FOOD AID, FOOD POLICY AND THE URUGUAY ROUND: IMPLICATIONS FOR BANGLADESH*

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Paper presented to the Annual Conference of the Australian Agricultural and Resource Economics Society , Melbourne, 14 February 1996.

*The financial support of the Australian Agency for International Development (AusAID) is gratefully acknowledged.

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Abstract

The relationship between the effects of food aid and those of the completion of the Uruguay Round of the GATT are studied in this paper, focussing upon the food aid recipient countries, and taking Bangladesh as an illustrative example. It is argued that, among other factors, the magnitudes of these effects depend crucially on the policy environment within the food aid recipient country itself, particularly the government's policy with respect to commercial food imports. It is shown that when the quantity of Bangladesh's commercial food imports is controlled by the government, the benefits derived from food aid are smaller than when these imports are tariffied - subject to fixed tariff rates. Likewise, the negative effects that the Uruguay Round may be expected to have on Bangladesh will also be larger if commercial food imports are subject to quantitative controls than if they are tariffied.

The effects that the Uruguay Round will have on Bangladesh will depend significantly on the way food aid donors respond to the Round. If donors reduce the volumes of food aid in response to increased international food prices resulting from the Round, the losses incurred by Bangladesh will be magnified. But these effects will also depend heavily on whether Bangladesh itself participates in the liberalisations that are central to the Round itself. If it were to participate fully, the negative effects that the Uruguay Round would otherwise have on Bangladesh may be entirely offset by the gains Bangladesh would derive from its own liberalisation.

Introduction

The conclusion of the Uruguay Round of the GATT has been welcomed in most quarters but concerns have also been expressed about the potential losers. It has been suggested that the final agreement may have negative implications for some countries which can least afford them - the least-developed, net food importing countries. The partial liberalisation of agricultural markets which was achieved in the Round will lead to increases in the international prices of some key agricultural commodities, especially grains, implying increases in the cost of food imports. Recognition of this fact has in turn led to the argument that the least-developed, food importing countries should be compensated for the adverse effects of the Round (Goldin *et al.*, 1993: 25; Hamilton and Whalley, 1995)[1].

This paper analyses the relationship between these issues and food aid. Most of the least-developed, food importing countries are recipients of food aid from the OECD economies, especially from the food exporting nations who are themselves beneficiaries from the international agricultural price consequences expected from the Uruguay Round. On the one hand, food aid therefore seems a natural vehicle for the compensation of those least-developed, food deficit countries who apparently lose from the Round. But on the other hand, some food aid donors have reportedly experienced political pressures to *reduce* their commitments to food aid, in response to the Uruguay Round. The reason is that at present volumes of food aid the increases in the international prices of agricultural commodities may have adverse budgetary implications for their aid agencies. As the budgetary cost of food aid rises, unless the overall aid appropriation also rises, the share of the total aid package represented by food aid will increase, presumably requiring cuts in other forms of aid.

Our analysis will ask, first, how the economic benefits derived from food aid are affected by the policy environment within the recipient country, especially as regards policy towards

[1] See also UNCTAD (1990), Francois et al (1994), GATT (1994), Nguyen *et al* (1993 and 1995) and Schott and Buurman (1994).

commercial food imports. Second, we ask how much the negative implications of the Round for the least-developed food deficit countries would be magnified if donors were to *reduce* their food aid commitments in response to their increased budgetary costs. Third, we shall ask what *increases* in food aid would be required if food aid were used as a compensatory instrument to offset the negative effects the Uruguay Round would otherwise have on apparent losers. Finally, we also study the relationship between the size of the required compensation, in the form of food aid, and the degree of liberalisation undertaken by the food aid recipient country itself. We explore these issues quantitatively in the context of Bangladesh, the world's largest recipient of food aid[2] and one of the world's poorest countries. Our analysis uses a general equilibrium approach, based upon a modified version of a 19-sector computable general equilibrium model of the Bangladesh economy, documented in Ahammad (1995).

Background: The Bangladesh economy

Bangladesh is characterised by low per capita income and slow growth, and a large negative resource-balance to GDP ratio (Table 1). The structure of GDP began to change only in recent years and agriculture remains a large share of national output and employment. Since the early 1980s, the contribution of services to GDP has exceeded that of agriculture, while industry's contribution has remained static at around 16 per cent.

Table 1

Since the mid-1980s, the structure of export trade has changed significantly (Table 2). The export shares of the traditional agro-based exports, jute, jute goods and tea, have declined while garments exports, which were insignificant in 1973, have become the major gross foreign exchange earner. In 1993, more than half of gross export dollars were earned by garments alone. Exports of leather and leather products, shrimp and fish are also substantial. While the shift from traditional exports to non-traditional exports is evident, heavy reliance on

2 Based on an average of total food aid shipments from 1990 to 1993, inclusive. Source: FAO, *Food Aid in Figures*, 1992 and 1993.

one or two broad commodities still continues: garments dominating in the 1980s and 1990s and jute goods dominating in the period up to and including the 1970s.

Table 2

About 60 per cent of total garments exports go to the USA under the Multi-Fibre Arrangement (MFA). This arrangement, which controls world trade in textiles and garments, formally expired in December 1992 and was due for renegotiation. After the successful conclusion of the Uruguay Round of the GATT, the MFA is to be phased out over a 10 year period. Increased competition following the withdrawal of export quotas under the MFA would lead to lower world prices of garments. At least in the short run, it will have adverse implications for the balance of trade, employment and welfare of a country where 50 per cent of merchandise exports earnings are from garments.

Food imports: political sensitivity and budgetary implications

An important change in the structure of Bangladesh's import trade has been the increased share of capital goods relative to that of food and major primary goods (Table 3). Nevertheless, food - predominantly rice and wheat - constitutes a considerable proportion of the total import bill with a combined share which ranged between 19 and 4 per cent over the two decades to 1993 (Table 3).

Table 3

Meeting the growing consumption requirements for cereals, particularly rice, remains an important political issue and a central objective of public policy. About eighty per cent of the total cultivated area is devoted to intensive rice and wheat production, and yet does not produce sufficient food for Bangladesh.[3] Imports account for an average of 10 per cent of domestic food grains absorption, the bulk occurring through food aid, although commercial imports are also significant (Table 4). Aside from a partial liberalisation in early 1994, most commercial imports of food are controlled by the government to meet target levels of availability and to maintain low and stable food prices. Rising world prices thus put pressure on the balance of

[3]The cropping intensity in 1990-91 was 171 per cent (Bangladesh 1992).

payments and on the government's budget. The possibility of comprehensive food import liberalisation remains controversial within Bangladesh because it would leave domestic food grain markets vulnerable to international price fluctuations, not unlike those projected to occur as a result of the Uruguay Round.

Table 4

Import substitution

The Bangladesh government has pursued a protectionist, import-substitution industrialisation strategy. For some selected manufacturing industries, it established import controls to insulate domestic markets from international competition. These included outright bans and discretionary quantitative restrictions through Import Policy Orders, import licenses, and tariffs. Until 1984, import licenses were used to ration foreign currency at the official exchange rate to importers. The extent of the commodity coverage of the import licensing system has subsequently declined.

The tariff structure designed for protecting some selected domestic industries is also used to raise government revenue. Even in the late 1980s, more than 30 per cent of total government revenue came directly from tariffs (Bangladesh 1993). The result was high and discriminatory rates of protection which, instead of merely guiding investment decisions, tended to be an instrument of ensuring the *ex post* profitability of selected industrial investments. Import controls and limited export incentives meant that adjustments to the official exchange rate played a minor role as an instrument of trade policy (Ahammad 1995:17). The taka (the Bangladesh currency) was over-valued in the sense that, because of tariffs and exchange controls, the official exchange rate (taka per US$) was lower than it would have been, at an unchanged money supply, if these barriers to trade had been eliminated.

Agricultural and agro-based exports, namely jute, jute products and tea, were seriously disadvantaged by Bangladesh's tariff and exchange rate policies. The overall policy bias was in protecting industry at the expense of agriculture, directly through tariffs and non-tariff barriers (NTBs), and indirectly through the overvalued exchange rate. An anti-export bias was also evident, with the possible exception of garments, due to its access to duty free imports and

a secured overseas market. Estimates of effective rates of protection by Hutcheson (1986), show that the average overall level of effective protection to manufacturing was 114 per cent as against 13 per cent to agriculture (Table 5). The average effective rate of protection for import-substituting activities was 135 per cent compared to 11 per cent for export industries .

Table 5

In the 1980s several attempts were made to reform the tariff structure by reducing the variance of tariffs. In 1986, the number of statutory rates was reduced from 24 to 11. In 1988 the government adopted a phased three-year program intended eventually to reduce maximum tariffs: (i) for most final good imports, from over 200 per cent to 100 per cent; (ii) for raw materials, to 20 per cent; and (iii) for intermediate products, to 75 per cent.

Despite these trade policy reforms, Bangladesh remains highly protectionist. Bhuyan and Rashid (1993) estimated the effective rates of protection for selected industries using survey data for 1990 and the Balassa *et al.* (1971) method of treating non-traded inputs. The nominal rates of protection for most activities were very high, as high as 208 per cent for frozen food, crust and finished leather for example. The estimates showed that industries received degrees of effective protection which varied greatly. Wet-blue cow leather had a 4483 per cent effective rate of protection for domestic sale, while hand loom industry produce had effective protection as low as 20 per cent. Negative effective protection, due to value added at border prices exceeding value added at domestic prices, was also found for several industries.[4]

Import-substitution activities continued to enjoy very high protection (Bhuyan and Rashid 1993). Stern *et al.* (1988) estimated the real effective trade-weighted exchange rates for imports and exports, incorporating the effects of taxes, subsidies, relative inflation rates, and changes in the relative values of trading partner currencies. From 1974 to 1985, the real effective exchange rate for imports consistently exceeded the real effective exchange rate for

[4] Negative rates of effective protection can also occur for another, quite different, reason - negative value added at border prices. Negative rates arising from this source indicate industries receiving very high rates of protection because without their protection they would become non-viable. At least one examples of this kind can be found for Bangladesh - a rate of -693 per cent for cotton fabric. It is obviously important to distinguish negative effective rates arising from negative value added at border price , from the more usual source of (positive) value added at border prices exceeding value added at domestic prices because their implications are entirely opposite.

total exports. The real effective exchange rates for non-traditional exports (mainly garments) always exceeded those for the total exports, reflecting the policy bias towards the non-traditional activities and discrimination against the traditional agricultural exports.

Implications of the Uruguay Round

Bangladesh has been among the developing countries which have protested the possible negative implications of the Uruguay Round for their international trading position. These concerns would seem to be, in general terms, well founded. In Table 6 we summarise the results of ten previous studies which have projected the changes in world commodity prices which may result from the conclusion of the Uruguay Round.[5] In general, the more recent the study, the more modest is the expectation of the Uruguay Round and the smaller are the projected international price changes.

Table 6

In the final two columns of Table 6 we show Bangladesh's import and export shares for each of the commodities shown. These trade shares are used as the basis for calculating the projected changes in Bangladesh's terms of trade in the last row of the table. Although the ten studies shown differ considerably in the modelling basis for their price projections, all imply a deterioration in Bangladesh's terms of trade. Of these, the set of results reported by Duncan *et al* (1994) have been used as the basis for our simulations based on the Uruguay Round, to be presented in Table 8, below.

The simulation model

The global economic models used to study the impact of the successful conclusion of the Round, as summarised in Table 6, vary somewhat in their behavioural assumptions, but more significantly in their geographical (i.e. regional) dimensions and levels of commodity aggregation. In all such global models of which the authors are aware, the Bangladesh

[5] For a critical review of the models underlying most of these studies, see Schott and Buurman (1994).

economy has been aggregated with many other economies with diverse production and trade compositions, such as the entire South Asia region or 'low income Asia'. The need to simplify such global models is obvious, but important information can be lost in the aggregation process. The effects of the Uruguay Round on the Bangladesh economy could well be significantly different from than found for the region or country group within which Bangladesh is included.

This study uses a 19-sector computable general equilibrium (CGE) model of the Bangladesh economy, based on the model documented in Ahammad (1995), which featured a dual foreign exchange market. In view of the recent dismantling of the legal secondary exchange market, the earlier model is modified for the purpose of the present study to incorporate a single unified exchange rate. The Bangladesh model belongs to the Johansen class of CGE models. The structural equations are specified in percentage change form. Each sector produces a single composite commodity using intermediate inputs with two primary factors: labour and capital. The production functions concerned allow no substitution possibilities among the intermediate inputs or between any intermediate input and composite primary input. The composite primary input is a Cobb-Douglas aggregate of labour and capital.

Sectors maximise their total revenue by producing for domestic and overseas markets. Outputs sold domestically are imperfect substitutes for exported output. Symmetrically, domestically produced goods are treated as imperfect substitutes for the imported goods within the same statistical category. Only one representative household is considered, which maximises utility given its income from profits, wages and net transfers from the government. Consumer demands for commodities are based on a linear expenditure system (LES). The government also intervenes in domestic markets through indirect taxes, including trade taxes. Any surplus or deficit in the government budget is financed by lump-sum subsidies to or taxes on the household.

The version of the Bangladesh model used in this paper includes data base and structural amendments intended to improve its capacity to handle issues involving food aid. Imports of foodgrains - rice and wheat - are divided into food aid and commercial import categories.

Commercial imports enter the balance of payments as a debit item but food aid imports do not. The latter are assumed to be sold domestically by the Bangladesh government and the proceeds of these sales enter general government revenue. It will be seen that the economic mechanism by which the level of commercial imports is determined is an important determinant of the effects of food aid.

The data-base and simulation experiments

The model contains base period structural coefficients including cost, revenue and sales shares. The share coefficients are calculated from the same input-output table for 1989 used by Mansur and Khondker (1991), supplemented by data from other official documents. The model also includes various behavioural elasticities: Armington trade elasticities; elasticities of transformation; substitution elasticities between primary factors; household expenditure elasticities; and world export demand elasticities. The elasticity parameters were based on an extensive literature search. The complete sets of input-output data files and the elasticity and miscellaneous parameter files are documented in Ahammad (1995a). It should be noted that the incorporation of a single unified exchange rate into the present model and the decomposition of total food (rice and wheat) imports into aid and commercial import components have required some minor adjustments for the *cif* import values and *fob* export values.

Model closure

The simulations are designed to evaluate the impact of food aid and the successful completion of the Uruguay Round on the structure and welfare of the economy in a *one-period* framework. Household welfare depends on its real consumption of goods and services. The changes in the economy, brought about by the exogenous changes in food aid or in world prices following the multilateral trade liberalisation under the Round, are constrained to channel on to household consumption. To do this, investment expenditures of all kinds, government current consumption, and the balance of trade are held at their base-year levels, because changes in these values would not lead to any measured benefit to the household in a one-period context, as measured by changes in its real consumption. The government budget is

balanced in the sense that any increase (decrease) in the government's net budget surplus is transferred to (from) households in lump sum form. A fixed current account deficit should be understood to mean that any short-run change in the current account balance will be eliminated by policy adjustments exogenous to the model.

As explained above, the economy is a price taker for its imports, and faces constant elasticity downward-sloping foreign demand curves for its exports. However, unless otherwise stated, the government is assumed to possess monopoly power with respect to all food imports. This is captured in the model used here by exogenising commercial food imports and thus endogenising the difference between *cif* import prices for food and the domestic prices for these imports. For all commodities except jute and jute goods, export demand elasticities are finite but very large. The world prices for these commodities are 'almost' exogenous. But Bangladesh enjoys some market power for world trade in jute and jute products, as discussed above. Any rise (or fall) in Bangladesh exports of jute and jute products would, therefore, reduce (or raise) their world prices. As a result of the supply responses of Bangladesh exporters, price rises (or falls) of jute and jute goods would be somewhat less than those actually predicted by those studies under consideration. The low elasticities for jute and jute products are based on the empirical studies (Imam 1970, Nguyen and Bhuyan 1977, Thomas 1979).

Capital is industry-specific. A slack employment market under constant real wages is assumed so as to capture the reality of involuntary unemployment in Bangladesh. The closure described above is the base case. For some simulations, this closure is amended, particularly with respect to the treatment of commercial food imports.

The presentation of our results will be in three parts. First, we simulate the effects that changes in the level of food aid delivered to Bangladesh have on the Bangladesh economy, in isolation from the effects of the Uruguay Round. Next, we take the results of past studies on the implications that the conclusion of the Uruguay Round of the GATT may have for international commodity prices, as summarised in Table 6 above and apply them as exogenous

Table 5 Bangladesh: Nominal and Effective Rates of Protection (%)

	Nominal	Effective[a]
Rice growing	5.0	3.9
Wheat growing	5.0	3.6
Jute growing	22.4	25.9
Cotton growing	23.4	31.6
Tea cultivation	2.3	-6.1
Other crops	5.0	1.6
Livestock	7.9	6.9
Fishing	11.6	6.5
Forestry	32.6	33.8
Sugar	42.7	291.9
Edible oils	35.4	962.2
Salt	28.6	30.2
Tobacco products	7.5	-89.8
Other foods, nec	28.7	44.0
Cotton yarn	56.3	b
Mill-made cloth	48.9	61.8
hand loom cloth	48.5	45.8
Jute textiles	2.1	-5.2
Paper and paper products	69.6	290.4
Leather	2.7	-29.6
Fertiliser	-6.5	-28.6
Pharmaceuticals	33.2	21.8
Other chemicals, nec	58.0	225.6
Cement	13.9	-15.5
Basic metals	52.2	62.6
Metal products	61.9	87.5
Machinery	26.0	9.6
Automotive vehicles	147.2	994.8
Wood products	34.8	41.6
Miscellaneous products, nec	55.5	92.1
Petroleum products	27.7	38.5
Averages		
Primary activities	7.1	12.6
Manufacturing	45.9	114.3
Import substituting	49.5	134.9
Export sectors	10.2	11.2

Notes:

[a]Based on 1977 inter-industry table. The estimates were based neither on Balassa method nor on Corden method, but on the conversion factor approach (for details, see Hutcheson 1986). The rates based on the prevailing exchange rate were called `gross effective rates of protection'. If the entire protection structure were withdrawn, the exchange rate would have to rise sufficiently to maintain the same trade balance as before. The gross effective rates adjusted for such exchange rate effect, are the `net effective rates of protection' (Hutcheson 1986).

[b]Indicates negative value-added at border prices.

Source:

Hutcheson, T.L., 1986. *Effective Rates of Protection: An Input-Output Analysis*, Trade and Industrial Policy Reform Program, Doc. TIP-MU-H.3, Dhaka.

kinds of imports fix in each case the relationship between the *cif* price of these imports and their domestic price.

An increase in food aid in the form of rice, in the presence of exogenously fixed commercial imports of rice and wheat (column A1 of Table 7), leads to a reduction in the domestic producer price of rice and hence to reduced rice production. Consumption of rice as well as aggregate consumption increases. As rice constitutes a major share of agricultural value added, aggregate agricultural output falls. Manufacturing output and services expand resulting in an increase in GDP at market prices. The demand for labour expands and aggregate employment rises at the exogenously fixed real wage. The rise in aggregate consumption is an indicator of a welfare improvement. A 10 per cent increase in food aid in the form of wheat (column B1) is also welfare augmenting. The larger welfare gain from a 10 per cent increase in wheat aid is due primarily to the fact that the share of wheat in total food aid in the base year is considerably larger than that of rice. Effects on the domestic wheat market are also larger than was the case with rice food aid and the domestic rice market because wheat food aid represents a much larger share of the domestic market than is the case with rice.

Experiment set 2 replaces fixed quantitative controls of commercial imports of both rice and wheat with fixed tariffs for each. When commercial imports are liberalised through tariffication, an increase in food aid in the form of either rice or wheat induces a reduction in commercial imports, but is still welfare improving. Since the social benefit derived from a unit increase in food aid in this situation is its *cif* value, the form in which food aid is given - rice or wheat - is unimportant. This fact is reflected in the proportionality relationship between the effects of an increase in rice aid (column A2) and the corresponding effects of that in wheat aid (column B2).[7] The constant of proportionality reflects the relative *cif* values of a unit proportional increase in each of these two forms of food aid. When commercial food imports

[7] The economic basis for this result is that in experiment set 2, where imports of rice and wheat are subject to exogenous tariffs, imported rice and wheat correspond to pure traded goods. Their social values (shadow prices) are proportional to their *cif* prices. In experiment set 1, the quantitative restrictions on imports of rice and wheat mean that these commodities are not strictly traded goods and their social values (shadow prices) are not necessarily proportional to their *cif* prices,

are tariffied it is solely the *cif* value of the aid, in whichever form it takes, that determines the magnitude of its economic effects..

The effects on the domestic markets for wheat and rice are quite different in these two sets of cases. Three important points to notice are first, that in experiment set 2, commercial imports decline substantially when food aid is increased. The increased consumption that an increase in food aid makes possible is taken partly in the form of commodities other than food. Second, as a result, the increase in food consumption which results from a 10 per cent increase in food aid is smaller in experiment set 2 than in set 1. Third, the increase in overall welfare (aggregate real consumption) which results is significantly larger in experiment set 2 than that found in set 1.

When commercial food imports are tariffied it is possible to substitute freely between food aid and commercial imports. In welfare terms, it is efficient to consume the benefits of increased food aid partly in the form of increased imports of commodities other than food. When the level of commercial food imports is market-determined (set 2), this is exactly what happens. A decline in commercial imports of food is the means by which part of the value of the increased food aid is consumed in the form of non-food imports. But when the quantity of commercial food imports are fixed (set 1), these adjustments are impeded. The value of the food aid, in terms of the increase in welfare that it produces, is correspondingly smaller. The resulting increase in food consumption is smaller in that case but the welfare gain is larger - by a factor of more than 2. Clearly, the economic effects of food aid depend heavily on the government's policy stance with respect to commercial food imports.

Implications of the Uruguay Round

Table 8 summarises the results of a set of experiments designed the draw out the relationships between the effects of the Uruguay Round and the policy responses of both the food aid donor and recipient countries. Columns D1 and D2 simulate the effects of the post-Uruguay Round changes in international prices (based on the *cif* and *fob* columns marked S1 in Table 6) under the two different domestic policy environments regarding commercial food

imports represented by experiment sets 1 and 2 of Table 7. In D1 the volume of commercial food imports are exogenously fixed and in D2 these imports are tariffied. The volume of food aid is fixed exogenously at the base-year level in both cases.

Table 8

It is not surprising that real consumption falls in both cases. In experiment D2, commercial food imports decline in response to the increase in their price. This adjustment reduces the welfare impact of the increases in international food prices induced by the Uruguay Round because Bangladesh is able to substitute away from the imports which have become more costly. But these adjustments are again impeded when the quantities of commercial food imports are controlled (D1) and the welfare loss induced by the Uruguay Round is thus substantially greater - by a factor of more than 2.5. As in Table 7 above, the domestic effects of external events (an increase in food aid, as in Table 7, and the Uruguay Round induced international price changes analysed in Table 8) depend considerably on the domestic policy environment.

Experiments E1 and E2 are intended to show the effects of a hypothetical policy response to the Uruguay Round on the part of food aid donors. As noted above, by increasing international food prices, the Uruguay Round increases the budgetary cost of food aid to donor agencies. Suppose they were to respond by *reducing* the volume of food aid such as to keep its US dollar value constant. What would that mean for food aid recipient countries like Bangladesh? Columns E1 and E2 show the projected effects of the Uruguay Round changes simulated in columns D1 and D2, but this time with donor agencies responding as just described.

It is not surprising that the welfare loss from the Uruguay Round is magnified when donors respond in this way. That is, the estimated welfare losses found in E1 and E2 are greater than those estimated in experiments D1 and D2. The welfare loss in E2 is around 80 percent larger than in D2, but the loss in experiment E1 is only 17 per cent larger than in D1. The reason for the large difference is that when the quantity of commercial food imports can be adjusted in

response to the Uruguay Round (D2), food aid has greater value at the margin than it does when commercial imports are fixed in quantity terms (D1). Thus, when donors reduce their food aid in response to the Uruguay Round, the welfare loss caused is greater when commercial food imports are liberalised (E2 compared with D2) than when these imports are controlled (E1 compared with D1). Nevertheless the total welfare loss that results from the Uruguay Round combined with this response from donors remains smaller when commercial food imports are liberalised (E2) than when they are not (E1).

Finally, experiments F1 and G1 examine the *increases* in food aid that would be required if food aid was used as an instrument for compensating the least-developed food importing countries like Bangladesh for the welfare loss that the Uruguay Round would otherwise cause. For brevity, we shall consider only the case where the quantities of commercial food imports are controlled, as in D1 and E1. From column F1, an increase in total food aid to Bangladesh of 40 per cent would be required to achieve this outcome.[8] But column G1 varies this experiment by assuming that, at the same time, Bangladesh reduces its own rates of tariff protection across the board by 24 per cent. This is the average rate of liberalisation agreed to by developing countries at the Uruguay Round, except for the least developed countries like Bangladesh, which were exempted from any required liberalisation. In this case, experiment G1 shows that *no* increased food aid would be required to maintain welfare in Bangladesh; a small reduction in food aid would still be consistent with maintaining welfare. Another way of expressing this result is that the simulated aggregate benefits derived by Bangladesh from a 24 per cent liberalisation of its own rates of protection would more than offset the losses it incurs from the Uruguay Round.

Conclusions

This paper has focussed upon the food aid recipient countries, taking Bangladesh as an

[8] In modelling terms, experiments F1 and G1 hold the composition of food aid between rice and wheat constant at its base value and treat the volume of food aid as endogenous so as to maintain aggegate real aggregate consumption expgenously constant.

illustrative example. We have studied the relationship between the effects of food aid and those of the conclusion of the Uruguay Round of the GATT. We have argued that, among other factors, the magnitudes of these effects depend crucially on the policy environment within the food aid recipient country itself. We have drawn particular attention to the role of the government's policy towards commercial food imports, a controversial policy issue within Bangladesh. We have also analysed the way the effects of the Uruguay Round depend on the response of food aid donors to the international effects of the Round.

When the quantity of Bangladesh's commercial food imports is controlled by the government, the benefits derived from food aid are smaller than when these imports are tariffied - subject to fixed tariff rates. Likewise, the negative effects that the Uruguay Round may be expected to have on Bangladesh will also be larger if commercial food imports are subject to quantitative controls than if they are tariffied. Finally, we have shown that the effects that the Uruguay Round will have on Bangladesh will depend significantly on the way food aid donors respond to the Round. If donors reduce the volumes of food aid in response to increased international food prices resulting from the Round, the losses incurred by the least-developed, food deficit countries - such as Bangladesh - will be magnified. But these effects will also depend heavily on whether Bangladesh itself participates in the liberalisations that are central to the Round itself. If it were to participate fully, the negative effects that the Uruguay Round would otherwise have on Bangladesh may be entirely offset by the gains Bangladesh would derive from its own liberalisation.

REFERENCES

Ahammad, H. 1995, Foreign Exchange and Trade Policy Issues in a Developing Economy: The Case of Bangladesh, Avebury, England.

Andrews, N., Roberts, I and Hester, S.; 1994. The Uruguay Round outcome: implications for agricultural and resource commodities, Outlook , 94: 65-75

Balassa, B. and Associates, 1971. The Structure of Protection in Developing Countries, Johns Hopkins University Press, Baltimore, MD

Bangladesh, Government of. Statistical Yearbook of Bangladesh, Various issues, Bangladesh Bureau of Statistics, Dhaka

_____, 1994a. Bangladesh Economic Review 1993-94, Ministry of Finance, Dhaka.

_____, 1994b. Export from Bangladesh 1972-73 to 1992-93, Export Promotion Bureau, Dhaka.

_____, 1994c. Imports, mimeo, Planning Commission, Dhaka.

Bhuyan, A.R., and Rashid, M.A., 1993. Trade Regimes and Industrial Growth: A case study of Bangladesh, Bureau of Economic Research, University of Dhaka, Dhaka.

Brandao, A.S.P. and Martin, W.J.; 1993. 'Implications of agricultural trade liberalisation for the developing countries', Agricultural Economics, 8: 313-43.

Dee, P., 1994. The most recent estimates of the effects of the Uruguay Round, mimeo, Industry commission, Canberra.

_____, Jomini, P. and McDougall, R.; 1992. 'Alternatives to Regionalism - Uruguay and APEC'; Working Paper No. 92/15, Centre for International Economic Studies, The University of Adelaide; Adelaide

Duncan, R., Robertson, D. and Yang, Y. 1994. 'Analysis of the benefits and challenges facing Asian-Pacific agricultural exporting countries in the Post-Uruguay period'. A report prepared for United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP), Bangkok.

Francois, J.F., McDonald, B., and Nordström, H.; 1994. The Uruguay Round: A global general equilibrium assessment, GATT Secretariate, Geneva.

General Agreement on Tariffs and Trade (GATT), 1994., The Results of the Uruguay Round of Multilateral Trade Negotiations, GATT Secretariat, Geneva.

Goldin, I. Knudsen, O. and van der Mensbrugghe, D.; 1993. Trade Liberalisation: Global Economic Implications; OECD/World Bank

Hamilton, C. 1990. (ed.) Textile Trade and Developing Countries:Eliminating the MFA in the 1990s, World Bank, Washington D.C.

Hamilton, C. and Whalley, J. 1995. 'Evaluation the impact of the Uruguay Round results on developing countries', The World Economy, 18(1): 31-49.

Hutcheson, T.L., 1986. Effective Rates of Protection: An Input-Output Analysis, Trade and Industrial Policy reform Program, Doc.TIP-MU-H.3, Dhaka.

Imam, K.H., 1970. 'Export demand elasticities for Pakistan's jute trade', Bulletin of the Oxford University Institute of Economics and Statistics, 32(1): 47-58.

Mansur, A.H., and Khondker, B.H., 1991. 'Revenue effects of the VAT system in Bangladesh', TheBangladesh Development Studies, 19(3): 1-34.

Nguyen, D.T., and Bhuyan, A.R., 1977. 'Elasticities of export and import demand in some South-Asian countries: some estimates', The Bangladesh Development Studies, 5(2): 133-52.

Nguyen, T., Perroni, C. and Wigle, R., 1993. 'An evaluation of the Draft Final Act of the Uruguay Round', Economic Journal, 103 (4): 15430-1549.

Nguyen, T., Perroni, C. and Wigle, R., 1995. 'A Uruguay Round success?', The World Economy, 18(1): 25-30.

Schott, J.J., and Buurman, J.W., 1994. The Uruguay Round: An assessment, Institute of International Economics, Washington D.C.

Stern, J.J., Mallon, R.D., and Hutcheson, T.L., 1988. 'Foreign exchange regimes and

industrial growth in Bangladesh', World Development, 16(12): 1419-39.

Thomas, V. 1979. 'Price elasticities of demand for Bangladesh's jute', The Bangladesh Development Studies, 7(2): 101-6.

UNCTAD, 1990. Agricultural Trade Liberalisation in the Uruguay Round: Implications for Developing Countries A joint UNCTAD/UNDP/WIDER Study. United Nations, New York.

Vanzetti, D. Melanie, J and Barry, G.; 1994. South East Asian agriculture post-Uruguay Round; ABARE Conference Paper No. 94.15.

Vanzetti, D., Andrews, N., Hester, S. and Fisher, B.;1993. US-EC agricultural trade relations and the Uruguay Round: a Cairns Group perspective, ABARE Conference Paper No. 93.14

World Bank, 1993. World Tables 1993, Washington D.C.

Table 1: Bangladesh: Key Economic Indicators, selected years

	1973	1981	1983	1985	1988	1990	1992
Current GNP *per capita* (US$)	80	150	150	150	180	210	220
Real GDP Growth (%)	-0.2	9.5	4.6	3.9	2.8	6.6	4.2
Structure of GDP (%)							
Agriculture	57	40	40	42	39	36	34
Industry[1]	12	17	17	16	15	16	17
Manufacture	9	11	11	10	8	9	9
Services	31	43	43	42	46	48	49
Resource balance (% GDP)[2]	5	-12	-12	-11	-9	-10	-6
Terms of trade (1987=100)	164	93	100	122	97	104	116
Gross savings (% of GDP)	4.2	6.2	5.6	4.6	6.3	5.4	9.9
Inflation[3] (%)	49	16	9	11	9	8	5

Notes:

[1]Industry consists of mining, manufacturing, construction, electricity, water and gas.

[2]Defined as the value of exports of goods and non-factor services minus the value of imports of goods and non-factor services.

[3] Based on CPIs

Sources:

World Bank, *World Tables 1993*, Washington D.C., Bangladesh, Government of, 1994.

Bangladesh Economic Review 1993-94, Ministry of Finance, Dhaka.

Table 2: Bangladesh: Structure of Exports, Selected Years

	1973	1981	1983	1985	1988	1990	1992	1993
Total exports (million US$)	354	711	686	934	1231	1524	1994	2383
Total exports (% of GDP)	6.1	5.0	5.6	6.0	6.4	6.8	8.4	9.6
Commodity group (% of total)								
Raw jute	37.8	16.8	16	16.1	6.6	8.2	4.3	3.1
Jute goods	52.3	51.6	46.6	41.7	24.4	21.5	15.2	12.3
Tea	2.7	5.7	6.8	6.5	3.2	2.6	1.6	1.7
Leather and leather products	4.5	8.0	8.5	7.5	11.9	11.7	7.5	6.3
Ready-made garments	.	0.5	1.7	12.5	35.3	40.0	53.4	53.3
Shrimp and fish	1.3	5.6	10.5	9.3	11.8	9.5	6.8	7.3
Others	1.4	11.8	9.9	6.4	6.8	6.5	11.2	16.0
Export Price index (1987=100)	58	96	94	108	99	115	129	..

Notes:

'.' indicates insignificant. '..' indicates not available.

Sources:

Bangladesh, Government of, 1994. *Export from Bangladesh 1972-73 to 1992-93*, Export Promotion Bureau, Government of Bangladesh, Dhaka. Bangladesh, Government of, 1994. *Bangladesh Economic Review 1993-94*, Ministry of Finance, Dhaka. World Bank, *World Tables 1993*, Washington D.C.

Table 3: Bangladesh: Composition of Imports, Selected Years

	1973	1981	1983	1985	1988	1990	1992	1993
Total imports (million US$)	780	2533	2309	2647	2986	3759	3464	3986
Total imports (% of GDP)	13.1	17.7	18.7	16.9	15.6	16.8	14.6	16.1
Commodity group (% of total)								
Food and major primary goods	54.7	28.1	35.5	31.6	25.2	12.8	14.4	10.2
Rice	.	1.6	4.2	6.6	5.0	2.7	0.1	0.2
Wheat	..	8.3	11.7	12.2	11.4	6.4	7.2	3.5
Major intermediate goods	16.1	16.7	13.5	16.3	15.9	17.8	17.2	18
Edible oil	1.3	3.6	3.6	3.9	5.9	5.3	4.1	3.8
Petroleum	3.9	6.3	3.6	5.0	4.6	4.6	4.9	4.1
Fertiliser	3.1	4.1	2.9	5.2	1.5	1.2	3.4	3.3
Cement	0.9	1.3	1.9	1.0	2.2	2.2	3.1	2.9
Capital goods	12.8	27.2	25.9	26.1	36.5	34.5	37.1	31.3
Miscellaneous	25.8	28.0	25.1	26.0	22.4	34.9	31.3	40.5
Import price index (1987=100)	35	103	94	89	102	110	111	..

Note:
'..' indicates not available.

Sources:
Bangladesh Government, 1994. *Imports*, mimeo, Planning Commission, Dhaka; Bangladesh Government, 1994. *Bangladesh Economic Review 1993-94*, Ministry of Finance, Dhaka; World Bank, *World Tables 1993*, Washington D.C.

Table 4: Grains Import by Sources: 1975/76 to 1989/90
(percentage shares by total volume)

Year	Aided import	Cash/loan import
1975/76	90	10
1976/77	82	18
1977/78	82	18
1978/79	96	4
1979/80	49	51
1980/81	70	30
1981/82	91	9
1982/83	51	49
1983/84	68	32
1984/85	50	50
1985/86	91	9
1986/87	81	19
1987/88	61	39
1988/89	63	37
1989/90	56	44
1990/91	58	42
1991/92	89	11
1992/93	100	0
1993/94	51	49

Sources: 19775/76 to 1989/90 from Hamid, M. A. , 1991. A Data Base on Agriculture and Foodgrains in Bangladesh (1947-48 to 1989-90), Dhaka; 1990/91 to 1993/94 calculated from World Bank, Report No. 13875-BD, 1995, tables 3.6 and 3.10.

Table 6: Projected Impact of the Uruguay Round on World Prices (per cent)

Industry	S1 *cif*	S1 *fob*	S2	S3	S4	S5	S6	S7	S8	S9	S10	S_X	S_M
1 Rice	6.60	7.10	16.87	8.48	8.00	10.00	7.00	-1.90	5.60	1.99	4.22	0.00	1.20
2 Wheat	10.30	10.90	12.52	13.26	8.00	7.00	7.00	5.90	30.20	4.35	6.32	0.00	5.46
3 Jute**	4.60	5.40	-0.45	-0.15								10.04	0.00
4 Tea**	0.60	0.60	-0.59	-0.51				3.00	17.50	1.88	2.34	0.28	0.00
5 Fishing**	1.10	1.10	-0.66	-0.21								13.18	0.00
6 Forestry**	1.80	2.20	-0.88	-0.55								0.01	0.00
7 Edible oil	4.60	5.40	-0.45	-0.15	6.00		7.00	4.10	17.70	2.51	4.52	0.00	5.03
8 Other agriculture	1.70	1.80	-0.07	0.71	2.00	2.00	4.00	5.90	27.10	1.23	2.23	2.15	10.53
9 Sugar refining	4.60	5.40	-0.45	-0.15	1.00	1.00	3.00	10.20	59.30	6.31	10.18	0.00	3.50
10 Textiles	-6.70	-7.10	-1.07	-1.85								0.00	3.25
11 Garments**	-6.70	-7.10	-2.14	-14.51								29.36	0.16
12 Jute textiles**	4.60	5.40	-1.07	-1.85								26.92	0.00
13 Paper and paper products	0.20	0.10	-0.77	-0.71								1.08	2.10
14 Leather & footwear**	0.20	0.10	-0.99	-1.56								13.27	0.01
15 Chemicals	0.20	0.10	-0.74	-0.59								0.04	4.60
16 Othermanufacturing	0.20	0.10	-0.57	-0.32								3.68	64.14
17 Physical overheads	0.60	0.60	-0.43	-0.05								0.00	0.00
18 Social overheads	0.60	0.60	-0.22	-0.42								0.00	0.00
Export Price index	n.a.	0.11	-1.21	-5.01	0.04	0.04	0.09	0.14	0.63	0.03	0.05		
Import price index	1.13	n.a.	0.39	0.56	1.08	0.75	1.34	1.48	7.54	0.74	1.21		
Terms of trade	-1.02		-1.60	-5.57	-1.04	-0.71	-1.25	-1.34	-6.91	-0.71	-1.16		

Notes:
S1 is Scenario 1 based on Duncan *et al.* (1994).
S2 is Scenario 2 based on Table 3 in Dee *et al.* (1992).
S3 is Scenario 3 based on Dee (1994).
S4 is Scenario 4 drawn from Table 1 in Andrews *et al.* (1994).
S5 is based on Scenario 1 of Table 9 in Vanzetti *et al.* (1994).
S6 is based on Scenario 1 of Table 2 in Vanzetti *et al.* (1993).
S7 and S8 are based on Scenario 1 (PLIBA) and Scenario 2 (FLIBA), respectively, of Table 3.1 in Goldin *et al.* (1993).
S9 and S10 are Scenario 9 and Scenario 10 drawn, respectively, from columns 1 and 5 of Table 7 in Brandao and Martin (1993).
S_X and S_M are, respectively, the industry's shares in base-year aggregate exports and imports in Bangladesh ;
** indicates exporting industry in the Bangladesh CGE model.
n.a. indicates not applicable.

Table 7: Bangladesh: Effects of 10 per cent Increase in Food Aid (percentage change from base year level)

	A1 Rice	B1 Wheat	C1 Total	A2 Rice	B2 Wheat	C2 Total
Key macro variables						
GDP at market prices (real)	0.006	0.050	0.057	0.020	0.089	0.109
Consumer price index (CPI)	-0.007	-0.063	-0.070	0.039	0.174	0.213
GDP (at market prices) deflator	-0.007	-0.062	-0.070	0.045	0.199	0.244
Nominal wage	-0.007	-0.063	-0.070	0.039	0.174	0.213
Employment effects	0.001	0.050	0.051	0.008	0.036	0.044
Aggregate exports (volume)	0.013	0.111	0.124	-0.152	-0.669	-0.821
Aggregate imports (volume)	0.003	0.023	0.026	-0.032	-0.141	-0.173
Aggregate consumption (real)	0.006	0.050	0.056	0.021	0.093	0.114
BOT deficit in current world prices (US$)	*	*	*	*	*	*
Output aggregates (real)						
Agriculture	-0.004	0.009	0.005	0.005	0.020	0.025
Manufacturing	0.006	0.049	0.054	-0.023	-0.103	-0.127
Services	0.005	0.035	0.040	0.010	0.043	0.053
Exporting	0.006	0.053	0.059	-0.034	-0.148	-0.182
Import-competing	-0.002	0.015	0.013	0.002	0.007	0.009
Producer price						
Rice	-0.022	-0.038	-0.060	0.044	0.195	0.239
Wheat	-0.001	-1.090	-1.091	0.031	0.135	0.165
Industry output						
Rice	-0.018	0.023	0.005	0.007	0.032	0.039
Wheat	0.007	-1.518	-1.511	-0.010	-0.043	-0.053
Terms of trade effects						
Export price index	-0.002	-0.013	-0.015	0.016	0.069	0.084
Import price index	*	*	*	*	*	*
Difference	-0.002	-0.013	-0.015	0.016	0.069	0.084
Commercial imports (real)						
Rice	*	*	*	-18.386	2.907	-15.479
Wheat	*	*	*	0.304	-15.944	-15.640
Consumer price (real)						
Rice	-0.018	0.025	0.007	0.005	0.021	0.026
Wheat	0.009	-2.631	-2.622	-0.028	-0.127	-0.156
Food consumption (real)						
Rice	0.006	0.021	0.028	0.008	0.036	0.044
Wheat	0.003	0.673	0.676	0.020	0.087	0.107
Food aid (real)						
Rice	10.000	*	10.000	10.000	*	10.000
Wheat	*	10.000	10.000	*	10.000	10.000

Notes:

A1, B1 and C1: Food aid increased by 10 per cent with commercial food imports subject to quantitative controls.

A2, B2 and C2: Food aid increased by 10 per cent with commercial food imports tariffied.

Table 8: Bangladesh: Effects of Post-Uruguay Round World Price Changes (percentage change from base year level)

	D1	D2	E1	E2	F1	G1
Key macro variables						
GDP at market price (real)	-0.131	0.051	-0.186	-0.054	0.009	0.295
Consumer price index (CPI)	0.147	0.796	-0.077	0.591	-0.304	-1.622
GDP (at market price) deflator	-0.373	0.675	-0.305	0.440	-0.537	-2.131
Nominal wage	-0.147	0.796	-0.077	0.591	-0.304	-1.622
Employment effects	-0.201	-0.211	-0.253	-0.253	0.171	0.618
Aggregate exports (volume)	0.200	-2.964	0.077	-2.175	0.491	6.375
Aggregate imports (volume)	-0.947	-1.612	-0.973	-1.446	-0.887	0.360
Aggregate consumption (real)	-0.332	-0.132	-0.387	-0.242	-0.192	0.070
BOT deficit at current world prices (US$)	*	*	*	*	*	**
Output aggregates (real)						
Agriculture	0.084	0.160	0.077	0.136	0.002	0.329
Manufacturing	-0.835	-1.437	-0.889	-1.316	-0.711	0.117
Services	-0.190	-0.143	-0.229	0.194	-0.088	0.157
Exporting	-0.178	-0.980	-0.237	-0.805	-0.042	1.654
Import-competing	-0.226	-0.232	-0.240	-0.241	-0.273	-0.040
Producer price						
Rice	-0.228	0.799	-0.174	0.5691	-0.699	-1.540
Wheat	-0.246	3.646	0.877	3.487	-0.432	-1.490
Industry output						
Rice	-0.120	0.028	-0.132	-0.010	-0.501	0.075
Wheat	-0.243	4.183	1.316	4.234	-0.314	0.078
Terms of trade effects						
Export price index	-1.041	-0.710	-1.026	-0.792	-1.075	-1.647
Import price index	0.750	0.750	0.750	0.750	0.750	*
Difference	-1.791	-1.460	-1.776	-1.542	-1.825	-2.396
Commercial imports (real)						
Rice	*	-78.225	*	-69.080	*	**
Wheat	*	-47.259	*	-31.040	*	**
Consumer price (real)						
Rice	-0.081	0.015	-0.095	-0.010	-0.459	0.088
Wheat	-0.251	7.218	2.453	7.367	-0.459	0.088
Food consumption (real)						
Rice	-0.136	-0.083	-0.162	-0.125	*	*
Wheat	-0.152	-1.863	-0.847	-1.965	*	*
Food aid (real)						
Rice	*	*	-6.600	-6.600	209.833	-19.212
Wheat	*	*	-10.300	-10.300	1.477	0.229
Total	*	*	-9.614	-9.614	40.092	-3.375

Notes:

D1: Food aid quantities exogenous; commercial food imports exogenously fixed.

D2: Food aid quantities exogenous; commercial food imports tariffied.

E1: Food aid quantities endogenous such that the *cif* value of food aid is constant; commercial imports as in D1

E2: Food aid quantities endogenous such that the *cif* value of food aid is constant; commercial imports as in D2.

F1: Food aid endogenous to maintain the base-year food (rice and wheat) consumption; commercial imports as in D1.

G1: endogenous food aid with 24 per cent cut in protection; commercial imports as in D1..

Appendix Table A1: Industry Characteristics of the Bangladesh Model

Sectors	Gross output (million taka)	Value-added to output ratio	Capital-labour ratio	Export-output ratio	Import-demand ratio[1]	Average tariff rate
Exportables						
Jute	9,336	0.62	0.05	0.34	n.a.	n.a.
Tea	7,785	0.73	13.45	0.01	n.a.	n.a.
Fish	35,005	0.76	0.43	0.12	n.a.	n.a.
Forestry	31,705	0.79	6.02	0.00	n.a.	n.a.
Ready-made garments	10,714	0.31	0.52	0.87	0.14	n.a.
Jute textiles	10,204	0.44	0.08	0.83	n.a.	n.a.
Leather	4,983	0.39	0.72	0.84	0.02	n.a.
Importables						
Rice	164,498	0.75	0.77	n.a.	0.01	n.a.
Wheat	6,628	0.77	0.83	n.a.	0.54	n.a.
Edible oil	11,293	0.31	2.46	n.a.	0.43	0.23
Other agriculture	151,517	0.66	1.40	0.00	0.09	0.04
Sugar	12,455	0.33	0.67	n.a.	0.33	0.23
Cotton textiles	20,485	0.33	0.13	n.a.	0.20	0.12
Paper	10,821	0.15	0.90	0.03	0.26	0.27
Chemicals	23,571	0.26	7.82	n.a.	0.27	0.37
Other manufactures	110,583	0.31	1.41	0.01	0.48	0.13
Non-tradables						
Physical overheads	277,868	0.67	2.09	n.a.	n.a.	n.a.
Social overheads	27,932	0.89	0.12	n.a.	n.a.	n.a.
Public administration	78,172	0.83	0.53	n.a.	n.a.	n.a.
Total	1,005,555	0.63	1.12	0.03	0.14	0.13

Notes:

[1]Imports and domestic demands include both final consumption and intermediate uses.

All the ratios are calculated at the basic prices.

Source:

Ahammad, H. 1995, *Foreign Exchange and Trade Policy Issues in a Developing Economy: the case of Bangladesh*, Avebury, England.

FOOD AID, FOOD POLICY AND THE URUGUAY ROUND: IMPLICATIONS FOR BANGLADESH

Simulation Results

.1 = commercial imports fixed exogenously
.2 = commercial imports subject to fixed tariffs

Table 7 (p. 27)

A1 to **C1** food aid exogenously increased by 10%; commercial imports exogenous

A2 to **C2** food aid exogenously increased by 10%; commercial imports subject to fixed tariffs

Table 8 (p. 28)

D1 Uruguay Round world price changes; food aid exogenously constant; commercial imports exogenous

D2 Uruguay Round world price changes; food aid exogenously constant; commercial imports subject to fixed tariffs

E1 Uruguay Round world price changes; food aid value exogenously constant; commercial imports exogenous

E2 Uruguay Round world price changes; food aid value exogenously constant; commercial imports subject to fixed tariffs

F1 Uruguay Round world price changes; food aid adjusted endogenously to maintain food consumption; commercial imports exogenous

G1 Uruguay Round world price changes; food aid adjusted endogenously to maintain real consumption; commercial imports exogenous; 24 % cut in tariffs