

PRICE INFLATION AND ITS ASSOCIATION WITH MACROECONOMIC VARIABLES IN BANGLADESH

Debasish Kumar Das^{*}
Champa Bati Dutta^{**}
Sattiyendra Nath Das^{***}

Abstract: This paper has examined the impact of changes in several major macroeconomic variables and the pattern of price inflation over the time period 1993-2010 in Bangladesh using the subjective judgment, theoretical background and some analytical tools. Using monthly and yearly data from the past two decade, the authors analyze and identify the relative importance of several factors contributing to overall inflation. The main finding is that, in a longer perspective, over three to four years, the main factors that determine domestic food and non-food prices are the exchange rate and international food and goods prices. In the short run, agricultural supply shocks and inflation inertia strongly affect domestic inflation, causing large deviations from long-run price trends. Money supply growth does affect food price inflation in the short run, although the money stock itself does not seem to drive inflation. Result shows that there is a sharp increase in the price inflation after 2005 and it has an important impact on other macro variables. Finally this paper calls for some fiscal and monetary policy options to control the inflation rate of Bangladesh and therefore to stabilize the macro variables.

Key words: Commodity inflation, unemployment rate, budget deficit, monetary and fiscal policy, Philips curve

Introduction : Soaring prices in recent years have caused serious concern around the whole world. During 2004-2010, many commodity prices rose to record levels. As a result, many low-income countries like Bangladesh are still experiencing high inflation, large trade deficits, and an unstable macroeconomic environment. High commodity prices, particularly for food, also have adverse

effects on poverty, above all in countries with large fractions of net food-buyers and urban population groups (Loening et al. 2009).

Several studies have attempted to address the underlying causes of the global price inflation (Braun, 2007; ADB, 2008; FAO and OECD, 2008; Hebling et al., 2008; IMF, 2008d and Trostle, 2008). Although there is dispute about their relative importance, the major causes are identified as: rapidly rising demand in emerging economies, poor harvests in some major commodity producing countries, increases in the costs of production due to higher fuel and fertilizer prices, higher transportation costs; and diversion of food crops to production of biofuels, and the introduction of policies to restrict food exports by some countries. Mitchell (2008) argues that one of the most important factors is the large increase in biofuels production in the United States and the European Union. Others claim that the most important factor is expansionary monetary policy in key industrial countries, which led to low interest rates and a sharp fall in the value of the US dollar (Frankel, 2006; Krichene, 2008).

We know less about how world prices are affecting domestic food prices in individual developing countries, particularly in Bangladesh. However, from the national view point, the general price level of Bangladesh is escalating day by day. Price inflation severely stresses the most vulnerable groups. High and rising prices of food, non-food and general commodities are threatening to reverse the gains in poverty reduction in Bangladesh and undermining the global fight against poverty. If high prices persist, the Millennium Development Goal of halving poverty by 2015 could be jeopardized. The price fluctuation of goods and commodities has an intensive impact on rate of interest, aggregate savings, investment, unemployment, real income, export, import, trade balance, budget deficit, and balance of payment and so on. As a result, rising rate of inflation has become a serious concern in Bangladesh in recent years. The impact of rising inflation rate is being felt almost everywhere. The prices of essential commodities have gone up, and so is the cost of living. Country's vast multitude of poor and unemployed people is having a difficult time to survive. According to the estimates by the BBS (2009), the inflation rate, on a point-to-point basis, in June stood at a 10 year high of 9.20 per cent. The corresponding food inflation rate was 9.82 per cent, and BBS (2009) reported that inflation on a point-to-point basis in urban areas was 10.71 per cent. It is feared to go up even further coming days due to

^{*} Studying MSc in Economics, Department of Economics, University of Bonn, Germany.

^{**} Studying MSS in Economics, Economics Discipline, Khulna University, Bangladesh.

^{***} Senior officer, The Premier Bank Ltd, Savar, Dhaka.

commodity market instability. This paper aims to show how price volatility affects on the macro variables of the economy of Bangladesh and what is the association among the price instability and those variables.

Data and Estimation Methodology

The data used in this research have been obtained from various sources. The authors collect data on inflation rate, aggregate savings, investment, trade deficit and budget deficit from the various issues of Bangladesh Economic Review which is published by MOF (Ministry of Finance) of Bangladesh Government. Data on unemployment rate are obtained from the various issues of Bangladesh Statistical Yearbook and Labor Force Survey (LFS) of BBS (Bangladesh Bureau of Statistics). Authors have collected data on interest rate from WDI (World Development Indicator) CD ROM-2008 published by World Bank. Data on different commodity price collects from FAO (Food and Agricultural Organization) database and reports. The sample period for the data spans from 1992-93 to 2009-2010. The choice of the sample period is dictated by the availability of some of the data series. The operational definition of the variables considered is summarized in table 1.

Table 1: Considering macroeconomic variables

Variable	Operational Definition	Unit of measurement
Inflation rate	Proportional changes over time in price level measured by Consumer Price Index (CPI).	Percent
Unemployment rate	The number of unemployed as a percentage of the number of people aged 15+ engaged in labor market.	Percent
Interest Rate	The interest which is paid for a 1 period loan as a percentage of the principal	Percent
Aggregate Saving	Summation of savings made by all citizen of a country in a specific time period measured as percent of GDP	Percent
Investment	Aggregate level of public and private investment measured as a percent of GDP.	Percent
Trade Deficit	Difference between country's export earnings and import expenditure measured as percent of GDP	Percent
Budget Deficit	Excess of government's expenditure over its income measured as percent of GDP	Percent
Food Price Index	Consists of the average of 6 commodity group price indices mentioned above weighted with the average export shares of each of the groups for 2002-2004; in total 55 commodity quotations considered by FAO commodity specialists as representing the international prices of the food commodities noted are included in the overall index.	Index value

The research mainly examines the association between variables. As a descriptive tool the authors have used the tabulation and graphical method to present the estimated result. On the other hand, the study employs the correlation analysis as statistical analytical tools to show the linear association and its degree between variable(s). The authors have used Microsoft Excel for transformation of data and graphical presentation of results. The Statistical Package for Social Science (SPSS) has helped to compute the correlation analysis.

Macroeconomic Association between Variables

The information related to macro variables of Bangladesh are consistently listed in the table for the analysis of impact of price volatility.

Table 2: Macro variables of Bangladesh Economy

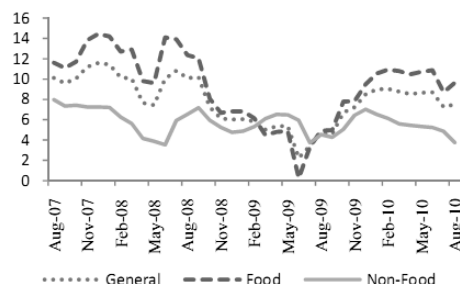
Year	Inflation Rate (Percent)	Unemployment (Percent of Labor Force)	Aggregate Savings (as percent of GDP)	Interest Rate (Percent)	Total Investment (as percent of GDP)	Budget Deficit (as percent of GDP)	Trade Deficit (as percent of GDP)
1992-93	2.7	2.58	18.0	15	17.9	-1.3	-5.3
1993-94	3.3	1.8	18.8	10	18.4	-3.7	-4.9
1994-95	8.9	2.58	19.1	6	19.1	-2.2	-6.2
1995-96	6.7	2.57	20.0	9	20.0	-3.0	-7.5
1996-97	3.96	2.58	20.7	11	20.7	-2.0	-6.5
1997-98	8.66	2.58	21.8	8	21.6	-2.1	-5.4
1998-99	7.06	2.58	22.3	9	22.2	-3.2	-5.9
1999-00	2.79	4.3	23.0	13	23.0	-4.5	-5.6
2000-01	1.94	2.58	23.1	14	23.1	-4.1	-6.1
2001-02	2.79	2.58	23.4	12	23.1	-3.7	-5.4
2002-03	4.38	4.3	24.9	11	23.4	-3.4	-4.3
2003-04	5.83	2.58	25.4	10	24.0	-3.4	-4.1
2004-05	6.48	2.58	25.8	8	24.5	-3.7	-7.5
2005-06	7.17	4.2	27.7	10	24.7	-3.3	-4.6
2006-07	7.22	2.50	28.7	10	24.5	-3.3	-5.1
2007-08	9.93	2.50	30.2		24.2	-5.4	-7.0
2008-09	6.66	2.58	29.6		24.4	-3.3	5.3
2009-10	6.89	2.58	29.7		24.3	-4.0	3.9

[Source: MOF, 2004 and 2010; BBS, 2010 and WDI CD ROM, 2008]

Rising Trend of Inflation

The point-to-point (p-t-p) variation in the national inflation rate during the last one year, varied between 4.6 and 9.1 percent. I came down from 8.7 percent in June to 7.26 percent in July and then went up to 7.61 in September 2010. The dominance of food inflation is still substantial in the overall inflation, 9.72 percent. This is mainly due to the high price of rice in the domestic market.

Figure 1: Inflation (percent, Year on Year).



[Source: BBS, 2010]

Inflation rose from 6.7 percent in FY (Fiscal Year) 2008-09 to 7.3 percent in FY2009-10, overshooting the target by 0.8 percentage point (Figure 1). After a respite of about twelve months, inflation began to rise from October 2009. In fact, inflation (y-o-y) rose every month (except March and April 2010) and reached 8.7 percent in June 2010 (See Annex I for details). Inflation remained somewhat volatile at around 7.5 percent in July-August 2010, due to continued volatility in food inflation.

The high rate of inflation in the second half of FY2009-10 was driven by increases in food inflation from 0.3 percent in June 2009 to 10.9 percent in June 2010. Rural food inflation stood at 10.4 percent while urban food inflation reached 12 percent in June. The food price index was driven, in turn, by rise in prices of rice that account for 23.8 percent weight in rural CPI and 11.3 percent weight in urban CPI. Rice alone contributed 5.3 percentage point to rural inflation and 2.7 percentage point to urban inflation in June 2010. The price of coarse rice in Dhaka in September 2010 was 50 percent higher relative to September 2009. Meanwhile, non-food inflation has been declining recently. After increasing from 3.7 percent in July 2009 to 7.0 percent in December 2009, non-food inflation gradually dropped to

5.2 percent in June 2010. The rural non-food inflation stood at 5.6 percent while urban non-food inflation reached 4.4 percent in June. Overall inflation in Bangladesh tends to follow global trends moderated by the domestic supply situation. Bumper food production coupled with falling global prices led to a decline in inflation in Bangladesh from September 2008, when the twelve-month moving average inflation rate reached as high as 10.1 percent and food and non-food inflation rates were 12.6 percent and 6 percent respectively. After a respite of about one year, inflation began rising from October 2009, driven mainly by the rise in food inflation. Inflation peaked at 9 percent in January-February 2010 and then declined erratically to 7.5 percent in August 2010.

Retail prices for main staple food commodities in Bangladesh

In Bangladesh, some of the essential food commodities are rice, wheat flour, edible oil and lentil among which rice is the staple. Figure 2 shows the retail price of coarse rice has increased significantly during the Aug-Oct 2010 quarter compared to the last quarter, same quarter of last year, of 2007 and of three years average (2004-2006). The prices of other food commodities have also increased compared to last year except lentil whose price has reduced by 17 percent. While comparing with 2008, the year of food price hike, the prices of wheat flour and lentil have decreased by 26 percent and 22 percent respectively where prices of rice and oil didn't change.

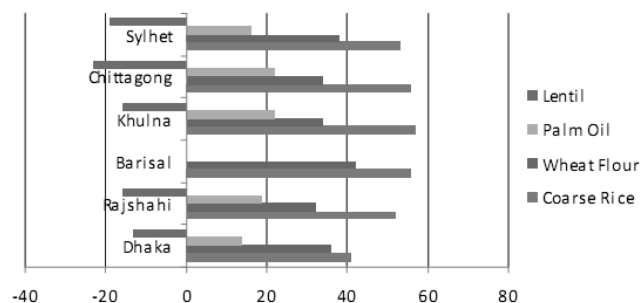
In October 2010, retail market price of coarse rice in Dhaka city was 33 Tk/kg which was 23 Tk/kg last year. For wheat flour, oil and lentil, the 2010 October prices were 34, 78 and 99 Tk/kg and 2009 prices were 22, 59 and 97 Tk/kg respectively.

When comparing this year's division wise data with last year (Aug-Oct), prices of four food items varied. The maximum increase was marked in the price of rice in Khulna division (57 percent) in contrast with Dhaka division where there was a moderate change (41 percent).

The price of wheat flour also increased significantly in all divisions, showing a peak in Barisal (42 percent) while the price of palm oil has increased most in Khulna and Chittagong divisions by 22 percent with the exception in Barisal division where it didn't change. The lentil price went down in all the divisions, with Bangladesh Food Security Monitoring Bulletin, Issue No. 2, Aug-Oct 2010 a higher extent in Chittagong where it decreased by 23 percent. In October this year, retail price of coarse rice in the main cities of Dhaka,

Rajshahi, Barisal, Khulna, Chittagong and Sylhet divisions were 33, 33, 36, 33, 30 and 32 Tk/kg respectively.

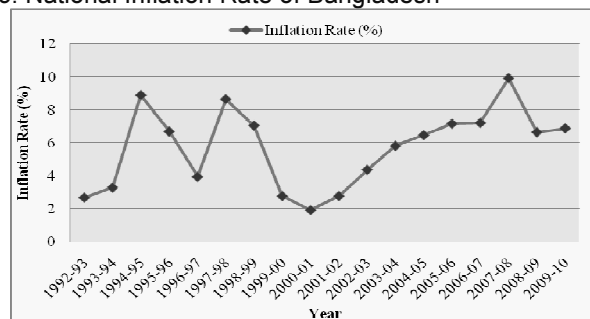
Figure 2: Commodity price inflation in different cities of Bangladesh.



[Source: Department of Agricultural Marketing (DAM), Ministry of Agriculture, 2010]
In addition, figure 3 represents 12-month average CPI inflation stood 6.89 percent in June 2010, which is slightly higher than 6.66 percent in June 2009. Careful look on the recent movements in the inflation suggests an upward inflationary pressure during the period FY 1992-92 to FY 1998-99. The inflation rate became considerably low in FY 2000-01, persists some short period and then again follows an upward trend and sustain onwards.

It has occurred due to the external pressure on prices, various supply shocks in economy and demand side inflationary expectations in the domestic economy. In a rapidly globalizing world, it would be important for the policy makers to monitor future development of food prices in major trading partners for moderating the external pressure.

Figure 3: National Inflation Rate of Bangladesh

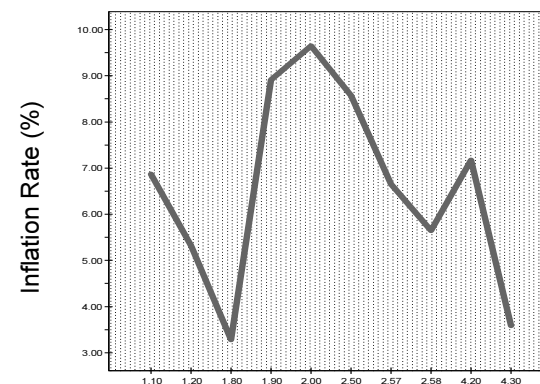


[Source: MOF, 2004 and 2010]

Inflation and Unemployment

Figure 4 shows the Phillips curve for Bangladesh. The data are annual from 1987 to 2009. The inflation rate (on the vertical axis) is the annual growth rate in the consumer price index and unemployment rate (on the horizontal axis) is the annual percentage of unemployed people of total labor force.

Figure 4: Inflation and unemployment rate of Bangladesh, 1987-2009



[Source: Author's calculation]

Unemployment Rate (%)

The curve in the figure shows the inverse relationship between inflation and unemployment rate of Bangladesh. It is the well known Phillips curve derived from the Bangladesh economy for 23 years. The Phillips curve of Bangladesh is clearly characterized by inverse relationship between inflation and unemployment rate. The expected inflation and one year lagged inflation is positively correlated with actual inflation. The unemployment rate and the unemployment gap is associated negatively with the inflation rate. The supply shock variable i.e. change in international oil price is shows the positive functional relationship meaning that the high international price level caused the inflation rate to escalate. On the other hand change in nominal exchange rate impinges on the inflation in the manner of negative functional relationship. Result suggests that the supply factors like change in international price of crude oil and change in nominal exchange rate are playing role to determine inflation rate. Moreover, authors find that oil shock is positively related to the inflation rate of Bangladesh. But, the domestic oil price do not moves in the line with the international oil price. It is probably because of the

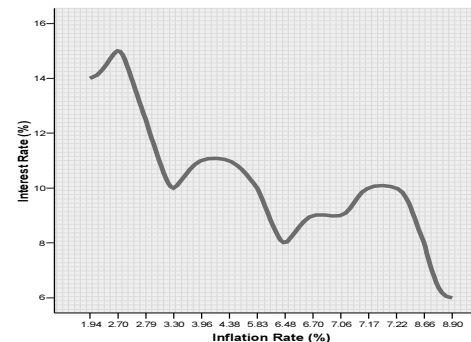
reason that the authors do not find the international price change to statistically influence inflation. However, the inclusion of change in nominal exchange rate has a small effect on inflation rate of Bangladesh as the estimated coefficient is not statistically significant. Although the subject matter of Phillips curve matches with Bangladesh economy, but there is some difference in the degree of relationship. Accordingly, the curve is not likely the smooth Phillips curve originated by Phillips. The figure clearly shows that latter part of curve is closely related to the Phillips curve. This is because the Phillips curve proposition is mainly concerned with the developed economy. But having the developing economic characteristics, it also supports the premise of Phillips curve. However, considering various econometric tests the effect of unemployment rate, unemployment gap and supply shock is not statistically significant for Bangladesh. But the direction and trend of relationship between variables is harmonious with the main theme of Phillips curve, the only difference lies in the degree or severity of relation.

Volatile Price Inflation and Fluctuation in Interest Rate

There is an inverse relationship between inflation and the interest rate. When there is rising trend in inflation the amount of investment in the economy will fall. This situation creates fall in rate of interest. The monetary policy, announced by the Bangladesh Bank (BB) in July 2010 is accommodative (figure 5), but promises to be watchful of inflation. This stance gives weight to the downside risks to growth stemming from uncertainties of global demand recovery. The Monetary Policy Statement commits to support growth and promote the inclusion of agriculture, SMEs, renewable energy, and an ecological bias in technology sectors – while being wary of the risk that such support could leak into financing consumption and speculative investments. Earlier, the BB increased the CRR from 5 percent to 5.5 percent and widened the open exchange positions of banks to restrain the expansion of the monetary base. Later, the BB increased the repo rate from 4.5 percent to 5.5 percent and reverse repo rate from 2.5 percent to 3.5 percent. It should be prepared to take more of such action if inflationary pressures increase. A critical assumption underlying the Monetary Policy Statement is that the liquidity overhang resulting from unsterilized interventions in the foreign exchange market is nearing its end because of slowing remittance growth and a large pick-up in imports due to increased investment and capacity utilization. If the BOP surplus does not shrink nearly as much, the challenge for monetary policy will be to

make adjustments in the growth of net domestic assets, since it will endeavor to maintain the competitiveness of the exchange rate and hence continue to accumulate net foreign assets.

Figure 5: Relationship between Price Inflation and Interest Rate



[Source: Bangladesh Bank, 2010]

Figure 5 demonstrate the inverse relationship between inflation rate and interest rate in the context of Bangladesh economy. It is shown that from FY 1992-93 to FY 2002-03 the response (Elasticity) of interest rate and for inflation is relatively low in Bangladesh. On the other hand, from FY 2003-04 to 2009-10 the response is relatively high.

Inflation and Budget deficit

For a long time, economists and policymakers have worried about the relationship between government budget deficits and inflation. These worries stem from the possibility that the government will finance its deficits by borrowing or by printing money. Should deficit spending and a large public debt be worrisome for monetary policymakers who are concerned about the economy's level of inflation? Do government budget deficits lead to higher inflation? When looking at data across countries, the answer is: it depends. An extensive literature has examined the relationship between the budget deficit and inflation.

The fiscal deficit in FY2009-10 is estimated to have been the same as last year (4 percent of GDP – Figure 6). The revenue-to-GDP ratio has increased from 10.5 percent in FY2008-09 to 11.7 percent in FY2009-10 and the tax/GDP ratio has increased from 8.6 percent to 9.4 percent. The increased tax revenue was driven by higher-than-targeted growth in domestic VAT and income tax collections. Meanwhile, the expenditures-to-GDP ratio also rose, from 14.5

percent in FY2008-09 to 15.6 percent in FY2009-10. Although domestic financing in FY209-10 was one percentage point below the original budget target of 3 percent of GDP, the composition shifted towards more expensive sources. Government borrowing through the expensive savings instruments more than tripled, from Tk.36.3 billion (net) in FY208-09 to Tk.115.9 billion in FY2009-10.

Figure 6: Government revenue and expenditure

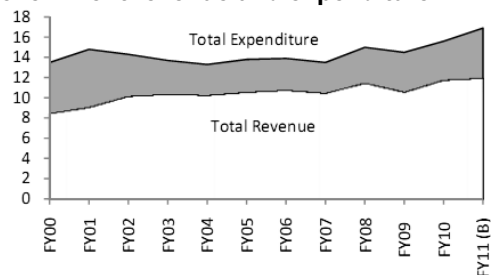
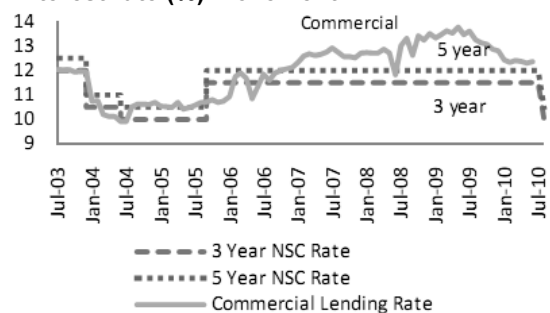


Figure 7: Interest rate (%) movement

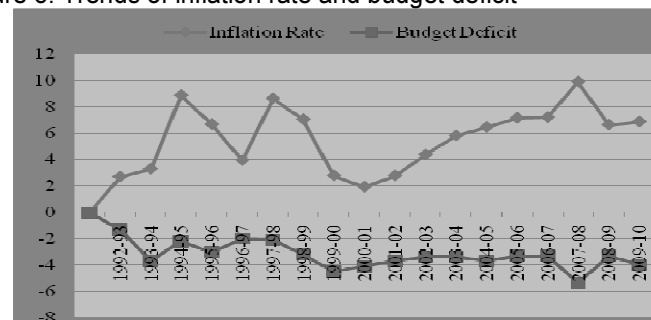


(% of GDP) [Source: MOF, 2010] [Source: Bangladesh Bank, 2010]

As a result, the stock of National Savings Directorate (NSD) debt outstanding increased from 8.1 percent of GDP at the end of FY2008-2009 to 8.9 percent at the end of FY2009-10. The effective interest rate on domestic debt increased from 8.7 percent in FY208-09 to 9.4 percent in FY2009-10. The government has cut interest rates on savings certificates by 1.5 percentage points to 2.0 percentage points with effect from July 1, 2010 (Figure 7). The highest interest rate is reduced from 12.5 percent to 11 percent. The lowest rates will apply on fresh issues and renewals of saving certificates. The interest rates are reset to align with the market,

where interest rates offered to savers are much lower. This difference led to the large increase in net sales of NSD certificates in FY2009-10.

Figure 8: Trends of inflation rate and budget deficit



[Source: MOF, 2010]

The association between inflation rate and budget deficit in Bangladesh from FY1992-93 to FY2009-10 is portrayed graphically by the Figure 8. Although, this figure does not reveal any conclusive result regarding the association between these two variables. Rather the key to understanding the relationship between government budget deficits and inflation is the recognition that government deficit spending is linked to the quantity of money circulating in the economy through the government budget constraint, which is the relationship between resources and spending. At its most basic level, the budget constraint shows that money spent has to come from somewhere: in the case of local and national governments, from taxes or borrowing. But national governments can also use monetary policy to help finance the government's deficit.

The FY2010-11 budget is moderately expansionary. The overall budget deficit is projected to rise to 5 percent of GDP. The rise in the deficit is projected to be financed entirely through an increase in domestic borrowing leading to a rise in domestic financing from 2 percent of GDP in FY2009-10 to 3.0 percent in FY2010-11, while net external financing would remain unchanged at 2 percent of GDP.

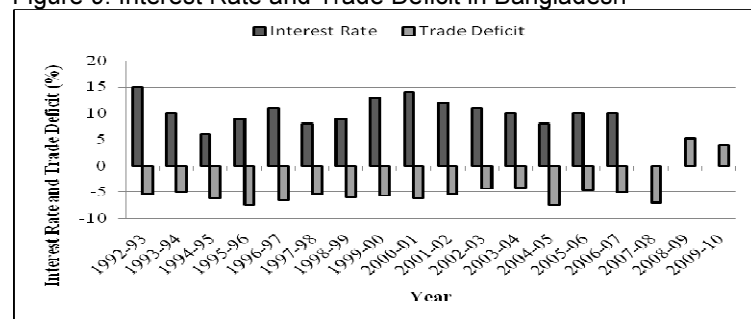
Interest rate and Trade Deficit

From the Figure 9, we can presume that, the correlation between interest rate and trade deficit is positive. Because, when the price level or inflation in Bangladesh is on the trend rise, the cost of purchasing raw materials is growing highly. So, the production cost

risers also. This rise of cost of production has an impact on price of those products. So, the exporter will less interest to purchase our product and they will find new markets in other countries. Ultimately, our export declines. This creates a large gap between export and import. So the volume of trade deficit is also growing.

Similarly, export growth is projected to decelerate, to 14.0% and 13.0% over these two years FY2008-09 and FY 2009-10. However, recent data shows other is likely to be turn around of the export. Import payments during the first half of FY2008-09 rose by 23.2% relative to the same period of FY2007-08. However, the opening of import letters of credit—a leading Indicator for annual imports declined by 2.2% in the first 7% months of FY2008-09, mainly because of the difficulties for international negotiating banks in supporting import activities in the face of liquidity shortages. With a further fall in international commodity prices, growth in import payments is expected to moderate and settle at 18.0% in FY2008-09 and 17.0% in FY2009-10.

Figure 9: Interest Rate and Trade Deficit in Bangladesh



[Source: Bangladesh Bank, 2010 and BBS, 2010]

The nominal exchange rate has been stable, but competitiveness of exports may be at risk. The BB has regularly intervened in the foreign exchange market to maintain the competitiveness of the exchange rate, curbing tendencies for excessive volatility. The nominal exchange rate was stable throughout the year and the period average interbank exchange rate depreciated slightly by 0.6 percent, from Tk.68.8/USD in FY09 to Tk 69.2/USD in FY2009-10. The BB purchased US\$1.94 billion in FY2009-10 to prevent a nominal appreciation of the taka. However, Bangladesh's relatively high inflation compared with its trading partners and the BB's de facto policy of pegging the exchange rate to the US\$ has contributed to an appreciation of the taka in real effective terms (Figure 5).

Emerging wage pressures in the economy are likely to exacerbate the real appreciation of the taka, and further undermine the competitiveness of Bangladesh's exports, if gains in labor productivity do not exceed the real effective exchange rate appreciation.

Policy response from Bangladesh Government regarding price inflation

Both in developed and developing economies, monetary and fiscal policy seeks to maintain price stability accompanied by sustained stable output growth in the face of internal and external shocks that are faced from time to time. For developing economies like Bangladesh with significant underemployment/under exploitation of production factors, stimulating higher growth is imperative for rapid reduction and eventual elimination of endemic poverty, and is therefore an overriding priority. The stimulus provided by monetary and fiscal policy in accommodating the growth aspirations must not however jeopardize macroeconomic stability and future growth; and the pursuit of monetary policy comprises of various supportive measures to attain the highest sustainable output growth while adjusting smoothly to internal and external shocks that the economy encounters from time to time.

Domestic agriculture output and world food prices, particularly prices in India, are likely to have a strong bearing on food inflation in the next few months. The Bangladesh Bank has reduced the maximum repayment time of revolving overdraft loans taken against "pledge and hypothecation" for rice procurement from 60 to 45 days for local rice millers and from 45 to 30 days for rice traders, to ensure adequate supply. The government has also decided to import 130,000 tons of rice from Thailand, Pakistan, Vietnam and India to boost official stock. At present, the stock of rice is around 750,000 tons.

The government is also planning to stop the "delivery order" system, as this is partly responsible for raising the price of essential items, and has extended the export ban on both aromatic and non-aromatic rice to December 2010.

The government has also taken several measures to tackle the price hike. These include active participation in the food-grain market, expanded operations of the existing safety net programs, and provision of incentives for increasing rice production. It also imports wheat and rice from world market to build a stock with which to operate a public food-grain distribution system.

The government has decided to scale up the Public Food Distribution System in FY2010-11, and has made adequate allocation for this in the Budget. In order to increase the stock, the government aims to procure 1.5 million tons of rice from the domestic market and import rice and wheat. The procurement price was fixed at Tk.18/kg for paddy and Tk.28/kg for rice. The government also intends to increase storage capacity for food-grains by 400,000 tons.

The government is providing special support to boost agricultural production. The Bangladesh Bank issued a directive to commercial banks to increase disbursement of agricultural credit, targeting areas affected by the floods and cyclones. The disbursement of agricultural credit increased by 19.7 percent in FY2009-10 compared to FY2008-09. The government also maintained subsidies on chemical fertilizers and diesel for irrigation, despite the increased prices of the inputs in world market.

The Bangladesh Bank has taken several measures to check inflation. It increased the Statutory Liquidity Requirement by a 0.5 percentage point to 18.5 percent from May 15, 2010, and the repo rate from 4.5 percent to 5.5 percent and reverse-repo rate from 2.5 percent to 3.5 percent from August 19 2010. It also instructed banks to channel credit to productive sectors of the market only.

The recent global staple price increases could put further pressure on food prices in Bangladesh in FY2010-11. According to the Food Price Watch (September 2010), since mid-June, global grain prices have been rising with a 56 percent rise in global wheat prices and knock-on impacts on other commodities, such as rice, maize, and sorghum. Given its burden of poverty and malnutrition, food price spikes are of special concern in Bangladesh. A 2008 survey shows that rising food prices have a significant impact on the consumption patterns of the poor. The government's policy response so far has included participation in food grain markets, expanded operations of the existing safety net programs, and incentives for increasing rice production. These measures, together with higher imports to build up stocks for the food grain distribution system, could have fiscal implications beyond the amounts provided in the FY2010-11 budget for public food distribution operations, especially if the situation deteriorates.

Macroeconomic Forecast for Bangladesh

Based on our previous analysis on different macroeconomic variables concerning price inflation, Next year we can expect a good crops production because of government policy towards agriculture. The agricultural sector is likely to see a growth of 5% in FY 2010-11. FY2010-11 will see 6.0% industrial expansion as the slump in external and domestic demand continues but the growth of this slump is declining. Because of turning around activity in the export sector and easing in consumer spending induced by moderation incomes and remittance growth led to the growth of the economy. Similarly other sectors will grow with a decline in inflation during the government policies towards the economy as the table given below.

Table 3: Forecast

FY/ Indicators	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
GDP	6.7	7.2	7.4	7.8	7.8
Inflation	6.5	6.5	6.2	6.1	6.1
Total investment (%GDP)	26.5	28.4	30.0	31.6	32.0
Export	15.0	16.0	16.5	7.0	17.2
Import	16.0	17.5	20.8	25.5	31.4
Remittance	14.0	17.1	20.8	25.5	31.4
Foreign Exchange Reserve	11.0	12.0	12.5	13.0	14.5

*values are defined as percent (%)

[Source: Authors calculation]

Forecast Risk

Several risks to the economic outlook could materialize from the global economic slowdown. Revenue collections may come under further pressure if economic activity declines more than expected, which would constrain the Government's ability to spend on essential infrastructure and social sector programs. There is a risk of budget revenue shortfall. Other risks are lack of supply response by the farmers. Another risk is that the Government officers may not put in intense effort to the distribution of the agricultural inputs: Fertilizer, Seed. Irrigation The other risk is higher than expected shortage in electricity power and gas. Implementation of power projects may be delayed affecting growth of the economy. The risks of political disruption and natural disaster are going to adversely affect investment and growth.

Conclusion

There are number of factors behind the rising trend of inflation in Bangladesh. Soaring food prices have hit the poor hard. Along with

record-high energy prices, these have seriously eroded the purchasing power of over-seventy million poor in Bangladesh, increasing their food deprivation. These are threatening to undermine the global fight against poverty. These have also stoked inflation and squeezed the fiscal space in many sectors, increasing the risks of higher interest rates and a slowdown in economic growth across the country. The downside risks to macroeconomic stability have increased in a region otherwise characterized by prudent macroeconomic management for nearly a decade. The price volatility calls for immediate response of governments and the international community. Bangladesh Government is closely monitoring the situation. It is working closely with its development partners to do what it can to respond to the crisis.

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Appendix

Table A1: Inflation and lagged inflation of Bangladesh

Year	Inflation, consumer prices (%) (π)	Lagged Inflation (%) (π_{t-1})
1986-1987	9.65	10.54
1987-1988	6.87	9.65
1988-1989	5.32	6.87
1989-1990	7.16	5.32
1990-1991	8.91	7.16
1991-1992	4.56	8.91
1992-1993	2.74	4.56
1993-1994	3.28	2.74
1994-1995	8.87	3.28
1995-1996	6.65	8.87
1996-1997	3.96	6.65
1997-1998	8.66	3.96
1998-1999	7.06	8.66
1999-2000	2.79	7.06
2000-2001	1.94	2.79
2001-2002	2.97	1.94
2002-2003	4.38	2.97
2003-2004	5.83	4.38
2004-2005	6.48	5.83
2005-2006	7.17	6.48
2006-2007	7.22	7.17
2007-2008	9.93	7.22
2008-2009	7.49	9.93

Note: Base year is 1985-1986 for data upto 1995-1996 and base year is 1995-1996 for data from 1996-1997.

[Source: Bangladesh Economic Review 1999, 2000, 2001, 2004, 2006, 2009]

Table A2: Monthly Rice and Wheat price in Bangladesh

Year (month)	Bangladesh, National Average, Rice (coarse), Retail, Taka, Kg	Bangladesh, National Average, Wheat, Retail, Taka, Kg	Year (month)	Bangladesh, National Average, Rice (coarse), Retail, Taka, Kg	Bangladesh, National Average, Wheat, Retail, Taka, Kg
2005 Jul	15.54a	13.41	2007-Aug	21.53	23.7
2005 Aug	16.27	13.53	2007-Sep	21.75	24.1
2005 Sep	16.21	13.63	2007-Oct	22.04	24.94
2005 Oct	15.97	13.88	2007-Nov	23.49	28.24
2005 Nov	15.59	14.33	2007-Dec	24.55	28.8
2005 Dec	16.16	14.33	2008-Jan	28.74	30.56
2006-Jan	16.23	14.37	2008-Feb	28.51	30.93
2006-Feb	16.51	14.46	2008-Mar	29.93	31.44
2006-Mar	16.56	14.56	2008-Apr	32.09	30.62
2006-Apr	16.62	14.63	2008-May	29.52	30.11
2006-May	16.36	14.83	2008-Jun	29.91	29.83
2006-Jun	16.29	14.85	2008-Jul	32.06	30.75
2006-Jul	16.62	14.96	2008-Aug	31.94	31.13
2006-Aug	16.36	15.08	2008-Sep	30.73	30.56
2006-Sep	16.23	15.41	2008-Oct	30	29.07
2006-Oct	16.17	15.78	2008-Nov	27.8	26.3
2006-Nov	16.64	16.18	2008-Dec	26.29	21.2
2006-Dec	16.7	17.27	2009-Jan	24.79	17.97
2007-Jan	16.86	18	2009-Feb	23.36	16.74
2007-Feb	18.07	18.65	2009-Mar	21.48	16.27

Year (month)	Bangladesh, National Average, Rice (coarse), Retail, Taka, Kg	Bangladesh, National Average, Wheat, Retail, Taka, Kg	Year (month)	Bangladesh, National Average, Rice (coarse), Retail, Taka, Kg	Bangladesh, National Average, Wheat, Retail, Taka, Kg
2007-Mar	19.3	19.13	2009-Apr	19.18	15.03
2007-Apr	19.95	19.55	2009-May	19.25	15
2007-May	20.14	19.8	2010-Feb	26.21	17.81
2007-Jun	19.6	19.87	2010-Mar	26.04	17.34
2007-Jul	19.96	20.71	2010-Apr	25.79	17.01
2009-Sep	19.23	15.29	2010-May	25.78	17.29
2009-Oct	20.66	16.02	2010-Jun	26.56	17.1
2009-Nov	20.69	16.07	2010-Jul	28.15	17.1
2009-Dec	22.39	16.52	2010-Aug	28.95	17.74
2009-Jan	19.25	15.12	2010-Sep	31.36	22.37
2009-Jul	19.13	15.17	2010-Oct	31.57	23.17
2009-Aug	19.06	15.25	2010-Nov	30.9	23.22
2010-Jan	24.71	17.6	2010-Dec	31.34	23.61

Source: Management Information System and Monitoring, FAO database

Table A3: Unemployment rate and unemployment gap of Bangladesh

Year	Unemployment rate (Interpolated) (%)	Unemployment gap (%)
1986-1987	2	-2.00
1987-1988	1.1	-2.90
1988-1989	1.2	-2.80
1989-1990	2.58	-1.42
1990-1991	1.9	-2.10
1991-1992	2.58	-1.42
1992-1993	2.58	-1.42
1993-1994	1.8	-2.20
1994-1995	2.58	-1.42
1995-1996	2.57	-1.43
1996-1997	2.58	-1.42
1997-1998	2.58	-1.42
1998-1999	2.58	-1.42
1999-2000	4.3	.30
2000-2001	2.58	-1.42
2001-2002	2.58	-1.42
2002-2003	4.3	.30
2003-2004	2.58	-1.42
2004-2005	2.58	-1.42
2005-2006	4.2	.20
2006-2007	2.50	-1.50
2007-2008	2.50	-1.50
2008-2009	2.58	-1.42

Note: The unemployment data of the years 1989-1990, 1991-1992, 1992-1993, 1994-1995, 1996-1997, 1997-1998, 1998-1999, 2000-2001, 2001-2002, 2003-2004, 2004-2005, 2008-2009 are the result of linear interpolation by using SPSS 15. Unemployment gap is calculated by subtracting NRU (assumed 4 percent by economists) from unemployment rate.

[Source: Labor Force Survey, Various Years]