

# **Distortions to Agricultural Incentives in Bangladesh**

**Nazneen Ahmed, Zaid Bakht, Paul Dorosh and Quazi Shahabuddin**

Bangladesh Institute of Development Studies (BIDS)

[nahmed@sdnbd.org](mailto:nahmed@sdnbd.org)

[zbakht@sdnbd.org](mailto:zbakht@sdnbd.org)

[dg\\_bids@sdnbd.org](mailto:dg_bids@sdnbd.org) and [shahab@sdnbd.org](mailto:shahab@sdnbd.org)

World Bank

[pdorosh@worldbank.org](mailto:pdorosh@worldbank.org)

Agricultural Distortions Working Paper 32, December 2007

This is a product of a research project on Distortions to Agricultural Incentives, under the leadership of Kym Anderson of the World Bank's Development Research Group ([www.worldbank.org/agdistortions](http://www.worldbank.org/agdistortions)). The authors are grateful for excellent research support from Marika Krausova, for helpful comments and suggestions from Garry Pursell and workshop participants, and for funding from World Bank Trust Funds provided by the governments of Ireland, Japan, the Netherlands (BNPP) and the United Kingdom (DfID).

This Working Paper series is designed to promptly disseminate the findings of work in progress for comment before they are finalized. The views expressed are the authors' alone and not necessarily those of the World Bank and its Executive Directors, nor the countries they represent, nor of the institutions providing funds for this research project.

# **Distortions to Agricultural Incentives in Bangladesh**

Nazneen Ahmed, Zaid Bakht, Paul Dorosh and Quazi Shahabuddin

Bangladesh has substantially liberalized its trade and agricultural pricing policies since independence in 1971, removing most distortions to agricultural incentives by the mid-1990s. Although trade protection for some agricultural and industrial products has increased sharply since 1998, total distortions in agriculture remain small. In particular, domestic and international trade policies for the major staples, rice and wheat, are substantially more liberal than in Pakistan or India.

In the early 1970s, Bangladesh pursued a highly restrictive trade and exchange rate policy characterized by import regulations, high import tariffs, export taxes, pervasive quantitative restrictions, and an overvalued exchange rate, similar to policies of the 1960s when it was part of united Pakistan. The policy regime in the 1970s was especially restrictive for the agricultural sector. The government had a monopoly on import of most agricultural commodities and placed major restrictions on exports of raw jute, the major agricultural export. As a result of these distortions, agricultural price incentives were substantially reduced throughout the period (Rahman 1994).

Disenchanted by the outcome of the policy as reflected in slow economic growth and continued balance of payments problems, and under pressure from donors, the country began initial reforms in its trade and exchange rate policies in the early 1980s. The major trade and exchange rate policy liberalization did not take place until the early 1990s, however, when it involved broad liberalization of trade and exchange rate policies as well as of agricultural trade and pricing reforms. By the mid-1990s, agricultural output price distortions had been virtually eliminated on rice and wheat, and total distortions were minimal. Bangladesh sharply raised import tariffs on rice in response to subsidized exports by India in 2001, but domestic rates of assistance calculated relative to international market prices indicate only small overall agricultural price distortions in Bangladesh in the present decade.

This chapter describes the changing structure of distortions to agricultural incentives in Bangladesh, and the forces that have driven it. The next section describes the growth and structural changes of the Bangladesh economy with particular emphasis on the agricultural sector. An overview of the evolution of agricultural policies in Bangladesh since independence is then provided, before reporting our time series of estimates of nominal rates of assistance (NRAs) for selected agricultural products. The the changing political economy of agricultural price and trade policies is then discussed, followed by some concluding observations.

### **Economic growth and structural changes**

GDP growth in Bangladesh has accelerated steadily since the early 1980s. The average GDP growth rate increased from 3.2 percent during 1980-84 to 5.3 percent during 2000-04.<sup>1</sup> The acceleration in per capita income growth has been even greater, because the population growth rate has declined over the last twenty-five years (from 2.2 to 1.5 percent per year). Several features of the policy environment during that period of growth are noteworthy, including a stable macroeconomic environment, a continued emphasis on the private sector as the engine of economic growth, economic liberalization and outward orientation, and an emphasis on agriculture and rural development.

The growth rate in the agricultural, forestry and fishing sector has been considerably slower than overall GDP growth, at only 2.8 percent over the period 1980-2004. This growth was also highly uneven though: it averaged only 1.7 percent per year during the first half of the 1990s, when the crop sub-sector declined slightly, but during the second half of the 1990s the crop sub-sector surged to an average of 3.8 percent per year so that total agriculture grew at 4.8 percent per year. Growth in the fishing sub-sector was even more rapid in the 1990s, averaging 8.1 percent per year, but that slowed substantially after 2000, to 1.7 percent (Appendix Table A1).

---

<sup>1</sup> Throughout this chapter, crop or fiscal years are indicated by the second of the two calendar years (e.g., 2005 refers to 2004/05).

Thus, as in most other countries, sustained economic growth in Bangladesh has been accompanied by a structural transformation with a declining share of agriculture, in spite of positive agricultural GDP growth. The share of agriculture has declined from 32 percent of total GDP in 1980-84 to 23 percent in 2000-04 (of which about 7 percentage points is forestry and fishing throughout this period), while that of industry has risen from 18 to 28 percent and that of services has remained around 50 percent. Readymade garment exports have boomed in the past two decades, causing agriculture's share of national exports to fall from more than one-third in the 1970s and 1980s to less than one-twelfth in the present decade. Nonetheless, more than 60 percent of the country's labor force continues to be employed at least part time in agriculture. Moreover, because agricultural production provides critical linkages for development of the rest of the economy, its performance has an important bearing on employment generation, food security and poverty alleviation. For these reasons, agricultural growth remains a development priority.

Within agriculture, field crops and horticulture are the dominant activities, accounting for four times as much agricultural value added since the early 1980s as livestock activities (Appendix Table A2). Cropping is dominated by the production of cereals, especially rice, for which technological progress supported by the development of irrigation infrastructure has been the main engine of its growth. Rice accounted for about 70 percent of value added from crop production in 1973 and about 80 percent in 1999. The rapid expansion of rice production has been achieved in part at the expense of pulses and oilseeds (which remain important sources of protein and micro-nutrients). Apart from rice and wheat, the only other crops with rapid growth rates over the past two decades are maize, potato and vegetables.

Domestic demand factors have contributed to this structural change in the agricultural economy of Bangladesh. They include income growth in aggregate plus the acceleration in the growth of per capita income due to the slowdown in population growth. Population growth was the dominant factor behind the growth in domestic demand for food in the 1970s when per capita incomes were basically stagnant. In the 1990s, income growth and the varying income elasticity of demand for different foods became a major factor behind the pattern of growth in domestic demand. Farmers have now started to respond to market signals by reallocating resources to activities that have strong market growth (Hossain 2000).

### *Agricultural exports*

In 1973, exports of agricultural commodities from Bangladesh stood at just over 80 percent of Bangladesh's total exports. Their value grew at a modest trend rate of 4.2 percent in nominal terms and 1.4 percent in real terms over the subsequent three decades, and most of that growth was due to fishing (shrimp). In contrast, Bangladesh's overall exports grew at a trend rate of nearly 11 percent (8.4 percent in real terms), due largely to rapid growth of readymade garments. As a result, the share of readymade garments in Bangladesh's total exports rose to nearly 75 percent in 2004-05, while the share of agriculture in total export declined from 37 to 7 percent (Appendix Table A3).

The composition of Bangladesh's agricultural export has also undergone significant changes during these three decades. In the 1970s, the average share of exports of raw jute in total agricultural exports was 70 percent, while those for tea and shrimp were 17 and 9 percent, respectively. However, export of raw jute started facing stiff competition from synthetic substitutes. As a result, the real value of raw jute exports declined by about two-thirds from the 1970s through to the early 1990s before stabilizing, but its share in total agricultural export earnings continued to fall as exports of shrimp and vegetables grew. By 2004, jute's share was just 15 percent (and tea's less than 3 percent), compared to 65 percent for shrimp and 6 percent (from zero in the 1970s) for vegetables. Rising demand for vegetables by expatriate Bangladeshis and various policy measures, particularly the provision of cash incentives and subsidized freight charges, facilitated this rapid growth of vegetable exports.

### *Agricultural imports*

Like agricultural exports, the share of major agricultural imports (wheat, raw cotton, edible oil, rice, sugar, milk and cream, pulses, spices, oil seeds and tobacco) in total imports has declined since the 1970s. The share of these imports declined from an average of 33 percent in the 1970s to 24 percent in the 1980s and only 16 percent in 2000-04 (Appendix Table A3). The total real value of major agricultural imports nonetheless increased over this period by an average of 2.1 percent per year, faster than agricultural exports (1.4 percent per year), but much slower than

total imports (4.9 percent per year). In 2004, raw cotton, edible oil, wheat, rice, sugar and milk powder accounted (in decreasing order) for most of the agricultural imports into Bangladesh.

It should be noted, however, that the above figures reflect the picture with regard to recorded imports only. Studies have shown that illegal imports from India constitute nearly 20 percent of Bangladesh's total recorded imports (Bakht 1999). Of those illegal imports, two-thirds are made up of just six agricultural goods: cattle (42 percent), sugar (7 percent), pulses (6 percent), milk powder (3 percent), spices (3 percent) and rice (2 percent).

Historically, food aid constituted an important component of the wheat imports of Bangladesh. During the 1980s and 1990s, food aid accounted for about two-thirds of total wheat imports (about 1.0 million tons per year out of a total of 1.5 million tons per year), with government commercial imports accounting for the remainder. The latter have supplemented domestic wheat procurement and food aid in supplying the Public Foodgrain Distribution System (PFDS) and – since trade liberalization in the early 1990s – private commercial imports. Food aid levels have dropped substantially since 1999, following large gains in domestic grain production. Food aid never provided more than 0.5 percent of rice supplies, however. Prior to 1992-93, all commercial imports of rice were by the public sector, but since that time private sector imports have supplemented domestic production and government imports in response to market incentives.

Imports of raw cotton are now the major agricultural import, surpassing rice and wheat combined in most years since 2000. Growth in the real value of raw cotton imports has been especially rapid since the early 1990s when the government started giving a 25 percent cash subsidy to exports of readymade garments produced using domestic fabric, a policy which encouraged rapid investment in textile spinning and composite mills (Bakht 2001a). Growth in the real value of imports of raw cotton averaged 12 percent per year in the 1990s and 15 percent from 1999 to 2004.

The real value of imports of edible oil rose by 3.2 percent per year from the early 1970s to 2004, so that the share of edible oil in total agricultural imports remained close to one-fifth over the entire period. Recorded sugar imports (not including sugar smuggled in from India) have increased even more rapidly, rising from 1.4 percent of the value of agricultural imports in the early 1970s to 7 percent in 1999-04. Between 1973 and 2003 domestic production of sugar increased by only about 100 thousand metric tons (kt) raising the output level from 90 kt in 1973

to around 190 kt in 2003. In contrast, domestic demand for sugar increased by nearly 700 kt during this period. As a result, imports of sugar increased from about 12 kt in 1973 to nearly 600 kt in 2003.

## **Exchange rate and trade policies**

Bangladesh followed inward-oriented, import-substituting trade policies from independence in 1971 until major reforms were instituted in the 1980s and especially the 1990s. This section provides a brief history of these policy reforms.

### ***The 1970s: inward-oriented policies***

Faced with an imminent balance of payments crisis following independence in 1971, the first Bangladesh government continued highly restrictive trade and exchange rate policies similar to those it had been in place earlier when the economy was part of Pakistan. Quantitative restrictions on imports, high tariff rates and a fixed, overvalued exchange rate were used to control import levels, conserve scarce foreign exchange and provide protection for domestic industry. However, in line with the political philosophy of the then government, the protectionist trade regime stayed intact even after the possibility of a balance of payments crisis decreased substantially in the mid-1970s after a 70 percent devaluation of the Taka relative to the US dollar from 8.9 to 15.1 in 1975, a recovery in export earnings, an increase in foreign aid and a decline in world prices of grain and other commodities.

Initially under the fixed exchange rate system, all foreign exchange accrued to the government and was then allocated to competing uses through a discretionary and cumbersome mechanism of import licensing. However, in response to foreign exchange crisis, the government, in the early 1970s, allowed the use of foreign exchange earned by Bangladeshi nationals abroad (workers' remittances) to be used to import particular categories of goods in a system later called the Wage Earner's Scheme (WES). At the same time, under the Export Performance License (XPL), certain exporters were given a specified proportion of their export

earnings in the form of an Import Entitlement Certificate (IEC) which could be utilized either to import particular categories of goods or to sell to other traders at a premium to import such goods. Thus, there was a *de facto* dual exchange rate where the XPL premium reflected to some extent the market price of foreign exchange. In 1977, wage earners were allowed to sell their foreign exchange earnings directly in a market that came to be known as the Secondary Exchange Market (SEM) at a the foreign exchange rate called the WES rate.

During the early years of restrictive trade policy, most agricultural commodities were on the restricted or banned lists of imports. This was aimed at ensuring remunerative prices to producers by protecting producers from external competition. At the same time, there were restrictions on the export of agricultural products. Some agricultural exports were also subjected to export duties. The purpose here was to ensure adequate availability of agricultural commodities in the domestic market. Some fiscal incentives were provided to promote exports of non-traditional items, however. In the Export Policy Order of 1976, incomes from exports of non-traditional items were doubled from 15-20 percent to 30-40 percent.<sup>2</sup> Duty drawback schemes were also put into place to promote exports of textile products made with imported raw materials (see Appendix 1).

The outcome of this autarkic trade and exchange rate policy, however, was disappointing in terms of export development, the balance of payments, and overall economic growth, particularly in comparison to the rapid growth of the East Asian economies that followed a more outward-oriented development strategy. Disenchanted with the import substitution strategy (and encouraged by donor conditionalities), policy makers in Bangladesh as well as in other South Asian countries began to tilt towards a more open economy policy in the late 1970s. In part, this shift in policy was also facilitated by a change in government in 1975 to one that reflected a more favorable view towards the development of a mixed economy and a more open trade regime. However, the export promotion measures that were gradually introduced in the late 1970s were limited in scope and only slowly implemented. Overall trade policies continued to be inward looking and the economy in general and the external sector in particular remained overregulated.

### ***The 1980s: initial policy reforms***

---

<sup>2</sup> By 1995, exporters also enjoyed exemption from income tax on 50 percent of their export earnings.

Following another round of political change in 1981, the new government that came to power in March 1982 started the implementation of a wide ranging policy reform package, called the New Industrial Policy (NIP), with the objective of liberalizing the economy. A large number of nationalized companies, especially in the jute and textile sectors, were privatized within a few years, and measures to increase foreign and domestic investment were put in place. However, only limited trade liberalization took place under the NIP or its successor, the Revised Industrial Policy (RIP), introduced in 1986. A cash compensatory scheme administered by the Bangladesh Bank was also introduced in 1986, providing cash equal to 15 percent of fob export values for exports made with local fabric.<sup>3</sup>

Ultimately, there was only slow progress in trade liberalization in the 1980s, particularly with respect to reductions in import tariffs (Bakht 2001b). But some liberalization of agricultural exports did occur: export duties on raw jute and tea were withdrawn in 1981, and those on dried fruits, fresh fruits, oil cakes, coriander seed, dry chili, dry ginger, black pepper, turmeric, tobacco, vegetables and potato were withdrawn in 1986. Restrictions on exports of jute seed, wheat, pulses of all kinds, shrimp other than frozen, frogs of all kinds (dead or alive) and their legs, and onions remained even after 1995. And export restrictions on rice and wheat bran and molasses were removed only in 1998.

Nonetheless, major reforms in exchange rate policy did take place. In mid-1979, Bangladesh had adopted a flexible exchange rate policy, fixing the Taka to a basket of currencies of major trading partners.<sup>4</sup> Then, in 1986, The XPL system was simplified substantially by the introduction of the system known as Export Performance Benefit (XPB), under which the beneficiary exporters could directly cash their XPB entitlement at their banks at the existing WES rate. These policies contributed to the rapid growth of non-traditional exports during the 1980s, which benefited largely from XPB, and to a rapid expansion of the secondary (WES) market. As shown in Appendix Table A6, a wide range of agricultural commodities benefited from the XPB incentives. However, exports of raw jute were not included in the XPB scheme and thus suffered directly from the overvalued exchange rate.

---

<sup>3</sup> Other measures included the Export Policy Order 1986, which provided special inducement and promotional freight rates by the national flag carriers Bangladesh Biman airline and Bangladesh Shipping Corporation for exporting fruits, vegetables and ornamental plants.

<sup>4</sup> Initially, the reference currency was the Pound Sterling, but this was changed to the United States dollar in early 1983, because of the large US weight in total Bangladesh trade.

At the same time, imports financed at the official exchange rate were rapidly reduced and an increasing proportion of imports was subject to the SEM including part of the foreign exchange received under commodity aid. By 1991, 41 percent of all imports were financed out of this source while the share of SEM in non-aid imports was nearly 70 percent. The enhanced role of the SEM resulted in a narrowing of the gap between the official and the WES rate. Eventually, the two rates were unified in 1992, which marked the end of the XPB arrangement (Rahman 1992).

### *1990s: major trade liberalization*

After a decade of such half-hearted attempt towards trade liberalization, the democratic government that took over power in 1991 took bold steps towards reforming the trade regime. Reforms initiated during this period included reducing and compressing tariffs, implementing and publishing a less complicated import tax structure, gradually eliminating non-tariff import restrictions, and promoting exports through income tax exemptions, bonded warehousing, and flexible exchange rate management.<sup>5</sup>

Prior to the 1990s, Bangladesh relied heavily on quantitative restrictions to control levels of imports, particularly for agricultural commodities. About 37 percent of the tariff lines for agricultural products (21 percent of all products) were either banned or restricted in 1987 (World Bank 1994). By 1984, all quantitative restrictions on agricultural products had been removed and only 2 percent of tariff lines of all products faced quantitative restrictions. In particular, private sector imports of rice and wheat were legalized in the early 1990s, ending the government's monopoly on foodgrain imports. The ban of rice export of fine quality rice (but not on exports of ordinary coarse rice) was also lifted.

Trade liberalization in the early 1990s brought tariff rates down sharply as well, with total protective import duty rates (both customs duties and para tariffs) declining from 74 percent (unweighted average off all tariff lines) in 1991 to only 32 percent in 1995. Likewise, import tariffs and total tax incidence on the import of major agricultural commodities declined sharply

---

<sup>5</sup> In 1996, the Bangladesh government accepted the conditions of Article VIII of the IMF by making the Taka fully convertible for international current account transactions. Under this arrangement, exporters can freely utilize their export earnings for import purposes.

during the early 1990s (Table 1).<sup>6</sup> Duties on refined edible oil, sugar, milk-powder, and spices were subject to relatively high duty rates, while raw cotton, wheat, rape seed and lentils enjoyed lower duty rates (Table 2).

Trade reforms have stalled in recent years, however. Although customs duties declined from 29 percent in 1995 to 19 percent in 2003, para tariffs (surcharges, license fees, regulatory duties, value added tax and supplementary duties) rose sharply, mainly due to a sharp increase in supplementary duties. As a result, total protective import duty rates have remained essentially unchanged on average since the mid-1990s. For some products that were already protected (including processed fruits, cement, soap, cotton shirts and sheets, some ceramic and steel products, batteries, bicycles and toys), total protection rates rose by more than 30 percent between 1997 and 2003 (World Bank 2004).

### **Impacts of agricultural price and trade policies on nominal rates of assistance**

We consider in this section the distortionary policies in place for several key crop products — rice, wheat, sugar and potatoes plus jute and tea, the traditional export crops. Together these products account for around three-quarters of the value of agricultural production at distorted prices (Figure 1). In line with the project's methodology (Anderson et al. 2008), we estimate nominal rates of assistance (NRA) on output for each of those products. Through careful comparisons of domestic prices with prices at the border or international reference prices, adjusted for quality differences, marketing margins and the dual exchange rate system,<sup>7</sup> these measures capture the proportional extent to which government-imposed distortions create a gap between domestic prices and what they would be under free markets. Since it is not possible to understand the characteristics of agricultural development with a sectoral view alone, the project's methodology not only estimates the effects of direct agricultural policy measures

---

<sup>6</sup> For details on the duty structure on the import of major agricultural commodities during 1991-2003, see Appendix Table 5.

<sup>7</sup> The NRAs for tradables include an estimate of the trade tax effect of the overvalued exchange rate. As outlined in the methodology, that estimate uses the black market exchange rate premium (see Easterly 2006) and assumes that only half of exporters' foreign exchange rate earnings are sold to the government at the official rate. See Anderson et al. (2008) for details of this methodology.

(including distortions in the foreign exchange market) but also generates estimates of distortions in non-agricultural sectors for comparative evaluation.

More specifically, this study computes a Nominal Rate of Assistance (NRA) for farmers including an adjustment for direct interventions on farm inputs such as fertilizers. Once this is done for the key products, we then also generate an NRA for nonagricultural tradables, for comparison with that for agricultural tradables via the calculation of a Relative Rate of Assistance (RRA – see Anderson et al. 2008).<sup>8</sup>

### *Rice*

Given its predominance in the country's agricultural sector, the impact of trade policy on overall agricultural incentives in Bangladesh is largely determined by price and trade policies for rice. Throughout its history, Bangladesh has been a net importer of rice, although in some years only minimal quantities were imported. From independence until 1992, private imports were banned and government commercial imports accounted for almost all rice imports (very little food aid was in the form of rice). Beginning in 1993 when private imports of rice were liberalized, the private sector has accounted for most rice imports.

Since 1980 the average annual volume of wheat imports has been about three times that of rice (about 1550 and 550 kt, respectively). This higher share of wheat in total foodgrain imports in part reflects wheat food aid inflows and government policy that tended to favor the use of lower-cost wheat in the Public Foodgrain Distribution System (PFDS). Although rice accounted for about one-third of grain distributed through the PFDS (the other two-thirds was wheat), rice distribution represented only 4 percent of total net availability of rice in the 1970s, 1980s and 1990s, the same share as in East Pakistan in the 1950s and in the 1960s.<sup>9</sup> Total rice imports averaged about 3 percent of net availability (calculated apart from changes in public stocks) over the 1980-2004 period. In contrast, wheat imports (largely food aid until the late 1990s) accounted for about two-thirds of total availability of wheat in this period. In total, though, imports as a share of availability have steadily declined, from 17 percent in the 1980s to 14 percent in the 1990s and only 11 percent on average during 2000-04 (Table 3).

---

<sup>8</sup> Throughout this section the reference to the 'agricultural' sector is to just crop and livestock production, excluding fishing and forestry.

<sup>9</sup> See Ahmed, Nuruddin, Chowdhury and Haggblade (2000, Table 6.4, p. 129).

From the early 1970s through 2005, Bangladesh wholesale prices of rice have averaged close to import parity (calculated on the basis of the average price of Bangladesh rice imports). This average masks wide fluctuations from year to year, however, particularly when the public sector had a monopoly on imports and thus there was no direct link between international and domestic prices.

In the wake of the major destruction to transport infrastructure during the war in 1971 and following the rice production shortfall in 1974, Bangladesh suffered through a famine in 1974 as the government lacked the foreign exchange to purchase sufficient rice imports to make up the deficit at the prevailing extremely high international prices.<sup>10</sup> The domestic rice price rose substantially in 1974/75 season, but was still below the international price. After this crisis and a 61 percent devaluation of the Taka relative to the US dollar in May 1975, the domestic wholesale rice price was double the import parity level, but in the subsequent six years it was below again (Figure 2).

Total rice and wheat imports combined were 10 percent of total foodgrain supply, but since wheat not a close substitute for rice in domestic consumption in Bangladesh (Goletti 1994), the effect of wheat imports (mainly food aid) on rice market prices was likely to have been small. Nonetheless, in the absence of wheat imports domestic rice prices would have been somewhat higher in this period.<sup>11</sup>

In the early 1980s, rapid increases in domestic production of rice led to increased availability and lower real wholesale prices. International rice prices were falling even faster though, so that over the five year period, 1983-87, domestic prices were on average 21 percent above import parity levels. The government monopoly on imports thus had an effect on rice tariffs similar to that of an import tariff under a liberalized trade environment, favoring net sellers of rice relative to net buyers. A surge in domestic rice production (mainly of winter (*boro*) season rice) following major floods in 1987 and 1988 led to another drop in real wholesale rice prices in 1989, however, bringing Bangladesh prices to border price levels and eliminating the implicit protection to producers. This price-stabilizing role of government tends to lead to a negative correlation between the NRA and the border price, the extent of which is evident in Figure 2.

---

<sup>10</sup> See Ravallion (1990) and del Ninno, Dorosh and Islam (2002) for detailed discussion of markets and government policy in this period.

<sup>11</sup> To fully analyze this policy would require a multi-market model as in Dorosh and Haggblade (1997).

Trade liberalization in the early 1990s brought a potential direct link between domestic and border prices, particularly in periods following poor domestic rice harvests. Throughout the 1980s and early 1990s, Thailand was the major source of Bangladesh rice imports. However, the 1994 liberalization that permitted private sector imports coincided with India's rice trade liberalization and build-up of public rice stocks, which made legal private sector rice imports from India feasible.<sup>12</sup> With lower transport costs, reduced time of delivery (for private sector imports), and the possibility of smaller import contracts delivered by truck, India rapidly replaced Thailand as the major source of imports by Bangladesh in the mid-1990s. Large-scale imports from India supplemented Bangladesh domestic supplies following crop shortfalls in 1994, 1997 and 1998.<sup>13</sup> In these latter two years (1997 and 1998), 92 percent of rice imports came from India. In periods following normal or above-average rice harvests, however (most of 1996 and 1997, and again in 2000 and the first half of 2001), domestic rice prices in Bangladesh were below import parity levels, eliminating incentives for private sector imports (Figure 2).<sup>14</sup> On average, domestic wholesale prices were 5 and 12 percent below average import parity prices in the 1990-94 and 1995-99 periods, respectively, although there were few trade barriers in this period. Instead, the negative NRA reflects periods when rice came close to being a nontradable good because of good domestic harvests.

Beginning in 2000, the Government of India took increasingly aggressive measures to promote exports to solve a problem of massive public stock build-up. This included subsidizing rice exports by providing grain from government stocks to exporters at below cost).<sup>15</sup> With Bangladesh prices approximately equal to full cost (including tax) import parity prices of BPL (Below Poverty Line) rice from India, small amounts of low quality rice were imported into Bangladesh in 2000.<sup>16</sup> When India lowered its APL sales price for "fine" rice in July 2001 from

---

<sup>12</sup> Other factors contributed to India's increase in rice exports, including a 27 depreciation of the rupee in real terms. See Dorosh (2001).

<sup>13</sup> There were three successive poor Bangladesh rice harvests in 1994 and 1995 (aman 1994, boro 1995 and aman 1995), a poor aman crop in 1997, and severe losses to the 1998 aus and aman crops following the mid-1998 flood. See Dorosh et al. (2004) for a discussion of government trade and pricing policies for food grains following the 1998 flood.

<sup>14</sup> Small amounts of non-parboiled rice were imported in 2000, mainly from Vietnam. Higher quality (non-coarse) rice imports likely accounted for much of the rest (Dorosh 2001).

<sup>15</sup> For example, in 2000 state trading parastatals could buy wheat at the below-poverty-line (BPL) price for export (USDA 2001). See also Dorosh and Shahabuddin (2005).

<sup>16</sup> During 2000, Bangladesh imported 281 kt of rice from across land borders from India (essentially the same as the 1999 volume of 286 kt. The breakdown of rice by quality is not available, but a 9 percent decline in the average

11.3 Rs/kg to only 8.3 Rs/kg, however, Bangladesh increased the rice import tariffs and taxes from 5 percent to 37.5 percent<sup>17</sup>, raising the BPL import parity (with tax) price 33 percent above domestic price levels essentially cutting off incentives for private sector trade with India<sup>18</sup> (Figure 8). However, in mid-2002, Bangladesh domestic prices again rose to levels approaching import parity levels (including tax), and relatively large-scale private sector trade with India began again. Between mid-2002 and early 2006, Bangladesh domestic prices have been at or near import parity (including tax) BPL prices, suggesting that the BPL import parity (including tax) price has essentially determined Bangladesh rice market prices over this period.<sup>19</sup>

On average, during 2002-04 wholesale prices in Bangladesh were only 1 percent below the BPL import parity price (including taxes). Import tariffs raised domestic prices relative to import parity prices (without tax) of subsidized Indian BPL rice by an average of 10 percent, but Bangladesh prices were 28 percent below import parity prices based on wholesale prices in Delhi and 15 percent below import parity ex Bangkok. In the absence of these subsidized imports, domestic net supply (apart from government interventions) would have been 5 percent less over the three year period, and domestic rice prices would have about 15-25 percent higher (the lower value assuming an own-price elasticity of rice demand of -0.3, and the higher value assuming an own-price elasticity of rice demand of -0.2). Thus, under the first assumption, prices would have risen to approximately import parity levels ex Thailand, with net imports essentially zero.

### *Wheat*

Wheat was a minor crop in Bangladesh in the 1960s prior to independence, but its production increased rapidly from an average of about 100 kt per year from 1969 to 1974 to an average of more than 1.8 million tons per year during 1997-99, due to a seven-fold expansion in area and a doubling of wheat yields per ha. Wheat production growth was especially rapid in the 1970s, increasing by an average of 37 percent per year, as area increased by 19 percent per year and yields rose by 15 percent per year. In recent years, however, wheat area has declined from a peak

---

price of imports from India, from 12.1 Tk/kg in 1999 to 11.1 Tk/kg in 2000, suggests that the average quality of imports may have declined between the two years.

<sup>17</sup> Including advanced income tax of 3 percent and a license fee of 2.5 percent, the total tariffs and fees were increased from 10.5 percent to 43.0 percent.

<sup>18</sup> The increase in import taxes raised the APL import parity (with tax) to 71 percent above domestic price levels.

<sup>19</sup> NRAs on output using average cost of imports suggest that NRAs on output were essentially zero, perhaps because shipments of high quality rice raise the average import price above the import parity price of BPL rice.

of 967,000 hectares in 1998 to 704,000 hectares in 2003, as area planted to boro rice, maize and potatoes expanded (Dorosh 2006).

Because of the government monopoly on external trade, there was no explicit link between international and domestic prices of wheat in the 1970s, 1980s and early 1990s. Since food aid and government commercial imports together accounted for over half of total supply, government policy regarding net distribution of wheat (there was limited domestic procurement of wheat, as well) was the dominant factor determining domestic market prices.

In part because of food aid conditionality by donors that stipulated that food aid should not cause price disincentives for domestic production, domestic prices of wheat were on average close to import parity levels throughout this period. After the devaluation in 1975, estimated NRAs on output averaged just 3 percent between 1976 and 1993 (Table 4).

After liberalization of imports for wheat in 1992, import parity prices of wheat provided a price ceiling for wheat, as it did for rice. In most years, domestic prices were close to this ceiling so that NRAs on output averaged less than 4 percent after 1994. Only during a period of high international wheat prices around 1996 were domestic prices substantially below border prices (NRAs of -14 percent).

From the mid-1990s until 2000, most commercial wheat imports were high-gluten wheat for baking purposes imported from major international wheat exporters such as the United States, Australia and the European Union. This wheat, which accounted for about 10 percent of total wheat use in Bangladesh, did not directly compete with soft, lower-gluten domestic wheat which is mostly used for traditional breads (e.g. *roti and chapati*). After 2000, however, subsidized exports of wheat from India entered Bangladesh markets in several years.

Given rapid increases in rice production and supply and lower real rice prices (which reduce wheat demand), continued high levels of food aid shipments after 1999 would likely have reduced domestic wheat prices below import parity levels (del Ninno and Dorosh 2003). However, donors substantially reduced food aid to Bangladesh after 2001 in part because Bangladesh had achieved its domestic food production target of 454 grams/person/day, thus eliminating its notional “food gap”, and also because of a shift out of food aid in-kind by the EU and a shift in food aid resources to other parts of the world by the United States and others. Nonetheless, wheat production has declined since 2000 largely due to increased competition

from maize, for which hybrid varieties have proven to be profitable and which have a growing domestic market as poultry feed.

### *Jute*

With the emergence of readymade garments in the early 1980s, jute lost its prominent share of total export earnings. Nonetheless, it is still an important farm export commodity, and Bangladesh remains the leading exporter of raw jute in the world. Moreover, a significant number of farm households continue to depend on its cultivation for their livelihood.

International jute prices have been declining steadily over time, however, as world demand for jute has fallen with the advent of synthetic substitutes. The nominal export price of jute has declined by an average of 1.5 percent per year in US dollar terms from 1973 to 2004. The decline in real prices has been even steeper: -4.2 percent per year, (measured using the US wholesale price index as a deflator for the dollar price series). As a result, the real (2004-05) dollar price of jute fell by two-thirds between the late 1970s and the early 2000s. Since the quantity of Bangladesh raw jute exports has remained approximately flat over the period (Appendix Figure 2), export earnings have fallen dramatically.

Domestic prices of jute have been consistently below export parity prices, in part because of an effort to encourage domestic processing of jute products for subsequent export.<sup>20</sup> In the 1970s and 1980s, domestic wholesale jute prices were on average more than 30 percent below export parity levels.<sup>21</sup> Following the trade liberalization of the early 1990s, NRAs on output for jute averaged only 6 percent below export parity level. However, with the closing of public sector jute mills, domestic raw jute prices have again fallen sharply below export parity prices, perhaps reflecting the disruption in marketing channels and a greater differential between quality of raw jute for exports and in the domestic market (Table 4).

### *Tea*

---

<sup>20</sup> For example, from 1995-96 through 2002-03, the value of manufactured jute products was more than three times that of raw jute exports. (Calculated using data from the Bangladesh Export Promotion in World Bank (2005, Table 2, p. 155).) See also the discussion on policies in the East Pakistan era in the Appendix.

<sup>21</sup> In the ten years leading up to independence from Pakistan in 1971, the jute export tax equivalent in East Pakistan was at least as severe as, and probably much more than, that in the rest of the 1970s (see Appendix).

Like jute, tea was once a major export of Bangladesh (and East Pakistan). Between 1973 and 1983 the value of exports of tea rose in nominal dollar terms, but mainly because of an increase in the international price of tea. However, since the peak export level of \$69 million in 1983, export earnings from tea have declined steadily and were only \$16 million in 2004. One factor contributing to declining export is the rise in domestic demand for tea. During the last three decades, tea production in Bangladesh grew at a trend rate of 2 percent while domestic consumption of tea increased at a trend rate of 7.5 percent, leaving a smaller exportable surplus.

Domestic prices of tea (based on the auction at Chittagong) have been consistently 10 to 20 percent below export parity prices of tea (average export price in Chittagong), perhaps reflecting handling costs at the port. Earlier analyses by Rahman (1994) using border prices based on the London auction price discounted by 30 percent, less marketing and processing costs from the tea gardens in Sylhet (in northeast Bangladesh to Chittagong port), suggested little difference between domestic and border prices in most years between 1974 and 1987 except when border prices spiked in 1976, 1983 and 1984). These differences between average export prices and Chittagong auction prices, or between average export prices and London auction prices, may largely reflect quality differences rather than trade and domestic pricing policy distortions.

### *Sugar*

Bangladesh produces less than 20 percent of the sugar it consumes, with the remainder coming from official imports (nearly half of consumption) or smuggled from neighboring India.<sup>22</sup> The Bangladesh sugar industry is highly protected through import tariffs, with levels of imports controlled either through licensing (prior to 1992), a government monopoly (1992-2001), or both government parastatals and at times private traders (after June 2002). As a result, domestic prices of sugar are substantially higher than world prices. Farmers do not reap all the benefits of this policy, however, since sugar cane prices are fixed by the government, and sugar mills retain a

---

<sup>22</sup> Estimates for 2002 are 177 kt from domestic production, 349 kt of official imports from India, 93 kt of official imports from other countries, and 400 kt of imports smuggled from India (Pursell 2005, p. 27).

monopsony on sugar cane purchases within designated reserved sugar cane areas near each mill.<sup>23</sup>

Official trade has generally faced very high import tariffs. For example, tariffs on sugar imports were 135 percent in 1992 before major trade liberalization, but still 47 percent in 2002 after the liberalization. These high tariffs on sugar have greatly reduced imports of sugar through official channels, but have also provided major incentives for smuggling of sugar.

Measures of NRAs on output vary substantially over time, largely because of fluctuations in world prices of sugar but also because milling, transport and marketing costs are subtracted from sugar border prices in determining the growers' sugar cane prices. NRAs on output averaged more than 150 percent in the 1980s and 1990s and even more this decade (Table 4).

### *Distortions to input prices*

Modern agricultural technology was introduced to East Pakistan in the early 1960s with heavy public sector involvement in the procurement and distribution of modern agricultural inputs, as well as investment for water resources development. A public parastatal, the East Pakistan Agricultural Development Corporation, later known as the Bangladesh Agricultural Development Corporation (BADC) was established in 1963 on the basis of recommendations of the Agricultural Commission in 1960. BADC held a virtual monopoly over the procurement and distribution of fertilizers, seeds, pesticides and minor irrigation equipment in the country, although it had to conform to the pricing and related policies that the government formulated from time to time.<sup>24</sup>

Major reforms in markets for fertilizer and irrigation equipment markets were begun during the late 1970s (Appendix Table A8). Under the New Marketing System established in 1978, private trade in fertilizer was liberalized, leading to a large expansion in the number of wholesalers and retailers operating in the fertilizer market.<sup>25</sup> The share of private trade climbed to 75 percent in 1989 and nearly 100 percent by 1992, when the ban on private sector import of

---

<sup>23</sup> Until June 2002, the Bangladesh Sugar and Food Industries Corporation (BSFIC), a public enterprise, and Trading Corporation of Bangladesh (TCB) shared a monopoly on sugar imports (Pursell 2005, p. 17).

<sup>24</sup> Another parastatal, the Bangladesh Water Development Board (BWDB) was also established in the early 1960s to implement large-scale surface water irrigation as well as flood control and drainage projects, following suggestions by a Master Plan prepared in the aftermath of disastrous floods of the mid-1950s.

<sup>25</sup> In spite of privatization of the distribution of fertilizers, most urea production stayed in the public sector.

fertilizer was removed and the deregulation in fertilizer marketing was completed. Between December 1994 and March 1995, however, a serious shortage in the supply of urea led to a crisis in the fertilizer market, resulting in a partial reversal of the reform process by imposing controls on wholesale markets, regulating pricing at factory gates and imposing some restrictions on domestic traders selling outside their districts of registration (Ahmed 2001).<sup>26</sup>

Subsidies on nitrogenous fertilizer, which is produced domestically, have been the major distortion to agricultural input prices in Bangladesh. Fertilizer prices at the farm level were deregulated throughout the country by 1983, eliminating direct subsidies to farmers for urea. Subsidies on imports of other fertilizers (Triple Super Phosphate and Muriate of Potash), designed to improve the balance of chemical nutrients, continued through 1991, however. Subsidies on imported fertilizers such as TSP and MP were not reintroduced until January 2005, at the rate of 35 percent.

In spite of the liberalization in marketing, government controls and the volumes of imports and exports of urea have kept domestic wholesale prices of urea consistently below import parity border prices, though generally above export parity prices.<sup>27</sup> Domestic prices for urea averaged about 37 and 50 percent below import parity in the 1970s and 1980s, and 50 percent in the 1990s and 2000s.<sup>28</sup> However, domestic prices of TSP have averaged only 18 percent below import parity since 1990 compared to 47 percent below import parity in the 1970s and 1980s (Appendix Table A9).

Given that costs of fertilizer have averaged only 5 percent of total cost of paddy (and less for most other crops), the fertilizer subsidy has not had a major effect on overall NRA to agriculture in recent years, adding only 1 to 2 percent in most years. That also applies to the main nontradable food, potatoes, that would otherwise have an NRA of zero.

### ***Total assistance to agriculture***

---

<sup>26</sup> Like fertilizer, irrigation water was also heavily subsidized in the early years of diffusion, with a rapid reduction of subsidies in the late 1970s when irrigation equipment, previously owned by the public, was privatized. Since 1988, the government has withdrawn all restrictions on imports of irrigation equipment by the private sector, eliminated import duty on agricultural machinery and removed restrictions on standardization and quality control of machines by the public sector. These policy changes had a significant impact on the use of minor irrigation equipment, especially shallow tubewells, and led to a rapid expansion of irrigated area in the country (Ahmed 2001).

<sup>27</sup> In most years, Bangladesh has produced its own urea from domestic natural gas and began net exports of urea on a large scale in 1988 (Renfro 1992).

<sup>28</sup> Average domestic prices of urea were about 40 percent above average export parity prices from 1990-91 to 2004-05.

For the Bangladesh agricultural sector as a whole, including both tradable and nontradable goods, the average NRA since the mid-1970s has been small. For the six covered products the five-year averages in Table 4 range from -8 percent when international prices were high in the mid-1990s to 17 percent when those prices were low in the latter 1980s. Three major factors drive this result. First, since rice accounts for two-thirds of covered product output, its NRA largely determines the total NRA for tradable Bangladesh agriculture. The product with the greatest price distortions, sugar cane, accounts for only 1 or 2 percent of the total value of domestic agricultural production in most years and so has little influence on the sector's average NRA.

Second, the implicit taxation of agricultural exports (jute and tea) partially offset protection for importables in the estimates of total NRA. But they have a small weight in the average (less than 5 percent since the late 1980s), and so they too have little influence on the sector's average NRA.

And third, while the share of the nontradable good in Table 4, potato, is somewhat larger at up to 7 percent in recent years, its only measured assistance comes from fertilizer and so its NRA is very small.

These estimated NRAs suggest export farm industries are discouraged heavily relative to import-competing farmers. This is illustrated in Figure 4. They also suggest that the dispersion of covered product NRAs around their mean value each year is wide and has not declined over the past 30 years. One measure of that, shown near the bottom of Table 4, is the standard deviation of those NRAs: it has averaged around 70 percent or more. This lack of convergence in NRAs, suggests there continues to be an inefficient allocation of land and other farm resources among those covered industries.

Virtually all non-covered products, including fruits, vegetables and meat products, receive very little assistance and so their NRA is assumed to be zero. They are also assumed to be nontradable over the period under study. Including these goods, which account for about one-quarter of the total value of agricultural production, the weighted NRA for all Bangladesh agriculture is even closer to zero than is the weighted average of the covered products alone (upper half of Table 5).

What is also important to agriculture's competitiveness within the economy and ability to contribute to it is the extent to which non-agricultural tradable sectors are assisted by government policies. The combined effect of import tariffs and quotas on domestic prices of non-farm import-competing goods can be expressed as an implicit tariff rate, defined as the ratio of domestic prices (measured at the border) to import prices. In the absence of detailed data on domestic and import prices, we calculate estimates of that implicit tariff. The calculations provide a NRA for import-competing parts of the non-farm sector. When combined with an assumed NRA of zero for the exportable part of that sector, a production-weighted average NRA for non-agricultural tradables is generated. Crude though this is, it provides a reasonable measure that can be compared with the NRA for tradable agriculture using the relative rate of assistance (RRA) concept. As defined in the footnote to Table 5, the RRA shows the extent to which prices received by farmers are depressed relative to prices faced by producers of other tradables in the country.

The lower half of Table 5 summarizes the RRA findings, with annual estimates reported in Appendix Table A11. These estimates reveal that even though agriculture's NRA has been positive in some years, it has always been well below the NRA for non-agricultural tradables. Hence the RRA estimates are strongly negative, and suggest that the relative price of farm products has been depressed by more than one-fifth in the period since independence. Its value in the first half of the present decade is considerably less than the average for the 1990s, however (at 16 percent compared with 27 percent). Further reform in the non-farm sectors will be needed if the distortions in resource allocation between sectors producing tradables is to disappear so that the RRA line can reach the horizontal axis in Figure 5.

### **Political economy of agricultural policies**

As discussed above, there has been a progressive shift in agricultural policies in Bangladesh towards privatization, deregulation, and a reduction of input subsidies, which began in the mid-1970s and continued in stages up to the early 1990s. There are still government controls on

fertilizer and sugar production and on wholesale trade, but these are of relatively minor economic significance.

The successive Bangladesh governments that formulated and implemented these policies, like all governments, balanced a variety of objectives against a range of constraints. In the policy process, pressures and counter-pressures are exerted on the government from various interest groups, and government responses are usually conditioned by the mutuality of interest of the pressure groups and the ruling elites. Sometimes there are situations where effective pressure groups do not exist or can be successfully set off against one another, and the state can pursue its own agenda – which could be purely predatory, altruistic or a blend of the two (Grindle 1991). Even if the reform proposals are sound on economic considerations, they need to have a minimum level of social and political acceptability for their implementation to be successful and sustainable. When this is not the case, the government may be forced to backtrack and adopt policies that are less satisfactory on economic grounds.<sup>29</sup>

In the Bangladesh context, several factors have been particularly important in determining the influence of various interest groups on agricultural policies and reforms since independence: the relative political strengths of farmers versus urban groups; academic and political views on socialism and capitalism; internal debates within government across ministries; and influences of donors.

One of the most important facets of the political economy in Bangladesh is the relative weakness of farmers and the rural poor as pressure groups. Although they include a large number of households, their geographical dispersion, internal differentiation, ideological orientation, and poor resource base all contribute to making them largely ineffective politically. In contrast, the working class in the urban formal sector, the bureaucracy as a pressure group within the state apparatus, and private entrepreneurs constitute organized and powerful interest groups whom few governments can afford to antagonize.<sup>30</sup>

The weak political clout of the peasantry in Bangladesh explains why conflicts of interest between agriculture and industry have consistently been resolved in favor of industry. Thus, for

---

<sup>29</sup> For an analysis of the oscillation of post-colonial regimes between “technocratic” and “populist” policies, see Huntington and Nelson (1976).

<sup>30</sup> In reforming the grain procurement and ration shop system in the early 1990s, the Government of Bangladesh was able to avoid direct conflict with consumer groups by reducing the price subsidy on ration shop grain slowly over time. Without support of consumer groups, who no longer reaped major benefits from the ration shop system, millers lacked the political clout to resist ending of a mill-gate procurement system (Chowdhury and Haggblade 2000).

example, in the case of agro-based industrial raw materials such as jute, the policy has been to keep the price of the input low so that the relevant industrial product can be competitive. Export taxes and restrictions on export of agricultural commodities contributed to such discrimination against agriculture. Weak representation of the interests of the peasantry within the major political parties, and the predominance of trading and industrial vested interests, not only led to an excessively protected economic regime but also shaped the political economy of Bangladesh in a manner that permitted the policy regime to continue to discriminate against agriculture. Even in the case of policy measures such as input subsidies, farmers failed to derive much benefit as these were largely usurped by rent-seeking public officials in collusion with middlemen and the residual benefit often was more than offset by depressing the farm output price.

Another important factor shaping agricultural and broader economic policy is the wide divergence of views amongst social scientists and other professionals on the issue of policy reform. There are critics of market mechanisms whose views were initially shaped by the colonial experience, interpreted as exploitation by world capitalism, plus the apparent success of the Soviet Union and especially China in transforming their economies, as well as the experience of certain blatant examples of market failure such as the Bengal Famine of 1943. The disintegration of the Soviet Union and the Chinese strides towards market economy have, in recent years, disillusioned many of them regarding the virtues of “planning”. Nevertheless, an articulate anti-market lobby still persists amongst intellectuals, who effectively counter the sweeping and sometimes simplistic claims for the market made by its over-zealous votaries.

The policy process is further complicated by the fact that policy makers and implementers often hold divergent views on the appropriateness of particular reform measures. Sometimes this happens due to different social and political orientation of these two sets of actors. The unwillingness of the bureaucracy to relinquish the levers of control even when political leadership is committed to deregulation, and rivalry between ministries, may also lead to such outcomes. For example, the Ministry of Commerce may obstruct liberalization measures proposed by the Ministry of Finance.

Finally, donors have had a major influence on government policy in Bangladesh, in part because of the importance of foreign aid in the development budget and for balance of payments support. Within agriculture, donor support in terms of funding for agricultural research, rural infrastructure and food aid were especially important in the 1970s and 1980s, contributing to the

weight of donor views in the policy process. In particular, the World Bank, the Asian Development Bank and the US Agency for International Development exerted major influence on the formulation and implementation of agricultural policy in Bangladesh by tying program loans and import credits to the policy reform agenda.

### ***Major reforms in agricultural pricing***

The major reforms in agricultural policy in the 1980s were heavily influenced by the policy perspectives of the dominant donor agencies, as outlined in papers on agricultural and food policy pricing prepared by the USAID and the World Bank (1979) and USAID (1982). The World Bank (1979) argues that the net effect of policy intervention in developing countries discouraged agricultural production, higher price incentives would be an important instrument for increasing food production, and subsidies on inputs have proved to be an inefficient way of protecting agriculture. The report also highlights the complexity of the effects of food prices on different groups and advocates a gradual rise in food prices to avoid the hardships resulting from an abrupt price increase. USAID (1982) likewise argues that government interventions in agricultural markets tend to reduce efficiency in resource allocation and inhibit gains in productivity and often do little for groups they are supposed to help. The report advocates policies which do not suppress prices to producers, do not attempt to regulate access to food for the majority of consumers, and instead lead to a speedy withdrawal of subsidies on agricultural inputs including credit. Government interventions were to be limited to agricultural research, building large-scale irrigation systems, and special feeding programs to combat malnutrition.

Thus, in general donors advocated a market-oriented agricultural policy, though suggesting a central role for output price supports to support self-sufficiency in foodgrains,<sup>31</sup> an objective that was ultimately achieved in 2000 (Osmani and Quasem 1990).<sup>32</sup>

---

<sup>31</sup> Various studies of comparative advantage in Bangladesh agriculture (Mahmud, Rahman and Zohir 2000; Shahabuddin 2000, Shahabuddin and Dorosh 2004) demonstrate that attainment of self-sufficiency in rice production is not only an important socio-political objective but an eminently sensible one from strictly economic point of view.

<sup>32</sup> Government intervention in the form of domestic procurement was largely ineffective in maintaining effective floor prices for growers. A number of factors have contributed to the failure of domestic procurement including an inadequate number of procurement centers for a comprehensive coverage of the production area, cumbersome payment procedure which raise transaction costs for small farmers, lack of financial resources for PFDS, and collusion between traders and officials which enable traders to capture the margin between the market price and the procurement price (Shahabuddin 1996).

Reforms in agricultural input markets, particularly related to levels of fertilizer prices, generally faced more opposition. In 1973, the First Five-Year Plan of Bangladesh underscored the need for the eventual removal of agricultural input subsidies, and even emphasized that these inputs should be sold at a profit. Indeed, urea prices were raised substantially as early as in 1973. At the same time, sections of the bureaucracy were opposed to elimination of input subsidies and to privatization of fertilizer and irrigation equipment distribution. This was partly due to the bureaucracy's reluctance to accept curtailment of its control and distributive powers. Misplaced equity concerns also contributed to the resistance put up by bureaucrats to the proposed reforms. Donor pressure for swiftly carrying out the reforms played a major role in quelling opposition from bureaucrats.

Fertilizer markets were further liberalized in the early 1990s, but the country witnessed a major crisis in the fertilizer market during 1994-95 which led to partial reversal of the reform process in this market. In fact, farmers became so militant that it necessitated police firing on them, leading to several deaths. This was in sharp contrast to the situations in 1974 when the famine caused little uproar in rural Bangladesh, and in 1993 when farmers paid high fertilizer prices without much protestation (Abdullah 1996). Unmet expectations of lower prices following policy reforms and a perception of injustice may explain the outrage of farmers in the mid-1990s.<sup>33</sup>

The famine in 1974 had a different dynamic in the sense that it hit mainly landless laborers. In contrast, the fertilizer scarcity mainly affected the medium farmers, who are known to be more militant (Wolf 1971), and whose marketed surplus of rice is usually not large enough to compensate them for the higher urea prices. As the national elections were pending, the political parties in the opposition also tried to reap dividends from the crisis by mobilizing the peasantry.

Not all reforms in agricultural input markets have been opposed by farmers, however. Some policy reforms seem to have benefited the majority of farmers. For example, the elimination of the standards requirement for irrigation equipment has been very popular among farmers. This policy faced opposition from public sector employees, particularly from those involved in government controls and imports (the Bangladesh Agricultural Development

---

<sup>33</sup> When the issue price of fertilizer was reduced in the 1994 budget, farmers expected that they would be the major beneficiaries. So, their notion of a "just price" was outraged when they were required to pay prices that were nearly double (sometimes more) of what the middleman paid to the factory.

Corporation), but that did not prove to be a major road block as opposing political forces did not politicize the issue and the government and development partners handled the matter tactfully with adequate firmness (Abdullah and Shahabuddin 1993).

### **Concluding observations**

Bangladesh agriculture has undergone major structural changes and achieved major successes over the last three and a half decades. Despite many problems and constraints, a quiet agricultural revolution has taken place that has enabled the country to achieve its national food security foodgrain production targets. Agriculture continues to evolve in response to numerous factors including natural calamities, socio-political changes, population growth, urbanization, new technology, opportunities in the rural non-farm sector and commercialization. And government macroeconomic, trade and agricultural pricing policies, that have played a major role in shaping price incentives in production and consumption, will continue to be important determinants of agricultural growth as well.

For over 30 years a central objective of government agricultural policy was self-sufficiency in foodgrains. To achieve this objective, the government attempted to maintain sufficient incentives for expansion of domestic rice and wheat production through maintenance of remunerative output prices and fertilizer subsidies. Investments in agricultural research and technology that permitted large gains in productivity and a large expansion in the irrigated rice area were also crucial for this expansion of production. At the same time, government policy was designed to protect poor consumers through subsidized sales of rice (through to the early 1990s) and more important extensive safety nets involving food for work and food transfers, often in the form of wheat.

Although trade liberalization has faced substantial opposition, Bangladesh nevertheless undertook major reforms in trade policy, reducing tariffs for industrial products in the 1980s and especially the early 1990s, and liberalizing private sector trade in rice and wheat in this latter period as well. As a result, domestic output prices of rice (the main agricultural product in terms of value) and wheat have been near border prices in most years since the early 1990s, and so

price distortions in Bangladesh agriculture have averaged less than 5 percent of the value of domestic production since 1990 in spite of remaining price distortions for a few products (notably sugar cane) and inputs (chemical fertilizers). Bangladesh has reaped major benefits from trade liberalization in terms of food security as private sector imports have helped stabilize markets after major production shortfalls. Keeping domestic prices of most agricultural commodities near border prices has also resulted in overall efficiency gains in the agricultural sector.

Reducing the remaining disincentives for agricultural production – due to protection for non-agricultural producers – will be a necessary part of any future strategy for agricultural growth and rural poverty reduction. And even a liberalized trade policy of Bangladesh would not automatically guarantee increasing incomes for farmers. For example, the upward trend in the ratio of fertilizer to paddy prices in the early part of this decade, driven in part from movements in world prices, reduced price incentives for paddy production and contributed to lower returns to farmers. In 2007-08, world prices of both fertilizer and rice rose substantially, and combined with India's limits on exports of rice to Bangladesh, contributed to large increases in domestic prices of fertilizer and rice in Bangladesh in early 2008. Policies aimed at increasing production and stabilizing prices need not rely mainly on price subsidies or large increases in public stocks, however. Instead, investments in agricultural research and extension that increase agricultural productivity, improvements in post-harvest management and agro-processing, and investments in market infrastructure can complement agricultural price and trade policies and enable rapid agricultural growth and increasing farmer incomes in Bangladesh, even in the context of shifting world prices.

## References

- Abdullah, A. (1996), "Urea Market in Bangladesh, 1994-95: The Anatomy of a Crisis", in A. Abdullah and A.R. Khan (eds.), *State, Market and Development, Essays in Honour of Rehman Sobhan*, Dhaka: University Press Ltd.
- Abdullah, A. and Q. Shahabuddin (1993), "Critical Issues in Bangladesh Agriculture: Policy Response and Unfinished Agenda", Paper presented at the Economy of Bangladesh

- Conference, organized by the Asian Development Bank in collaboration with the Academy for Planning and Development.
- Ahmed, R. (2001), *Retrospect and Prospects of the Rice Economy of Bangladesh*, Dhaka: University Press Ltd.
- Ahmed, R., S. Haggblade and T.-E. Chowdhury (eds.) (2000), *Out of the Shadow of Famine: Evolving Food markets and Food Policy in Bangladesh*, Baltimore MD: International Food Policy Research Institute and Johns Hopkins University Press.
- Ahmed, A., W. Nuruddin, L.H. Chowdhury and S. Haggblade (2000), “History of Public Food Interventions in Bangladesh”, Ch. 6 in R. Ahmed, S. Haggblade and T.-E. Chowdhury (eds.), *Out of the Shadow of Famine: Evolving Food markets and Food Policy in Bangladesh*, Baltimore MD: International Food Policy Research Institute and Johns Hopkins University Press.
- Anderson, K., M. Kurzweil, W. Martin, D. Sandri and E. Valenzuela (2008), “Methodology for Measuring Distortions to Agricultural Incentives”, Agricultural Distortions Working Paper 02, World Bank, Washington DC, revised January. Posted at [www.worldbank.org/agdistortions](http://www.worldbank.org/agdistortions)
- Bakht, Z. (1999), “Impact of SAFTA on the Official and Unofficial Trade of Bangladesh”, mimeo, Bangladesh Institute of Development Studies, Dhaka.
- Bakht, Z. (2001a), “Preparation of the Sixth Five Year Plan: Background Paper on Industry”, mimeo, Bangladesh Institute of Development Studies, Dhaka.
- Bakht, Z. (2001b), “Trade Liberalization, Exports and Growth of Manufacturing Industries in Bangladesh” in M.M. Huq and J. Love (eds.), *Strategies for Industrialization: The Case of Bangladesh*, Dhaka: University Press Ltd.
- Chowdhury, T.-E. and S. Haggblade (2000), “Dynamics and Politics of Policy Change”, Ch. 9 in A. Raisuddin, S. Haggblade and T.-E. Chowdhury (eds.), *Out of the Shadow of Famine: Evolving Food Markets and food Policy in Bangladesh*, Baltimore MD: IFPRI and John Hopkins University Press.
- del Ninno, C. and P.A. Dorosh (2003), “Impacts of In-Kind Transfers on Household Food Consumption: Evidence from Targeted Food Programs in Bangladesh”, *Journal of Development Studies* 40(1): 48-78.

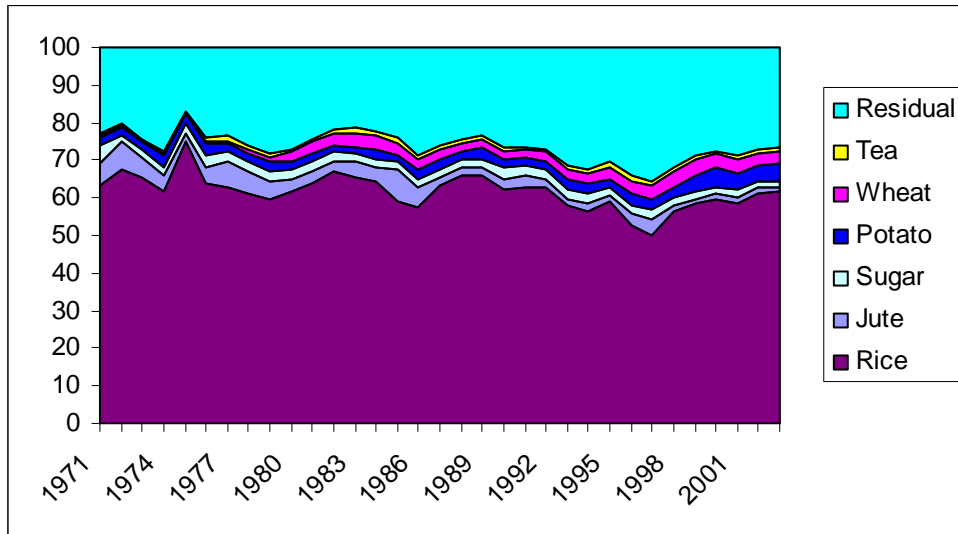
- del Ninno, C., P.A. Dorosh and N. Islam (2002), “Reducing Vulnerability to Natural Disasters: Lessons from the 1998 Floods in Bangladesh”, *IDS Bulletin* 33(4): 98-107.
- Dorosh, P.A. (2001), “Trade Liberalization and National Food Security: Rice Trade between Bangladesh and India”, *World Development* 29(4): 673-689.
- Dorosh, P.A. (2006), “Accelerating Income Growth in Rural Bangladesh”, mimeo, World Bank background paper, Washington DC.
- Dorosh, P.A., N. Farid, R. Amin and A. Aziz (2004), “Policy Response to Production Shocks: The 1997/98 Aman Shortfall and the 1998 Flood”, Ch. 4 in P. Dorosh et al. (eds.), *The 1998 Floods and Beyond: Towards Comprehensive Food Security in Bangladesh*, Washington DC: UPL/IFPRI.
- Dorosh, P.A. and S. Haggblade (1997), “Shifting Sands: The Changing Case for Monetizing Project Food Aid in Bangladesh”, *World Development* 25(12): 2093-2104.
- Dorosh, P.A. and Q. Shahabuddin (2005), “Trade Liberalization and Food Security in Bangladesh”, in S.C. Babu and A. Gulati (eds.), *Economic Reforms and Food Security: The Impact of Trade and Technology in South Asia*, New York: Haworth Press.
- Dorosh, P. and A. Valdès (1990), *Effects of Exchange Rate and Trade Policies on Agriculture in Pakistan*, Research Report 84, Washington DC: International Food Policy Research Institute.
- Easterly, W. (2006), *Global Development Network Growth Database*, accessible at <http://www.nyu.edu/fas/institute/dri/global%20development%20network%20growth%20database.htm>
- Goletti, F. (1994), *The Changing Public Role in a Rice Economy Approaching Self-sufficiency: The Case of Bangladesh*, Research Report 98, Washington DC: International Food Policy Research Institute.
- Government of Bangladesh, Ministry of Food and Disaster Management, Food Planning and Monitoring Unit (FPMU), Computer data files.
- Government of Bangladesh (2005), *Bangladesh Economic Review*, Dhaka: Ministry of Finance.
- Government of Bangladesh (various years), *Statistical Yearbook of Bangladesh*, Dhaka: Bangladesh Bureau of Statistics (BBS).

- Grindle, M.S. (1991), “The Political Economy: Positive Economics and Negative Politics”, Ch. 3 in G.M. Meier (ed.), *Politics and Policy Making in Developing Countries*, San Francisco: IGS Press.
- Hossain, M. (2000), “Recent Development and Structural Changes in Bangladesh Agriculture: Issues for Reviewing Strategies and Policies”, in R. Sobhan (ed.), (2000), *Changes and Challenges: An Independent Review of Bangladesh's Development (IRBD) 2000*, Dhaka: University Press Ltd and Centre for Policy Dialogue.
- Huntington S. and J. Nelson (1976), *No Easy Choice*, Cambridge MA: Harvard University Press.
- Mahmud, W.S., H. Rahman and S. Zohir (2000), “Agricultural Diversification: A Strategic Factor for Growth” in R. Ahmed, S. Haggblade and T.-E. Chowdhury (eds.), *Out of the Shadow of Famine: Evolving Food markets and Food Policy in Bangladesh*, Baltimore MD: International Food Policy Research Institute and Johns Hopkins University Press.
- Osmani, S.R. and A. Quasem (1990), “Pricing and Subsidy Policies for Bangladesh Agriculture”, mimeo, Bangladesh Institute of Development Studies, Dhaka.
- Pursell, G. (2005), “Free Trade between India and Bangladesh: A Case Study of the Sugar Industry”, mimeo, World Bank, Washington DC.
- Rahman, S.H. (1992), “Trade Policies and Industrialization in Bangladesh: An Assessment”, mimeo, Bangladesh Institute of Development Studies, Dhaka.
- Rahman, S.H. (1994), “The Impact of Trade and Exchange Rate Policies on Economic Incentives in Bangladesh Agriculture”, Working Paper No. 8, International Food Policy Research Institute, Washington DC, July.
- Ravallion, M. (1990), *Markets and Famines*, Dhaka: University Press Ltd.
- Renfro, R.Z. (1992), “Fertilizer Price and Subsidy Policies in Bangladesh”, *World Development* 20(3):437-455.
- Repetto, R. (1972), “Optimal Export Taxes in the Short and Long Run, and an Application to Pakistan’s Jute Export Policy”, *Quarterly Journal of Economics* 86(3): 396-406.
- Shahabuddin, Q. (1996), “Public Interventions in Foodgrain Markets in Bangladesh – An Appraisal”, in A. Abdullah and A.R. Khan (ed.), *State, Market and Development, Essays in Honour of Rehman Sobhan*, Dhaka: University Press Ltd.
- Shahabuddin, Q. (2000), “Comparative Advantage in Bangladesh Agriculture”, *Bangladesh Development Studies*, 26(1): 37-68.

- Shahabuddin, Q. (2003), "Crop and Horticulture Production in Bangladesh: Performance and Prospects", in R.I. Rahman (ed.), *Performance of the Bangladesh Economy: Selected Issues*, Dhaka: Bangladesh Institute of Development Studies.
- Shahabuddin, Q. and P.A. Dorosh (2004), "Diversification of Agricultural Production: Comparative Advantage in Crops and Implications of the World Trade Organization", Chapter II in P. Dorosh et al. (eds.), *The 1998 Floods and Beyond: Towards Comprehensive Food Security in Bangladesh*, Dhaka: UPL/IFPRI.
- Shahabuddin, Q and R.I. Rahman (1998), "Agricultural Growth and Stagnation in Bangladesh", *MAP Focus Study Series*, No 6, CIRDAP, July.
- Shahabuddin, Q. and S. Zohir (1995), "Medium- and Long-Term Projections of Foodgrain Demand, Supply and Trade Balance in Bangladesh", *Bangladesh Development Studies* 23(3-4).
- USAID (1982), "Pricing, Subsidies and Related Policies in Food and Agriculture", Policy Paper, USAID, Washington DC.
- USDA (2001), "India: Grain and Feed Annual", Global Agriculture Information Network, available at <http://www.fas.usda.gov>. in S.C. Babu and A. Gulati (eds.) (2002), *Economic Reforms and Food Security: The Impact of Trade and Technology in South Asia*, New York: Foods Product Press.
- Wolf, E. (1971), "Peasant Wars of the Twentieth Century", London: Faber and Faber.
- World Bank (1963), *The Economic Development Program of Pakistan*. Report No AS-96a, Washington DC: World Bank.
- World Bank (1973), *Economic Situation and Prospects of Pakistan*. Volume II Statistical Appendix. Report No. 74-PAK. Washington D.C: World Bank.
- World Bank (1975), *Bangladesh: Survey of the Jute and Cotton Textile Industries*, Report No. 883-BD, Washington DC: World Bank.
- World Bank (1979), *Bangladesh Food Policy Issues*, Washington DC: World Bank.
- World Bank (1994), *Bangladesh: From Stabilization to Growth*, Washington DC: World Bank.
- World Bank (2004), *Trade Policies in South Asia: An Overview* (Volume II: *An Overview*), Washington DC: World Bank.
- World Bank (2005), *Bangladesh: Growth and Export Competitiveness*. Washington DC: World Bank.

Figure 1: Shares of covered products in value of agricultural production at distorted prices, Bangladesh, 1971 to 2003

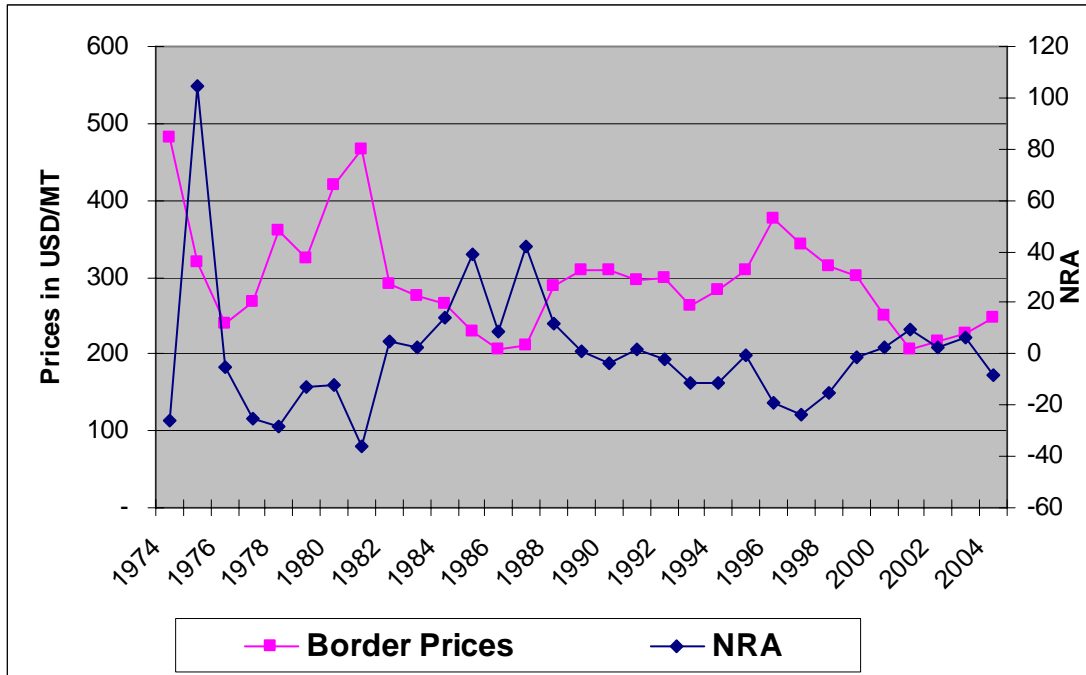
(percent)



Source: Based on producer price and quantity data in FAOSTAT at [www.fao.org](http://www.fao.org)

Figure 2: Rice nominal rate of assistance and border price,<sup>a</sup> Bangladesh, 1974 to 2004

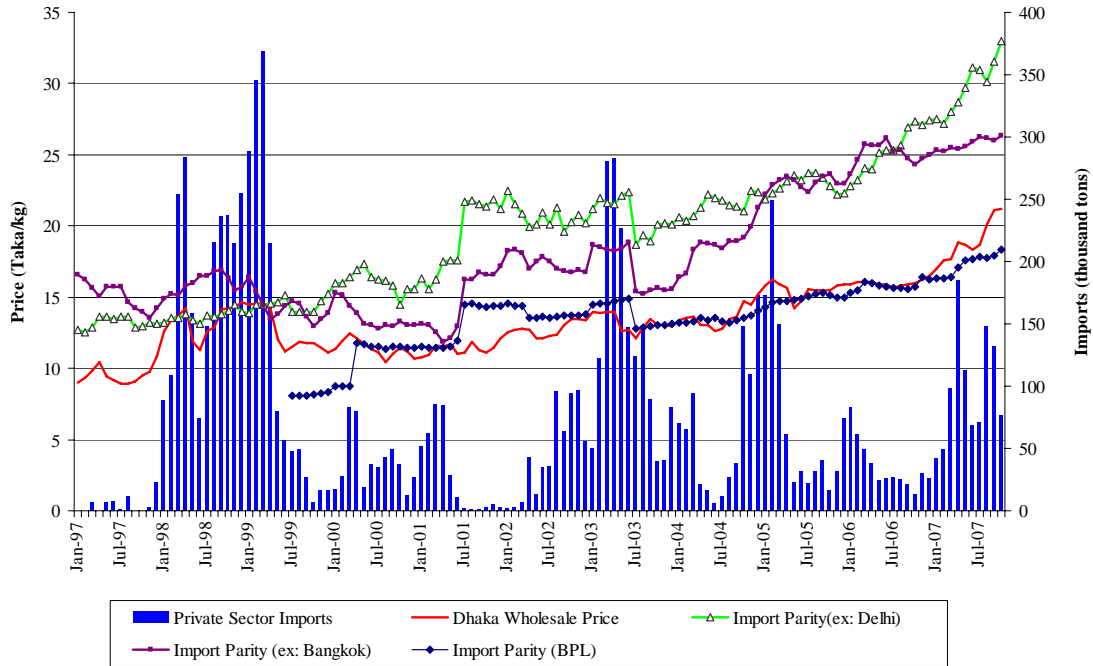
(percent)



<sup>a</sup> The Pearson correlation coefficient between these two series is -0.41

Source: Authors' spreadsheet

Figure 3: Rice prices<sup>a</sup> and private rice import volumes, Bangladesh, 1997 to 2007  
(Taka/kg and kt)

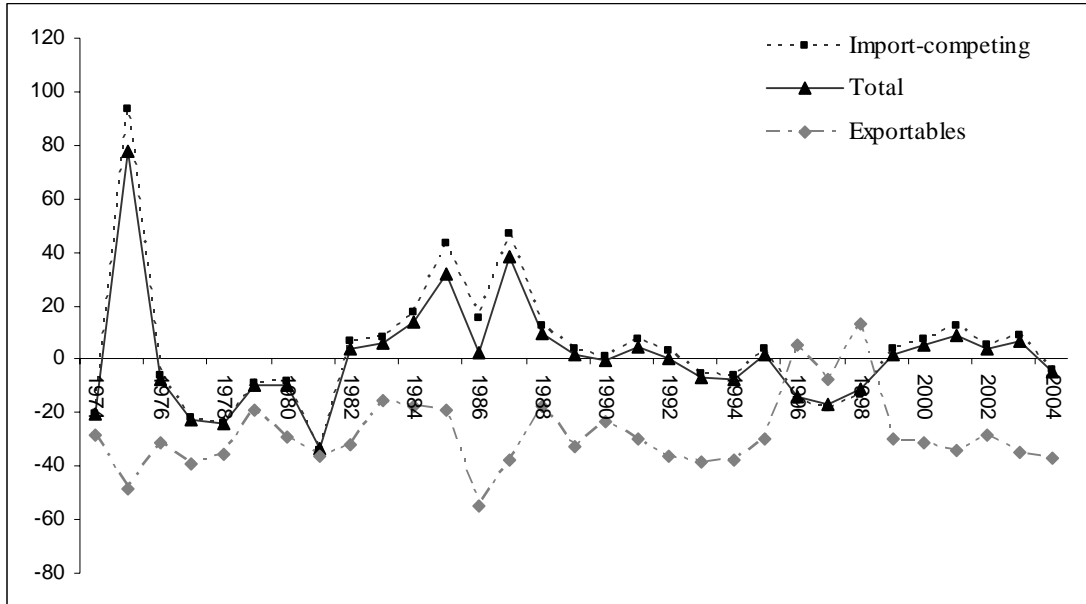


<sup>a</sup> Import parity prices shown include taxes.

Source: Authors' calculations.

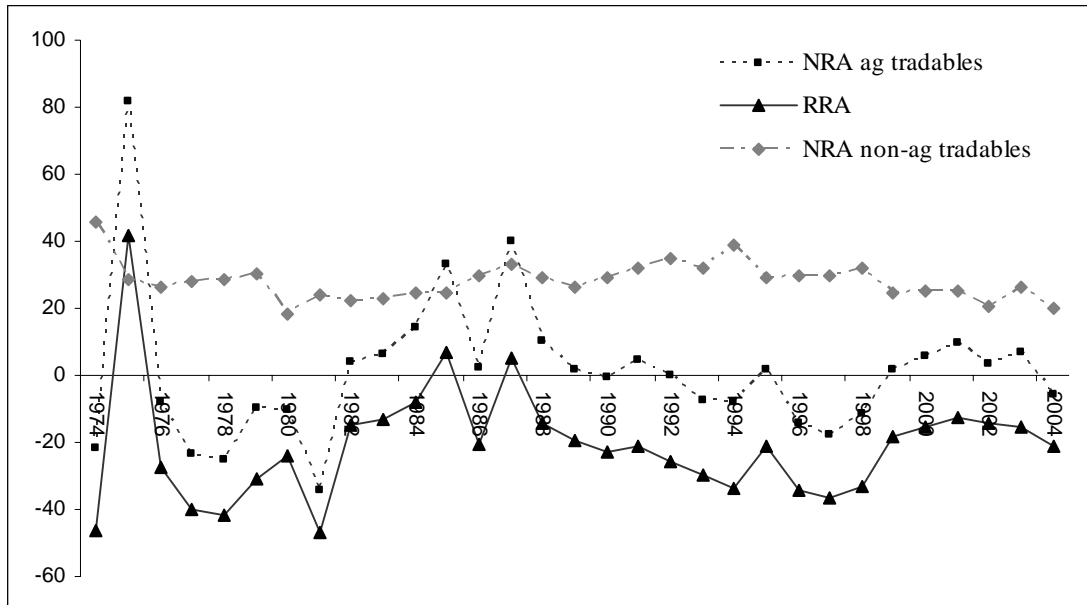
Figure 4: Nominal rates of assistance to exportable, import-competing and all agricultural products, Bangladesh, 1974 to 2004

(percent)



Source: Authors' spreadsheet

Figure 5: Nominal rates of assistance to all agricultural and non-agricultural tradable industries and relative rates of assistance,<sup>a</sup> Bangladesh, 1974 to 2004  
(percent)



<sup>a</sup> The RRA is defined as  $100 * [(100 + \text{NRA}_{\text{ag}}^t) / (100 + \text{NRA}_{\text{non-ag}}^t) - 1]$ , where  $\text{NRA}_{\text{ag}}^t$  and  $\text{NRA}_{\text{non-ag}}^t$  are the percentage NRAs for the tradable parts of the agricultural and non-agricultural sectors, respectively.

Source: Authors' spreadsheet

Table 1: Import tariff rates, Bangladesh, 1991 to 2003

(unweighted average, percent)

	All tariff lines			Industrial tariff lines			Agriculture tariff lines		
	Customs duties	Para-tariffs	Total rate	Customs duties	Para-tariffs	Total rate	Customs duties	Para-tariffs	Total rate
1991	71	3	74	70	3	73	77	0	77
1992	58	3	61	57	3	60	62	0	62
1993	43	2	46	43	3	46	46	0	45
1994	34	3	38	34	4	37	37	2	40
1995	29	3	32	28	3	32	30	2	32
1996	28	3	32	28	4	31	30	2	33
1997	27	6	33	27	6	33	29	5	35
1998	27	6	32	26	6	32	28	5	34
1990	22	7	29	22	7	29	25	5	30
2000	21	7	29	20	8	28	25	5	30
2001	21	8	29	20	8	29	25	8	33
2002	20	7	26	19	7	26	24	5	29
2003	19	10	29	18	9	27	23	17	40

Source: World Bank (2004, p. 50)

Table 2: Total taxes on imports of agricultural commodities, Bangladesh, 1992 and 2002  
(percent)

	1992	2002
Milk powder	72	74
Refined soybean oil	101	59
Refined palm oil	87	59
Sugar	135	47
Spices	80	39
Crude soybean oil	66	39
Tobacco	n.a.	39
Rice	89	29
Lentils	20	14
Rapeseed	20	14
Wheat	8	14
Raw cotton	8	7

Source: World Bank (2004, p. 50)

Table 3: Bangladesh production and imports of rice and wheat, 1973 to 2004

	(kt and percent)		
	Rice	Wheat	Total
Production (kt)			
1973-78	12,255	259	12,514
1979-88	14,501	1,085	15,586
1989-98	18,230	1,305	19,534
1999-2004	24,822	1,476	26,298
Imports (kt)			
1973-78	216	1,292	1,507
1979-88	308	1,655	1,963
1989-98	660	1,363	2,022
1999-2004	795	1,680	2,475
Imports/net availability (percent) <sup>a</sup>			
1973-78	2.5	81.7	12.7
1979-88	1.9	60.6	11.1
1989-98	3.6	52.1	9.9
1999-2004	3.4	59.7	9.5

<sup>a</sup> Net availability is estimated as production less 10 percent adjustment for seed, feed and wastage plus imports. Changes in public stocks are not included.

Source: Economic Review and Monthly Statistical Bulletin

Table 4: Nominal rates of assistance to covered products, Bangladesh, 1974 to 2004

(percent)

	1974	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04
<b>Exportables<sup>a</sup></b>	<b>-28.7</b>	<b>-34.6</b>	<b>-26.2</b>	<b>-32.4</b>	<b>-33.0</b>	<b>-9.9</b>	<b>-33.2</b>
Jute	-30.0	-37.1	-29.3	-35.4	-38.4	-5.6	-38.7
Tea	1.4	-14.5	-10.7	-19.9	-11.9	-20.5	-20.4
<b>Import-competing products<sup>a</sup></b>	<b>-20.6</b>	<b>6.5</b>	<b>-1.9</b>	<b>24.4</b>	<b>-0.1</b>	<b>-7.9</b>	<b>6.1</b>
Rice <sup>b</sup>	-25.7	6.5	-5.2	20.4	-5.3	-12.0	2.6
Wheat	38.9	30.3	-5.8	11.3	4.5	2.6	-0.3
Sugar	73.7	92.1	137.0	436.0	166.1	138.8	223.9
<b>Nontradables<sup>a</sup></b>							
Potato	1.3	1.5	1.3	1.7	2.2	2.7	1.8
<b>Total of covered products<sup>a</sup></b>	<b>-20.8</b>	<b>2.8</b>	<b>-3.8</b>	<b>16.8</b>	<b>-2.2</b>	<b>-7.6</b>	<b>3.9</b>
Dispersion of covered products <sup>c</sup>	52.1	71.4	67.6	190.7	77.5	67.9	101.2
% coverage (at undistorted prices)	77	77	78	72	72	70	72

<sup>a</sup> Weighted averages, with weights based on the unassisted value of production.

<sup>b</sup> Rice NRAs are calculated using the average cost of Bangladesh rice imports.

<sup>c</sup> Dispersion is a simple 5-year average of the annual standard deviation around the weighted mean of NRAs of covered products.

Source: Authors' spreadsheet

Table 5: Nominal rates of assistance to agricultural relative to non-agricultural industries, Bangladesh, 1974 to 2004

(percent)

	1974	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04
NRA, covered agric products <sup>a</sup>	-20.8	2.8	-3.8	16.8	-2.2	-7.6	3.9
NRA, non-covered agric products	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NRA, all agricultural products <sup>a</sup>	-16.0	1.4	-3.3	11.7	-1.5	-5.2	2.7
NRA, non-product-specific (NPS)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total agricultural NRA (incl. NPS)<sup>b</sup></b>	-16.0	1.4	-3.3	11.7	-1.5	-5.2	2.7
Trade bias index <sup>c</sup>	-0.10	-0.30	-0.23	-0.45	-0.33	0.00	-0.37
<i>Assistance to just tradables:</i>							
All agricultural tradables	-21.6	3.1	-3.9	17.5	-2.4	-8.0	4.0
All non-agricultural tradables	45.9	28.4	22.4	28.5	33.3	29.0	23.4
<b>Relative rate of assistance, RRA<sup>d</sup></b>	-46.3	-19.7	-21.5	-8.6	-26.7	-28.6	-15.8

<sup>a</sup> NRAs including product-specific input subsidies.

<sup>b</sup> NRAs including product-specific input subsidies and non-product-specific (NPS) assistance. Total of assistance to primary factors and intermediate inputs divided by the total value of primary agriculture production at undistorted prices (%).

<sup>c</sup> Trade bias index is  $TBI = (1 + NRA_{ag_x}/100)/(1 + NRA_{ag_m}/100) - 1$ , where  $NRA_{ag_m}$  and  $NRA_{ag_x}$  are the average percentage NRAs for the import-competing and exportable parts of the agricultural sector.

<sup>d</sup> The RRA is defined as  $100 * [(100 + NRA_{ag}^t)/(100 + NRA_{nonag}^t) - 1]$ , where  $NRA_{ag}^t$  and  $NRA_{nonag}^t$  are the percentage NRAs for the tradables parts of the agricultural and non-agricultural sectors, respectively.

Source: Authors' spreadsheet

## **Appendix: Background material, data sources and annual assistance calculations**

This Appendix provides details of the data sources and assistance calculations that are summarized in the main text of this paper. It also provides a description of the policy to promote exports of goods produced using imported inputs, and of policies affecting jute in the decade or so prior to independence in 1971.

### ***Duty free access to imported machinery and raw materials***

In order to promote exports of goods produced using imported inputs, Bangladesh has implemented various schemes to provide duty free access to these inputs since the 1970s, particularly for export industries in the textile sector. Initially, duty drawbacks (refunds) were based on actual duties paid. In 1979, a flat rate system was introduced under which the drawbacks was calculated on the basis of predetermined input-output coefficients and periodic calculations of the average percentage of value of customs, excise duties and sales tax for a product or product group. Beginning in 1983, drawback payments were allowed to be paid through the exporter's bank in the form of an interest free 90-day advance.

Duty drawbacks were further extended in 1982 under the Notional System of Duty Payments for time-sensitive goods such as readymade garments which permitted the exporter to clear imported inputs without actually paying any duty or sales tax. Under this system, the item-wise value of imports was recorded and a suspense account for the duties and taxes payable thereon was established. Once proof of exports was provided, the liability to pay the amounts in suspense was removed. In 1987, the drawback scheme was extended to indirect exporters (firms selling inputs to 100 percent exporting firms).

In parallel with duty drawbacks, a system of private bonded warehouse was put in place in the early 1970s under which firms producing exclusively for export could import and stock duty free inputs under supervision by a custom official. However, issuance of licenses for such warehouses was stopped later because of various irregularities. The special bonded warehouse scheme was first introduced for the readymade garments industry in 1978. The exporters entitled to this facility had the option of choosing the duty drawback system or avail a straight authorization to import duty free into established special bonded warehouses. The scheme is monitored through the use of import and export passbooks and pre-set input-output coefficients. Until 1993, special bonded warehouses were available only to exporters in the garment industries using back-to-back lines of credit, and to suppliers that sell all of their output to garment exporters. In 1993, the special bonded warehouse facility was extended to all exporters and "deemed exporters".

To provide incentives for use of local fabrics in garment exports, a cash compensatory scheme administered by the Bangladesh Bank was introduced in 1986. This scheme provided cash assistance of 15 percent of fob export value to exporters using local fabric. This facility was made available to readymade garments, hosiery and specialized textiles units that were either not covered by or chose not to use the bonded warehouse and duty drawback facilities. The rate of compensation was revised upward from 15 percent to 25 percent in 1994 and has been brought down to 10 percent in recent years.

The coverage of cash assistance was extended over time and the extent of subsidy also varied from product to product. Agricultural exports included in the cash assistance scheme are frozen shrimp and fish, tobacco and potato (10 percent of the fob value of exports) and crushed bone and hatching eggs for poultry and day old chicks (15 percent of the fob value of exports).

For further details see Rahman (1992).

### *Agricultural trade and price policies in East Pakistan pre-1971*

Agricultural trade and price incentives in East Pakistan through to 1971 were heavily influenced by overall trade and macro-economic considerations of united Pakistan.<sup>34</sup> During the 1950s and 1960s, Pakistan followed an import-substitution trade strategy that involved taxation of agricultural exports and protection of domestic industry through import tariffs. It also tended to avoid currency devaluations and instead rely on quantitative controls on imports to limit effective demand for foreign exchange at the official exchange rate.<sup>35</sup>

In the early 1950s, Pakistan introduced quantitative import controls through a system of import licenses to favor use of foreign exchange for capital and intermediate goods and limit imports of consumer goods. At the same time, cotton and jute exports were taxed through export duties. Overvaluation of the Pakistan rupee, combined with these explicit export taxes, contributed to a 70 percent decline in the real value of total exports between 1952 and 1958 (Dorosh and Valdes 1990, p. 15).

In 1959, the government introduced the export bonus scheme in an effort to spur export earnings. Under this scheme, exporters of manufactured products were awarded export bonus vouchers at specified percentages of the f.o.b. value of their exports which could be used to purchase otherwise restricted items from the import “bonus list”. The bonus voucher scheme represented an effective devaluation of the exchange rate for exports receiving vouchers and for imports purchased with these vouchers. Thus in the early 1960s, for example, bonus vouchers with a face value of 20 to 40 percent of the export value (early 1960s) were given to exporters of most non-agricultural products. To purchase 100 rupees of imports from a list of 260 items required a bonus voucher with face value of 100 rupees, in addition to the official cost of foreign exchange. There was also a premium on vouchers on the Karachi Stock Exchange, (i.e. the market value of the vouchers exceeded their face value). As a result, the effective exchange rate for bonus list imports was more than double the official exchange rate (World Bank 1963).

Jute (and manufactured jute products) was by far the major export of East Pakistan’s economy, accounting for about two-thirds of total export earnings in the late 1960s. Prior to the partition of British India in 1947, India accounted for 96 percent of world raw jute production and most of world raw jute exports. After partition, all 108 jute mills were located in India, while 71 percent of jute growing areas were in East Pakistan (World Bank 1975). In 1948-49, India launched the “Grow More Jute” campaign, a program which included subsidized seeds and fertilizers, in an effort to provide more raw jute for its jute mills. United Pakistan, too, supported development of its jute industry in its 6-year Development Program of 1951-57 through preferential access to capital, tax concessions, and export incentives. East Pakistan established its first jute mill in 1951, and by 1958 had 14 jute mills.

The war between East and West Pakistan in 1971 completely stopped jute mill production in East Pakistan. After the war, the new government nationalized 44 of the 77 mills as “abandoned property”.<sup>36</sup> Later the remaining 33 mills, owned by Bengalis, were also nationalized. A holding company, the Bangladesh Jute Mills Corporation (renamed Bang Jute

---

<sup>34</sup> From March 1971 (when East Pakistan/Bangladesh declared its independence) until December 1971 (when the war with West Pakistan ended), the government of Pakistan still set policies for East Pakistan.

<sup>35</sup> See Lewis and Guisinger (1971) and Islam (1969, 1981) for detailed discussions of trade and exchange rate policy in Pakistan in this period.

<sup>36</sup> Most manufacturing in East Pakistan, including jute milling, was controlled by non-Bengalis.

Industries Corporation when the entire industry was nationalized) was also created to run the mills.

Under the Bonus Export scheme, raw jute exports faced a high rate of implicit taxation, even relative to exports of manufactured jute products. In the early 1960s, raw jute exports were subject to a small export tax ranging from 7 to 13 percent. Moreover, exports of jute (as well as tea, raw cotton and other major agricultural export products) did not earn bonus vouchers. Thus, the effective exchange rate for jute exports ranged from Rs/US\$ 4.2 to 4.8 in the 1960s. By contrast, exports of jute manufactured products (mainly sacks and hessian) earned bonus vouchers, faced no export taxes, and benefited from the implicit taxation on raw jute (the main input into jute manufactured products). The effective exchange on manufactured jute exports ranged from Rs/\$ 5.5 to 7.3 over the same period. Assuming that raw jute accounted for 50 percent of the value of jute manufactured exports (fob), the effective rate of protection for manufactured jute products thus ranged from 47 to 107 percent in the 1960s (Repetto 1972).

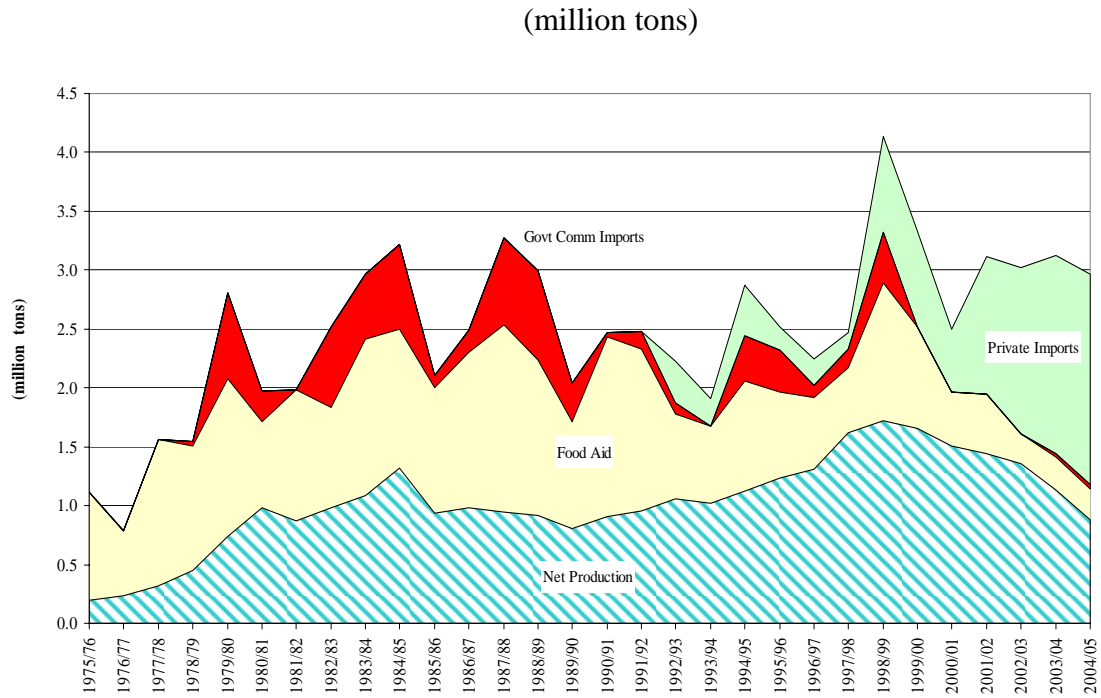
The high implicit taxation of raw jute reduced domestic prices and production incentives, leading to lower levels of exports and higher world prices. To some degree, this policy may have facilitated the development and adoption of synthetic fibers that ultimately replaced jute in many markets. Value added in jute milling in East Pakistan was low in the late 1960s, but profits were high because of the export bonus scheme (World Bank 1975).

The implicit taxation on raw jute was even higher when compared to measures of the average effective exchange rate for exports, the average effective exchange rate for imports or the implicit effective exchange rate for imports (taking into account the effect of quantitative restrictions). The implicit taxation of raw jute relative to all of Pakistan's exports from 1959 to 1971 averaged 44 percent. Compared to the average effective exchange rate for imports, the implicit taxation of raw jute averaged about 40 percent during 1965-1971 (calculated as the sum of the total import value in dollars converted to rupees at the official exchange rate, the value of bonus vouchers and the actual value of import taxes collected, divided by the total import value in dollars). Taking into the account the implicit taxation of imports (calculated as the domestic value of imports as derived from actual domestic market prices divided by the total import value in dollars), which averaged 173 percent from 1959 to 1971, the relative taxation on jute exports was 65 percent.

Since raw jute accounted for about one-third of the total value of exports of East Pakistan (about 20 percent of total Pakistan exports) and about 10 percent of agricultural value added in East Pakistan at actual prices (about 15 percent of value added using undistorted border prices), this export taxation represented a sizeable taxation of agriculture, equivalent to an average of about 7 percent of agricultural GDP in the 1960s. Including distortions on tea, (which had a value of production of only about one-tenth that of jute in the period), the total distortions on these two major agricultural exports was equivalent to about 8 percent of GDP over the 1960s.

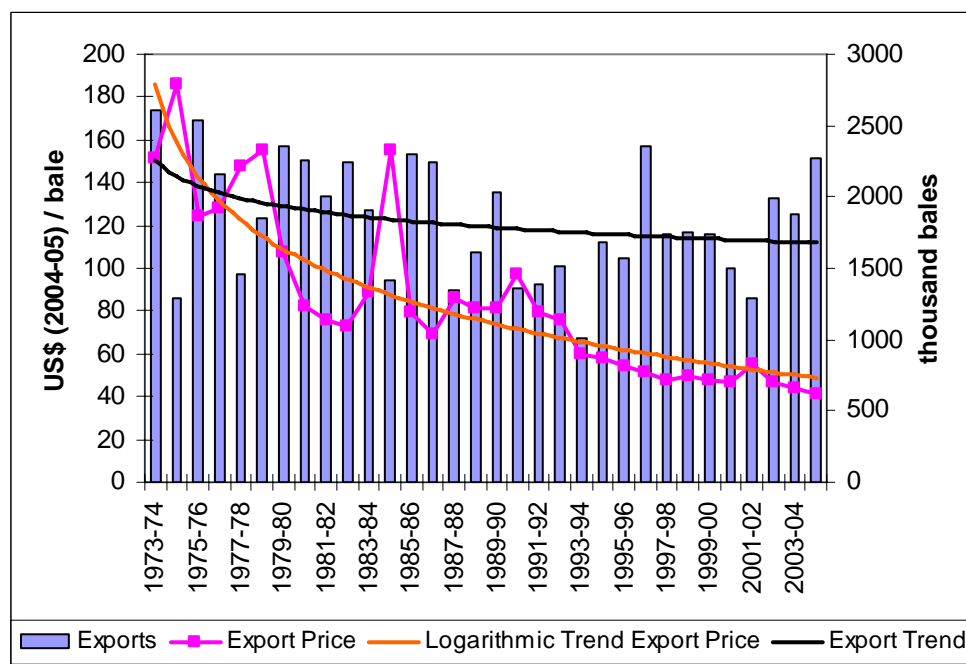
It should also be noted that this taxation of East Pakistan's agriculture had major implications for implicit fiscal transfers between East and West Pakistan, since apart from jute textiles, there was no other major manufacturing industry in East Pakistan. Thus, trade policy not only benefited industry at the expense of agriculture but also heavily favored West Pakistan relative to East Pakistan.

Appendix Figure A1: Wheat production and imports, Bangladesh, 1975 to 2004



Source: Authors' calculations based on data from Bangladesh Food Planning and Monitoring Unit (FPMU).

Appendix Figure A2: Real prices and volumes of raw jute exports, Bangladesh, 1973 to 2004



Source: Authors' calculations based on data from *Bangladesh Handbook of Agricultural Statistics*.

Appendix Table A1: Real growth of population, total GDP, agricultural GDP and GDP per capita, Bangladesh, 1980 to 2004

(percent per year)

	<b>Population</b>	<b>GDP</b>	<b>Per Capita GDP</b>
1980–84	2.14	3.16	1.02
1985–89	2.20	3.59	1.39
1990–94	1.98	4.20	2.22
1995–99	1.60	4.95	3.35
2000–04	1.50	5.34	3.84

	<b>Crops</b>	<b>Livestock</b>	<b>Forestry</b>	<b>Fishing</b>	<b>All agric, forestry and fishing</b>
1980–84	2.8	2.0	4.0	3.4	2.9
1985–89	1.4	2.2	2.2	1.5	1.6
1990–94	2.2	2.4	2.8	8.0	1.7
1995–99	2.2	2.6	4.5	8.6	4.8
2000–04	1.5	4.8	4.6	1.7	2.5

Sources: Authors' calculation using data from Bangladesh Bureau of Statistics (BBS) *Statistical Yearbook*, and Ministry of Finance *Bangladesh Economic Review* (2005).

Appendix Table A2: Sub-sectoral shares of GDP and composition of agricultural value-added, Bangladesh, 1980 to 2004<sup>a</sup>

(percent)

	1980	1984	1989	1994	1999	2004
<b>Share of total GDP</b>						
Crops	21.0	20.6	17.5	16.1	13.8	12.7
Livestock	4.2	4.0	3.8	3.4	3.0	2.8
Forestry	2.2	2.4	2.1	1.9	1.8	1.8
Fishing	4.9	4.8	4.4	4.9	5.7	4.9
Total	32.3	31.6	27.8	26.3	24.3	22.1
<b>Share of Agricultural GDP</b>						
Crops	64.9	65.0	63.0	61.2	56.7	57.3
Livestock	13.1	12.5	13.5	12.8	12.3	12.6
Forestry	6.9	7.5	7.6	7.3	7.5	7.9
Fishing	15.0	15.1	15.9	18.7	23.5	22.1
Crops	100.0	100.0	100.0	100.0	100.0	100.0

<sup>a</sup> The sub-sectoral shares in both total GDP and agricultural GDP are based on new GDP series published by the BBS, which is available from 1980.

Source: Bangladesh Bureau of Statistics

Appendix Table A3: Growth and shares of key products in agricultural trade, Bangladesh, 1973 to 2004

## (a) Exports

	Jute	Tea	Shrimp	All agric exports	Total exports
Growth (% p.a. real) <sup>a</sup>					
1973-79	-4.2	8.5	41.1	1.1	3.8
1979- 89	-4.1	-2.8	13.3	2.1	6.2
1989- 99	-9.0	-4.3	9.6	4.7	14.0
1999-2004	3.9	-7.2	1.3	3.6	4.9
1973-2004	-5.2	-4.1	10.5	1.4	8.4
	Share of agricultural exports (percent)				Agric share of total
1973-79	69.5	17.1	9.2	100.0	37.3
1979- 89	41.5	16.0	35.0	100.0	29.9
1989- 99	19.9	9.4	60.0	100.0	12.1
1999-2004	15.3	3.5	70.2	100.0	7.2
1973-2004	36.8	12.2	42.7	100.0	22.4

## (b) Imports

	Wheat	Cotton	Edible oil	All agric imports <sup>a</sup>	Total imports
Growth rates (% p.a. real) <sup>a</sup>					
1973-79	-12.6	2.8	4.8	-6.1	6.0
1979- 89	-1.8	-2.8	6.0	1.3	1.7
1989- 99	-2.6	11.5	2.9	6.7	9.0
1999-2004	3.6	15.0	12.8	10.2	7.1
1973-2004	-2.9	4.5	3.2	2.1	4.9
	Share of agricultural imports (percent) <sup>b</sup>				Agric share of total (%)
1973-79	51.0	15.6	20.0	100.0	32.9
1979- 89	42.4	13.1	18.5	100.0	23.6
1989- 99	24.5	15.8	21.4	100.0	16.9
1999-2004	14.4	28.7	21.7	100.0	15.5
1973-2004	34.3	16.9	20.2	100.0	22.3

<sup>a</sup> Growth rates are for values in 2004-05 US dollars, using the US wholesale price index as a deflator.

<sup>b</sup> Other major agricultural imports are rice, sugar, milk and cream, pulses, spices, oilseeds and tobacco.

Source: Bangladesh Export Promotion Bureau, Bangladesh Bureau of Statistics and authors' calculations.

Appendix Table A4: Trade in agricultural commodities, Bangladesh, 1973 to 2004

(US\$million)

## (a) Exports

	Raw Jute	Tea	Shrim p & other frozen food	Fish	Veget- ables	Fruits	Tobac co	Cotton	Rice	Other agric. prods	Total agric export s	Total export s	Ag share in all export s (%)
1973	128	15	5	3	0	0.0	0.0	0.4	0.0	2	153	372	41
1974	92	24	3	2	0	0.0	0.1	0.1	0.0	2	122	383	32
1975	127	18	11	1	0	0.0	0.0	0.2	0.0	4	160	381	42
1976	118	37	18	1	0	0.0	0.1	0.4	0.0	5	179	417	43
1977	97	45	20	1	1	0.0	0.0	1.2	0.0	5	170	494	34
1978	145	41	35	2	0	0.0	0.0	1.3	0.0	11	236	619	38
1979	148	34	38	2	1	0.0	0.0	0.6	0.0	7	231	749	31
1980	119	41	40	2	1	0.0	0.0	0.2	0.0	7	209	710	29
1981	102	38	53	2	2	0.1	2.0	0.5	0.0	13	211	626	34
1982	110	47	72	2	2	0.2	2.3	0.6	0.0	8	243	687	35
1983	117	69	77	2	3	0.2	3.3	0.2	0.0	9	282	811	35
1984	151	61	87	3	4	0.3	2.6	0.5	0.0	8	317	934	34
1985	124	33	113	5	14	0.8	0.7	0.4	0.0	8	299	819	37
1986	104	30	134	4	18	0.3	1.3	0.1	0.0	7	298	1074	28
1987	81	39	140	5	15	0.8	0.8	0.2	0.0	6	287	1231	23
1988	97	40	141	7	9	0.5	1.7	0.6	0.0	4	301	1292	23
1989	125	39	138	9	8	0.7	1.5	0.0	0.0	2	323	1524	21
1990	104	43	142	7	4	1.3	1.6	0.0	0.0	3	306	1718	18
1991	86	32	131	5	6	0.7	2.2	0.1	0.0	6	268	1994	13
1992	74	41	165	9	8	1.3	1.8	0.0	0.0	13	314	2383	13
1993	57	38	211	12	8	1.3	3.1	0.5	0.3	16	347	2534	14
1994	80	33	306	10	9	2.0	0.1	0.1	0.0	13	452	3473	13
1995	91	33	314	5	15	3.4	1.2	0.0	0.0	15	476	3884	12
1996	116	38	321	7	25	0.6	1.7	0.0	0.1	17	526	4427	12
1997	11	48	294	9	33	0.0	4.6	0.0	0.0	104	502	5172	10
1998	72	39	274	12	18	0.0	2.5	0.1	0.0	6	422	5324	8
1999	72	18	344	12	14	0.0	2.1	0.0	0.0	7	469	5752	8
2000	67	22	363	10	13	0.0	2.6	0.0	0.1	6	484	6467	7
2001	61	17	276	5	15	0.0	5.1	0.0	0.2	11	390	5986	7
2002	82	15	322	7	13	0.0	6.7	0.2	0.4	16	462	6548	7
2003	80	16	390	9	25	0.1	8.5	0.1	1.9	23	553	7603	7
2004	96	16	421	12	43	3.1	17.9	0.0	4.2	35	648	8655	7

(US\$million)

## (b) Imports

Year	Wheat	Raw cotton	Edible oil	Rice	Sugar	Milk and cream	Pulses	Spices	Oil seed	Tobacco	Ag share in all imports (%)
1973	368	80	37	28	8						
1974	422	56	163	55	1						
1975	163	16	34	61	4	0					
1976	52	38	65	9	3	6					
1977	218	142	75	70	1	19					
1978	174	68	102	7	1	3					
1979	366	94	129	141	34	24					
1980	210	108	92	40	19	37		4	11	1	
1981	239	79	71	46	25	26		5	5	2	
1982	289	56	83	97	2	36		4	5	0	
1983	342	125	87	56	2	38		7	2	1	
1984	322	106	103	176	22	65		9	6	1	
1985	212	52	136	8	9	62	1	6	0	0	21
1986	223	45	115	50	19	69	1	8	25	3	22
1987	339	88	176	150	33	73	16	17	39	5	31
1988	357	93	170	17	3	103	22	13	11	5	25
1989	241	105	200	102	10	88	60	13	14	3	23
1990	327	93	208	4	31	78	27	22	1	3	22
1991	251	95	185	4	2	69	15	38	30	7	20
1992	176	91	113	0	24	73	16	26	35	8	14
1993	145	71	140	23	26	45	31	22	65	10	14
1994	256	135	220	220	51	42	11	16	80	5	18
1995	228	185	179	358	11	52	16	22	89	13	17
1996	156	195	216	28	58	68	61	12	62	20	12
1997	122	207	216	247	44	56	59	11	93	21	14
1998	317	233	287	680	42	58	63	13	100	12	23
1999	266	277	256	115	100	81	105	10	90	21	15
2000	177	360	218	172	76	85	79	6	64	16	14
2001	171	312	251	15	35	63	77	7	72	14	12
2002	198	393	364	211	100	64	101	33	64	20	16
2003	287	583	471	144	133	66	131	37	73	28	18
2004	312	666	440	262	239	156	111	35	86	14	18

Sources: Export Promotion Bureau, Economic Review and Monthly Statistical Bulletin (various issues)

Appendix Table A5: Food aid and other imports of wheat and rice, Bangladesh, 1973 to 2004

(a) wheat

	Import of wheat (million metric tons)			Food-aid as % of all wheat imports
	Food-aid	Other import	Total	
1973	0.63	0.90	1.53	41
1974	0.81	1.39	2.20	37
1975	0.46	0.58	1.04	44
1976	0.49	0.11	0.60	82
1977	0.85	0.49	1.34	63
1978	1.06	0.04	1.10	96
1979	1.34	0.73	2.07	65
1980	0.73	0.26	0.99	74
1981	1.11	0.00	1.11	100
1982	0.85	0.68	1.53	56
1983	1.32	0.56	1.88	70
1984	1.18	0.72	1.90	62
1985	1.06	0.10	1.16	91
1986	1.32	0.19	1.51	87
1987	1.6	0.73	2.33	69
1988	1.32	0.76	2.08	64
1989	0.91	0.32	1.23	74
1990	1.53	0.04	1.57	98
1991	1.38	0.15	1.53	91
1992	0.72	0.44	1.16	62
1993	0.65	0.24	0.89	73
1994	0.94	0.82	1.76	54
1995	0.74	0.55	1.29	57
1996	0.61	0.32	0.93	65
1997	0.55	0.30	0.85	65
1998	1.18	1.25	2.43	49
1999	0.87	0.80	1.67	52
2000	0.46	0.53	0.99	47
2001	0.50	1.17	1.67	30
2002	0.25	1.41	1.66	15
2003	0.29	1.69	1.98	15
2004	0.26	1.82	2.08	13

Appendix Table A5 (continued): Food aid and other imports of wheat and rice, Bangladesh, 1973 to 2004

(b) rice

	Food-aid	Import of rice (kt)		Total	Food-aid as % of all rice imports
			Other Import		
1973	0		82	82	0
1974	29		237	266	11
1975	71		325	396	18
1976	40		152	192	21
1977	21		283	304	7
1978	50		4	54	93
1979	24		688	712	3
1980	19		65	84	23
1981	30		114	144	21
1982	131		186	317	41
1983	117		62	179	65
1984	125		570	695	18
1985	27		10	37	73
1986	108		150	258	42
1987	192		398	590	33
1988	40		21	61	66
1989	41		258	299	14
1990	10		0	10	100
1991	39		0	39	100
1992	19		0	19	100
1993	0		74	74	0
1994	0		813	813	0
1995	1		1137	1138	0
1996	10		24	34	29
1997	0		1105	1105	0
1998	60		3007	3067	2
1999	5		428	433	1
2000	32		529	561	6
2001	8		118	126	6
2002	4		1552	1556	0
2003	4		796	800	1
2004	27		1268	1295	2

Source: Bangladesh Food Planning and Monitoring Unit (FPMU), Ministry of Food.

Appendix Table A6: Entitlements under XPL/XPB for exports of agricultural commodities, Bangladesh, 1975 to 1986

Item	(percent)				
	1975	1976	1977	1982	1986
Frozen, salted & dehydrated fish	20	20	30	80	100
Frozen shrimp & fish	Nil	Nil	20	80	100
Shark fins & fish maws	Nil	15	20	80	100
Fruits & vegetables including potato	10	15	20	80	100
Frozen frog legs	20	25	20	60	100
Curry powder, spice powder	10	20	30	80	100
Turmeric and chili	10	15	30	80	100
Honey	Nil	20	30	60	100
Tobacco leaves	Nil	10	20	80	100
Tea in packets	25	30	30	80	100
Coir & coir products	Nil	20	20	80	100
Comilla cotton	Nil	15	20	80	100
Cotton waste	Nil	15	20	40	100
Rice & wheat bran	Nil	Nil	10	80	100
Tamarind & tamarind seed	Nil	Nil	Nil	80	100
Betel leaves	Nil	Nil	Nil	80	100
Oil cake	Nil	Nil	Nil	80	70
Cut flower	Nil	Nil	Nil	Nil	100
Loose tea	Nil	Nil	Nil	Nil	40

Source: Rahman (1994)

Appendix Table A7: Import tariffs on major agricultural imports, Bangladesh, 1991 to 2003

(percent)

(a) 1991

H.S. Code	Item	CD	SD	VAT	AIT	LF	DSC	Tax Incidence
0402.10.20	Milk powder	40	0	15	2.5	2.5		66.0
0713.40.10	Lentils	20	0	0	2.5	2.5		25.0
0904.11.00	Pepper	60	0	0	2.5	2.5		65.0
0904.20.10	Dried chili	0	0	0	2.5	2.5		5.0
0907.00.10	Clove	60	0	0	2.5	2.5		65.0
0908.10.10	Nutmeg	54	0	0	2.5	2.5		59.0
0908.30.10	Cardamom	60	0	0	2.5	2.5		65.0
0909.20.10	Coriander	60	0	0	2.5	2.5		65.0
0909.30.10	Cumin	60	0	0	2.5	2.5		65.0
0910.10.10	Ginger	30	0	0	2.5	2.5		35.0
1001.10.10	Wheat	7.5	0	0	0	0		7.5
1006.30.00	Rice	30	0	0	2.5	2.5		35.0
1205.00.11	Rape seed	20	0	0	0	2.5		22.5
1507.10.10	Crude Soyabean oil	40	0	15	2.5	2.5		66.0
1507.90.90	Refined Soyabean oil	100	0	15	2.5	0		132.5
1511.10.00	Crude palm oil	50	0	15	0	2.5		75.0
1511.90.90	Refined palm oil	60	0	15	0	2.5		86.5
1701.91.00	Sugar	100	0	15	2.5	2.5		135.0
2401.10.10	Tobacco							
5201.00.10	Raw cotton	10	0	0	0	0		10.0
	Average	47.9						57.1

Appendix Table A7 (continued): Import tariffs on major agricultural imports, Bangladesh, 1991 to 2003

(percent)

(b) 1992

H.S. Code	Item	CD	SD	VAT	AIT	LF	DSC	Tax Incidence
0402.10.20	Milk powder	45	0	15	2.5	2.5		71.8
0713.40.10	Lentils	15	0	0	2.5	2.5		20.0
0904.11.00	Pepper	75	0	0	2.5	2.5		80.0
0904.20.10	Dried chili	30	0	0	2.5	2.5		35.0
0907.00.10	Clove	60	0	0	2.5	2.5		65.0
0908.10.10	Nutmeg	60	0	0	2.5	2.5		65.0
0908.30.10	Cardamom	75	0	0	2.5	2.5		80.0
0909.20.10	Coriander	60	0	0	2.5	2.5		65.0
0909.30.10	Cumin	75	0	0	2.5	2.5		80.0
0910.10.10	Ginger	30	0	15	2.5	2.5		54.5
1001.10.10	Wheat	7.5	0	0	0	0		7.5
1006.30.00	Rice	60	0	15	2.5	2.5		89.0
1205.00.11	Rape seed	15	0	0	2.5	2.5		20.0
1507.10.10	Crude Soyabean oil	40	0	15	2.5	2.5		66.0
1507.90.90	Refined Soyabean oil	75	0	15	0	0		101.3
1511.10.00	Crude palm oil	50	0	15	0	2.5		75.0
1511.90.90	Refined palm oil	60	0	15	2.5	0		86.5
1701.91.00	Sugar	100	0	15	2.5	2.5		135.0
2401.10.10	Tobacco	7.5		15	2.5	2.5		28.6
5201.00.10	Raw cotton	7.5	0	0	0	0		7.5
	Average	47.4						61.6

Appendix Table A7 (continued): Import tariffs on major agricultural imports, Bangladesh, 1991 to 2003

(percent)

(c) 1993

H.S. Code	Item	CD	SD	VAT	AIT	LF	DSC	Tax Incidence
0402.10.20	Milk powder	45	0	15	2.5	2.5		71.8
0713.40.10	Lentils	15	0	0	2.5	2.5		20.0
0904.11.00	Pepper	45	0	0	2.5	2.5		50.0
0904.20.10	Dried chili	30	0	0	2.5	2.5		35.0
0907.00.10	Clove	60	0	0	2.5	2.5		65.0
0908.10.10	Nutmeg	60	0	0	2.5	2.5		65.0
0908.30.10	Cardamom	75	0	0	2.5	2.5		80.0
0909.20.10	Coriander	60	0	0	2.5	2.5		65.0
0909.30.10	Cumin	75	0	0	2.5	2.5		80.0
0910.10.10	Ginger	60	0	0	2.5	2.5		65.0
1001.10.10	Wheat	15	0	0	0	0		15.0
1006.30.00	Rice	7.5	0	0	2.5	2.5		12.5
1205.00.11	Rape seed	15	0	0	2.5	2.5		20.0
1507.10.10	Crude Soyabean oil	30	10	15	2.5	2.5		66.0
1507.90.90	Refined Soyabean oil	45	5	15	2.5	2.5		77.5
1511.10.00	Crude palm oil	45	5	15	2.5	2.5		77.5
1511.90.90	Refined palm oil	75	0	15	2.5	2.5		106.3
1701.91.00	Sugar	60	0	15	2.5	2.5		89.0
2401.10.10	Tobacco	7.5	0	15	2.5	2.5		28.6
5201.00.10	Raw cotton	3.75	0	0	0	0		3.8
	Average	41.4						54.6

Appendix Table A7 (continued): Import tariffs on major agricultural imports, Bangladesh, 1991 to 2003

(percent)

(d) 1994

H.S. Code	Item	CD	SD	VAT	AIT	LF	DSC	Tax Incidence
0402.10.20	Milk powder	45	0	15	2.5	2.5		71.8
0713.40.10	Lentils	15	0	0	2.5	2.5		20.0
0904.11.00	Pepper	45	0	0	2.5	2.5		50.0
0904.20.10	Dried chili	30	0	15	2.5	2.5		54.5
0907.00.10	Clove	60	0	0	2.5	2.5		65.0
0908.10.10	Nutmeg	60	0	0	2.5	2.5		65.0
0908.30.10	Cardamom	60	15	0	2.5	2.5		80.0
0909.20.10	Coriander	60	15	0	2.5	2.5		80.0
0909.30.10	Cumin	60	15	0	2.5	2.5		80.0
0910.10.10	Ginger	30	0	0	2.5	2.5		35.0
1001.10.10	Wheat	15	0	0	2.5	2.5		20.0
1006.30.00	Rice	7.5	0	0	2.5	2.5		12.5
1205.00.11	Rape seed	15	0	0	2.5	2.5		20.0
1507.10.10	Crude Soyabean oil	30	0	15	2.5	2.5		54.5
1507.90.90	Refined Soyabean oil	45	0	15	2.5	2.5		71.8
1511.10.00	Crude palm oil	45	0	15	2.5	2.5		71.8
1511.90.90	Refined palm oil	60	0	15	2.5	2.5		89.0
1701.91.00	Sugar	30	0	15	2.5	2.5		54.5
2401.10.10	Tobacco	15	0	15	2.5	2.5		37.3
5201.00.10	Raw cotton	0	0	0	2.5	0		2.5
	Average	36.4						51.8

Appendix Table A7 (continued): Import tariffs on major agricultural imports, Bangladesh, 1991 to 2003

(percent)

(e) 1995

H.S. Code	Item	CD	SD	VAT	AIT	LF	DSC	Tax Incidence
0402.10.20	Milk powder	45	0	15	2.5	2.5		71.8
0713.40.10	Lentils	7.5	0	0	2.5	2.5		12.5
0904.11.00	Pepper	45	0	0	2.5	2.5		50.0
0904.20.10	Dried chili	30	0	0	2.5	2.5		35.0
0907.00.10	Clove	45	15	0	2.5	0		62.5
0908.10.10	Nutmeg	45	15	0	2.5	0		62.5
0908.30.10	Cardamom	45	30	0	2.5	2.5		80.0
0909.20.10	Coriander	45	30	0	2.5	2.5		80.0
0909.30.10	Cumin	45	30	0	2.5	2.5		80.0
0910.10.10	Ginger	30	0	0	2.5	2.5		35.0
1001.10.10	Wheat	7.5	0	0	2.5	2.5		12.5
1006.30.00	Rice	0	0	0	2.5	0		2.5
1205.00.11	Rape seed	7.5	0	0	2.5	2.5		12.5
1507.10.10	Crude Soyabean oil	30	0	15	2.5	2.5		54.5
1507.90.90	Refined Soyabean oil	45	0	15	2.5	0		69.3
1511.10.00	Crude palm oil	30	0	15	0	0		49.5
1511.90.90	Refined palm oil	45	0	15	2.5	2.5		71.8
1701.91.00	Sugar	30	0	15	2.5	2.5		54.5
2401.10.10	Tobacco	15	0	15	2.5	2.5		37.3
5201.00.10	Raw cotton	0	0	0	2.5	0		2.5
	Average	29.6						46.80

Appendix Table A7 (continued): Import tariffs on major agricultural imports, Bangladesh, 1991 to 2003

(percent)

(f) 1996

H.S. Code	Item	CD	SD	VAT	AIT	LF	DSC	Tax Incidence
0402.10.20	Milk powder	45	0	15	0	0	0	66.8
0713.40.10	Lentils	7.5	0	0	2.5	2.5	0	12.5
0904.11.00	Pepper	45	0	0	2.5	2.5	0	50.0
0904.20.10	Dried chili	30	0	0	2.5	2.5	0	35.0
0907.00.10	Clove	45	15	0	2.5	2.5	0	65.0
0908.10.10	Nutmeg	45	15	0	2.5	2.5	0	65.0
0908.30.10	Cardamom	45	30	0	2.5	0	0	77.5
0909.20.10	Coriander	45	15	15	2.5	0	0	86.5
0909.30.10	Cumin	45	30	0	2.5	2.5	0	80.0
0910.10.10	Ginger	30	0	0	2.5	2.5	0	35.0
1001.10.10	Wheat	7.5	0	0	2.5	2.5	0	12.5
1006.30.00	Rice	0	0	0	2.5	0	0	2.5
1205.00.11	Rape seed	7.5	0	0	2.5	0	0	10.0
1507.10.10	Crude Soyabean oil	30	0	15	2.5	0	0	52.0
1507.90.90	Refined Soyabean oil	45	0	15	2.5	0	0	69.3
1511.10.00	Crude palm oil	30	0	15	0	2.5	0	52.0
1511.90.90	Refined palm oil	45	0	15	0	2.5	0	69.3
1701.91.00	Sugar	30	0	15	2.5	2.5	0	54.5
2401.10.10	Tobacco	15	0	15	2.5	2.5	0	37.3
5201.00.10	Raw cotton	0	0	0	2.5	0	0	2.5
	Average	29.6						46.75

Appendix Table A7 (continued): Import tariffs on major agricultural imports, Bangladesh, 1991 to 2003

(percent)

(g) 1998

H.S. Code	Item	CD	SD	VAT	AIT	LF	DSC	Tax Incidence
0402.10.20	Milk powder	40	2.5	15	3	2.5	2.5	73.0
0713.40.10	Lentils	7.5	0	0	3	2.5	2.5	15.5
0904.11.00	Pepper	40	0	0	3	2.5	2.5	48.0
0904.20.10	Dried chili	15	0	0	3	2.5	2.5	23.0
0907.00.10	Clove	40	30	0	3	2.5	2.5	90.0
0908.10.10	Nutmeg	40	15	0	3	2.5	2.5	69.0
0908.30.10	Cardamom	40	30	0	3	2.5	2.5	90.0
0909.20.10	Coriander	40	30	0	3	2.5	2.5	90.0
0909.30.10	Cumin	40	30	0	3	2.5	2.5	90.0
0910.10.10	Ginger	30	0	0	3	2.5	2.5	38.0
1001.10.10	Wheat	7.5	0	0	3	2.5	2.5	15.5
1006.30.00	Rice	0	0	0	3	2.5	0	5.5
1205.00.11	Rape seed	7.5	0	0	3	2.5	2.5	15.5
1507.10.10	Crude Soyabean oil	15	0	15	0	0	2.5	34.8
1507.90.90	Refined Soyabean oil	40	0	15	3	2.5	2.5	69.0
1511.10.00	Crude palm oil	15	0	15	0	0	2.5	34.8
1511.90.90	Refined palm oil	40	0	15	3	2.5	2.5	69.0
1701.91.00	Sugar	30	0	15	3	2.5	2.5	57.5
2401.10.10	Tobacco	15	0	15	3	2.5	2.5	40.3
5201.00.10	Raw cotton	0	0	0	0	0	2.5	2.5
	Average	25.1						48.5

Appendix Table A7 (continued): Import tariffs on major agricultural imports, Bangladesh, 1991 to 2003

(percent)

(h) 1999

H.S. Code	Item	CD	SD	VAT	AIT	LF	DSC	Tax Incidence
0402.10.20	Milk powder	37.5	0	15	3	2.5	2.5	66.1
0713.40.10	Lentils	5.0	0	0	3	2.5	2.5	13.0
0904.11.00	Pepper	37.5	0	0	3	2.5	2.5	45.5
0904.20.10	Dried chili	37.5	0	15	3	2.5	2.5	66.1
0907.00.10	Clove	37.5	15	0	3	2.5	2.5	66.1
0908.10.10	Nutmeg	37.5	15	0	3	2.5	2.5	66.1
0908.30.10	Cardamom	37.5	30	0	3	2.5	2.5	86.8
0909.20.10	Coriander	37.5	30	0	3	2.5	2.5	86.8
0909.30.10	Cumin	37.5	30	0	3	2.5	2.5	86.8
0910.10.10	Ginger	25.0	0	0	3	2.5	2.5	33.0
1001.10.10	Wheat	5.0	0	0	3	2.5	2.5	13.0
1006.30.00	Rice	5.0	0	0	0	0	0	5.0
1205.00.11	Rape seed	5.0	0	0	3	0	2.5	10.5
1507.10.10	Crude Soyabean oil	15.0	0	15	0	0	2.5	34.8
1507.90.90	Refined Soyabean oil	37.5	0	15	3	2.5	2.5	66.1
1511.10.00	Crude palm oil	15.0	0	15	3	0	2.5	37.8
1511.90.90	Refined palm oil	25.0	0	15	3	2.5	2.5	51.8
1701.91.00	Sugar	25.0	0	15	3	2.5	2.5	51.8
2401.10.10	Tobacco	15.0	0	15	3	2.5	2.5	40.3
5201.00.10	Raw cotton	0.0	0	0	0	0	0	0.0
	Average	23.9						46.4

Appendix Table A7 (continued): Import tariffs on major agricultural imports, Bangladesh, 1991 to 2003

(percent)

(i) 2000

H.S. Code	Item	CD	SD	VAT	AIT	LF	DSC	Tax Incidence
0402.10.20	Milk powder	25	5	15	3	2.5	2.5	58.9
0713.40.10	Lentils	5.0	0	0	3	2.5	2.5	13.0
0904.11.00	Pepper	37.5	0	0	3	2.5	2.5	45.5
0904.20.10	Dried chili	25.0	0	0	3	2.5	2.5	33.0
0907.00.10	Clove	37.5	25	0	3	2.5	2.5	79.9
0908.10.10	Nutmeg	37.5	15	0	3	2.5	2.5	66.1
0908.30.10	Cardamom	37.5	40	0	3	2.5	2.5	100.5
0909.20.10	Coriander	37.5	40	0	3	2.5	2.5	100.5
0909.30.10	Cumin	37.5	40	0	3	2.5	2.5	100.5
0910.10.10	Ginger	25.0	0	0	3	2.5	2.5	33.0
1001.10.10	Wheat	5.0	0	0	3	2.5	2.5	13.0
1006.30.00	Rice	5.0	0	0	0	0	0	5.0
1205.00.11	Rape seed	5.0	0	0	3	0	2.5	10.5
1507.10.10	Crude Soyabean oil	15.0	0	15	3	0	2.5	37.8
1507.90.90	Refined Soyabean oil	37.5	0	15	3	2.5	2.5	66.1
1511.10.00	Crude palm oil	15.0	0	15	0	0	2.5	34.8
1511.90.90	Refined palm oil	37.5	0	15	3	2.5	2.5	66.1
1701.91.00	Sugar	25	0	15	3	2.5	2.5	51.8
2401.10.10	Tobacco	15	0	15	3	2.5	2.5	40.3
5201.00.10	Raw cotton	0	0	0	0	0	0	0.0
	Average	23.3						47.8

Appendix Table A7 (continued): Import tariffs on major agricultural imports, Bangladesh, 1991 to 2003

(percent)

(j) 2001

H.S. Code	Item	CD	SD	VAT	AIT	LF	DSC	Tax Incidence
0402.10.20	Milk powder	25	5	15	3	2.5	2.5	58.9
0713.40.10	Lentils	5	0	0	3	2.5	2.5	13.0
0904.11.00	Pepper	37.5	0	0	3	2.5	2.5	45.5
0904.20.10	Dried chili	25	0	0	3	2.5	2.5	33.0
0907.00.10	Clove	37.5	25	0	3	2.5	2.5	79.9
0908.10.10	Nutmeg	37.5	15	0	3	2.5	2.5	66.1
0908.30.10	Cardamom	37.5	40	0	3	2.5	2.5	100.5
0909.20.10	Coriander	37.5	40	0	3	2.5	2.5	100.5
0909.30.10	Cumin	37.5	40	0	3	2.5	2.5	100.5
0910.10.10	Ginger	25	0	0	3	2.5	2.5	33.0
1001.10.10	Wheat	5	0	0	3	2.5	2.5	13.0
1006.30.00	Rice	25	0	0	3	2.5	2.5	33.0
1205.00.11	Rape seed	5	0	0	0	0	2.5	7.5
1507.10.10	Crude Soyabean oil	15	0	15	3	0	2.5	37.8
1507.90.90	Refined Soyabean oil	37.5	0	15	3	2.5	2.5	66.1
1511.10.00	Crude palm oil	15	0	15	3	0	0	35.3
1511.90.90	Refined palm oil	25	12.5	15	3	2.5	2.5	69.7
1701.91.00	Sugar	15	0	15	3	2.5	2.5	40.3
2401.10.10	Tobacco	15	0	15	3	2.5	2.5	40.3
5201.00.10	Raw cotton	0	0	0	0	0	0	0.0
	Average	23.1						48.7

Appendix Table A7 (continued): Import tariffs on major agricultural imports, Bangladesh, 1991 to 2003

(percent)

(k) 2002

H.S. Code	Item	CD	SD	VAT	AIT	LF	DSC	Tax Incidence
0402.10.20	Milk powder	32.5	10	15	3	0	3.5	74.1
0713.40.10	Lentils	7.5	0	0	3	0	3.5	14.0
0904.11.00	Pepper	32.5	0	0	3	0	3.5	39.0
0904.20.10	Dried chili	22.5	0	0	3	0	3.5	29.0
0907.00.10	Clove	32.5	0	0	3	0	3.5	39.0
0908.10.10	Nutmeg	32.5	0	0	3	0	3.5	39.0
0908.30.10	Cardamom	32.5	0	0	3	0	3.5	39.0
0909.20.10	Coriander	32.5	0	0	3	0	3.5	39.0
0909.30.10	Cumin	32.5	0	0	3	0	3.5	39.0
0910.10.10	Ginger	22.5	0	0	3	0	3.5	29.0
1001.10.10	Wheat	7.5	0	0	3	0	3.5	14.0
1006.30.00	Rice	22.5	0	0	3	0	3.5	29.0
1205.00.11	Rape seed	7.5	0	0	3	0	3.5	14.0
1507.10.10	Crude Soyabean oil	15	0	15	3	0	3.5	38.8
1507.90.90	Refined Soyabean oil	32.5	0	15	3	0	3.5	58.9
1511.10.00	Crude palm oil	7.5	0	15	0	0	0	23.6
1511.90.90	Refined palm oil	32.5	0	15	3	0	3.5	58.9
1701.91.00	Sugar	22.5	0	15	3	0	3.5	47.4
2401.10.10	Tobacco	15	0	15	3	0	3.5	38.8
5201.00.10	Raw cotton	0	0	0	3	0	3.5	6.5
	Average	22.1						35.5

Appendix Table A7 (continued): Import tariffs on major agricultural imports, Bangladesh, 1991 to 2003

(percent)

(1) 2003

H.S. Code	Item	CD	SD	VAT	AIT	LF	DSC	Tax Incidence
0402.10.20	Milk powder	30	15	15	3	0	4	78.9
0713.40.10	Lentils	7.5	0	0	0	0	0	7.5
0904.11.00	Pepper	30	0	0	3	0	4	37.0
0904.20.10	Dried chili	22.5	0	0	3	0	4	29.5
0907.00.10	Clove	30	25	0	3	0	4	69.5
0908.10.10	Nutmeg	30	0	0	3	0	4	37.0
0908.30.10	Cardamom	30	25	0	3	0	4	69.5
0909.20.10	Coriander	30	0	0	3	0	4	37.0
0909.30.10	Cumin	30	25	0	3	0	4	69.5
0910.10.10	Ginger	15	0	0	3	0	4	22.0
1001.10.10	Wheat	7.5	0	0	0	0	0	7.5
1006.30.00	Rice	0	0	0	3	0	4	7.0
1205.00.11	Rape seed	0	0	0	3	0	0	3.0
1507.10.10	Crude Soyabean oil	7.5	0	15	0	0	0	23.6
1507.90.90	Refined Soyabean oil	30	0	15	3	0	4	56.5
1511.10.00	Crude palm oil	7.5	0	15	0	0	0	23.6
1511.90.90	Refined palm oil	30	0	15	3	0	4	56.5
1701.91.00	Sugar	30	30	15	3	0	4	101.4
2401.10.10	Tobacco	15	0	15	3	0	4	39.3
5201.00.10	Raw cotton	0	0	0	3	0	4	7.0
	Average	19.1						39.1

Source: Bangladesh Ministry of Commerce.

Appendix Table A8: Liberalization of fertilizer markets, Bangladesh, 1978 to 1995

	Actions	Time Span	Remarks
1.	BADC withdraw from retail and wholesale markets at Thana levels, the Primary Distribution Points (PDP)	1978-83	This was in Chittagong Division first
2.	Licensing requirement was abolished and restriction on movement removed (except 5-mile border Zone with India)	1982-83	Vigorous response from traders
3.	Deregulation of fertilizer price	1982-84	Real competition started
4.	Allowing private traders direct purchase from factory gates and port points	1987	Vigorous response from traders
5.	Free import from world market	1992	Good response, but fear of oligopoly persists
6.	Fertilizer crisis, and partial reversal of reform	1994/95	Large subsidy returns

Source: Ahmed (2001).

Appendix Table A9: Domestic wholesale and border prices of fertilizer and their consumer tax equivalent for farmers,<sup>a</sup> Bangladesh, 1975 to 2004

	Import Parity Wholesale Tk(2005)/Mt	Export Parity Wholesale Tk(2005)/Mt	Wholesale Price Tk(2005)/Mt	CTE, % (Import parity/ Wholesale)
<u>Urea</u>				
1975-79	26,455	13,615	14,039	-47
1980-89	17,617	7,236	11,873	-32
1990-99	13,385	4,971	6,764	-48
2000-04	13,024	4,078	6,003	-53
<u>TSP</u>				
1975-79	28,056	N/A	11,046	-60
1980-89	19,741	N/A	11,912	-40
1990-99	15,490	N/A	12,291	-21
2000-04	16,050	N/A	14,144	-12

<sup>a</sup> The consumer tax equivalent (CTE) is the percentage difference between the actual price paid by farmers for this input and what it would be in the absence of government intervention protecting its manufacturers and subsidizing its users.

Sources: IMF *International Financial Statistics*, Renfro (1992), FADINAP, DAM and authors' calculations

Appendix Table A10: Nominal rates of assistance to covered products, Bangladesh, 1974 to 2004

	(percent)						All
	Jute	Potato	Rice	Sugar	Tea	Wheat	covered
1974	-30	1	-26	74	1	39	-21
1975	-53	1	105	-9	-4	140	78
1976	-33	2	-5	-19	-14	-6	-8
1977	-43	2	-26	65	-14	18	-23
1978	-38	2	-28	209	-23	9	-24
1979	-19	2	-13	213	-17	-9	-10
1980	-30	0	-12	137	-24	1	-10
1981	-40	1	-36	-13	-14	-19	-33
1982	-37	1	5	56	-5	-11	4
1983	-17	2	3	270	-9	-1	6
1984	-22	2	14	236	-2	1	14
1985	-21	2	39	715	-12	7	32
1986	-54	2	8	688	-59	14	2
1987	-44	1	42	338	-8	24	38
1988	-20	2	12	298	-9	16	10
1989	-38	2	1	140	-12	-5	2
1990	-28	3	-4	124	0	3	-1
1991	-33	3	2	137	-14	32	4
1992	-42	2	-2	194	-12	5	0
1993	-46	0	-11	205	-13	-3	-7
1994	-44	2	-12	171	-21	-14	-8
1995	-29	3	-1	124	-33	6	2
1996	15	3	-19	111	-18	-14	-14
1997	-3	3	-24	131	-21	-4	-17
1998	21	3	-15	138	-5	9	-11
1999	-32	2	-1	192	-26	16	2
2000	-37	1	2	308	-16	19	5
2001	-41	2	9	180	-18	-1	9
2002	-29	2	3	149	-27	-5	4
2003	-40	2	6	271	-22	-15	6
2004	-46	2	-8	212	-19	1	-5

Source: Authors' spreadsheet

exportable<sup>b</sup> and import-competing<sup>c</sup> agricultural industries, and relative<sup>c</sup> to non-agricultural industries, Bangladesh, 1974 to 2004 (percent)

	Total ag NRA				Ag tradables NRA			Non-ag tradables	
	Covered products		Non-covered products	All products (incl NPS)	Export-ables	Import-competing	All		
	Inputs	Outputs							
1974	1	-21	0	-16	-29	-21	-22	46	-46
1975	0	78	0	57	-48	93	82	29	42
1976	1	-9	0	-6	-32	-6	-8	27	-27
1977	1	-24	0	-18	-39	-22	-23	28	-40
1978	1	-25	0	-19	-36	-24	-25	29	-42
1979	2	-11	0	-7	-19	-9	-10	30	-31
1980	1	-11	0	-7	-29	-8	-10	18	-24
1981	1	-34	0	-27	-36	-34	-34	24	-47
1982	1	3	0	3	-32	7	4	22	-15
1983	1	5	0	5	-16	8	6	23	-13
1984	1	13	0	11	-17	18	15	25	-8
1985	1	31	0	22	-19	43	33	25	7
1986	1	2	0	2	-55	16	2	29	-21
1987	1	37	0	26	-37	47	40	33	5
1988	1	8	0	7	-18	13	10	29	-15
1989	2	-1	0	1	-33	4	2	26	-20
1990	2	-3	0	0	-23	1	-1	29	-23
1991	2	3	0	3	-30	7	4	32	-21
1992	1	-1	0	0	-36	3	0	35	-26
1993	0	-8	0	-5	-39	-5	-8	32	-30
1994	1	-9	0	-5	-37	-6	-8	39	-34
1995	2	-1	0	1	-30	4	2	29	-21
1996	2	-16	0	-9	5	-15	-14	30	-34
1997	3	-19	0	-11	-8	-18	-17	30	-36
1998	2	-13	0	-8	13	-13	-12	32	-33
1999	2	0	0	1	-30	4	2	25	-18
2000	2	3	0	4	-31	8	6	25	-16
2001	2	7	0	6	-34	12	9	25	-12
2002	3	1	0	3	-28	6	4	21	-14
2003	3	3	0	5	-35	9	7	26	-15
2004	3	-8	0	-4	-37	-4	-6	20	-21

<sup>a</sup> NRAs including assistance to nontradables and non-product-specific assistance.

<sup>b</sup> NRAs including product-specific input subsidies.

<sup>c</sup> The Relative Rate of Assistance (RRA) is defined as  $100 * [(100 + \text{NRA}_{\text{ag}}^t) / (100 + \text{NRA}_{\text{nonag}}^t) - 1]$ , where  $\text{NRA}_{\text{ag}}^t$  and  $\text{NRA}_{\text{nonag}}^t$  are the percentage NRAs for the tradables parts of the agricultural and non-agricultural sectors, respectively.

Source: Authors' spreadsheet

(percent)

	Jute	Potato	Rice	Sugar	Tea	Wheat	Non-covered
1974	9	3	61	3	0	1	23
1975	5	4	57	7	0	0	27
1976	5	3	64	5	1	1	22
1977	7	2	67	3	1	1	19
1978	6	2	68	1	1	1	21
1979	8	2	60	1	1	1	26
1980	6	2	63	1	1	2	25
1981	4	2	69	4	1	3	18
1982	5	3	62	4	1	4	22
1983	5	2	64	1	1	4	22
1984	5	3	61	1	2	4	25
1985	9	3	52	1	2	4	29
1986	11	2	52	1	2	3	29
1987	4	3	54	1	1	3	33
1988	5	3	62	0	1	3	26
1989	4	3	63	2	1	3	24
1990	4	3	62	2	1	2	27
1991	5	2	60	2	1	2	27
1992	4	3	61	2	1	3	27
1993	3	3	58	2	1	3	30
1994	3	4	56	2	1	3	31
1995	3	3	58	2	1	3	30
1996	2	3	58	2	1	4	31
1997	3	3	56	2	1	4	32
1998	3	3	59	0	1	5	29
1999	2	5	58	1	1	4	29
2000	2	7	57	1	1	4	29
2001	3	4	56	1	1	4	30
2002	3	4	58	1	1	4	28
2003	2	6	58	1	1	3	28
2004	2	7	61	1	1	3	26

<sup>a</sup> At farmgate undistorted prices

Source: Authors' spreadsheet