-box<sup>2</sup> measures are exempted from both the base AMS and current AMS, there are what are called Blue-Box<sup>3</sup> measures exempted only from the current AMS. As a result, for most of the developed countries, base AMS is very high and current AMS are low. Therefore, the AMS reduction commitments are nearly met for most of the developed countries. This implies that there will be insignificant reductions in the domestic support given by the developed countries. This certainly does not square with the spirit of WTO objectives. In this regard developing countries may make suggestions either to eliminate the

**Table 4: AMS Commitments of selected OECD Countries\***

Country	Units	Base Period	Current	Final Bound Level
EU	Billion ECU	73.5	61.2	62.0
Japan	Million Y	4335	3973	<4000
US	Billion US\$	22.2	14.0	19.1
Canada	Billion C\$	4.9	4.1	4.3
Switzerland	Million SF	5231	4257	5076
Australia	Million A\$	590	271	472
New Zealand	Million NZ\$	360	0	288

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\* Adapted from Konandreas and Greenfield (1996).

Blue-Box or move the Blue-Box into the AMS calculation and subject it to reduction commitments<sup>4</sup>. Further, they may negotiate for receiving some credit for their negative AMS.

Studies show that the total AMS for India is negative, and, therefore, there are no reduction commitments on this issue. Nevertheless, the methodology involved in the calculation of AMS needs to be carefully looked at. The AOA text implies calculation of nominal AMS, which does not give any consideration for inflation. Within the product-specific AMS, the per unit price support is to be calculated as the difference between administered price and the c.i.f. price of the importable commodity or f.o.b. price of the exportable commodity, the latter prices representing the fixed external reference price for that commodity. However, part of the difference between the administered price and the external reference price will be the domestic freight, insurance and other related expenses. These must be added to the c.i.f. external reference price so that the external reference price is comparable to the administered price paid to the farmers at the village markets. These issues must be discussed among the member countries to see that the methodology used is consistent across countries and is based on sound economic principles.

In comparison to market access and domestic support, disciplines on export competition were considered the most binding of all AOA commitments. Nevertheless, 25 percent of the 132 members of WTO have maintained the right to subsidise exports. For example, only three exporters account for 93 percent of subsidised wheat exports and two countries account for 94 percent of subsidised butter exports (Konandreas, Sharma and Greenfield, 1999). Moreover, there is a concern about circumvention of rules through carrying forward unused export subsidies from one

year to the next. These issues too could be addressed in the re-negotiations. Since the majority of countries do not give export subsidies, they could press for further reductions in the export subsidies. Countries can be persuaded to bring in other forms of export assistance such as export credits and export credit guarantees into the fold of general rules on export subsidies.

Most of the issues discussed so far relate to price competitiveness of agricultural commodities. However, WTO member countries have reached agreements on SPS and TBT that essentially affect the quality competitiveness of Indian agricultural commodities. A discussion on the effects of WTO agreements on Indian agriculture will be incomplete without giving any emphasis on SPS and TBT agreements. In fact, article 14 of the AOA clearly states: *Members agree to give effect to the Agreement on the Application of Sanitary and Phytosanitary Measures*. The agreement on SPS allows members to adopt and enforce measures necessary to protect human, animal or plant life or health, subject to the requirement that these measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between members where the same conditions prevail or a disguised restriction on international trade. Moreover, article 3.2 states that sanitary and phytosanitary measures which conform to international standards and guidelines shall be deemed to be **necessary** to protect human, animal or plant life or health.

For food products, the agreement has accepted the guidelines on food safety and food standards set by the Codex Alimentarius Commission (CAC). An important component of the CAC guidelines is the implementation of a food safety system called Hazard Analysis and Critical Control Points (HACCP). We need to incorporate this food quality system in our food processing units, else the SPS agreement can act as a non-tariff-barrier for our exports. Adoption of the quality system will not only ensure exports of value-added agricultural products, but will improve our

domestic food quality as well. Article 9 of the SPS agreement provides for technical assistance to developing countries to build their infrastructure for food processing. May be, India can take advantage of this provision. Similarly, the agreement on TBT sets standards for labelling and packaging of agricultural products as recommended by CAC. Unless India keeps itself abreast of the emerging guidelines of CAC, it may face non-tariff-barriers in future. In this regard, WTO does encourage developing countries to take active part in the CAC activities to decide on various SPS and TBT related standards. Among developing countries, India has been active in its participation. This practice needs to be pursued on a continued basis to protect interests of Indian agriculture, without jeopardising the spirit of achieving uniform international standards.

## **5. Concluding Remarks**

Understanding the direction and magnitude of the effects of WTO agreements on Indian agriculture is a very difficult proposition. Some attempts have been made in the past to quantify the effects of WTO agreement and trade liberalisation on Indian agriculture. While the direction of the gains to Indian agriculture may be correct, one may not agree with the assumptions of their models, and the magnitudes and distribution of these gains. In the presence of imperfectly competitive export market structures, the increase in terms-of-trade for Indian agriculture may not be as high as predicted by the computable general equilibrium studies that implicitly assume perfectly competitive markets. Whatever little improvement may occur in the terms-of-trade, it will have negative or at best very little effect on farmers' welfare, as supply response to term-of-trade improvement is ambiguous. On this ground, developing countries may ask for further and sharp reductions in the export subsidies and domestic support given by the developed world. Our agriculture will stand to

gain if we bring about improvement in irrigation, transport, agricultural extension services and research. Expenditures on such items are exempt from domestic support reduction commitments under the green-box policies.

Given the complexities and escape routes available to the western world in the implementation of the agreements, one could question the methodologies followed in the reduction commitment norms. Market access commitments have been tampered with dirty tariffication, and, only the already low rates of tariffs have been reduced rather than reducing high tariff rates. Therefore, the Swiss Formula may be suggested to reduce higher tariffs by steeper cuts. On the other hand, some of India's low tariff bindings may be re-negotiated. Calculation of price support within the product-specific AMS is not clearly defined in the text. Therefore, it would be a good idea to bring a consensus among the member countries on this issue. Developing countries which have net-taxed their agriculture, may ask for credit of some sorts for having negative AMS. Further, Blue-Box policies may be suggested to be eliminated altogether or moved out of the exemptions for the calculation of current AMS. Moreover, along with export subsidies, export credits and guarantees may also be suggested to be brought under reduction commitments. The SPS and TBT agreements do affect agricultural markets. Modernising our agricultural processing will not only enhance our export market potential but aid in reforming the domestic food quality as well.

## Endnotes

1. Assuming the inverse demand function to be  $P(Q)$  where  $Q$  is the quantity sold, the inverse supply function of the farmers to be  $W(Q)$  where  $W$  is the price at which farmers sell the produce and  $C$  to be the constant marginal cost of transportation and other costs. The profit function for multinationals will be:

$$(1) \quad \{P(Q)Q\} - \{W(Q)Q\} - \{CQ\}$$

The profit maximising condition will be:

$$(2) \quad \{P + \alpha [dP/dQ] Q\} - \{W + \delta [dW/dQ]Q\} - \{C\} = 0$$

where,  $\{P + \alpha [dP/dQ] Q\}$  is the perceived marginal revenue (see Bresnahan, 1982), and  $\{W + \delta [dW/dQ]Q\}$  is the perceived marginal cost of buying produce from the farmers.  $\alpha$  and  $\delta$  are market-power and monopsony-power parameters respectively.  $\alpha=0$  implies marginal revenue equal price  $P$  in a perfectly competitive market, and  $\alpha=1$  implies marginal revenue of a monopolist (or collusive behaviour).  $\delta=0$  implies price offered to the farmers,  $W$ , is the marginal cost of buying produce from the farmers under competitive conditions, and  $\delta=1$  implies that under monopsony, price offered to farmers is less than the marginal cost of an additional unit of produce. Values of  $\alpha$  and  $\delta$  between the range 0-1 reflect various degrees of market power and oligopoly power.

Rearranging (2) we get:

$$(3) \quad W = P + \alpha [dP/dQ] Q - \delta [dW/dQ]Q - C$$

The higher the values of  $\alpha$  and  $\delta$  the higher will be the difference between the price paid to the farmers and the price received by the multinational firms.



2. Green-Box includes measures of support that causes no or at most minimal trade-distorting effects on production. Support be provided through a publicly funded government programme not involving transfers from consumers, and shall not have the effect of providing price support to producers. E.g. General services including pest control, infra-structural services etc.; direct payments to producers (not related to production/prices); food security stocks, domestic food aid.
  
3. Blue-Box includes certain production limiting support policies, e.g., set-aside payments of the EU, and deficiency payments of the US.
  
4. After all, production limiting support policies can be considered as production and trade distorting, which one would like to eliminate under the new distortion-free WTO regime.

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