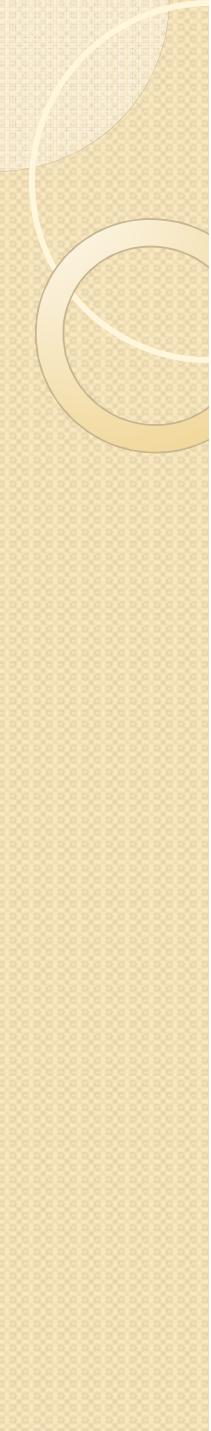


# **Rice Prices And Growth And Poverty Reduction In Bangladesh**

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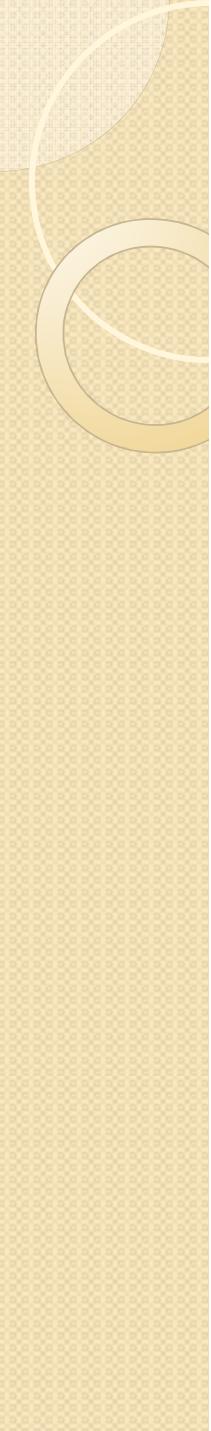
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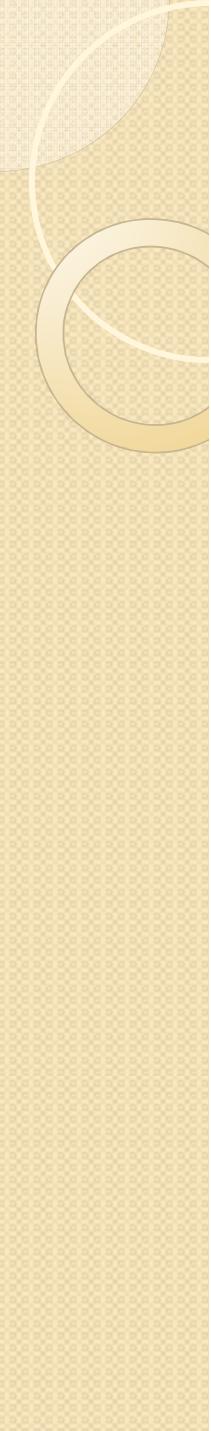
# Objectives of the Paper

- Importance of rice to the development of Bangladesh
- Structure of Bangladeshi rice sector
- Institutional and policy environment
- Rice prices and their relation to local growth and development
  - How have global rice prices moved over the past few decades? Have changes in global prices for rice transmitted to producer prices in Bangladesh?
  - Have changes in producer prices (including volatility) affected poverty reduction, growth, and food security in Bangladesh?
  - Is there any evidence to suggest that rice price movements have had a wider influence on poverty reduction, economic growth, and food security in Bangladesh as a whole—not solely amongst rice farmers?
  - What policies and institutions (if any) have helped rice price increases translate into inclusive growth and poverty reduction, or prevented price declines from hindering growth?
  - What other factors likely contributed to poverty reduction, economic growth, and improved food security for Bangladesh?
- Policy implications of findings



# **Importance of Rice to Bangladesh's Development**

- Rice is Bangladesh's largest crop and the main staple food for the 157 million people of the country.
  - Accounts for 48% of total rural employment .
  - Provides two-thirds of the calorie needs of the nation .
  - Contributes to 70% of agricultural GDP.
  - More than 13 million farms grow rice covering some 10.5 million hectares.
- Bangladesh is now largely a rice self-sufficient nation after decades of struggle, overcoming complex constraints related to technology adoption, policy reforms and institutions.
- However, the relative role of agriculture and rice is slowly diminishing over time.



# Structure of Bangladesh Rice Sector

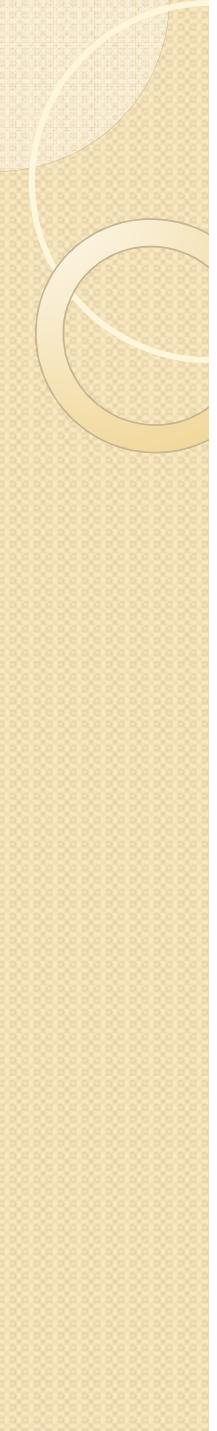
- Rice production in Bangladesh is ubiquitous and rice area has remained basically unchanged over the last three decades, although production seasonality has altered greatly.
- Until 1980s, rice was dominated by *Aman* production. The introduction of irrigation made it possible to grow rice extensively in the *Boro* season. Area cultivated at present is Aus : Aman : Boro is roughly 10 : 45 : 45.
- Cultivated in small, family farms as the main food crop.
- Landownership is unequal as is the access to food directly from own production.
- Trade has led to two distinct market circuits – a small, local one that caters to local demand and tastes and a long-distance, urban oriented one that caters to urban demand and tastes.
- Huge expansion of milling capacity with the advent of large scale, fully automatic mills since the late 1990s.

# Structure of Bangladesh Rice Sector

- Trends in rice cultivation, yield and price

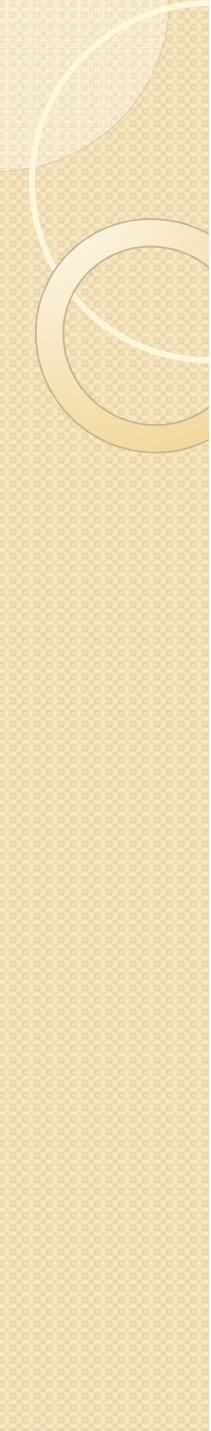
| Crops | Area  | Yield | Price |
|-------|-------|-------|-------|
| Aus   | -3.92 | 1.86  | -0.43 |
| Aman  | -0.11 | 1.83  | -0.07 |
| Boro  | 4.79  | 1.72  | -0.22 |

- Aus: positive growth in yield could not arrest negative growth area, and price leaving the implied revenue growth at -2.49 percent
- Aman: Witnessed secular growth in yield due to gradual expansion of the HYV throughout the period.
- Boro: With spectacular growth in area, steady growth in yield arrested negative growth in real prices.



# Institutional and Policy Environment

- State intervention in production, trade, distribution, stocks, food relief, rationing systems, provision of a minimum price for growers, procurement operations by the PFDS to meet the complex objectives.
- Major reforms took place in the 1990s for both input and output markets.
  - The private sector was allowed to import food.
  - Duties on imported agricultural equipment were drastically reduced to allow easier access to irrigation pumps and power tillers.
  - Massive ration system was dismantled. PFDS now is largely safety-net oriented but maintains a large reserve of public food stocks as a means to enable open market sales if needed.
- Promotion of the Green Revolution technology since the 1970s through provision of irrigation, subsidized inputs and credit and creation of irrigation water-user groups.



# Rice Prices and their Relationship to Local Growth and Development

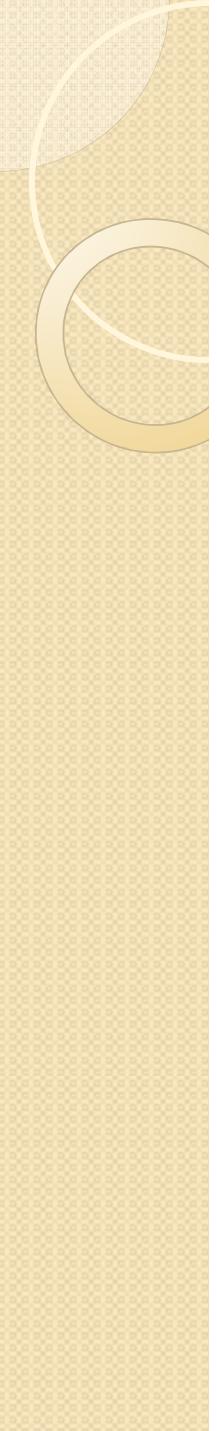
- **Integration of Domestic Rice Markets**
- Spatial rice markets are well integrated as the elasticity coefficients across markets are close to unity. Between 25 to 60 percent of the disequilibrium is corrected within a month by the coarse rice price.
- Implications: open market interventions would be effective in stabilizing market prices.
- **Trends and Impact of Global Rice Prices**
- Dhaka market is well integrated with that of Indian and Thai rice markets but not Vietnamese.
- This may encourage policy makers to increase reliance on the world rice market through open trade.
- However, international rice prices have been prone to large swings and volatility. CV of rice prices and GARCH results.

# Rice Prices and their Relationship to Local Growth and Development

- CV of Rice Prices in National and International Markets

| Period | Bangladesh Wholesale (Dhaka) | Indian Wholesale (Delhi) | Thai 5% Broken | Vietnamese 5% Broken |
|--------|------------------------------|--------------------------|----------------|----------------------|
| 87-90  | 0.0831                       | 0.0660                   | 0.1031         | -                    |
| 91-95  | 0.1411                       | 0.0805                   | 0.1709         | -                    |
| 96-00  | 0.1408                       | 0.0677                   | 0.2170         | -                    |
| 01-05  | 0.0650                       | 0.0839                   | 0.2004         | 0.0845               |
| 06-10  | 0.2265                       | 0.1581                   | 0.2946         | 0.2725               |
| 11-14  | 0.1264                       | -                        | 0.1516         | 0.1352               |

- Volatility results show significant ARCH effect for the wholesale price of rice of India, both ARCH and GARCH effects for the fob price of 5% broken rice of Thailand and Vietnam.
- It, thus, implies that there exists significant instability in international prices of rice.



# Rice Prices and their Relationship to Local Growth and Development

- **Prices, Poverty, Food Security and Growth**
- The impact on growth, poverty reduction and food security has occurred mainly through rice production and yields, in the face of declining terms of trade of agriculture and declining trend in relative price of rice.
- In fact the rice-based Green Revolution was a major breakthrough for the rural economy, creating jobs, employment and demand.
- Economy-wide effects of cheap food also helped in industrialization through low wages, low inflation and a stable macro-economy.
- Food security was achieved nationally through much improved availability of food grains because of rising domestic production and a gradual decline in food aid and cash imports.

# Rice Prices and their Relationship to Local Growth and Development

- Rice Marketing Patterns and Household Welfare**

| Household Category       | PR           | CR           | NBR          | NS          | NP         | NB          |
|--------------------------|--------------|--------------|--------------|-------------|------------|-------------|
| National                 | <b>18.38</b> | <b>17.24</b> | <b>1.14</b>  | <b>24.0</b> | <b>1.4</b> | <b>74.6</b> |
| Rural                    | <b>26.95</b> | <b>19.42</b> | <b>7.52</b>  | <b>32.4</b> | <b>1.9</b> | <b>65.7</b> |
| Urban                    | <b>5.82</b>  | <b>14.04</b> | <b>-8.22</b> | <b>8.9</b>  | <b>0.6</b> | <b>90.5</b> |
| 1 <sup>st</sup> Quartile | <b>14.69</b> | <b>21.63</b> | <b>-6.94</b> | <b>20.1</b> | <b>1.7</b> | <b>78.2</b> |
| 2 <sup>nd</sup> Quartile | <b>16.10</b> | <b>19.97</b> | <b>-3.87</b> | <b>23.4</b> | <b>1.7</b> | <b>74.8</b> |
| 3 <sup>rd</sup> Quartile | <b>19.33</b> | <b>17.73</b> | <b>1.60</b>  | <b>25.9</b> | <b>1.5</b> | <b>72.6</b> |
| 4 <sup>th</sup> Quartile | <b>20.67</b> | <b>13.38</b> | <b>7.28</b>  | <b>26.5</b> | <b>0.7</b> | <b>72.8</b> |

- Rice production is equivalent to 18.38 percent of household income, while the mean budget share of rice is 17.24 percent. The consequent NBR of 1.14 percent implies that a 10 percent increase in farmgate/wholesale and retail rice prices would raise real income by 0.11 percent, on average.

# Rice Prices and their Relationship to Local Growth and Development

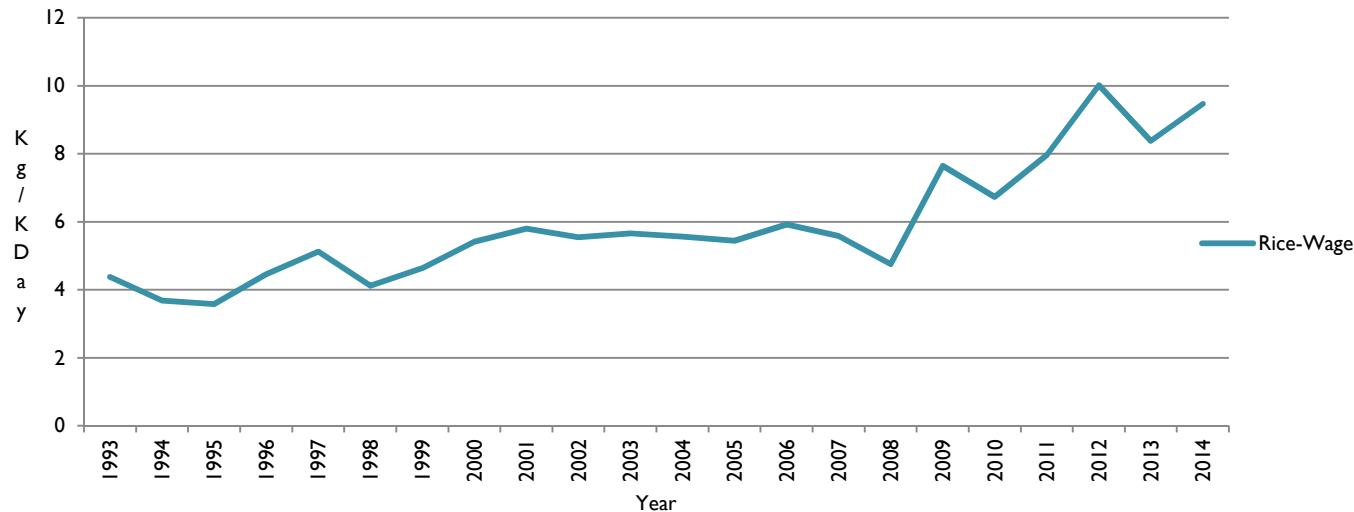
- Rice Prices, Real Income and Poverty**

| Household Category       | Change in Real Income |            | Change in HCR of Poverty |                  |
|--------------------------|-----------------------|------------|--------------------------|------------------|
|                          | Impact                | Short-term | After Impact             | After Short-term |
| National                 | 0.11                  | 0.17       | 31.27                    | 31.23            |
| Rural                    | 0.75                  | 0.82       | 34.53                    | 34.45            |
| Urban                    | -0.82                 | -0.78      | 21.81                    | 21.75            |
| 1 <sup>st</sup> Quartile | -0.69                 | -0.64      | 100.0                    | 100.0            |
| 2 <sup>nd</sup> Quartile | -0.39                 | -0.33      | 27.21                    | 26.92            |
| 3 <sup>rd</sup> Quartile | 0.16                  | 0.22       | 0.00                     | 0.00             |
| 4 <sup>th</sup> Quartile | 0.73                  | 0.79       | 0.00                     | 0.00             |

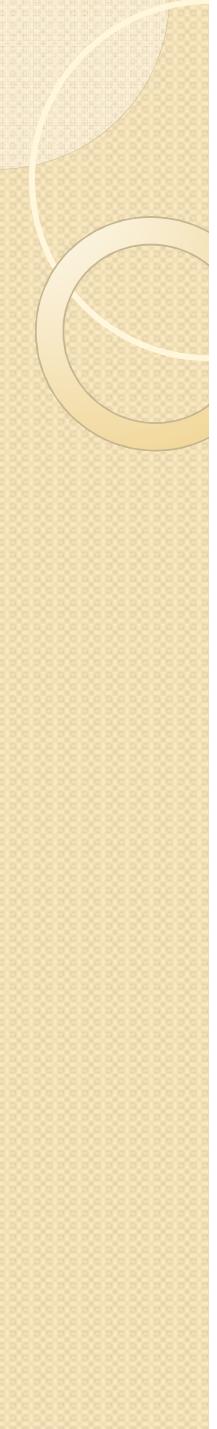
- Thus, average income in Bangladesh would rise by 0.2 percent on average in the long run. Consequently, the poverty rate would fall slightly from 31.5 to 31.23 percent in the long run.
- Even though only one-quarter of households are net sellers of rice, higher rice prices have little effect on the incidence of poverty.

# Rice Prices and their Relationship to Local Growth and Development

- Rice Prices and Rural Agricultural Wages (kg of rice/day)

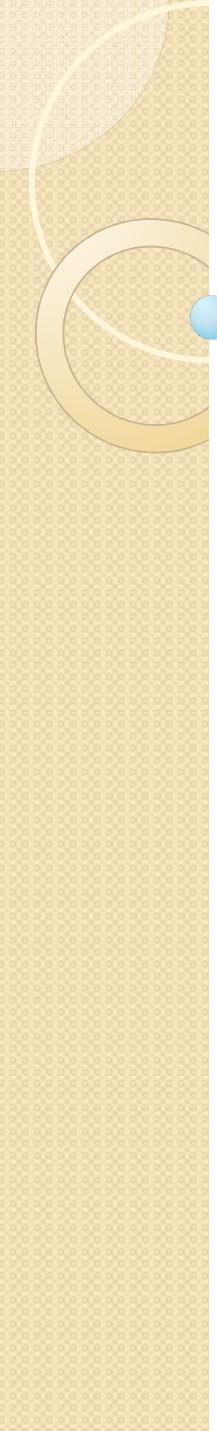


- That the growth of price of rice would hardly affect the poor, especially in the rural area also evident from agricultural wage rate and rice price dynamics over time.
- Cointegration results show that the long elasticity of agricultural wage rate with respect to rice price is 1.89 implying that a 10 percent increase in rice price leads to about 20 percent increase in agricultural wage rate.



# POLICY IMPLICATIONS

- The struggle that Bangladesh had to face in the context of food policy was how to attain self-sufficiency and provide production incentives to farmers while at the same time ensuring that food prices were low and stable.
- The time has now come to assess whether a higher rice price regime may not now be the best option given reduced poverty rates, higher rural incomes, and the pass-through of higher rice prices across the economy, including to the poor.
- A cautious move in this direction is recommended.



**Thank you for your attention!**