

Food Price Hike in Bangladesh: A Supply Side Approach to its Determinants and Solutions

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ABSTRACT

In Asia, Bangladesh is one of the hardest hit by the current wave of inflation. In this paper an attempt has been made to analyze the major factors from supply side of the commodity market, that were the driving forces of food inflation in Bangladesh over the years. The paper showed how production gap tends to create import dependency and how both of these production lag as well as import indulgence combine the domestic and international price hike together to create inflationary pressure in the local food market. In addition to this, this paper investigates also how unnecessary middlemen and brokers hampers efficiency and equity in the supply chain of food stuffs which ultimately creates extra pressure on price hike at the retail consumer level. This value chain as well as vicious chain of corruption together prevents the consumers to get the products at reasonable price and the farmers to get the fair price of their products respectively. As a solution to this severe problem, the paper emphasized on the increase of production to gain food sufficiency and to reduce import dependency. Emphasis was also given to the reduction of dominance of the intermediaries and creation of opportunities to the real farmer to access the market directly so that the farmers can get the fair price and the ultimate consumer can get the commodities at lower price. At the end of the paper, some strategic options are suggested to adapt and it is concluded thereby.

1. INTRODUCTION

Rising rate of inflation has become a serious concern in Bangladesh in recent years. The historical movement of inflation indicates that inflation in Bangladesh varies proportionately with food prices. As a result fixed income group and marginalized people suffer a lot because an average household in the country spends close to two-third of their income on food. To adapt with this challenge, they have to give up some important factors for continuing the minimum standard of living like education, nutrition etc. The Food and Agriculture Organization (FAO) considered Bangladesh as one of the thirty-seven countries in 'crises' due to the rise in food prices. The major macroeconomic variables of Bangladesh economy such as revenue, expenditure and balance of payment position are badly affected by the higher prices of food items. The gap between the targeted GDP growth rate and the achieved GDP growth in the last twenty years revealed that increase in average inflation may be one of the major reasons (Bangladesh Economic Update, 2010). The economy has been experiencing a creeping inflation over the recent past. The average inflation (general) in FY 2000 was 1.94% while it is found 9.76% in FY 2011. But during these years changes in inflation did not follow any monotonic pattern. The country has experienced double-digit inflation rate on point-to-point basis since July 2007. Caution is needed since higher inflation may trigger inflationary spirals beyond a safe

level as implied by larger inflation elasticities. As Bruno (1995: 38) puts it, —chronic inflation tends to resemble smoking; once you get the habit; it is very difficult to escape a worsening addiction. From a policy perspective, it is of utmost importance to explore the sources of the recent inflationary trends in Bangladesh and design appropriate measures to deal with the prevailing situation. There are so many reasons behind this inflationary pressure under the heading of Demand side factors and Supply side factors. This study attempts to understand some supply side forces in particular, working behind the recent food inflationary trends in the economy of Bangladesh. Supply –side factors dominated particularly higher international commodity prices, shortfall in domestic food grain production, overdependence on import, prevailing unnecessary longer supply chain and the presence of unexpected intermediaries as well as speed money in the value chain. The paper focused on these issues and emphasized on the increase of production to gain food sufficiency and to reduce import dependency. Emphasis was also given to the reduction of dominance of the intermediaries and creation of opportunities to the real farmer to access the market directly so that the farmers can get the fair price and the ultimate consumer can get the commodities at lower price. At the end of the paper, some policy options are explored as well before its conclusion

2. STUDY METHODS

This is an exploratory & qualitative type of research. Like other qualitative research this paper is much more subjective in nature and can be generalized in understanding of the phenomenon of food price hike from supply side factors and their correcting measures. The research design has been conducted by secondary data method to analyze cause and pattern of general inflation of Bangladesh. To increase the validity of the information, secondary data have been collected and combined from various sources mainly from journals, books and previous studies. In addition to that, five wholesaler, ten retailer shops, 20 end users, 5 market experts and the relevant government officials were interviewed in order to study the structure and operative mechanism of food flow and to collect necessary information. The technique of in-depth interview was used here. One year news paper reports on kancha bazaar are also reviewed. The primary data which was collected through in-depth interviews was to match with the different opinions of the different stakeholders. The outcomes and results of these in-depth interviews are matched with aims and objectives of the research. In the discussion part results and findings from primary sources are compared and matched with the secondary data which is collected through different journals, websites and previous researches. The article has been made by popular reporting in order to facilitate the readers in better understanding of the report.

3. OBJECTIVES

The main objectives of the paper are:

- a. To identify the supply side causes of the food inflation in Bangladesh with special focus on the supply chain.
- b. To find out applicable strategies to overcome those factors and then to suggest some recommendations to the relevant stakeholders.

4. REVIEW OF SELECTED LITERATURES

In the literature, a number of economic theories have explained the factors associated with supply and demand which contributes to inflation. According to the earliest doctrine on inflation

has been anticipated by the ‘quantity theory of money’. It explains that the rate of change in the money supply is positively correlated with inflation, and negatively correlated with the growth in real income. Inflation is reviewed as a domestic monetary phenomenon which arises due to the monetary financing of fiscal deficits, or by extending credit to the private sector by central monetary authorities (Cagan, 1956; Bailey, 1956; Dornbusch and Fischer, 1993). On the other hand, according to the monetarist view pioneered by Milton Friedman inflation is caused due to an expansion in the money supply (Friedman, 1970). The third view holds that increase in aggregate demand in the source of demandpull inflation. This is Keynesian theory of inflation which occurs in a situation when at an optimum or employment of output aggregate supply falls short of aggregate demand full (Keynes, 1936).

Another view explains it as the result of structural adjustment in the economy. Non economic factors such as institutions, practical process and culture are also being considered as important factors for inflationary movements. In the contemporary world economic institution including inflation can very much influenced by the political situation of a country (Drazen, 2000). The ‘purchasing power parity’ theory of inflation explains that changes in exchange rate influence domestic prices through differences of inflation between home country and importing country (Agenor and Montiel, 1996). The expected foreign inflation, and changes in the nominal exchange rate can have an immediate ‘pass through’ theory distinguishes between structural inflationary pressure and the mechanism which transmit such pressure (Kirkpatrick and Nixon, 1987). According to this theory, inelastic supply of food grains, foreign exchange constraint and government’s budgetary pressure are the key factors behind higher inflation. Yet, another school of thought postulates the “rational expectation theory” of inflation. Economic agents forecast inflation in the future rationally on the basis of full information of the past and present (Lucas, 1972; McCallum, 1980; Sargent and Hansen, 1980). Hammermann (2007) decomposes the non-monetary determinants of inflation in Romania using panel estimation which included fixed effect and random effect. The study suggests that structural gap gives effect to the domestic price levels.

There have been ample literatures to examine the relationship between inflation and its determinants. In Bangladesh, both demand side as well as supply side factors of the economy and non-economic (non-monetary) factors can give rise to inflation. A review of the selected empirical studies on the determinants of inflation in Bangladesh reveals varied results.

Bangladesh Bank, IMF and CPD (2007) explored that both demand and supply side factors constitute the relevant sources of inflation in Bangladesh. Among these are M2 growth, private sector credit growth, market capitalization growth, growth of government borrowing, remittance growth, exchange rate change, market syndicate.

Osmani (2007) examines monetary and exchange rate policies to understand potential sources and the extent of inflationary pressure in Bangladesh. He finds that non-competitive market behavior (market syndicate) has insignificant impact on inflation.

In an analytical writing Ahmed and Das (2007) found that world food price and fuel price triggered inflationary pressure in Bangladesh. They also detected inflation inertia is another reason to sustain higher inflation.

To explain the inflationary trend, Ahmed (2009) examines the sources of inflation in Bangladesh taking into account both demand-side and supply-side factors. He finds that inward remittance, government debt, inflation inertia, non-competitive market behavior, food and oil prices affect inflation to a large extent.

Taslim (1980) used regression models for explaining the inflationary process of Bangladesh. He explored that one year lagged money supply had significant positive effect on inflation. However, the introduction of wage variable as an additional independent variable resulted in dramatic fall of statistical significance of coefficients of other variables in the regression model.

Another way, Khanam and Rahman (1995), examined the causative factors of inflation in Bangladesh during the period from 1972-73 to 1991-92 using Ordinary Least Square (OLS) method. Their results showed that growth rate of import prices and money wages, both considered as supply side variables, affect the inflation positively. They also found that all demand side variables have insignificant influence on the rate of growth of prices Kibria (2010) also traced there is an upward trend in inflation as international commodity prices are showing signs of increase, excess liquidity prevailing in the domestic market, increased flow of remittance and its impact on Forex Reserve and stagnancy in investment in Bangladesh.

Majumdar (2006) also points out some specific supply side factors of inflation such as wage/labor cost, import cost, exchange rate, oil price, market syndication and supply shortage of agricultural commodities. Raihan and Fatema (2007) find that both demand-side and supply-side factors such as price hike of food and non-food items have significant influence on the rising trend of inflation in Bangladesh.

The highly buzz words associated with inflation are food price hike, food security and food self sufficiency. The traditional focus on food self-sufficiency stimulated a large literature on, e.g. the Green Revolution in the 1970s and 1980s (e.g. Alauddin and Tisdell, 1991; Hossain, M.1988), concerned primarily with technology adoption constraints. The focus then moved to reforms in agriculture and the food system, with a series of research onslaughts against the Public Food Distribution System, farmer subsidies for output and inputs, market and trade liberalization (see Ahmed 2002; Chowdhury, N. 2003; Dorosh and Murshid, 2001).

A corollary to this discourse was studies on market integration, largely limited to rice markets (Ravallion, 1986, 1987; Dawson and Dey, 2002). The main findings of these exercises were that rice markets in Bangladesh were highly competitive, and therefore there was little need for public interventions. While sometimes research findings, e.g. from BIDS contradicted mainstream views (e.g. Osmani and Quasem 1990; Crow and Murshid 1994) these were noted but largely ignored.

5. FOOD FLOW CHART IN BANGLADESH

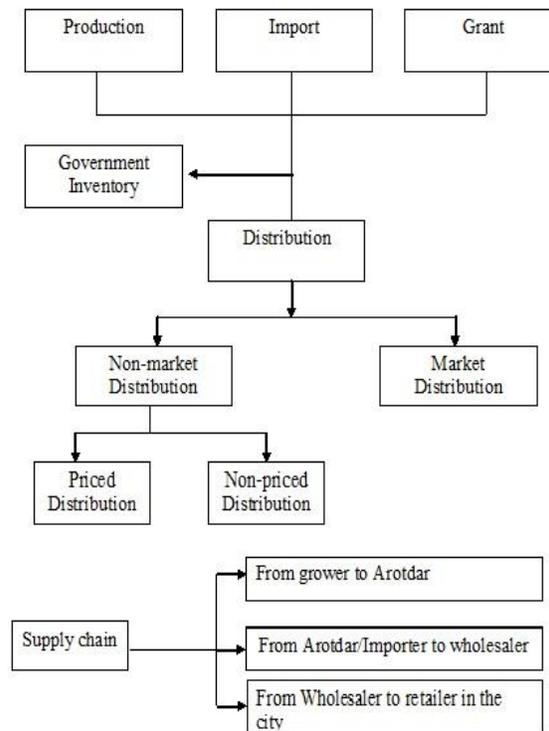


Fig. 1. Food Flow in Bangladesh

6. SUPPLY SIDE APPROACH TO THE FOOD INFLATION

One of the most enduring debates in economics is whether demand side factors (a consequence of increased economic activity) or supply side factors (due to increased cost) cause inflation or price hike. The Quantity Theory of Money leads us to agree that the growth in the quantity of money is the primary determinant of the inflation rate. John Maynard Keynes (1936) argued that demand determines output, which, in turn, determines employment and prices. Textually market price is determined through the interaction of its Demand and Supply. Inflation or price hike is a result of disequilibrium situations. Price may be raised due to higher demand in comparison to market supply or due to shortage of supply in comparison to market demand. Inflation related to higher demand is called demand pull inflation and the inflation related to shortage of supply is called cost push inflation. Demand pull inflation is associated with Money supply income and size of the population. On the other hand cost push inflation is associated with the cost of production, import as well as cost of distribution. All of these factors are associated with the supply of the products to the market. Any increase under the above heading of supply side will contribute to the cost push inflation. In this paper we will focus on these supply side factors and will examine how production lag, import dependency and unnecessary intermediaries throughout the distribution chain facilitate the price hike of Bangladesh in particular and the overall its inflation level in general.

7. PRODUCTION LAG YIELDS PRICE HIKE AND CREATES IMPORT DEPENDENCY

7.1 Average Productivity of Land Increased in Spite of its Diminishing Availability

One of the redeeming features of our economic development during the last four decades has been the steady increase in food grain production despite all odds, both natural and man-made. The country barely produced enough food grains to feed the population when it emerged as an independent nation. The total production of food grains (mainly rice) was less than 10 million tons in 1972-73. Scarcity of food, misdistribution and incorrect policies contributed to a devastating famine in 1974 in which tens of thousands of people perished. The famine left an indelible mark on the psyche of the government since then. The attainment of self-sufficiency in food production became a major objective of economic policy notwithstanding the fact that serious doubts were raised if the famine was due mainly to a food shortage (A K Sen). Efforts of successive governments and the hard work of the farmers paid rich dividends; rice production increased by three and half times by 2011-12.

Table: 1 Foodgrains Production Scenario in Bangladesh

Food item	Production				Average annual growth rate		
	FY 1981	FY 1991	FY 2001	FY 2011	FY 1981-91	FY 1991 to FY 2001	FY 2001 to FY 2011
Area (million Hectre)							
Rice	10.31	10.43	10.80	11.53	0.26	0.31	0.63
Wheat	0.59	0.59	0.77	0.37	4.37	3.68	-7.48
Total Area	10.90	11.03	11.57	11.90	0.40	0.50	0.21
Production (million MT)							
Rice	13.88	17.79	25.08	32.52	3.61	2.83	3.23
Wheat	1.09	1.00	1.67	0.97	2.18	7.80	-6.13
Total food grain	14.97	18.79	26.76	33.49	3.46	3.09	2.72
Yield MT/Hectre							
Rice	1.35	1.71	2.32	2.82	3.34	2.47	2.53
Wheat	1.85	1.68	2.16	2.60	-1.91	4.04	1.38
Total food grain	1.37	1.70	2.31	2.81	3.04	2.54	2.47

Source: The Statistical Yearbook of Bangladesh, BBS, Various Years

What is remarkable is that this large increase in rice production was achieved with a dwindling supply of cropped land. Bangladesh had a very adverse land-man ratio, which progressively worsened as the population size increased over time. The rising demand for land for new housing, infrastructure and other economic activities gradually encroached on agricultural land.

Net cropped area declined at an average annual rate of 0.2 percent during the post-independence period (Table 1). This could accelerate in future.

Table 2: Annual growth rates 1972-73 to 2010-11 (percent)

Net Cropped Area	-0.20
Gross cropped Area	0.63
All rice production	3.26
Local rice production	-2.19
HYV rice production	6.80
All rice area	0.47
Local rice area	-3.59
HYV rice area	5.90
Chemical fertilizer use	5.32
Area irrigated	4.66
Population	1.90

Source: Calculated by Prof M.A Taslim, DU, based on data collected from BBS,

(„Food grain production and self sufficiency”BD News 24.com, December 30 2012)

In the face of a dwindling supply of cropped land, farmers took to multiple cropping to increase the effective supply of arable land. Gross cropped area increased by 0.6 percent per annum during this long period.

7.2 Food Availability Increased Due to Higher Average Growth in Production in Comparison with the Growth of Population

However, the increase in gross area explains only a small part of the increase in rice production. The greater part was achieved through an increase in the productivity of land. The yield rate of rice increased from 0.34 tons to 0.91 tons per gross cropped acre between 1972-73 and 2010-11. The higher yield was brought about by a rapid diffusion of cultivation of high yield varieties (HYV) of rice and a reduction in the area devoted to low yield local varieties of rice.

The cultivation of HYV crops required controlled water and chemical fertiliser. The privatization of agricultural input marketing at the beginning of 1980s greatly facilitated the spread of mechanised irrigation. Area irrigated increased from paltry 3 million acres to 17 million acres. The spread of irrigation permitted widespread dry-season cropping. Since dry season crops were less likely to be damaged by weather conditions or floods, farmers increasingly leaned toward dry season cropping. Over time the importance of dry-season crops outstripped that of rain fed crops in total production.

There was little use of chemical fertiliser in the early years. But the switch to HYV cultivation increased the demand for chemical fertiliser. The use of such fertiliser increased nearly nine-fold. Indeed as early as 2001-02, Bangladesh was the leading chemical fertilizer user in South Asia (BRAC)

The rapid increase in the use of irrigation and chemical fertiliser (together with improved seeds) led to the fairly high rate of increase in rice production of 3.26 percent per annum. This was

much in excess of the average annual increase in population of 1.9 percent. Thus the per capita availability of rice nearly doubled during this period.

Per Capita Availability (considering production, import and available stock) of food increased from 453 gm/day in FY1992 to 666 gm/day in FY2011, a remarkable increase of 47 per cent (Rahman and Iqbal)

7.3 Per Capita Food Availability is Decreasing Due to Decrease in Cultivable Land and Increase in Natural Calamities and Consumption Demand

However, notwithstanding this remarkable success, Bangladesh faces formidable challenges in ensuring food security for its growing population in view of the rising demand for food, frequent natural disasters and more importantly, in the backdrop of the rising price of food grains and considerable price volatility in the international food grains market.

Bangladesh, immediate after its independence, produced 10% more food in comparison to that of West Bengal. But after 36 years, now the country had lagged behind the Indian state by 13% regarding food production. Compared to the period between 1970 and 1990, when the production of aggregate grains rose by an average of 2.2 per cent per year, the annual growth rate since 1990 has declined to about 1.3 percent. It is estimated that the growth rate of grain production will decline further to 1.2 per cent per year between 2009 and 2017 (Trostle, 2008)

Growth of crops will be compromised (with no changes in current practices) by agricultural land decreasing at 1% per annum and the impact of climate changes, which are still being understood (World Bank). A number of slowly evolving long-term trends, as well as short-term factors, have slowed this output growth on the one hand and strengthened demand on the other, causing agricultural prices to increase. A study (M. E. A. Begum and Luc D'Haese, 2008) projected the future demand supply gap as follows:

Table: 3. Projected Supply Demand Gap, Percent / Year

Food Grain	Projected Production Growth(2004/05-2020/21) (Percent/year)	Projected Consumption growth (2004/05-2021) (Percent/year)	Supply-demand gap Percent/year
Rice	2.30	2.59	-0.28
Wheat	3.80	5.56	-1.76

7.4 Policy Failure in Achieving Potentials

Food production is getting reduced for the lack of proper assistance in agriculture sector, Farmers are not cultivating in scientific way ,Government is not being able to distribute seeds in accordance with demand ,Private seed dealers are supplying poor standard of seeds, fertilizer & insecticides, Inadequate of agricultural loan ,Cost of production is increasing.

In addition, agricultural production is weather sensitive, and a drought or flood can reduce output significantly, thereby impacting grain stocks and price.

Most farmers rely on traditional practices or on their own/other farmers' experience because agricultural extension services through technology transfer, advisory work, and capacity development are fragmented and insufficient. Only 5% of public sector and 2% of private sector

organizations are involved in quality input provision in the country and 93% of farmers rely on their own seeds for production (HSI, 2011). Many rural households live in inaccessible places and only 19% of rural households have electricity, an important service in agricultural production (e.g., water pumping) and processing (IFAD, 2007).

The food grain production can be increased by 25%-30%, if farmers are given training & proper assistance and they follow scientific method in cultivation. Any growth must come from increased productivity and that demands higher investment in agricultural research and education in collaboration with agencies like FAO and the World Bank (Food Balance Sheet- A Handbook, FAO, Rome, 2001)

7.5 Higher Production will Help to Reduce Food Price:

In order to ensure food security and food safety, the country has to pay keen attention to technology generation, uphold soil health, proper irrigation and water management activities, farm mechanization, and post-harvest loss reduction and to work in constraint areas. Many of these can be accomplished by agricultural engineers. The only thing is to utilize their expertise properly giving them adequate working facilities and maintaining favourable environments. Further, regional cooperation for food security can be attained through regional cooperation, integration of resources, sharing of knowledge and experience.

The best way to reduce food prices in the long term is to increase agricultural productivity.

To achieve this, the country should support rural development and a new knowledge intensive “green revolution” based on modern technology and new seed varieties, subsidizing supplies of inputs, such as fertilizers, and providing credit to farmers. The country should also focus on expanding non-agricultural employment, including rural off farm employment in agricultural value chains, such as in processing, transport, and distribution, to widen the domestic market for agricultural products and encourage increased agricultural productivity.

Thus higher production will ensure higher supply of food and will reduce import dependency. As a result it is expected that market will give pressure to reduce or at least to stabilise the price. On the other hand higher production will create more employment as well as purchasing capacity which will improve food availability situation.

8. IMPORT DEPENDENCY IMPORTS INTERNATIONAL PRICE HIKE

8.1 Demand for Food Grains More than Matched the Rising Production Necessitating Greater Import

The success of crop agriculture encouraged the government to claim attainment of self-sufficiency in food grain production. However, it is not very clear what really is meant by self-sufficiency. The general tone of discourse would suggest that it implies enough food grain is produced domestically to meet the existing demand for cereals, i.e. there is no need for *net* import of food grains.

Availability of food in the local market depends mainly on production, stocks, import and foreign food aid. Imports are determined by three factors: level of domestic production; replenishment of food stock; loss of crop due to natural disasters.

However, a look at agricultural statistics suggests that the country was never really self-sufficient in cereal production; it had to import a substantial fraction of its production to meet the domestic demand. Indeed, the shortage in production (to meet the domestic demand) was the highest in

2011 since the turn of the millennium. The data also show that Bangladesh imported more food grains than what it imported in 2010-11 in only one year (1998-99) during the last four decades.

Table : 4. Inflow of major types of food grains. Thousand (M T)

	FY 1991	FY 1999	FY 2001	FY 2005	FY 2008	FY 2011
Food Aid	1540	1233	491	289	259	164
Rice	10	59	32	27	82	6
Wheat	1530	1174	459	262	177	158
Govt commercial Import	37	774	0	102	292	2117
Rice	0	345	0	72	292	1297
Wheat	37	429	0	30	0	820
Private import	0	3480	1063	2982	3466	3108
Rice	0	2660	529	1196	2055	290
Wheat	0	820	534	1786	1411	2818
Net inflow	1577	5487	1554	3373	4017	5389

Source: Data base on food situation, Food Planning and monitoring unit (FPMU), Ministry of Food, Bangladesh Government

In recent years, rice production in the country remains stagnant except for the *Boro* high yielding variety rice. (Matin, 2011) The production of wheat in Bangladesh has declined drastically over the years. Further, except for the *Boro*, the areas of rice cultivation have declined in recent years. The production of pulses and oilseeds has also declined significantly; however, vegetable production has shown an increasing trend. Crop failures due to erratic weather (abrupt behaviour of South Asian monsoon, wrath of El Niño and La Niña, damages caused by cyclones, etc.,) often create food shortages in Bangladesh. Apart from this Bangladesh faces a rapid decrease in food aid flow and a sharp increase in the import of the food to meet the gap in the country.

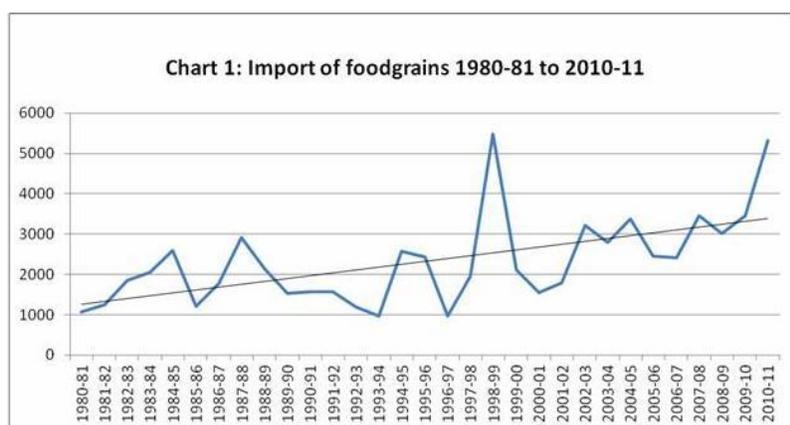
On the other hand demand for food increases due to both an increase in population and an increase in income. In fact the latter is quantitatively more important determinant of the incremental demand than the former. The amount by which demand increases depends on the elasticity of demand with respect to income. In an indigent country such as Bangladesh food elasticity tends to be quite high, perhaps one-half or higher. What it means is that if the income of a household increases by 2 percent the demand for food will increase by at least 1 percent.

The per capita income of Bangladesh has increased by about 5 percent per annum during the first decade of the new millennium. This alone must have raised food demand by about 2.5 percent per annum. Add to it the rate of population growth of 1.4 percent and the total food demand would have increased by 3.9 percent. Disregarding substitution, the demand for the principal food item, cereals, could be expected to have increased at about this rate. However, the average growth in cereal output during this period was only 2.6 per cent, implying that production did not keep pace with the rising demand necessitating greater import of cereals.

The cereal output growth was higher during the 1990s (3.6 percent). Hence, import requirements were lower

As the net domestic production of food is not sufficient to meet demand and the food aid flow is not adequate and sustainable, the demand-supply gap of cereals, edible oil and other food items are imported from external markets (Bangladesh Economic Update, 2011).

The decadal average of cereal import was 2.75 million tons per year during the first decade of the new millennium. It was lower at 2.08 million tons during the 1990s. The import requirement was even lower during the 1980s – only 1.84 million tons per year. As the following Chart shows there is a trend increase in the import of cereals during the last three decades. As long as cereal demand rises at least as fast as the growth in production, the *absolute* food gap will keep on increasing necessitating greater amounts of cereal import. This has been the situation during the past three decades, and it will persist unless the productivity of crop agriculture increases substantially.



8.2 International Price Volatility Gets Access to The Local Market Through Import and Persists for Relatively Longer Time

Bangladesh is the net importer of all essential items. Statistical data shows, 70%-80% of pulse, oil, sugar & other consumer goods are being imported. [BBS]. For this reason despite of the low level of the import of rice and wheat, overall food grains import in Bangladesh plays a significant role in stabilising domestic market during the production shortfall. Not surprisingly, international food price remains important for Bangladesh and price volatility in the international market tends to get passed through to the local market in Bangladesh.

In normal years, for example, in FY2011, foodgrains import accounted for 12.9 per cent of the total domestic supply of foodgrains. Traditionally, Pakistan and Thailand were the most important sources of rice import for Bangladesh. For example, in 1989, Bangladesh imported almost all of its rice from these two countries (UN Comtrade, 2012). After liberalisation, when private sector gradually took over foodgrains import, India emerged as the

preferred source; it was the single largest source of import. This was due mainly to the advantages of lower transport cost, lower delivery time and possibility of going for lower-sized import contracts (Ninno et.al. 2005). In 2007, Bangladesh's market of imported rice was taken over by India which supplied about 98.5 per cent of its total rice import.

Food insecurity is going on all over the world. When India imposed a ban on export of rice in FY2008 to ensure her own food security in the wake of the rising food prices in the international market, and when a number of other exporting countries either imposed a ban or enforced a minimum export price, Bangladesh's food security concerns were understandably renewed and deepened. Later on, when devastating cyclone Sidr hit Bangladesh in 2009, this uncertainty was further aggravated.

Cereals and edible oil has contributed significantly to the increase of food prices. Rising demand for food and feed, bio-fuel, high oil prices, climate change, slowdown in agricultural productivity growth and malfunctioning of world grain markets contributed to the international grain prices increase.

Restriction on grain exports imposed by a dozen of countries in already thin major markets for cereals resulted in additional price increases. There is also evidence of build up of speculative bubbles causing overregulation in some countries. Storage growth in china, India and other emerging markets has lead to a steady rise in the demand for industrial raw materials and commodities in general. Lower than expected oil production by both OPEC and non OPEC countries and political uncertainties in oil producing regions together with strong demand growth have pushed oil prices to an all time record high level, thus creating further cost pressure on the international commodity prices.

Other empirical investigations also show that international price movements cannot fully explain the movement of domestic prices in Bangladesh. While the amplitude of domestic food price fluctuations is a lot smaller than at the international level, domestic prices rarely decline even when world prices fall significantly (Ahsan, 2007).

Prof Dr. Whiduddin Mahmud, former Economic adviser of Caretaker Government said:

In previous time only scarce product was imported. Now all types of product are being imported. As a result international price fluctuation is also being imported. But our price system is not so responsive to international price fall unlikely the quick responsive behaviour to international price hike. Lack of proper distribution system & distorted market mechanisms & inadequate domestic & overseas production are responsible behind it.

On the other hand, Bangladesh market mechanism is highly distorted. Matin (2011) argued that the gap between retail and wholesale market prices is substantial and it is widely believed that a group of traders control the markets through syndication (oligopoly-type market). a few importers control the import of all food in our country. They act as monopoly in the business. There are 100 rice importers & only five of them import 40% of rice, There are 51 wheat importers & only five of them import 50% of wheat, there are 125 importers & only five of them import 35%. [Abul Barakat]

In order to break the monopoly of the commodity traders and unscrupulous businessmen who are engaged in hoarding activities, the current government has taken some stern actions. However, some of its measures have proven to be countervailing and indeed instigated the price hike.

9. LONGER OR INFLATED SUPPLY CHAIN INFLATES THE PRICES OF THE FOOD PRODUCTS:

9.1 Anarchy Situation of the Existing Food Supply Chain

The market for agricultural produce can be thought of as comprising two kinds of circuits – a simple, local circuit catering to localized demand, and a more complex long-distance circuit that connects local supplies to distant markets. Trade basically revolves around spatial arbitraging although some degree of arbitrage over time also exists, especially where commodities are storable. Complexity of market structure increases when processing and packaging are involved. Typically, the market consists of a number of essential intermediation roles carried out by numerous specialized agents.

The most common types of intermediaries referred to in the vernacular are *faria*, *bepari*, *aratdar*, and *paikar*. In addition there are various local names in different regions of the country like *cycle bepari*, *kanda bepari*, *bharkiwala* and *lai faria*. Things are further complicated by changing roles of some intermediaries with time although the name remains unchanged.

The whole Supply Chain can be divided into different agents from grower to retailer. We will analyze different aspects of this chain taking consideration of only four essential items based in different studies. The chain is as follows:

Table 5: Different Agents in the market supply chain of different items of food

Items	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th
Rice	Peddy production cost	Foria (Peddy)	Arotder (Peddy)	Miller	Trustee	Arotder	Retailer		
Lentil	Producers	Foria	Millers	Paiker	Wholeseller	Retailer			
Edible Oil	Importer	Refiner	Agents	Wholeseller	Retailer				
Vegetables	Producer	Broker	Bepari	Arotder	Foria	Retailer			

Source: “ Price of Daily Essentials: A Diagnostic study of Recent Trend” CPD Survey-2007

It has been seen that there is a significant price gap between the end users and growers due to the existence of long delivery chain. *The cost of the product is highly dependent on the length of supply chain. In every step, some cost is added with the product under different headings. As a result the cost as well as the price of the product has significantly increased.* The identified reason of this price difference is that, the product is not directly getting access into the market. Moreover it is found that the supply chain concept in the agro products is not fully in operation.

The retail price can be decomposed into different stage of Supply chain.

Table 6: Portion of retail price occupied by different agents in different stages of the long supply chain:

Items	Production	Producer's/im porter's margin	Difference between Farmgate price and Retail price	Margin to wholesaler and Retailer	Rest of the agents
Rice	(Peddy production)- 19.2%+ 15% (Miller's Processing Cost+ Depreciation)= 34.2%	25.8%(Peddy Farmer)+ millers)	40%	8%-12%	28%-32% -
Lentil	22.2%(production or import)	34.6%	43%	22%	21%
Edible Oil	59%-64% (import cost)+6%(Refining and Packaging)=65%-70%	21%- 29% Depends on cost of radioactivity test and cost of Packaging	2,4% (Packet)or 11% (Loose)	9.5% (loose Oil) or 1% (Packet Oil)	1.4% - 1.6%
Vegeta bles	35% %-38%(Production cost)	5% to 8%	54% to 60%	24% to 28% of which 10% is as premium for rotten and unsold amount.	26%-36%

Source: Calculated by the authors from the result of the above survey conducted by CPD.

Production stage is the principal, value worthy and rationale one. In spite of that it has some sort of market inefficiency due to presence of dominant players, longer chain, asymmetric information, time lag, poor backward supply chain etc.

But the other official and unofficial agents in the heading of storage, distribution and facilitation are creating an anarchy situation making little (Transportation, distribution by wholesaler and retailer) or no real value addition.

Potentially manageable chain can be classified considering three characteristics which will have to be broken or curtailed or eliminated to prevent price hike.

9.1.1 Dominant Chain:

Where market power is skewed to some players due to circumstances causing monopoly behaviour at particular stage of chain and enhancing cost and consumer end price.

As is found from the survey, that the millers are the most powerful players in the entire supply chain of domestically produced rice wielding a significant control over the market price. They determine the buying and selling price based on the market demand and supply situation

(through their own market intelligence) taking cognisance of the import, import price and domestic production costs.

The millers tended to store rice procured from suppliers of various types of rice, during the harvesting season. Millers process the paddy according to the market demand; the rest is stored from where the rice is milled gradually as per market signal.

A careful monitoring of the demand-supply situation and ensuring speedy imports in view of this appears to be the required strategy here. Encouraging more competition at the milling stage (by providing incentives for setting up rice mills) could be another strategy.

In case of vegetables and potato Cold storage owners appear to be an important player. About a tenth of the retail value is accrued to them. Reducing cost of operating cold storage (electricity charges) and eliminating some of the intermediaries creating subsidized big cold storage facilities can be strategies here.

In case of Edible Oil, Anecdotal information suggests collusive behaviour and syndication by the limited number of importers but this could not be reliably established.

However, creation of artificial scarcity and thereby influencing the price were widely reported, particularly in view of the number of players active in the import market.

An analysis of the NBR data clearly points out the controlling sway over the import market by a few importers. Influencing import based on market forecasts appeared to be a good way of keeping pressure on prices of imported commodities. Other finding is the mandatory requirement of radioactivity tests by only one agency. This is a rather lengthy process which added to the costs incurred by the oil importers which is ultimately reflected in the retail price.

In view of some restrictions on the time of storage this needs to be looked at with a view to curtailing the time and reducing the operational costs.

9.1.2 Longer chain:

Where the chain is manipulated to get access of some unnecessary intermediaries to value chain causing price hike. Existence of invisible but influential agent between the millers and Arottdar in urban area known as *trustee* was confirmed by various agents. It appeared that this trustee (some time called party), in collaboration with millers/importers, was largely responsible for retail price determination. It was the arottdar and beparis who were found to be critical players in the markets for vegetables. Their margin was between 17-18% of the retail value and their return on working capital was found to be about 20-22%. The Arottdar's margin was about 4% of the retail value but the return on working capital was exceptionally high (220% for brinjal and 340% for green chilli).

Whereas the chart shows, producer's margin was equivalent to only 5-8% of the retail value.

These types of intermediaries are present in each and every chain of supply of each and every commodity that are making profit capitalising on their networking ability, market information, local influence and market reputation. The Reasonable priced type of outlets (Operated by BDR/BGB), that reduce the number of agents appeared to be the best short term remedy.

From the medium term, farmer's cooperatives appear to be the answer to reducing the gap between farm gate price (about 50% of the retail value) and the retail price resulting in accruals of about 50% of the retail value to the various intermediaries.

9.1.3 Vicious Chain of Cleptocracy:

Which chain of costs is introduced due to use of public office for private purpose by internal and external agents and stakeholders causing price hike.

Speed money for quicker and easier official proceedings, Extortion to local and national Mastan; fraudulent influential persons; their political patron, Bribe to police in the Road are some of the elements of this chain. Money is to be given to government officials to overcome Redtapism, nepotism, to the members of law and order maintaining forces for Road transportation, to the Mastans and political leaders for safety. At the end of the day this cost is to be paid by the final consumer in the form of higher price. Bad Governance, Corruption, Overall moral degradation is reasons behind it.

Case Study-1

An importer told with condition of not expressing his name, that-After buying from international market, goods are to be released from port by giving bribe. Papers related to import are to be passed through 18 tables in the port. It costs extra 500 Tk each container. Various problems are created in course of commodity release from the port if the bribe is not given.

If these goods are kept at the port, various costs like damages, bank interest are to be calculated.

Case Study-2

Monirul Islam, a truck driver (Dhaka-T-18-1625), told that he came to Dhaka from Zibon Nangar in Chuadanga for 7500 Tk. He had to pay tk 100 as bribe at every six police checkpoints. After entering into Dhaka City the rate of bribe become higher from tk 500 to tk 1,000. Otherwise truck is blocked in excuse of higher load, broken light, dis-obeying of signals inspite of valid credential. Ultimately this bribe money is to be imposed on the price of commodity.

Case Study-3

Showkat Ali, a retailer in Nimtoly bazar, said after buying from karwan bazar we have to add-Commission for Arottdar, Labor cost, VAT, Subscription.

A report published by BDR identified this extortion as a vital cause for raising retail price. This report said, some dishonest people like local Mastan; fraudulent influential persons; their political patron are collecting illegal subscription from the retailer. These costs are added to the price of goods. And ultimately it is paid by final consumers.

Source: Author's survey

The map of this chain is more or less like as follows.

Table 7: Agents under the three Chains

Items	Dominant chain	Longer chain	Vicious Chain
Rice	Miller-Trustee-Arotder-Retailer-Consumer Importer to Retailer	1.Producer-Foria-Arotder-Miller 2. Miller-Trustee Arotder in Dhaka-Retailer	Gov officials (Customes, BIWTC, BGB, investment Board, Police, RAB etc), local Mastans and their Political Patron.
Lentil	Impporter-Paiker-Wholesaler-Retailer-Consumer	Producer- Faria-Miller	Do
Edible oil	Rfiner-Importer-local office packet-Agents-Wholesaler-Retailer	Importer-Agents (loose)-Wholesaler-Retailer-Consumer	Do
Vegetables	Arotder- Foria-Retailer	1.Producer-Broker-Baperi-Arotder 2. Faria-Retailer-Consumer	Do

Source: Constructed by the Author

In the current flow systems there are a huge number of these three types of intermediate agents, who are involved in controlling the flow of product. This chain is also reported to be prolonged or fragmented horizontally and vertically by unknown number of hidden agents. Thus a large scale supply chain syndicate is created on the basis of market, administrative and political power. In every step of this chain, some obvious costs are added with the product to cover- loading and unloading of the products, rent of the stores, administrative cost ,cost of fund and finally the profit of the agent.

Producers are getting small amount of benefits from their network. End users are also paying high amount to buy the products from the market. Intermediate agents are enjoying the major benefits contributing little or nothing in terms of value addition. Employment opportunities are being reduced & are shifting towards non-farming sectors. Food production and as a result Food security in the country is being reduced & dependency on the foreign supply is increasing. Money & resources are getting concentrated within the rich business class creating demand for foreign consumer goods instead of boosting up the demand for domestic product or foreign capital goods. This unemployment & money flow systems is creating economic imbalance & the major population of the country are losing their moral & social values due to abject poverty.

9.2 Important but beyond the Supply Chain

Consumers always face Retailers. There are some features in this Retail Market. Our study shows-

Retail price of the same commodity varies at different market places in the same locality.

Retail price of the same commodity varies at different shops at the same market.

Retail price variation is also varied with the variation of goods.

There are some demand & supply side factors behind these phenomena-

Table 8: Factors influence the retail price in the retail market

Demand side	Supply-side
Time	Location of the shop
Mode of payment	Decoration of the shop
Bargaining capacity	Mindset of the shopkeeper
Mind set to a specific shop	Cost of collection
Income status	Customers differentiating capacity
Opportunity cost	Market imperfection
Literacy	
Asymmetric information	
Distance	

Source: Survey conducted by the author

9.3 Attainment of Efficiency and Equity in the Supply Chain will Help to Reduce the Problem:

The existing market works for players who have the necessary capital, knowledge, linkages and information, marginalizing the majority of poor and mainly rural producers and the consumers who rely on the market. To correct this, MDA (Market Development Approach) mainly based on the “Making Markets Work” for the equity and efficiency that, asserts facilitating the due stake according to the real value addition in the supply chain and cost effectiveness in the whole process.

This has been for several years the debate between proponents who see the market functioning in a self-regulatory manner through its “invisible hand” (e.g., Adam Smith) and advocates who define the market as a social construct (e.g., Karl Polanyi). MDA centrally focuses on making markets (as institutions) work favourably for all real players (from producers to the consumers) for “win-win” market gains.

MDA (Market Development Approach) derived its conceptual origin from the New Institutional Economics (NIE) which states that the success of a market system is dependent upon the way institutions facilitate efficient transactions. Markets are one form of institutions and they play roles beyond fixing prices and quantities. This occurs in two ways. First, institutional arrangements serve as basis for contracts during transactions, such as contract farming, co-operatives, commissions etc. Second, institutional or enabling environment constitutes “the rules of the game” used for developing, governing and implementing institutional arrangements (Davis and North, 1971). Risks and transaction costs, underlying impediments in market systems, are lessened by improving institutional arrangements and environment to enable people’s access to assets and information, incentives for market participation, and market valuations of goods and services.

Based on this theoretical framework two policies can be adopted to avoid the syndication and market imperfection in the chain of food industry.

9.3.1. Alternative Syndication of Importers and alternative marketing:

- a. Creating alternative syndication, by small & medium scale importers breaking the syndicate of large scale importers.

Usually small & medium scale importers lack in adequate capital, experience, confidence and co-ordination.

Bank & financial institute can solve this crisis. But it is not bank's duty to organize these people. Bank can give them financial, skill & mental support if they become organized through any private or public initiative.

b. Alternative marketing

Government takes this policy in different times as OMS of BGB (Boarder Gurd Bangladesh). Theoretically it is said that when large number of buyers work in the market competition will arise & price will be lower. From this theoretical point of view OMS started. But it may have short term effect and its effect may not spread all over the country.

In this case BGBs Manpower, Vehicle, Labour , Net work & communication

work as a subsidy in these shops. Government should think whether this subsidy could be spread out to the general market.

As: Reduction in electricity bill in the production level

Providing capital at lower interest rate to the small and medium scale importers. etc.

9.3.2. Different bodies and cost effective Management Ventures:

Two types of body and two types of ventures can be initiated.

The ventures are:

- I. Co-operative in the firm level.
- II. Large scale supply chain management enterprises on public- private partnership basis.

The bodies are:

- I. Consumers' council at the consumer level.
- II. Watch dog at national level.

Co-operative and consumer council can be spread out throughout the country to reach cost effective production materials, subsidy & due price to the farmer & to ensure reasonable price to the final consumers. And it should be organized & coordinated by the Ministry of Co operatives.

They will work together to reduce asymmetric information in all level. Some large scale supply chain management companies should be established to ensure economies of scale, reducing number of agents and increasing productivity. The number of companies should be several to ensure market competitiveness. These companies should be established on public private-private partnership for ensuring close monitoring to reduce corruption and inefficiency.

The Watch dog will be established at national level consisting of –Retired Justice, Market expert, Member of civil society, Professionals. This body should be independent. It will monitor the

market & give consultancy regarding: anti monopoly behaviour, anti hoarding , anti impure goods sale.

10. OVERALL SUGGESTION

1. Public awareness should be created against super normal profit through mass media.
2. Public inventory & public rationing should be strengthening for combating crisis.
3. Adequate supply of fertilizer, seeds irrigation machineries, diesels, insecticides with quality control can increase the production level. Reduction in prices of these materials can reduce the cost of production.
4. Illegal practice & corruption of food administration is to be stopped.
5. Legal & institutional frame work & mechanism is to be started to monitor the market.
6. Production is to be increased reducing imports.
7. Case fishery system is adopted in China. In many countries fish is cultivated with rice cultivation. We have to adopt all the strategies.
8. Food grains import & tax policy should be reviewed, so that the importers can be encouraged.
9. Agriculture policy should contain a long term plan of what type of good is to be produced & what type of goods is to be imported. Implementation of such policy should be monitored in a regular basis.
10. Fisheries, poultry & other live stocks should be encouraged.
11. Institutional arrangement in determining of market demand, supply & monitoring should be started.
12. Bureaucratic complexity & Red-tapism must be eliminated. A co-ordination should be initiated among inter-ministry activities regarding food production, distribution, public inventory and price control.
13. Existing organizations related to the market like TCB & BADC activated properly and new organization can also be started this area if it is necessary and cost effective.
14. The government should maintain sufficient buffer stock of food grain (rice and wheat) in order to meet any kind of shocks. This will instil confidence in people.
15. The existing information dissemination system on the prices of essential commodities may be strengthened by using electronic and print media.
16. The surveillance on the part of the government may be enhanced through weekly monitoring of domestic and international prices of essential commodities.
17. More investment in the agriculture sector is needed to undertake research and extension work in order to invent/upgrade modern technology to boost agricultural production,

strengthen capacity in storage, marketing and management along with setting up of agro-based industries.

11. CONCLUSIONS

Inflation in Bangladesh is triggered by both demand side factors as well as supply side. In this paper, we have analyzed some supply side economic factors on inflation in Bangladesh. Apart from these, current inflation in Bangladesh could not be explained solely on the economic variables and economic numbers or graphs as some non-economic factors (drive against corruption, low business confidence, political uncertainties, etc.) have also contributed to the price hike. So, the policy implication is that in Bangladesh to lessen inflation momentum the concerned authorities should take into account all the both economic and non-economic factors that have instigated the ongoing inflation. It is proved that an ad hoc mechanism like allowing armed forces to control the market can never be effective. It is also experienced strongly that further study should be carried out using different sets of variables and appropriate mathematical models to detect the inflation determinants in Bangladesh so that effective and sustainable policy can be explored.

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