Economic Reforms and Agriculture in Bangladesh: Assessment of Impacts using Economy-wide Simulation Models

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Outline

• Introduction
• Methodology
• Bangladesh's trade and agricultural policies
  – Global agricultural trade liberalization under a potential WTO Doha agreement
  – Bilateral free-trade agreement between Bangladesh and India
  – Unilateral agricultural trade liberalization
  – Agricultural production subsidy policy
  – Agricultural productivity
• Simulation results and policy implications
Introduction

• Agriculture in Bangladesh employs about 50% of the country’s labour force and contributes about 20% of GDP.

• Growth in the agricultural sector has important links with the overall economy through various channels.
  – First, agriculture provides a crucial supply of raw materials to many non-agricultural sectors.
  – Second, consumption of agricultural commodities has important implications for the poverty of households in both rural and urban areas. The demand for and supply of agricultural commodities, especially food items, and their prices greatly influence the welfare of poor households.
  – Third, the rural sector is the dominant source of supply of unskilled labour to the economy.
Introduction..

• Growth in the domestic agricultural sector does not only rely on domestic policies and programmes, rather global and regional trade policies have important implications for this sector.

• Moreover, a variety of economic policies and programmes, such as domestic fiscal policies, import policies, and programmes for growth in agricultural productivity, also affect the development of the agricultural sector in an economy.

• This study explores the links between major economic policy reforms and growth in the agricultural sector in Bangladesh. Overall, this study seeks to explore how economic policy reforms affect the agricultural sector in Bangladesh in terms of output, imports, exports, and employment.
The study explores:

- Three trade liberalization scenarios
  - a global agricultural trade liberalization scenario under a WTO–Doha agreement,
  - a Bangladesh–India bilateral FTA, and
  - unilateral agricultural trade liberalization)
- One fiscal policy scenario (a rise in agricultural subsidies), and
- One technological change scenario (a rise in agricultural productivity).
Methodology

• Use of the GTAP global general-equilibrium model and a national CGE model to explore employment effects in Bangladesh under different scenarios.

• For the global agricultural trade liberalization and Bangladesh–India bilateral FTA scenarios, the scenarios are first run in the GTAP model. The changes in demand for exports, export prices, and import prices, as obtained from the GTAP model, are matched to the 41 social accounting matrix (SAM) sectors of Bangladesh and these are introduced as shocks in the national CGE model. For the subsidy and productivity scenarios, the shocks are introduced directly to the CGE model and subsequent macro, sectoral, and meso implications are explored.

• The CGE simulation produces percentage changes in labour demand. These are then used to compute changes in employments, using an employment satellite matrix.
Bangladesh's Trade and Agricultural Policies

• Global agricultural trade liberalization under a potential WTO Doha agreement
• Bilateral free-trade agreement between Bangladesh and India
• Unilateral agricultural trade liberalization
• Agricultural production subsidy policy
• Agricultural productivity
Doha Agriculture

• Using the GTAP model, we simulate a moderate Doha scenario for agricultural liberalization under which developed countries cut their agricultural tariffs by 36 per cent and the developing countries cut theirs by 24 per cent. Furthermore, both the developed and developing countries reduce domestic agricultural subsidies by one-third and completely eliminate agricultural export subsidies.

• The GTAP simulation results project a rise in export demand for agricultural products. Also, import prices of major agricultural and food products would rise, and their imports would fall. These changes in export demand, export prices, import prices, and imports are introduced as shocks in the Bangladesh CGE model.
Bangladesh–India Bilateral FTA

• Using the GTAP model, we simulate a bilateral free trade agreement scenario in which Bangladesh and India bring their bilateral tariffs to zero.

• Under this FTA scenario there would be some increases in export demand, but there would be considerable increases in imports for most agricultural and industrial products. These changes in export demand, export prices, import prices, and imports are introduced as shocks in the Bangladesh CGE model.
Unilateral Agricultural Trade Liberalization

- A scenario of domestic agricultural trade liberalization is run in which Bangladesh cuts tariffs on all agricultural sectors by 50 per cent.
- Understanding the impact of this scenario on the Bangladesh economy is important as there are debates in the policy arena with respect to further liberalization of trade in the agricultural sectors in Bangladesh. Over the last two decades the trade in the cereal crop sub-sector has been highly liberalized. However, there are still some significant protections on the commercial crop, livestock, and poultry sub-sectors.
Agricultural Production Subsidy Policy

• A scenario is considered where the existing subsidies in agricultural sectors are increased by 25 per cent.
• Over the years allocation of subsidies towards the agricultural sector has increased quite significantly. This scenario will help us understand the allocation and efficiency effects of the increased amount of subsidies in the agricultural sector.
Agricultural Productivity

• A scenario that includes a 10 per cent rise in total factor productivity in the cereal crop sector is considered.

• Raising agricultural productivity in general, and increasing the productivity in the cereal crop sector in particular, has been one of the major development agendas of the government.

• This scenario will help to explore the economy-wide impacts of such an increase in productivity in the cereal crop sector.
### Macroeconomic Effects

<table>
<thead>
<tr>
<th>Variable</th>
<th>Doha Agriculture</th>
<th>Bangladesh–India Bilateral FTA</th>
<th>Unilateral Agricultural Trade Liberalization</th>
<th>Agricultural Production Subsidy</th>
<th>Agricultural Productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real gross domestic product</td>
<td>0.05</td>
<td>-0.58</td>
<td>-0.19</td>
<td>-0.09</td>
<td>0.52</td>
</tr>
<tr>
<td>Consumer price index</td>
<td>0.19</td>
<td>-0.23</td>
<td>-0.34</td>
<td>-0.11</td>
<td>-0.96</td>
</tr>
<tr>
<td>Aggregate consumption</td>
<td>0.01</td>
<td>0.91</td>
<td>-0.07</td>
<td>0.12</td>
<td>0.61</td>
</tr>
<tr>
<td>Imports</td>
<td>-0.19</td>
<td>2.92</td>
<td>0.05</td>
<td>-0.02</td>
<td>-0.35</td>
</tr>
<tr>
<td>Exports</td>
<td>-0.17</td>
<td>3.80</td>
<td>0.49</td>
<td>0.03</td>
<td>-0.03</td>
</tr>
<tr>
<td>Return to unskilled labour</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Return to skilled labour</td>
<td>0.17</td>
<td>1.13</td>
<td>-0.38</td>
<td>0.03</td>
<td>0.10</td>
</tr>
<tr>
<td>Return to capital</td>
<td>0.13</td>
<td>0.74</td>
<td>-0.34</td>
<td>-0.02</td>
<td>0.30</td>
</tr>
<tr>
<td>Return to land</td>
<td>0.56</td>
<td>0.30</td>
<td>-0.90</td>
<td>0.26</td>
<td>-3.84</td>
</tr>
</tbody>
</table>

Source: Simulations using the Bangladesh CGE model
Summary Results: Doha Agriculture

• Global agricultural trade liberalization under a WTO–Doha agreement would lead to a rise in prices of agricultural products in the global market as well as in the domestic market.

• As a result there will be some positive effects on the sectoral production and employment in the agricultural sector in Bangladesh.

• In particular, the cereal crop sub-sector would expand, and also this sector would generate significant new employment of unskilled labour.

• However, this scenario could also raise some concerns for the households that are net consumers and therefore likely to be adversely affected because of the rise in food prices.
Policy Implications: Doha Agriculture

• Government would have to facilitate the smooth marketing operations of agricultural products in the market so that the farmers, not the middlemen, receive the maximum benefits of higher prices on their produces. Therefore, enforcing competition policy and laws would be very important.

• The government’s safety net programme should address the problem of poorer households, which are likely to be burdened by high food prices.

• This study finds that the rural non-farm households, a significant part of which are poor, would experience a fall in real consumption. This is because rural non-farm households are not food producers, and they rely completely on the market for cereal crops and other agricultural food.

• Bangladesh, being a net food importing country, should negotiate at the WTO for some compensatory measures.
Summary Results: Bangladesh–India Bilateral FTA

• A Bangladesh–India bilateral FTA would result in limited expansion in the agricultural sectors.

• There would be expansion of the export-oriented manufacturing sectors.

• Although most of the import-competing sectors would contract, the expansion of the agricultural and export-oriented sectors would be larger enough to produce net employment generation.
Policy Implications: Bangladesh–India Bilateral FTA

• The government needs to take into consideration sectoral effects while perusing any bilateral FTA deal with any country.

• It is very important to identify clearly which sectors are likely to be gainers and which are likely to be the losers.

• For the losing sectors, policy-makers may want to consider a strategic and slower pace of trade liberalization. Also, these sectors could receive temporary fiscal support.
Summary Results:
Unilateral Agricultural Trade Liberalization

• Domestic agricultural trade liberalization would increase imports of agricultural products. This would result in the contraction of the agricultural sectors.

• Overall, industrial and services sectors would also contract. There would be a large employment loss for unskilled labour, especially in the cereal crop, commercial crops, livestock rearing, poultry rearing, and fishing sub-sectors.
Policy Implications: Unilateral Agricultural Trade Liberalization

- The agenda of agricultural trade liberalization needs to be consistent with the broad agenda of trade liberalization in other sectors of the economy.

- The major protected sub-sectors in agriculture are poultry and fishing. These two sectors have, in fact, grown over the last decade under significant trade protection. Any trade liberalization agenda for these sectors would need to be designed strategically.
Summary Results: Agricultural Production Subsidy Policy

• A rise in subsidies to agricultural sectors would increase production in these sectors, while some industrial and services sectors would contract.

• Overall employment of unskilled labour would increase because of greater employment generation in the agricultural sectors and lesser loss in employment in the industrial and services sectors. There would be net loss in jobs for skilled labour.
Policy Implications:
Agricultural Production Subsidy Policy

- A rise in subsidies to agricultural sectors would provide extra incentives for investing in agriculture.

- However, it should also be kept in mind that such subsidies put heavy burden on government’s exchequer. Therefore, phased reduction of such subsidies would be warranted.

- To be effective, such subsidies need to be used judiciously. Subsidies in Bangladesh are often wrongly targeted, and therefore the actual objective of the subsidies is not achieved.

- Enhancing agricultural productivity, improving marketing opportunities, and ensuring effective implementation of competition policies and laws also can encourage producers to increase agricultural production, and at less cost to the government.
Summary Results: Agricultural Productivity

• A rise in total factor productivity in the cereal crop sector would lead to a great expansion of that sub-sector. Rice milling and grain milling would expand as well. Imports would fall in all these sectors. The industrial and services sectors would expand somewhat.

• Overall, the agricultural sector would experience a large loss of jobs for unskilled labour. Therefore, even though employment would increase in the overall industrial and services sectors, the net employment effect on unskilled labour would be negative. However, there would be a net positive effect on the employment of skilled labour.
Policy Implications: Agricultural Productivity

• A rise in total factor productivity in the cereal crop sector would cost jobs in the agricultural sector though increase jobs in other sectors.

• Therefore, it is very important that, while investing in agricultural research to raise agricultural productivity, the policy makers take measures to promote industrialization to absorb the labour released from the agricultural sectors.

• Promotion of rural non-farm productive activities can be very useful for the absorption of labour released from the crop sector.