

Understanding the Nature and Causes of Food Inflation

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The main reason for the current surge in food prices is the supply shock due to the drought in 2009 and the carry-over effect of the low growth of food production in 2008-09. As the frequency of such shocks is expected to rise, India needs to have an effective food management strategy to deal with these episodes. It also needs to explore various other options for price stabilisation like maintaining buffer stocks and using trade. The economy has to invest heavily in expanding storage capacity for various types of foods in both the public as well as private sectors. Due to fluctuations in growth, the export of some commodities in one or two years is followed by their imports, which invariably involves a large variation in costs and prices. As India is a net exporter of food, a part of what is now exported needs to instead become part of domestic stabilisation stocks.

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Policymakers and administrators seem unable to bring food prices under control. Food inflation, based on the wholesale price index (WPI) for food articles and food products, entered double digits in April 2009 and crossed the 20% level in December.

The increase in prices is not restricted to a few commodities, and it is being experienced across the board; the exception being edible oils. Inflation at the retail level, which ultimately is what matters for consumers, is more serious than wholesale prices. At this rate of inflation, Indian consumers are required to spend about 20% more on food compared to the previous year to maintain their consumption level. A large percentage of households in the country is not in a position to raise its food expenditure to neutralise the effect of inflation. This is surely going to aggravate food and nutrition deficiency which remains at a very high level (Deaton and Dreze 2009).

The debate on the causes of inflation is full of confusion and most experts do not distinguish between long-run and short-run inflation. While the imbalance between demand and supply is often mentioned as an important factor, an adequate understanding of this imbalance is missing. The long-run implications of the emerging trends in food production have also received little attention. This article looks at the long- and short-term changes in food prices in nominal and relative terms and examines how these changes are affected by changes in production and other factors. It also examines the effect of trade in food products on domestic prices and supply.

1 Inflation: Trend and Structure

The average rate of annual inflation, based on the WPI (1993-94) was close to 6% during 1994-95 to 2004-05. Inflation in food

items, which includes food articles as well as food products, was 5.64%, and it was lower than the inflation in prices of non-food commodities.¹ The average rate of inflation among various food items varied between 4% and 7.5% (Table 1, p 11). The lowest inflation during this period was experienced in sugar and the highest in fruits and vegetables.

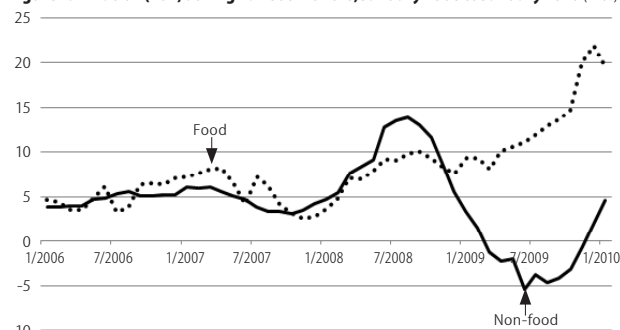
After 2005, food prices increased at a much faster rate than non-food prices, except in 2008 when the prices of commodities spiked in India and in the global market. Food and non-food prices showed a disparate movement after January 2009 (Figure 1, p 11). On an annual basis, food prices in 2009 increased by more than 12% over 2008, in contrast to the 1.76% decline in non-food prices.

It is important to point out that food inflation in wholesale prices since 2005 has been accelerating, and it was close to 20% in January 2010. Annual average food inflation during the period 2006 to 2009 was more than 80% higher than inflation in non-food commodities. These trends show that the real prices of food (food prices relative to non-food prices) declined during the period 1993-94 to 2004-05 and increased after 2005. Within the food group, the highest inflation is observed in the case of pulses and the lowest in the case of edible oils. Except edible oil, the real prices of all major food items have registered an increase during the past four years.

Food prices increased in real terms and food inflation accelerated in 2006-09 despite a more than 5% annual growth in food output during the period 2005-06 to 2007-08. The reasons for this are discussed in the following sections.

2 Factors Affecting Food Inflation

The acceleration in food inflation and the abnormally high level of food prices towards the end of 2009 have been caused by several factors relating to a shock in supply, trade, global prices, food management, speculative activities and demand. Some of these factors are of a short-term nature and some are of a long-term nature, while some operate both in the short as well as long period.

Figure 1: Inflation (YoY) during Various Months, January 2006 to January 2010 (in %)

Source: 1, in Table 1.

2.1 Domestic Production

Food inflation in India started accelerating in the beginning of 2008 (Figure 1) though food production during 2006-07 and 2007-08 had reached record levels and registered more than 5% growth in each of these three years (Table 2). The growth rate was more than double the growth rate of domestic demand for food.² However, a major chunk of the incremental output during these years did not enter domestic supply. As global prices had reached a very high level in 2007 and 2008, exports turned out to be much more lucrative than sales in the domestic market. The share of exports in domestic production of food increased from 6.2% during 2003-04 to 2005-06 to more than 10% during 2006-07 to 2008-09. This resulted in a transmission of some of the increase in global prices to the domestic market, and domestic prices experienced an increase despite a substantial increase in domestic food production. Thus, the main cause of an increase in food prices in 2008 was the influence of exports, led by high global prices.

Global food prices cooled down considerably during 2009. The FAO Food Price Index in 2009 was 20% lower than in 2008 (FAO 2009). In contrast to the global trend, domestic food prices followed a rapid increase throughout 2009. The increase was much higher in real terms than nominal terms as non-food prices declined and experienced negative inflation in most of 2009 (Figure 2, p 12). The main factor underlying high food inflation during 2009 and beyond is that growth in food production during 2008-09 fell short of demand (Table 2). Food output in this year increased by 1.6%, which was short of the annual growth in demand. As more than

half of food production reported in a financial year is consumed in the next year, the impact of the low growth in food production during 2008-09 was felt during 2009. This was followed by deficiency of the 2009 south-west monsoon in large parts of the country resulting in a drought (there were also floods in other parts), which caused considerable loss to kharif output for the year 2009-10. Thus, 2009-10 turned out to be a bad year after a year of poor agricultural output performance in 2008-09. According to the advance estimates issued by the CSO, foodgrain production in 2009-10 is estimated to decline by 8% and oilseeds and sugar cane production by 5% and 11%. Since we do not have mechanisms to adequately and promptly augment the

imbalance in demand and supply, the decline in food production was bound to raise food prices.

2.2 Trade and Global Prices

Changes in international prices are exerting a significant direct and indirect influence on domestic food prices through trade as well as through adjustment in domestic policies³ in order to keep some balance with global prices. However, this influence varies greatly across commodities. Interestingly, the prices of edible oil in the country turned out to be lower during 2009 compared to 2008 despite a decline in oilseed output by 5% in 2008-09 and an estimated decline of same order during 2009-10. Imports, which meet around 40% of domestic demand for edible oil, are the major factor holding edible oil prices at a low level.

Why have imports not taken place or helped in cooling domestic prices of other food commodities like wheat, rice, sugar, pulses, and eggs/meat/fish? There are several reasons for this and some reasons

Table 1: Inflation in Food and Non-food Commodities during 1994-95 to January 2010

(Based on WPI with base 1993-94) and Growth Rate in Food Output (%)

Item	1994-95 to 2004-05	2005	2006	2007	2008	2009	2010 January	Average 2006-09
1 All commodities	5.90	4.74	4.82	4.82	9.12	2.01	8.54	5.19
2 Non-food commodities	6.02	5.37	4.72	4.54	9.55	-1.76	4.53	4.27
3 Food articles	5.91	3.94	6.83	7.02	6.64	12.32	17.41	8.20
4 Food products	5.33	1.58	2.55	3.43	9.80	13.79	22.55	7.39
5 Food commodities (3 and 4)	5.64	2.97	5.09	5.60	7.87	12.90	19.42	7.86
Foodgrains	5.54	3.83	9.71	6.27	6.37	14.14	17.89	9.12
Cereals	5.57	3.68	6.63	6.97	7.20	12.96	13.69	8.44
Pulses	5.46	5.04	32.05	2.14	1.30	21.81	45.62	14.33
Rice	5.00	4.01	2.13	6.05	8.97	15.96	12.02	8.28
Wheat	5.93	1.08	12.99	6.77	5.06	6.83	14.86	7.91
Oilseeds	5.89	-6.11	-3.96	26.58	17.46	0.92	10.05	10.25
Fruits and vegetables	7.47	7.51	2.24	6.49	5.94	11.77	8.33	6.61
Dairy products	5.20	0.11	4.20	6.08	8.38	6.12	12.87	6.19
Milk group	5.57	0.73	4.48	8.17	7.87	8.93	13.99	7.36
Egg, fish and meat	6.46	9.46	6.72	6.38	3.75	14.44	30.71	7.82
Edible oils	4.85	-7.19	1.23	13.11	12.52	-6.59	-1.17	5.07
Sugar	4.06	15.09	4.83	-14.69	5.62	36.34	58.94	8.02
Growth in food output (%/a year)	2.39	0.55	5.87	4.10	5.39	1.60	-0.2AE	4.24

(1) AE stands for Advance Estimate provided by CSO. (2) Growth rates in last row refer to financial year ending with, like 2005 stands for 2004-05.

Sources: (1) Office of Economic Adviser, Ministry of Commerce and Industry, GOI, New Delhi. (2) National Accounts Statistics, CSO.

(3) Department of Agriculture and Cooperation, Ministry of Agriculture, GOI, New Delhi.

Table 2: Growth Rate in Output of Major Food Commodities (in %)

Item	1993-94 to 2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10AE
Foodgrains	0.69	-6.96	5.16	4.16	6.21	1.34	-8.00
Oilseeds	-0.43	-3.33	14.91	-13.19	22.52	-5.38	-5.00
Sugar cane	-0.15	1.38	18.60	26.44	-2.06	-22.10	-11.80
Fruits	2.48	7.93	4.26	6.43	6.69	na	2.50
Vegetables	3.03	8.02	21.62	4.16	5.37	na	4.80
Total food #	2.39	0.55	5.87	4.10	5.39	1.60	-0.20

Refer to value of all food crops and livestock products at 1999-2000 prices.

Sources and notes: Same as in Table 1.

are commodity-specific. In the case of edible oil, India is a regular importer and many big public and private agencies have been importing edible oil since a long time. These agencies plan for imports well in advance. The international market for edible oil is quite big and it offers lot of choice in terms of destination and the type of oil traded. The situation is different for

is around 10 million tonnes out of which India imports about 30%. The global market does not seem to be having the capacity to meet India's rising demand for pulses.

2.3 Food Management

It is pertinent to ask whether high food inflation being experienced in the country could be checked through better manage-

Figure 2: Growth Rate in Food Output during 10-Year Periods from 1971-72 to 2007-08 (in % at 1999-2000 prices)



Source: National Accounts Statistics, CSO.

other commodities, particularly for those which face sporadic shortages in the domestic market. There are no private import houses specifically importing such commodities. Strict regulation on import and delay in announcement of policy changes to facilitate imports further restrict the ability of private players to go for quick imports. Once the situation starts worsening, the onus falls on public agencies to arrange imports. As we do not have any institutional mechanism for an early warning system to know in advance about the likely scenario of domestic and global supply and prices, the import option is put in place quite late when the global market has already factored in India's need for import. The most recent evidence of this is in the case of sugar. World sugar prices ruled around \$290 per tonne during the first quarter of 2009. When the market realised that there would be a sugar shortage in India, prices increased to around \$470 per tonne in the third quarter of 2009. By the end of the year world sugar prices had doubled. The lack of cooperation or coordination between the centre and the states further complicates the likelihood of a quick execution of the import option to meet domestic shortage, as was seen in the case of sugar recently.

In commodities like pulses, the global market is very thin. The total trade in pulses

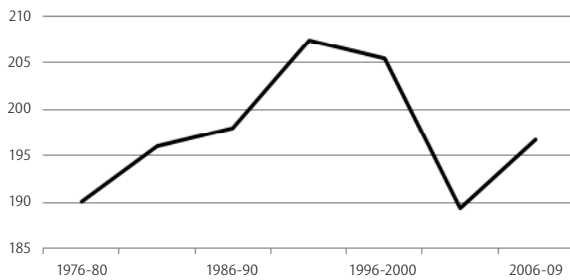
of our food economy. This issue is particularly important because there is a gap between desired and actual action taken in the food sector. For instance, the first indication of a serious fall under sugarcane acreage was available in the first week of July 2008⁴ but export of sugar continued despite this signal. Between April and September 2008, India exported sugar worth \$960 million and in the following six months (October 2008 to March 2009) it imported sugar worth \$127 million. The situation turned precarious during 2009 and India imported sugar worth \$306 million during the first half of 2009-10 (CMIE 2009, 2010). In a short span of time, the price paid for imported sugar turned out to be more than double the price fetched by exports.⁵ This implies that with a correct assessment of situation, sugar exported at a low price could have been kept in stock to meet the deficit in production that emerged in a few months. Similarly, it is felt that timely release of cereals stocks held by the Food Corporation of India (FCI) could reduce prices substantially.⁶ Such instances necessitate that we look at the weaknesses in our food management strategy and policies.

According to various reports on climate change, the country is expected to face more frequent floods and droughts in the future. This will increase the occurrence of supply shocks. There are only two ways to address demand and supply imbalances arising out of such shocks, viz, cross border trade and by maintaining an adequate inventory. Except for a buffer stock of rice and wheat by public agencies and sugar stock by various agencies, there is no arrangement in the country to carry large

inventories of other food items. Because of this, the stock to consumption ratio for most of the commodities in the country remains low and not large enough to go beyond the next harvest. There is a strong apprehension that allowing big domestic players or multinationals in the food market would jeopardise food security and result in exploitation of producers and consumers. On the other hand, the functioning of India's main public parastatal, the FCI, has remained under question on grounds of efficiency and for putting a heavy burden on the state exchequer. Bulk imports and exports by state agencies have often raised controversies and these agencies did not act with swiftness and efficiency to impart stability through trade. With an increasing frequency of supply shocks and a growing need to use trade and stock as instruments of price stabilisation, the country has to have a clear policy on the role of public agencies and private sector in food trade.

2.4 Long-Term Inflation

Long-term inflation depends upon the pace of growth in domestic production in relation to the growth in demand. This involves three aspects: (1) level or magnitude of growth of output, (2) year to year fluctuations, and (3) composition of growth. The long-term trend in growth of food output (i.e., output of food crops and livestock) is presented in Figure 3 (p 13). The graph presents trend growth rates based on 10-year periods beginning from 1971-72 to 1980-81 and extending up to 2008-09. The annual growth rate of total food production remained above 3% in successive 10-year periods from 1980-81 to 2001-02. Similarly, the growth in food crops ruled above 2.5% in the same period except in a few instances. The growth in crop as well as in the entire food sector followed a continuous deceleration after 1999-2000. By the decade ending 2005-06, annual food crop output growth dropped to 1.7% and the crop plus livestock sector growth fell to 2% level. There is some recovery in the last two years. After 2002-03, growth in food output remained below 2.56%. The most recent decade ending with 2007-09 shows trend growth rate of 2.4% while food output of the crop sector shows annual growth of 1.9%. These

Figure 3: Trend in Per Person Production of Foodgrains (in Kgs)

Source: 3, in Table 1.

growth rates are not even two-thirds of the growth experienced in the period 1970-71 to 2000-01.

On the demand side, India's population is rising annually by 1.4% and per capita demand is showing robust growth due to improvements in per capita income and also because the present level of nutrition and food intake are very low compared to the requirement for a healthy diet. Policies towards inclusive growth and schemes like the Mahatma Gandhi Rural Employment Guarantee Scheme, which aim at augmenting the income of poor households are also expected to have a positive influence on per capita food demand. These changes suggest that if the deceleration in food production growth is not reversed food prices would remain under strong pressure from the demand side.

For a country like India, stable growth in output is as important as the level of growth. Fluctuations in growth cause serious disruption in supply and result in frequent imbalances and bouts of inflation. Food storage capacity in the country is very low and the quality of storage infrastructure is not suitable for keeping food beyond a few months. This is particularly true for semi-perishable and perishable foods. Because of this, much of the growth during a year of bumper production cannot be carried over to meet a shortfall in production in the next season. Therefore, from an inflation point of view, smooth growth is essential and indeed much more important than high and fluctuating growth.

The growth rate of various food commodities show wide variation. While production of horticultural and livestock products is rising at a relatively high and stable rate, production of foodgrains shows slow and fluctuating growth. Despite a rising food subsidy, cereals are showing

double digit inflation. On a per capita basis, production of foodgrains declined by about 5% between the early 1990s and the triennium 2005-06 to 2008-09 (Figure 3). Pulses production has been almost stagnant for the past two decades. As a staple food, cereals and pulses are the

major and also the cheapest source of energy and protein for common people. Their growth rate, instability and prices are a matter of much more serious concern than other foods.

Another important concern relating to long-term inflation is that the average cost of production of major crops is showing an increase even in regions with low productivity, which have a large potential for growth. This kind of growth necessitates an increase in food prices. Only technology led growth can help in checking high food inflation in the long run.

3 Conclusions and Implications

The main reason for a sharp surge in food prices during 2009 is the supply shock due to the drought in 2009 and the carryover effect of low growth of food production in 2008-09. As the frequency of such shocks is expected to rise, we need to have an effective food management strategy to deal with them. India needs to explore various options for price stabilisation like maintaining buffer stocks and using trade. We need to invest heavily in expanding storage capacity for various types of foods in both the public as well as private sectors. Due to fluctuations in growth, export of some commodities in one or two years is followed by their imports, which invariably involves a variation in costs and prices. As India is a net exporter of food, a part of what is now exported needs to instead become part of domestic stabilisation stock.

There is a need to change regulation in food markets to encourage and involve the private sector in the food market, trade and stock management for price stabilisation along with active participation of public agencies. The risk of such players resorting to hoarding and speculative trade can be checked by establishing a food market regulator. India also needs to

set up a strong institutional mechanism for an early warning system relating to food demand, supply and price situation.

The long-run food scenario is causing greater concern as growth in food output is decelerating. The dependence on productivity for food growth is rising, which, in turn, involves an increase in the average cost of production. This implies that growth in food output is driven by an increase in food prices. To keep food inflation at a low level, we, of course, also need to take strong action to develop and disseminate improved technologies for raising food production.

NOTES

- 1 Inflation in food and non-food commodities was estimated by constructing indices of food items and non-food items from official statistics of WPI for various groups of commodities. WPI for non-food items was computed by extracting WPI for food articles and food products from WPI for all commodities. WPI for food items was computed by taking the weighted average of WPI for food articles and food products. The food articles group with a weight of 15.40% includes all cereals, pulses, milk, meat and fish products, fruits and vegetables, condiments and spices and other food articles like tea and coffee. It does not include processed products, which are included under the head food products. The food products group has a weight of 11.45% in the WPI for all commodities, and it includes (a) dairy products like butter, ghee, baby foods, milk powder, (b) canned preserved and processed fish, (c) grain mill products like maida, suji, atta, bran and bakery products, (d) sugar, khandasari and gur, (e) salt, (f) edible oils, and (g) other food products. A complete idea about food inflation can be had from the combined index of food article and food products.
- 2 According to an ongoing study by the author food demand during 1993-94 to 2004-05 increased by 2.2% per annum.
- 3 Like the hike in minimum support prices of wheat and rice.
- 4 Crop Weather Watch Group in Ministry of Agriculture in its report dated 11 July 2008 reported a 17% decrease in area under sugar cane in kharif 2008-09, this was repeated in subsequent weekly reports in the year.
- 5 Importing at high price and exporting at low price was also observed in other commodities (Chand 2001).
- 6 According to Gulati and Ganguly (2009) unloading of wheat stock held by the FCI in its godowns in Punjab will immediately bring down atta prices by about 20-25%.

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