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Inflation in Bangladesh: Supply Side Perspectives

Md. Alauddin Majumder

Policy Analysis Unit
Research Department
Bangladesh Bank

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Md. Alauddin Majumder[1]

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Abstract

This policy note is an exploratory attempt to verify the popular argument that cost side factors are no less contributory than demand side factors in stimulating inflation in the Bangladesh economy. There is historical and contemporary evidence in favour of this argument. An analysis of the inflation trend of recent years is suggestive of significant mutual relationship between consumer price inflation and supply side phenomena such as import cost, oil price hike, exchange rate and production shocks. Wage inflation, however, has been found to be weakly related to inflation. The findings of the study should prompt policy makers to take supply side issues into account while taking steps to contain harmful inflation so that possible mistreatment can be avoided.

[1] The author is a Research Economist, Policy Analysis Unit, Research Department, Bangladesh Bank. He is highly indebted to Professor Dr. Syed Mainul Ahsan for his extensive guidance and instructions. He also would like to give thanks to Dr. Md. Akhtaruzzaman, Dr. Md. Habibur Rahman and Dr. Sayera Younus, Senior Research Economists, PAU for their generous cooperation. The views expressed in this Note, however, are of author's own and do not necessarily reflect the views of the Bank.

Inflation in Bangladesh: Supply Side Perspectives

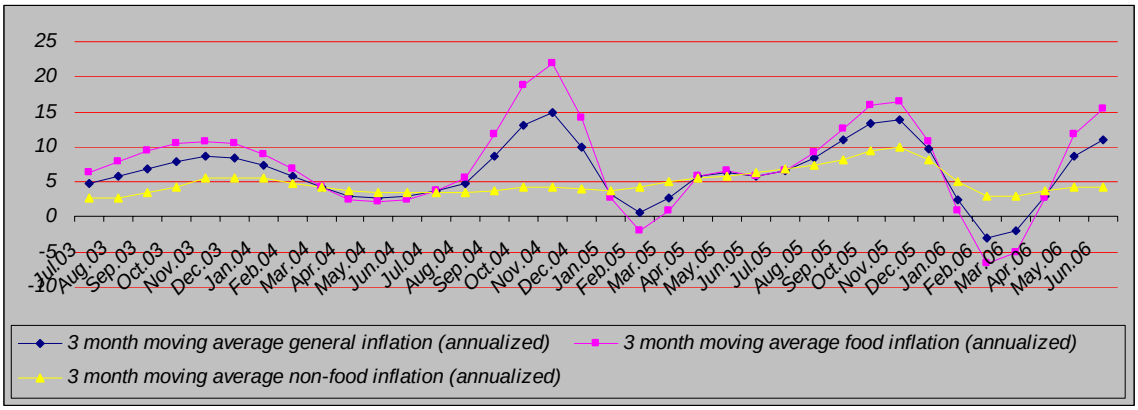
(a) Introduction

Substantial debate is still going on among economists regarding the causes of inflation. While monetarists view money supply as the only factor causing inflation through the demand channel, many believe in the supply side phenomena as important sources of inflation. According to the latter, movements in cost, either by restraining or easing the supply side, force inflation to move in a similar direction. History is replete with quite a few major examples of inflation that appeared to be the consequences of supply side disturbances. USA is said to have experienced remarkable inflation led by oil-shocks in 1971-74, 1979-80 and 1990 (Dornbush and Fischer 1994). Moreover, recent surge of global inflation is also believed to be an instance of inflation emanating from the oil crisis. In the Bangladesh economy, a series of incidents occurred over the recent couple of years prompting researchers to recognize the significant role of supply side phenomena in fueling inflation in Bangladesh. This policy note attempts to empirically examine the extent to which the recent inflationary impetus in Bangladesh may be attributed to adverse cost conditions or supply side considerations.

(b) Analysis of the Recent Trends in Inflation

Figure-1 demonstrates the trends of Bangladesh inflation by depicting month-wise data of general, food and non-food consumer price inflation (annualized 3-month moving average) from FY03 to FY06. The purpose of using 3-month average instead of traditional

Figure-1: Inflation Trends (annualized 3-month moving average)



Source: Constructed by the author from data available from Economic Trends

12-month in calculating inflation is to capture the dynamics implicit in the recent price data.[2] It is observed from the figure that inflation maintained a highly erratic movement ranging from 14.82 percent in November '04 to (-)3.04 percent in February '06. The volatility of the inflation behavior can be largely attributed to the food sector. The food inflation seems to have severely fluctuated within the range between (-)6.75 in February '06 to 21.88 in November '04. By contrast, the non-food sector inflation showed a

[2] The 12-month base, however, is most useful in understanding longer term behavior, where much of the seasonality has already been removed.

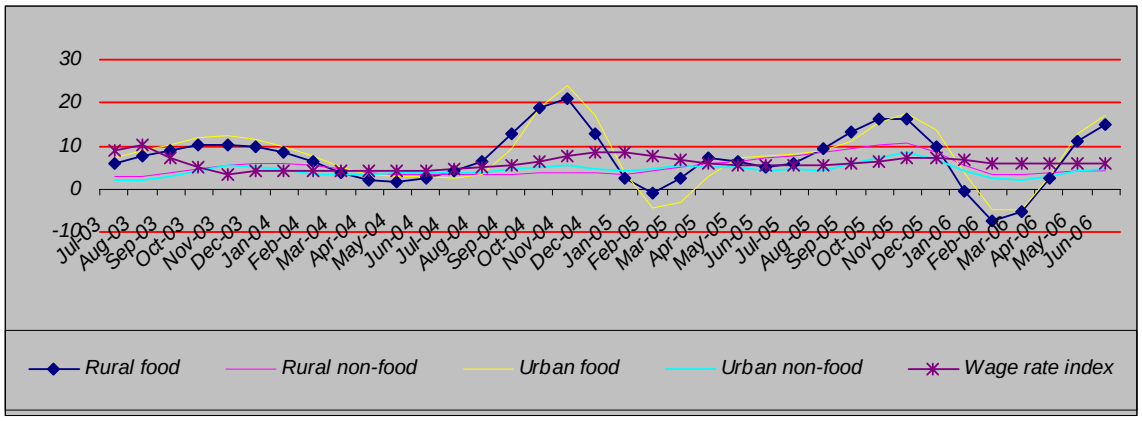
relatively steady pattern reflecting less seasonality. The fluctuation in food inflation is, in part, a manifestation of the typical seasonality in food production and the developments in the global commodity market. It would, therefore, be important to recognize the role of the cost/supply side phenomena in explaining Bangladesh inflation. As seen in the Figure-1, the inflation rate was over 5 percent during a significant number of months. It is also evident that the incidence of high food inflation is responsible for this situation. Except for a few instances, food inflation continued to be well above non-food inflation during the whole period. Moreover, whereas non-food inflation hardly exceeded 5 percent, the food inflation was higher than 5 percent almost as a rule. An analysis of the latest trends reveals that general and food inflation simultaneously started declining after November '05, reaching the lowest level in February '06 and then registering a sharp uptrend to end up with 11.02 and 15.53 percent respectively in the last month of FY06. The non-food inflation, although moderate, followed a similar pattern before reaching 4.3 percent at the end of the period. These trends appear to capture a broader seasonal behaviour of prices in Bangladesh at least as seen in the data from FY04 to FY06.

The surge in food inflation in the 4th quarter of FY06 does not appear to be related to seasonality, as the behavior of food prices in the comparable period of the previous two years, i.e., FY05 and FY04 indicates little volatility. The actual inflation in the latter dates ranged between 2.67 percent (FY04) and 6.27 percent (FY05). Further exploration of the source of the FY06 (4th quarter) price hike therefore appears urgent.

(c) Labour Cost

Wage, the labour cost, is often seen as the key reason behind cost-push inflation. Wage increase without any commensurate increase in productivity kicks off a wage-price spiral, allowing for sustained inflation. Analysis of the movements of nominal wage rate inflation generally gives an idea about the labor cost scenario. The time path of the nominal wage inflation portrayed in Figure-2 suggests that in Bangladesh, the wage inflation has been pretty stable at above 5 percent per annum with some short-term fluctuations over the period from July '03 to June '06. Under the assumption of little or no improvement of workers' productivity growth, wage inflation at such high level is an indication of cost escalation over time. However, whether the accelerated cost has translated into inflation is not clearly observable in the figure. An analysis of the correlation matrix presented in Box-1 is useful in exploring the precise link between labor cost and inflation. It is seen from the matrix that wage rate inflation has statistically significant association only with rural food inflation (coefficient of 0.22) at the 10-percent level of significance during the period from FY00 to FY06. It, therefore, appears that wage inflation cannot be a dominant factor in explaining the price behavior in Bangladesh. This is what one would normally expect in a labor surplus environment.

Figure-2: Labor Cost and Inflation (annualized 3-month moving average)

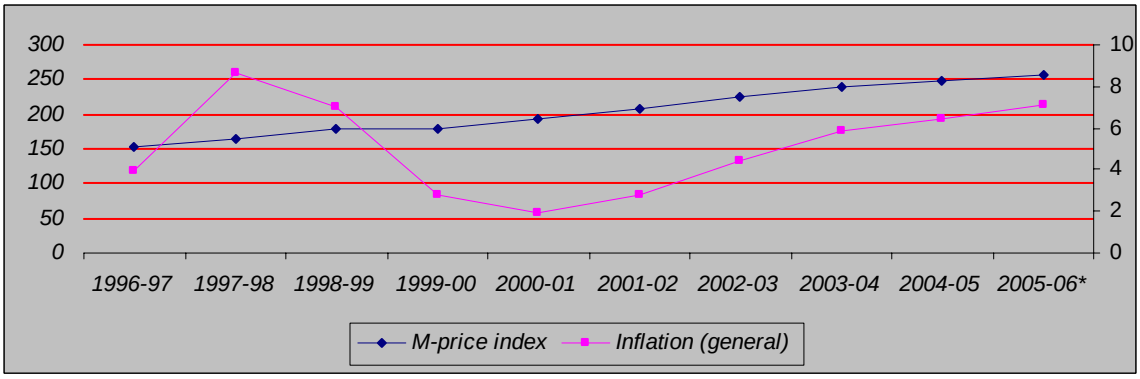


Source: Bangladesh Economic Review 2005 and BB publications.

(d) Import Cost

Typically import occupies a significant place in the Bangladesh economy, accounting for as high as above 20 percent or more of GDP in FY06. At the margin, most of the essential food items (for example, sugar, rice, wheat, onion and edible oil) and, more generally, machineries, intermediate goods and raw materials used in production are imported. Cost of imports can, therefore, be expected to have a substantial influence on domestic inflation directly (through final goods) or indirectly (through intermediate goods). According to available statistics, import price index (MPI) of Bangladesh has continuously soared over time which is reflected by an almost straight upward curve in

Figure-3: Import Cost and Inflation (12-month moving average)



Source: Economic Trends, Bangladesh Bank Annual Report and BBS publication.
** M-price index of the year 2005-06 has been estimated.*

Figure-3. The figure also depicts the inflation trend. Comparison among the trends in import price index and inflation provides an observation about the relationship between these indices. It is seen that although during the period from FY97 to FY01 the relationship is somewhat ambiguous, the co-movement from FY01 onward appears robust. To verify this relationship, a separate correlation matrix has been constructed

using yearly data for the period from FY01 to FY06.[3] The correlation analysis, presented in the Box-2, reveals that while the relationships between import price index and categories of non-food inflation (urban and rural) are insignificant, the former is found to have economically as well as statistically highly significant association with the categories of food inflation (urban and rural). The positive association is suggestive of the hypothesis that the surge in inflation is in part a supply side phenomenon.[4] Evidently, the reasons for increase in import price are twofold- exchange rate depreciation and increase in international commodity prices.

(e) Exchange Rate

Exchange rate exerts inflationary pressure mainly via import prices. Historically, exchange rate in Bangladesh exhibited steady increase over time. The period average BDT-USD exchange rate was recorded at 61.39 during FY05 in comparison to 40.20 and 50.31 during FY95 and FY00 respectively. The comparable FY06 figure rose to 67.08 as the currency remained under pressure during the first three quarters of the fiscal year. The inflation in the fourth quarter of FY06 (Figure-1) seems to have been prompted by a sharp increase in the exchange rate throughout the second quarter and part of the third quarter of the same fiscal.[5] The contribution of the exchange rate depreciation to inflationary pressure has been attested to by the results of the said correlation analysis (Box-1). Accordingly, exchange rate is seen to be uniformly correlated with all categories of inflation (rural food, rural non-food, urban food and urban non-food) at the 1-percent level of significance, the coefficients being 0.34, 0.29, 0.36 and 0.37 respectively.

(f) Oil Price

Being a fundamental input of production, oil constitutes a significant portion of production cost in every sector of the economy. In spite of some recent adjustments in the administered price of energy products, much of the increased cost of imported fuel has not been passed on to end users, especially on diesel and kerosene. However, the correlation analysis (Box-1) provides evidence that an increase in the diesel price (proxy for oil price) stimulates inflation via increases in both food and non-food prices in both urban and rural areas. This is plausibly due to the fact that diesel is used intensively regardless of sector (food or non-food, urban or rural). The correlation coefficients are estimated as 0.36, 0.30, 0.41 and 0.32 for rural food, rural non-food, urban food and urban non-food sector respectively.

(g) Supply Shortage

Production in agriculture and fisheries sectors in Bangladesh is still subject to the whims of nature to a notable extent. It has been claimed that one of the main causes of the high

[3] Yearly instead of monthly data has been used due to non-availability of monthly import price index. The Bangladesh Bureau of Statistics (BBS), the key provider of the economic data of the country, is yet to compile the import price index on a monthly basis.

[4] Center for Policy Dialogue (CPD) and Bangladesh Institute of Development Studies (BIDS) have made the argument that the recent increases in inflation in Bangladesh significantly originated from the increase in global price of oil and other imported commodities (See CPD, 2006 and BIDS, 2006).

[5] After experiencing moderate increase for quite a few months, the exchange rate jumped from 66.40 Tk./USD in January 06 to 70.05 Tk./USD in April 06.

food inflation throughout the FY05 was poor harvest of *aus*, *aman* and wheat crops.[6] The yearly production of these three crops went down by 18.12, 14.76 and 22.11 percent respectively in FY05 over the FY04.[7] An instance of price hike due to this fall of production is that the price (per kg) of *aman* rice rose within the range of BDT 16 to 19 in FY05 from the range of BDT 14 to 16 in FY04.

(h) Market Syndication

Unfair cartel among the suppliers might seriously hamper the course of the economy by engendering inflation via the creation of a false supply shortage even during a period of robust growth in production. Such an undesirable event allegedly occurred in FY06 when the food inflation remained high (7.76 percent) in the same fiscal year despite the growth in food production (4.49 percent[8] vis-à-vis 2.21 percent in FY05). Monopolistic control of several food items such as sugar, onion, pulses and edible oil by market syndication seems to have led this situation.[9] Obviously such manipulation is a type of supply side disturbance.

(i) Policy Implications

The above analysis carries an important signal for the policy makers. In an effort to subdue inflation they have to keep a sharp eye not only on the demand phenomena, but also on the cost behavior in the relevant period. Unfortunately, there is hardly any market oriented policy move on the part of fiscal or monetary authorities that can be taken for checking the cost induced inflation. On the fiscal side, although cutting down of the indirect tax on commodities is often proposed as a remedial measure, it only makes a temporary contribution to reducing inflation. Long term continuation of such policy may cause continuous erosion of the government exchequer. Some also argue in favour of government control on wage increases that are not supported by the corresponding increase in productivity to resist wage-price spiral. In Bangladesh, however, the presence of powerful trade unions tend to render the implementation of such control almost impossible. On a positive note, however, our analysis did not find any noteworthy impact of wage growth on inflation. It is widely recognized, however, that government can effectively use its legal powers to break up the market syndication and thus improve competitiveness of the distribution network.

On the monetary side, in the absence of any direct controlling instrument, Bangladesh Bank can initiate some case specific counter-action. Bangladesh Bank can take over some responsibilities such as monitoring modalities of Letter of Credit (L/C) operation so that market forces determines the exchange rate in a process that remains free from much speculative transactions. One example of a move in this direction is that the Governor of

[6] Bangladesh Bank (2005).
[7] Bangladesh Bank (2005).
[8] Provisional estimate (National Accounts Statistics, May 2006, BBS).
[9] A report made by a parliamentary sub-committee of Commerce Ministry mentioned that while the import price after tariff of sugar imported up to March 2006 stood at only BDT 34.56 per kg, the market price of sugar in April 2006 mounted to a record high of BDT 64 per kg implying the existence of market manipulation. According to the same report this episode was played by only 10 importers (the Daily Naya Diganta, 27 November 2006).

Bangladesh Bank, in a recent monthly bankers' meeting, advised the bankers to settle their liabilities against local L/C in foreign exchange through Bangladesh Bank clearing account instead of their *nostro* account. It is estimated that BDT 200 million worth of foreign exchange will be saved if this advice comes into effect. Though indirectly, Bangladesh Bank can also have some influence on market syndication. As an effort to limit the scope of hoarding, Bangladesh Bank has already practiced issuing office orders in which the scheduled banks have been instructed to reduce the duration of loans given against L/C opened for importing essential consumer goods.[10] While these can redress the situation to an extent, additional coordination may be sought between Bangladesh Bank and the government to formulate a coherent policy framework designed to identify and combat supply side contribution to inflation. This also calls for a comprehensive and deeper empirical analysis of the supply driven inflation phenomenon.

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[10] The Daily *Nayadiganta*, 17 November , 2006.

Box-1

Correlation between Cost Variables and Inflation: Bangladesh Case

The following correlation matrix, showing Pearson correlation coefficients, has been constructed using the monthly data for the period from February '00 to June '06 in order to gauge the strength of the link between cost variables and inflation in Bangladesh. Considering the coefficients and related p-values it can be inferred that the exchange rate and oil price (proxied by diesel price) are both highly associated with inflation of all categories (rural food, rural non-food, urban food and urban non-food) whereas wage rate inflation has significant statistical relationship only with rural food inflation.

Pearson Correlation Coefficients, N=77

	rfi	rnfi	ufi	unfi	dp	wri	er
rfi	1.00						
rnfi	0.10635 (0.3573)	1.00					
ufi	0.91187 (<0.0001)	0.14234 (0.2169)	1.00				
unfi	0.16932 (0.1410)	0.73243 (<0.0001)	0.21175 (0.0645)	1.00			
dp	**0.35593 (0.0015)**	**0.29966 (0.0081)**	**0.41059 (0.0002)**	**0.31766 (0.0049)**	1.00		
wri	**0.22239 (0.0519)**	0.12586 (0.2754)	0.00636 (0.9562)	0.17033 (0.1386)	0.04495 (0.6979)	1.00	
er	**0.34864 (0.0019)**	**0.29328 (0.0096)**	**0.36338 (0.0012)**	**0.36569 (0.0011)**	0.94743 (<0.0001)	0.14790 (0.1993)	1.00

Note: rfi→ rural food inflation
rnfi→ rural non-food inflation
ufi→ urban food inflation
unfi→ urban non-food inflation
ipi→ import price index
Figures in parentheses indicate associated p-values. Bold figures highlight significant estimates.

Box-2

Correlation between Import Price Index and Inflation: Bangladesh Case

The following correlation matrix, showing Pearson correlation coefficients, has been constructed using the yearly data from FY01 to FY06 in order to measure the degree of association between import price index and inflation in Bangladesh. Conclusion may be drawn considering the coefficients and related p-values that import price index seemed to be significantly correlated only with food sector inflation (both rural and urban) at the 5-percent level of significance. Yearly data has been used because of the lack of monthly data.

Pearson Correlation Coefficients, N=6

	rfi	rnfi	ufi	unfi	ipi
rfi	1.00				
rnfi	0.40070 (0.4311)	1.00			
ufi	0.93434 (0.0063)	0.24777 (0.6359)	1.00		
unfi	0.54161 (0.2670)	0.65572 (0.1574)	0.38654 (0.4491)	1.00	
ipi	**0.97214 (0.0012)**	0.56394 (0.2438)	**0.90394 (0.0134)**	0.68573 (0.1326)	1.00

Note: rfi→ rural food inflation
rnfi→ rural non-food inflation
ufi→ urban food inflation
unfi→ urban non-food inflation
ipi→ import price index
Figures in parentheses indicate associated p-values. Bold figures highlight significant estimates.