

Inflation Monitor

December 2006



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Overview

Average inflation during the first half of the current fiscal year (FY07) has been recorded at 8.4 percent primarily because of persistent pressure on food inflation in contrast to the corresponding period of last fiscal year when inflation was lead mainly by non-food component.¹ While the non-food inflation started deceleration after a peak during H1-FY06 and continued to decline throughout the calendar year 2006, the food inflation emerged as a menace during the first half of FY07 with double digit inflation for consecutive five months.

Table 1.1: Inflation (YoY)
percent

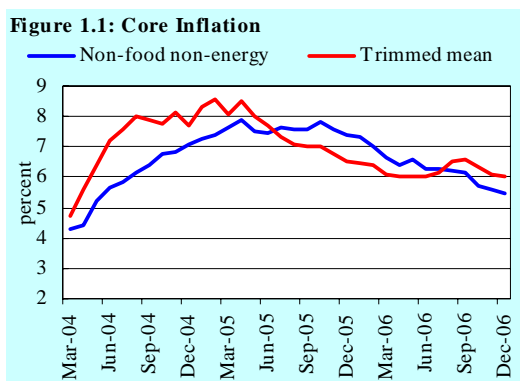
	CPI			Core Inflation		WPI			SPI**
	General	Food	Non-food	NFNE *	Trimmed	General	Food	Non-food	
Dec-05	8.5	8.1	8.8	7.4	6.5	11.0	7.8	13.4	7.7
Jan-06	8.8	8.2	9.2	7.3	6.5	10.8	7.2	13.4	7.0
Feb-06	8.0	7.5	8.4	7.0	6.4	9.9	6.9	12.2	7.4
Mar-06	6.9	5.4	8.0	6.7	6.1	8.5	5.9	10.4	6.9
Apr-06	6.2	3.6	8.0	6.4	6.0	8.1	4.5	10.8	6.4
May-06	7.1	5.6	8.2	6.6	6.0	9.1	5.7	11.6	7.7
Jun-06	7.6	7.8	7.5	6.3	6.0	9.0	6.7	10.7	8.7
Jul-06	7.6	7.4	7.8	6.3	6.1	8.4	5.4	10.7	8.6
Aug-06	8.9	11.1	7.4	6.2	6.5	8.2	8.2	8.1	10.8
Sep-06	8.7	11.3	7.0	6.2	6.6	8.0	9.2	7.2	10.0
Oct-06	8.1	10.5	6.4	5.7	6.4	6.7	8.2	5.6	9.9
Nov-06	8.1	10.6	6.3	5.6	6.1	7.5	9.1	6.3	10.7
Dec-06	8.9	12.7	6.2	5.5	6.0	8.0	10.0	6.6	12.0

*: NFNE is Non-food non-energy inflation; **SPI for all income groups combined.

During the month of December 2006, headline inflation was 8.9 percent (YoY) and the food inflation was recorded at 12.7 percent which was highest of the last 20 months and stemmed from supply shocks to prices of certain vegetables and fruits. On the other hand, non-food inflation declined to 6.2 percent in December 2006 which was lowest of the last 28 months (see **Table 1.1**).

¹ Average inflation in first half of FY06 was also 8.4 percent with food inflation at 7.6 percent and non-food inflation at 9.1 percent.

Despite upsurge in overall CPI inflation during the month, core inflation measured as *non-food non-energy* and *trimmed mean* continued to decline in December 2006 and was registered at 5.5 and 6 percent respectively compared with 7.4 and 6.5 percent in the corresponding month last year (see **Figure 1.1**).



In accordance to the CPI inflation, average WPI inflation (YoY) accelerated in December 2006 compared to the preceding month and rose to 8 percent; however, it was still much lower than the WPI inflation of 11.0 percent during the same month last year. Similarly, the SPI inflation increased to 12 percent showing the fact that prices of some necessary items were still on the rising path.

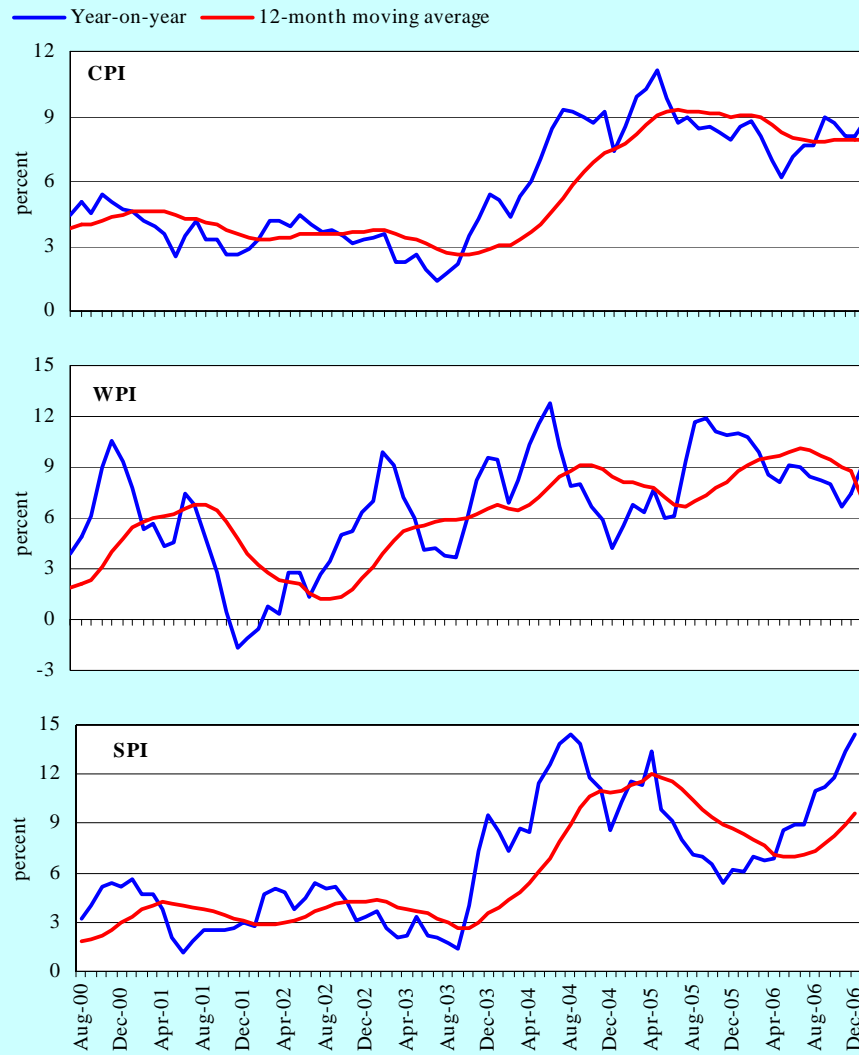
The monthly CPI inflation, i.e. percent change of price index in December over November 2006 expressed that overall CPI increased by 0.5 percent which was much higher than the corresponding month last year. Monthly food inflation was also significantly higher in December 2006 (see **Table 1.2**).

The long run trend of CPI inflation (measured as 12-month moving average) did not show any change since August 2006 and rested at 7.9 percent in December 2006. The long run trend in SPI, on the other hand, turned up by 1 percentage point (see **Figure 1.2**).

Table 1.2: Different Dimensions of Inflation (percent)

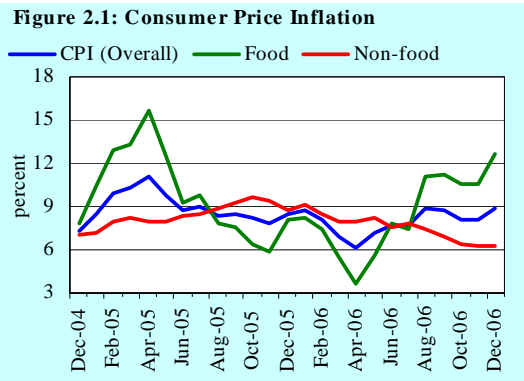
	Dec-04	Dec-05	Dec-06	5-year average
Year-on-year (Dec over Dec)				
Overall CPI	7.4	8.5	8.9	6.7
Food group	7.9	8.1	12.7	8.0
Non-food group	7.0	8.8	6.2	5.8
Period average (Jul-Dec over Jul-Dec)				
Overall CPI	8.8	8.4	8.4	6.5
Food group	12.6	7.5	10.6	7.6
Non-food group	6.2	9.1	6.8	5.7
12-month moving average				
Overall CPI	7.4	9.1	7.9	6.2
Food group	10.7	9.9	8.5	7.1
Non-food group	5.3	8.5	7.5	5.6
Monthly (Dec over Nov)				
Overall CPI	-0.8	-0.3	0.5	0.0
Food group	-3.3	-1.3	0.6	-0.8
Non-food group	1.0	0.4	0.4	0.5

Figure 1.2: Movements in Price Indices

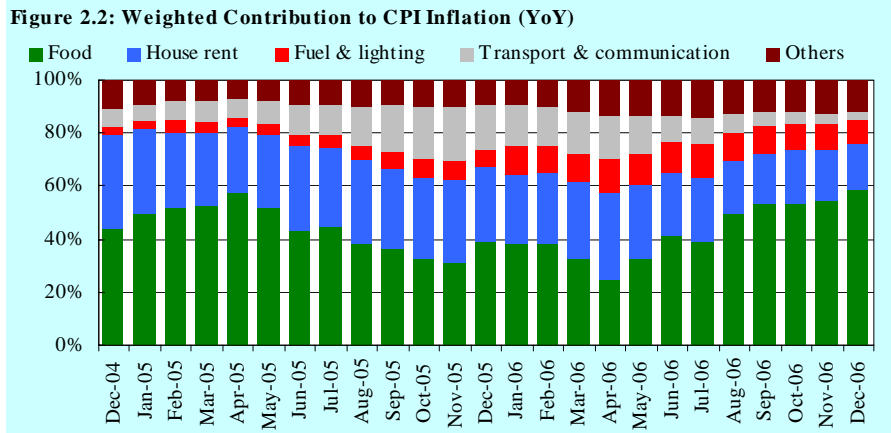


2. Consumer Price Inflation

The consumer price inflation in December 2006, recorded at 8.9 percent YoY, was 0.8 percentage point higher than the previous month. However, comparing with the corresponding month last year, it was 0.4 percentage points higher. As for the food inflation, it was about 2.1 percentage points higher than the previous month while non-food inflation declined by 0.1 percentage point as compared to last month (see **Figure 2.1**).



The contribution of food group in overall inflation increased significantly to 58.7 percent in December 2006 from 39.1 percent during the corresponding month of previous year; the non-food group's contribution declined accordingly in the month. Within the non-food group, the contribution of house rent index also declined from 29 percent during the last fiscal year to 17 percent (see **Figure 2.2**).



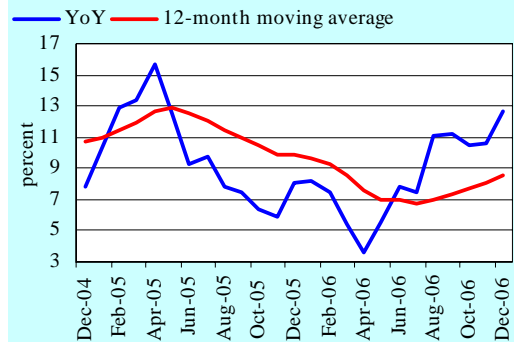
2.1 Food Inflation

Food inflation increased significantly to 12.7 percentage (YoY) in December 2006, driven mainly by increase in prices of vegetables including onion and tomatoes along with persistent pressure on prices of some pulses (see **Figure 2.3**). It is interesting to see that food inflation comes down to single digit if sharp increases in prices of onion, tomatoes and basen (the three highest inflation commodities)

are excluded; only these three commodities have a 2.42 percent weight in food group, their combined contribution is 21.41 percent.

A closer look at price movements of individual items included in the CPI food group reveals that prices of 45 commodities including fresh milk, beef, pulses gram, mash and moong, cooked mutton, honey and chillies exhibited inflation in the range of 10 to 50 percent YoY in December 2006. While two commodities, onion and tomatoes, recorded inflation over 200 percent (YoY) in the period under review. The combined weight of such commodities (with double digit inflation) is about 45 percent of the food group. On the other hand, prices of 14 commodities like apple, ginger, egg, chicken, pulse masoor and peas declined during the month or remained same. The rest of items, having a weight of 42 percent in food group exhibited subdued or moderate inflation (see **Table A2** in annexure for distribution of CPI items).

Figure 2.3: CPI Food Inflation

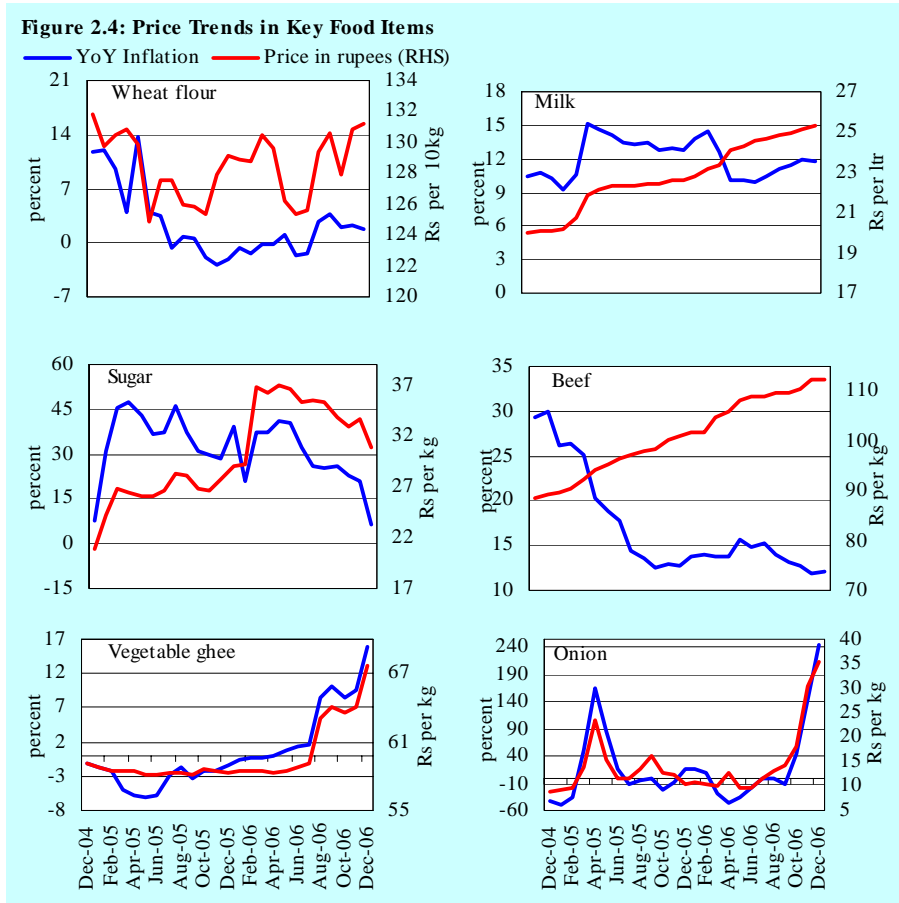


Among the key food items, average prices of wheat flour, fresh milk, beef and vegetable ghee slightly increased, while sugar price declined by about 8 percent compared with the previous month (see **Figure 2.4**).

In terms of percent contribution to overall inflation, onion and fresh milk were the second and third highest contributors (house rent index of non-food group being the first) with 12.84 percent and 9.29 percent share in overall YoY inflation of CPI (see **Table A4** in the Annexure). The high contribution of onion was due to exceptionally high growth in its price (245 percent) though its weight in CPI basket is just 0.58 percent. On the other hand, high contribution of fresh milk is due to its high weight (6.5 percent) though growth in its price was 11.9 percent in December 2006 – lower than the overall food inflation.

2.2 Non-food Inflation

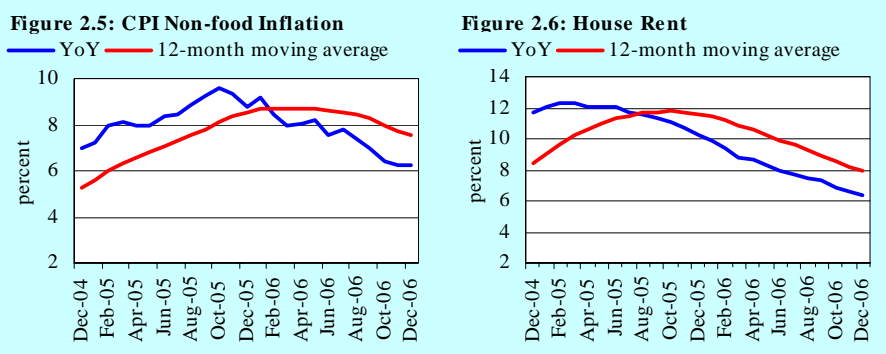
Contrary to food inflation, non-food inflation declined from 8.8 percent in December 2005 to 6.2 percent in the month under review primarily due to decline in inflation of transport & communication and continued deceleration in house



rent index. The long run trend in CPI non-food inflation also continued to decelerate in the month (see **Figure 2.5**).

House rent index (HRI) maintained its declining trend which started after February 2005, and recorded a moderate increase of 6.4 percent in December 2006 compared with 10.3 percent in the corresponding month last year (see **Figure 2.6**).

The inflation in transport & communication group declined to 3.4 percent in December 2006 from 3.65 percent in the preceding month. Inflation in household furniture & equipment was recorded at 6.43 percent (YoY) in December 2006 compared with 6.88 percent in the November 2005. Other sub-indexes of non-



food group exhibited increase in inflation during the month and included apparel, textile & footwear, fuel & lighting, education, recreation and entertainment and cleaning, laundry & personal appearance. The medicare sub index registered a significant increase of 9.7 percent in the month under review compared to 2.3 percent growth in the same month last year (see **Figure A1** in annexure).

Of the 250 non-food commodities included in the CPI basket, 31 commodities witnessed double digit inflation which include items like gents shoe, gas cylinder, mattress, fares of different modes of transportation, primary school fee (English medium), gold tezabi, and doctor clinic fee, etc. There were 54 commodities that showed moderate inflation in the range of 5 to 10 percent; all other commodities witnessed either YoY deflation or inflation of less than 5 percent (see **Table A2** in the annexure). The commodities showing deflation included a number of durable goods like telephone charges, computer, video cassette player, refrigerator, sewing machines, etc (see **Table A3** in the annexure).

2.3 City-wise Inflation

The highest inflation was recorded in Multan with (YoY) inflation of 12.2 percent in December 2006 that was due to both food and non-food inflation (see **Table 2.1**). The capital city Islamabad, which usually remains at top of the list in inflation ranking, was at sixth place in December 2006 with (YoY) inflation of 10.5 percent. The cities like Mardan, Attock, Rawalpindi and Bannu experienced higher inflation compared with the capital city. It was the second time during FY07 that Karachi fell among the category of high inflation cities and Lahore fell in low inflation group. The lowest inflation has been recorded in Faisalabad with (YoY) inflation of 7 percent in month under review. Of the 35 cities covered in the CPI, 23 cities had more than average inflation which included Multan, Rawalpindi, Islamabad, Gujranwala, Hyderabad, Karachi etc. Multan also remained at the top of the list in the food and non-food inflation, while Faisalabad

achieved lowest position in the ranking primarily due to non-food inflation which was 4.2 percent in December.

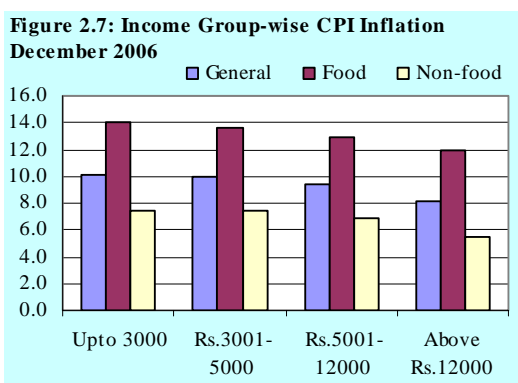
Table 2.1: City wise Inflation in CPI (YoY), December 2006

	High inflation cities				Low inflation cities		
	General	Food	Non-food		General	Food	Non-food
Multan	12.2	17.1	8.8	Shahdadpur	8.8	10.1	7.9
Mardan	11.4	15.8	8.4	Jhang	8.8	13.0	5.9
Attock	11.0	16.6	7.4	Bahawalnagar	8.7	11.8	6.6
Rawalpindi	11.0	16.8	7.1	D.I.Khan	8.7	13.5	5.3
Bannu	10.9	15.2	8.0	D.G. Khan	8.6	10.9	6.9
Islamabad	10.5	15.8	7.1	Nawabshah	8.4	10.1	7.2
Okara	10.5	14.4	7.8	Sialkot	8.3	11.7	5.9
Mianwali	10.4	15.0	7.2	Lahore	7.9	10.8	5.8
Quetta	10.2	15.2	6.9	Sukkur	7.5	8.6	6.7
Gujranwala	10.0	13.6	7.6	Samundari	7.5	11.6	4.7
Jhelum	10.0	13.8	7.4	Loralai&Cantt	7.1	9.5	5.4
Sargodha	10.0	14.4	6.8	Faisalabad	7.0	11.1	4.2
Larkana	9.9	13.5	7.2				
Bahawalpur	9.9	14.3	6.7				
Kunri	9.8	14.8	6.4				
Hyderabad	9.5	13.1	6.9				
Turbat	9.4	11.4	8.0				
Peshawar	9.3	13.5	6.5				
Abbotabad	9.2	12.8	6.5				
Vehari	9.0	9.9	8.5				
Mirpur Khas	9.0	12.1	6.9				
Khuzdar	9.0	13.5	5.8				
Karachi	9.0	13.1	6.2				

Note: High inflation refers to above average inflation, and low inflation refers to below average inflation

2.4 Income Group-wise Inflation

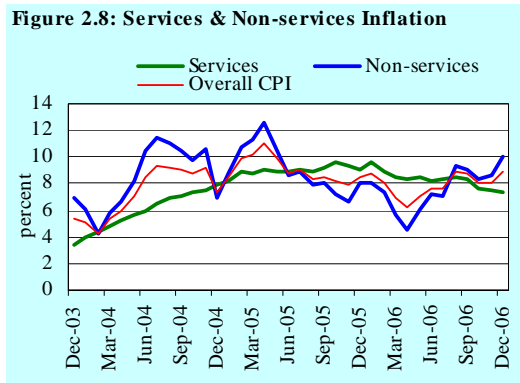
Income group wise inflation data reveals that all income groups had experienced CPI inflation higher than the overall average CPI inflation except for the highest income group of above Rs. 12,000. However as compared to previous month, all income groups depicted the increasing trend in all three categories of inflation (viz general, food and non-food) (see **Figure 2.7**).



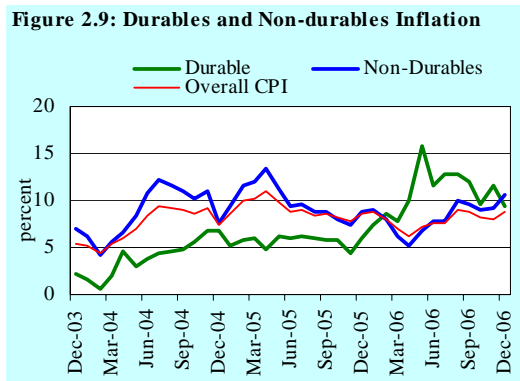
City-wise data reveals that Multan has the highest inflation in all income groups with (YoY) inflation of 13.7 percent for lowest income group, 13.5 percent and 12.5 percent for the two middle income groups and 11.2 percent for the highest income group in December 2006 (see **Table A5**).

2.5 Services and Non-services Inflation

The inflation in services² sector shows decline in December 2006 while non-services sector shows increase which probably causes the overall increase in inflation. YoY inflation in services was recorded at 7.4 percent in December compared with 7.5 percent in the previous month and 9 percent in the corresponding month last year. The prices of non-services (commodities) significantly increased by 10 percent in December 2006 as compared to 8.1 percent in the corresponding month last year (see **Figure 2.8**).



Within the non-services sector, further breakup is for durables³ and non-durables goods. The inflation of durable items decreased substantially, and stood at 9.4 percent in December 2006 as compared with 11.6 percent in November 2006 (see **Figure 2.9**). On the other hand, the non-durable goods inflation increased to 10.7 percent in December 2006 from 9.2 percent in November 2006 and



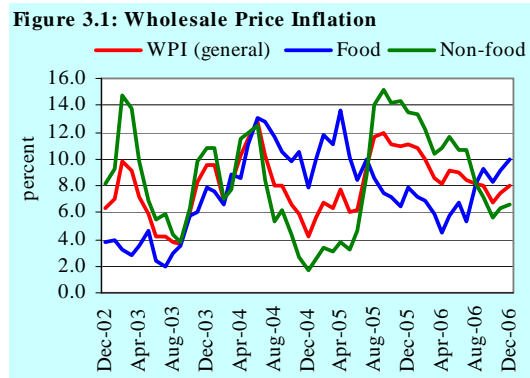
² The services group of CPI basket includes items like house rent index, electricity charges, marriage hall, house hold servant, transport fare, communication, recreation, tuition fees, laundry charges, hair cut & beauty parlor charges, doctor's fee, tailoring charges etc.

³ Durable items includes suitcase, furniture (ready made), electric iron, fans, washing machines, sewing machines, clocks, needles, refrigerator, air conditioners, vehicles, computer & allied products, watches and jewellery, etc.

8.8 percent in the corresponding month last year. The items which caused high non-durable inflation are almost the same that increased overall CPI inflation, i.e. onion, tomatoes etc.

3. Wholesale Price Inflation

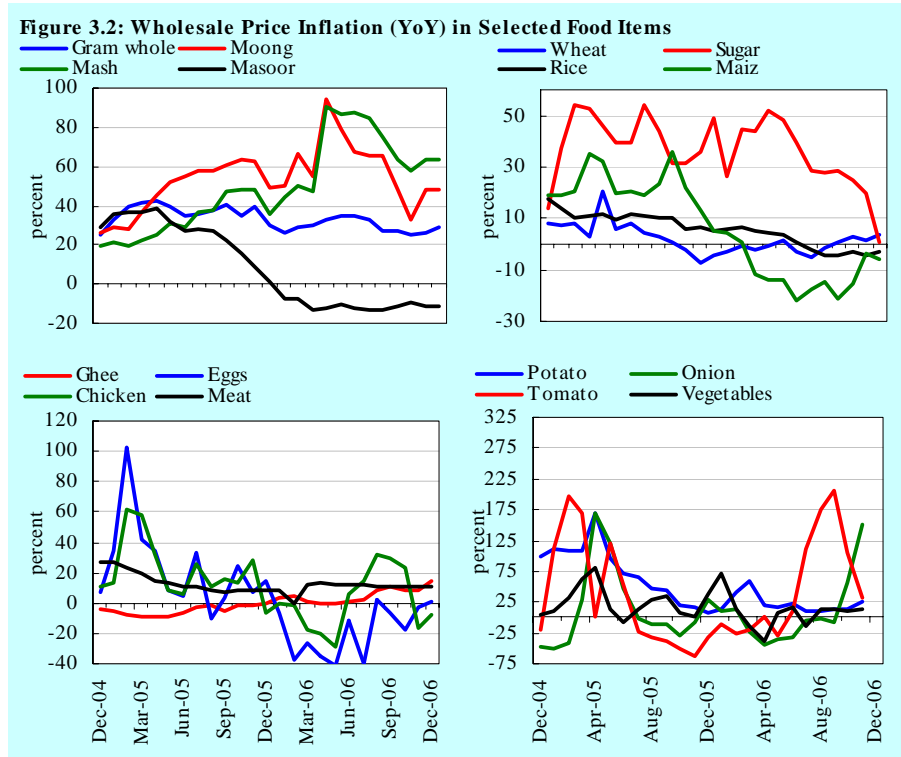
In tandem with the CPI inflation, average WPI inflation (YoY) accelerated in December 2006 compared to the preceding month and rose to 8 percent; however, it is still much lower than the WPI inflation of 11 percent during the same month last year. However WPI trend inflation – measured by 12 month moving average – declined significantly due to almost continuous deceleration in WPI inflation since December 2005 with few exceptions.



Food as well as *non-food* group contributed to the rise in average WPI inflation. The wholesale prices of food group jumped from 7.8 percent in December 2005 to 10 percent in December 2006 – highest WPI food inflation since July 2005. The non-food WPI inflation that was declining earlier witnessed a rise (YoY) for the second consecutive month and stood at 6.6 percent in the month under review.

The rise in food and non-food groups of WPI was the result of higher wholesale prices of food, raw materials and building material sub-groups. WPI food inflation registered a higher growth not only compared to the same month last year but also remained well above the average WPI inflation of last five years for the month of December. A disaggregated analysis showed that the significant rise in the prices of gram, mash, moong, meat, gur, potatoes, onion, tea, salt, fresh milk etc. contributed in the WPI food inflation. More specifically the wholesale prices of onion and tomatoes showed a steep YoY growth of 274.5 and 273.2 percent respectively and actually drove up the food inflation compared to the previous month. However, there were some food items whose YoY prices declined or showed no change during the month of December 2006 like chicken, maize, eggs, vegetables, etc. (see **Figure 3.2**).

Average wholesale prices of non-food items increased further by 6.6 percent in the month under review over last year; however, this growth is still much lower than that of the five years average for the months of December. The raw materials and building material sub groups contributed in non-food WPI inflation during the month. Among the individual commodities of non-food group, wholesale prices of wool, mobil oil, fire wood, natural gas, mattresses, wires & cables, kerosene oil,



furnace oil, chemicals, cement etc. increased significantly on YoY basis during the month of December 2006; whereas the wholesale prices of fertilizers, woolen textiles, cosmetics etc. declined.

A distribution of price changes suggests that the 17 out of 43 food items witnessed rise of more than 10 percent in inflation in the month under review. While 6 items recorded moderate inflation of 5 to 10 percent and WPI inflation of 15 items of food group showed subdued inflation of up to 5 percent. The wholesale prices of remaining 5 food items declined or remained stable. In case of non-food group, the prices of 22 items revealed a positive change up to 5 percent, 17 items showed decrease or no change, 11 items demonstrated double digit rise of above 10 percent and remaining 13 items displayed a moderate inflation i.e. 5 to 10 percent (see **Table A7**).

Among non-food sub-groups of WPI, the rate of increase in *raw materials* was recorded at 16.7 percent YoY increase in December 2006 due to high WPI inflation in sugarcane, wool and cotton seeds etc. Whereas the wholesale price of

pig iron declined by 7.7 percent in December 2006 in contrast to the 23.8 percent YoY rise price during December 2005 (see **Figure 3.3**).

Annual growth in *fuel, lightning & lubricants* group rose marginally to 7.9 percent during December 2006, as all major items registered growth during the month including natural gas, mobil oil, kerosene oil etc.

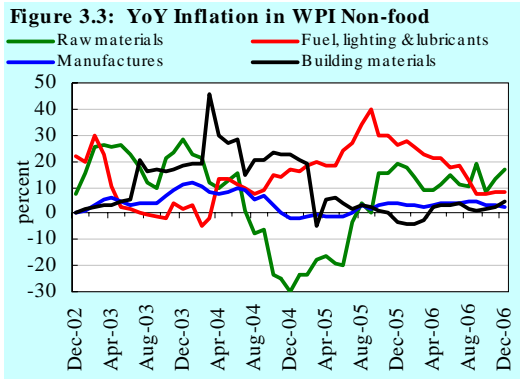
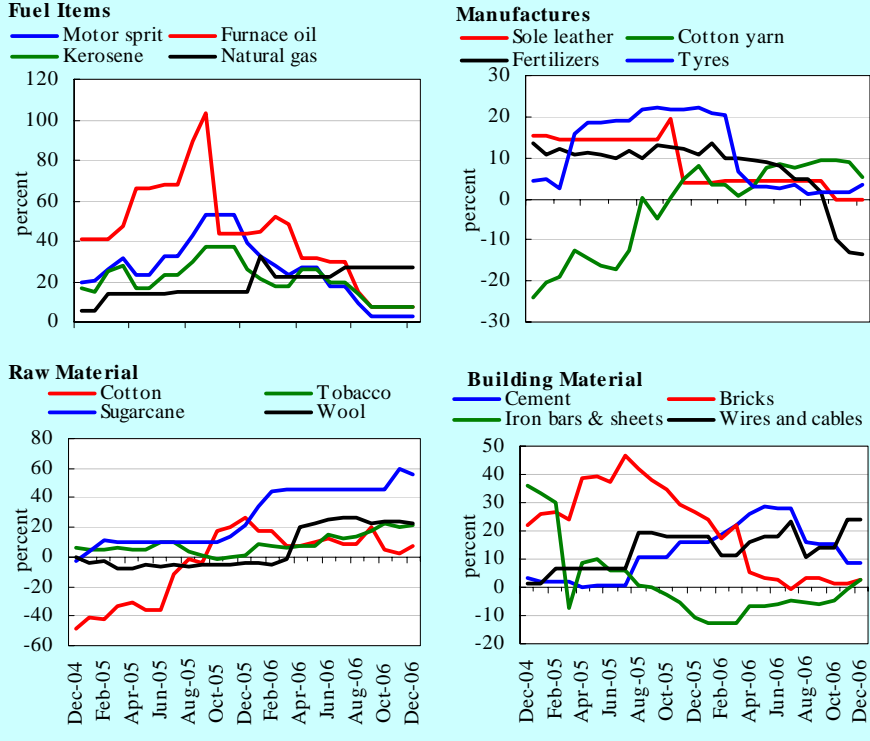


Figure 3.4: Wholesale Prices Inflation in Selected Non-food Items



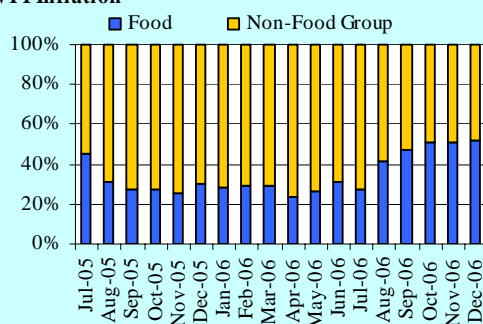
Manufactures sub-group, with its decelerating trend that started a couple of months earlier, showed a lower inflation of 2.4 percent in December 2006

compared to 3.1 percent in the previous month. The major items within the group exhibited mixed trends. The wholesale prices of cotton yarn, tyres and cigarettes registered a YoY increase during December 2006 whereas the fertilizer prices declined significantly by 13.7 percent for the third consecutive month.

The *building material* depicted a moderate YoY growth of 4.6 percent in December that was highest in last 19 months. All items reported under this group exhibited positive inflation during the month under study; particularly wholesale prices of timber and wires & cables rose sharply (see **Figure 3.4**).

The weighted contributions of food and non-food groups of WPI inflation changed slightly. Contribution of food group increased further to 51.5 percent in December which was less than 30 percent in December 2005. This rising contribution of food group in WPI was attributed to the higher wholesale prices in most of the major food items during the last five months. The weighted

Figure 3.5: Weighted Contributions in WPI Inflation



contribution of non-food inflation in WPI that remained around 70 percent during FY06 declined significantly to 48.5 percent in December 2006 (see **Figure 3.5**).

Within non-food group, the contributions of its sub groups showed mixed trends. The contributions of *fuel, lightning & lubricants* and *manufactures* sub groups declined while the shares of raw materials and

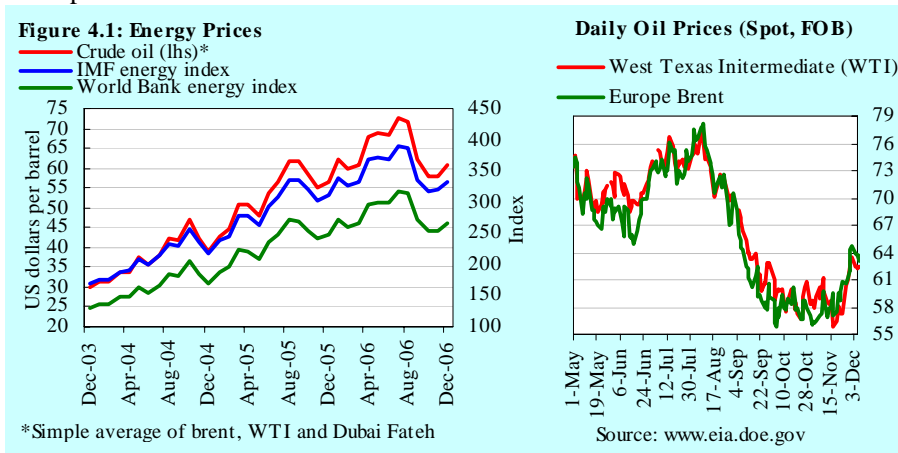
Table 3.1: Contributions to WPI Non-food inflation in FY 07

	Jul	Aug	Sep	Oct	Nov	Dec
Raw materials	12.9	15.3	31.0	17.4	25.2	30.5
Fuel, lightning & lubricants	68.5	61.4	44.0	57.6	52.4	49.9
Manufactures	15.1	21.5	24.0	22.4	18.6	13.7
Building materials	3.5	1.7	0.8	2.5	3.6	5.9

building materials increased in December 2006 (see **Table 3.1**). In particular, the contribution of *fuel, lightning & lubricant* sub-group came down to less than 50 percent in December 2006 from over 80 percent on average during FY06.

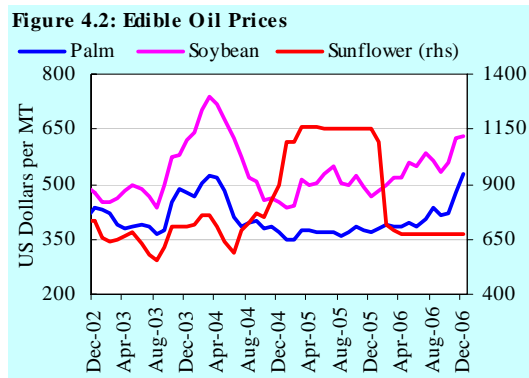
4. Global Commodity Prices

The oil prices that picked up in November continued to rise in December 2006 and exhibited a modest growth of 8.0 percent over the corresponding month last year. The prospect of a further OPEC output cut, the impending onset of winter in the west and a drop in US natural gas storage helped to revive market bullishness. The upward trend continued during the month the expectations that OPEC to cut oil output to balance the market.⁴



The average price of crude oil⁵ in international market remained within a wider range of US \$59.6 per barrel to the maximum level of US \$64.1 per barrel with a higher fluctuation around average price during the month of December 2006. In accordance with the international oil prices, the IMF and the World Bank energy indexes for December 2006 exhibited a rise over the preceding month (see **Figure 4.1**).

Like previous months, the wholesale prices of palm and soybean oils in international market showed growth in December 2006 over the corresponding month of last year. The prices of both edible oils



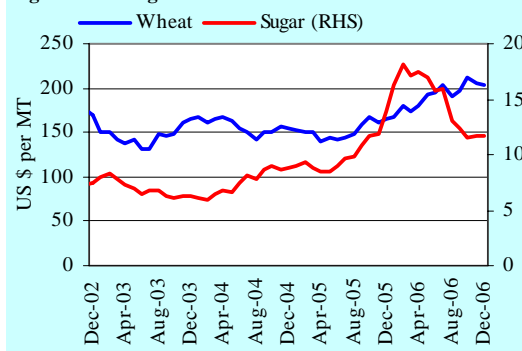
⁴ Source: OPEC's Monthly Oil Market Report

⁵ Average of West Texas Intermediate (WTI) and Europe Brent daily crude oil price.

showed a steep rise during the month under review due to the increase in demand at the start of winter season coupled with the poor rapeseed harvest. The palm and soybean oil recorded 43.2 and 34.9 percent inflation (YoY) in November 2006 respectively whereas the price of sunflower did not show any change since April 2006. In accordance to the previous trend, the prices of palm as well as soybean oil witnessed a rise over the preceding month (see **Figure 4.2**).

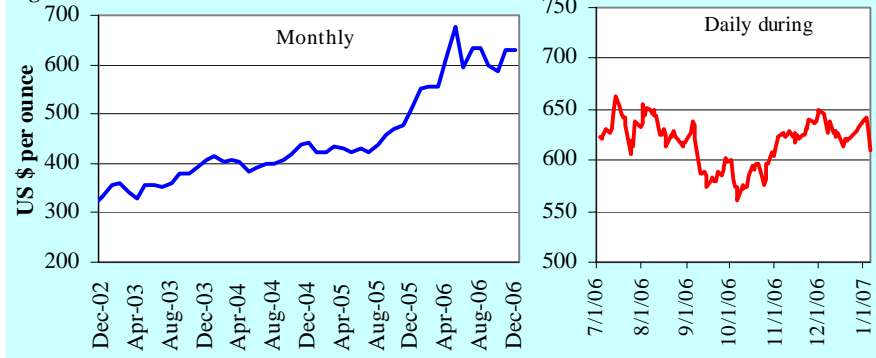
Wheat prices remained strong in December 2006 with an increase (YoY) of 24.7 percent – though declined slightly compared to the preceding month prices. The higher global food prices are being compounded by low domestic stocks in China as the domestic suppliers have sold much of their inventory during October. The sugar prices, on the other hand remained stable at previous month level;

Figure 4.3: Sugar and Wheat



however unlike wholesale price of wheat, the sugar price depicted a significant decline of 16 percent for the third consecutive month after registering a significant rise of around 30 percent on average for more than two years (see **Figure 4.3**).

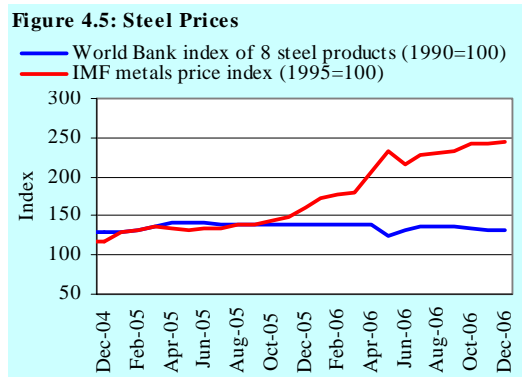
Figure 4.4: Gold Prices



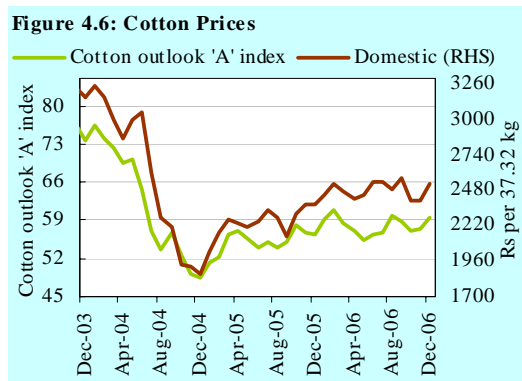
Daily average gold price in the international market remained high and fluctuated in a wider range between \$614 per ounce and \$648.7 per ounce during December 2006. Moreover, the variation in gold prices increased during the month showing a standard deviation (SD) of 9.7 around higher mean of US\$629.42 per ounce compared to SD of 7.91 around mean of US\$627.83 per ounce a month earlier.

The price of gold in international market exhibited a YoY rise of 23.4 percent in December 2006 over the same month last year. This sharp rise was attributed to higher demand of gold due to the expectations about higher crude oil prices in international market (see **Figure 4.4**).

The prices of all major metals including zinc, aluminum, tin, lead, nickle etc. increased further in December 2006 compared to the month earlier. However, a significant decline was observed in the wholesale price of copper in international market mainly due to the expectations about the slowdown in housing construction industry. The IMF metal price index showed a marginal rise over November 2006 whereas it recorded a significant YoY growth of 62.5 percent in December 2006 due to the base effect. In contrast, steel prices – as measured by the World Bank index of 8 steel products⁶ – exhibited a YoY decline of 5.5 percent in December 2006 (see **Figure 4.5**).



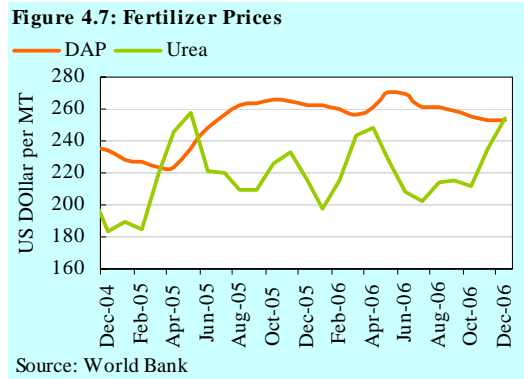
Cotton prices – represented by cotton outlook ‘A’ index⁷ – depicted a modest rise of 5.1 percent in December 2006 over the corresponding month of last year in international market and registered a small growth of 3.5 percent over November 2006. Similar trend was observed in domestic cotton market due to expected shortfall of cotton production (see **Figure 4.6**).



⁶ The eight products are as follow: rebar (concrete reinforcing bars), merchant bars, wire rod, section (H-shape), plate (medium), hot rolled coil/sheet, cold rolled coil/sheet and galvanized iron sheet.

⁷ Cotton (Cotton Outlook "CotlookA index"), middling 1-3/32 inch, average of cheapest 5 of 15 styles traded in Northern Europe, c.i.f.

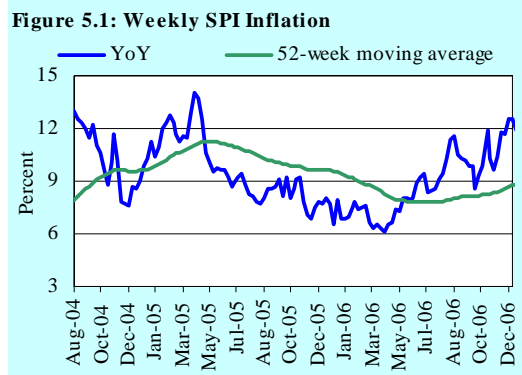
Fertilizer prices showed a mixed note during the month under review. The prices of DAP⁸ in international market remained stable at the previous month level after declining for the last few months whereas the prices of urea exhibited a YoY rise of 18 percent during December 2006 over the same month last year (see **Figure 4.7**).



⁸ DAP (diammonium phosphate).

5. Sensitive Price Indicator

After recording an increase of 10.7 percent in the previous month, the sensitive price indicator further increased to 12 percent YoY in December 2006. Such a high growth was recorded mainly due to the increasing trends in the food inflation as more than 60 percent of the items included in sensitive price indicator are from the food group. Similarly the long-run trend indicated by the 12-month



moving average also shows an increase in inflation in the month under review: 8.9 percent increase compared with 8.5 percent in the previous month.

The major items contributing to the SPI inflation were pulses, vegetables, gas and other liquid fuel prices. About 50 percent of the total items in the SPI basket recorded double-digit YoY inflation during December 2006 with some of the items like pulses gram and mash, tomato, onions, gas charges, electricity charges, etc. witnessing inflation of more than 30 percent. Compared with the last month double digit growth in prices was witnessed in eggs and tomatoes (see **Table A8** in Annexure A).

Table 5.1 : Income Group-wise SPI Inflation (YoY)
percent

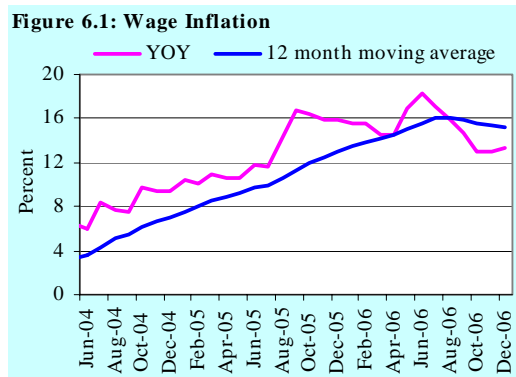
	Up to Rs. 3000	Rs. 3001-5000	Rs. 5000-12000	Above Rs. 12000	All income groups
Jul-06	8.9	8.6	8.8	10.0	8.6
Aug-06	11.0	10.7	11.1	12.0	10.8
Sep-06	11.2	10.8	10.8	10.6	10.0
Oct-06	11.8	11.3	11.2	9.8	9.9
Nov-06	13.4	12.5	12.2	10.1	10.7
Dec-06	14.5	14.0	13.5	11.2	12.0

Weekly SPI witnessed mixed trends of inflation during the month under review. Following the trend of last three weeks of the previous month the first week of December also recorded high inflation. However since then there has been a slight decreasing trend in YoY SPI inflation (see **Figure 5.1**).

Amongst the different income groups the lowest income group was affected the most as it showed persistently high YoY increase in the sensitive price indicator. On the other end the least affected group was the highest income group (see **Table 5.1**). This is because most of the items showing high inflation have more significance to the lowest income group as compared to other income groups.

6. Wage Inflation in Construction Sector

Wage inflation that was decelerating from the start of FY07, remained stable in November 2006 and picked up during December 2006 by registering a growth of 13.3 percent. However, the long run trend of wage inflation (measured as 12-month moving average) continued to decelerate for the fourth month (see **Figure 6.1**). The wages of skilled as well as unskilled labour



registered a higher YoY growth of 12.9 and 16.8 percent respectively during the month under review compared to 12.5 and 16.6 percent during the preceding month. Further breakup exhibited that the wages of all types of labors accelerated during the month of December 2006 when compared it with the previous month (see **Table 6.1**).

Table 6.1: Wage Inflation

	Jun-06	Jul-06	Aug-06	Sep-06	Oct-06	Nov-06	Dec-06
Overall	18.2	17.0	15.9	14.8	13.0	13.0	13.3
Skilled:	18.1	16.8	15.7	14.6	12.6	12.5	12.9
Carpenter	15.9	15.0	13.4	13.3	11.8	11.9	12.1
Mason	19.7	18.4	17.8	15.2	12.6	12.5	12.6
Plumber	15.2	14.0	13.2	12.1	10.7	10.8	11.7
Electrician	21.4	19.8	18.6	17.8	15.1	14.8	15.0
Unskilled:	19.5	18.5	16.9	16.4	16.2	16.6	16.8
Laborer	19.5	18.5	16.9	16.4	16.2	16.6	16.8

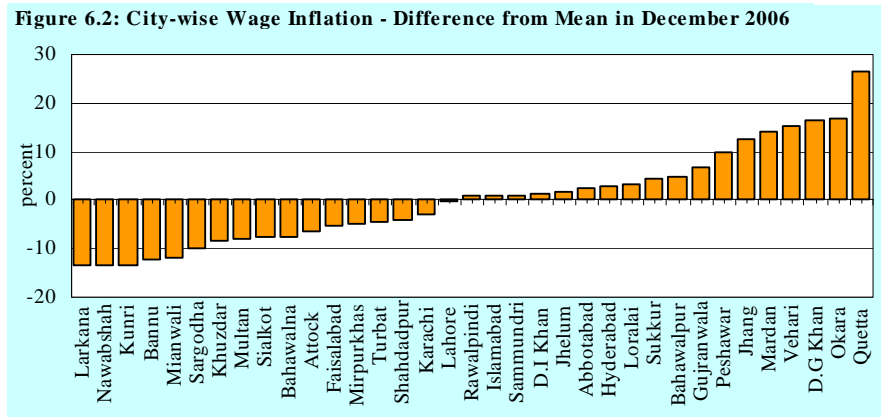


Figure 6.2 presents the picture of city wise deviation in wages from mean during the month of December 2006. Out of 35 cities, 18 recorded higher than average wage inflation and 17 cities witnessed lower than average inflation during the month. The highest wage inflation was evidenced in Quetta followed by Okara and D.G Khan whereas Larkana, Nawabshah, Kunri etc. showed lowest changes in wages. The month wise average wages of all types of workers increased by 13.3 percent during December 2006 over the corresponding month of last year and fall between Rs 221 rupees per day for Kunri and Rs 400 rupee per day for Rawalpindi (see **Table A9** in the Annexure).

Annexure A

	Weights	Dec-02	Dec-03	Dec-04	Dec-05	Dec-06
I. Food Group	40.3	2.4	9.0	7.9	8.1	12.7
II. Non-Food Group	59.7	4.0	3.1	7.0	8.8	6.2
Apparel, textile, etc.	6.1	4.5	2.4	2.5	3.8	4.0
House rent	23.4	0.6	3.8	11.7	10.3	6.4
Fuel & lighting	7.3	10.3	2.5	3.0	7.1	10.9
Household furniture & equipt	3.3	3.1	2.4	6.9	5.0	6.4
Transport & com.	7.3	7.4	2.9	6.7	19.9	3.4
Recreation & entert.	0.8	0.9	-1.2	0.0	-0.3	0.3
Education	3.5	5.1	3.7	2.6	6.6	7.3
Cleaning, laundry, etc.	5.9	5.3	2.9	5.2	2.3	4.3
Medicines	2.1	3.1	2.2	0.9	2.3	9.6
Headline	100	3.3	5.4	7.4	8.5	8.9

Groups	% Changes	Total Number of Items	No. of Items in each Inflation Range			
			Decrease or no change (0 % or less)	Subdued increase (0 to 5%)	Moderate increase (5 to 10%)	Double digit increase (over 10%)
I. Food Group	12.7	110	14	23	28	45
II. Non-Food Group	6.2	250	65	100	54	31
Apparel, textile, etc.	4.0	42	6	18	15	3
House rent	6.4	1	0	0	1	0
Fuel & lighting	10.9	15	7	1	1	6
Household furniture & equipt	6.4	44	2	23	18	1
Transport & com.	3.4	43	13	13	5	12
Recreation & entert.	0.3	16	11	4		1
Education	7.3	24	6	11	4	3
Cleaning, laundry, etc.	4.3	36	5	19	8	4
Medicines	9.6	29	15	11	2	1
Overall	8.9	360	79	123	82	76

Note: Prices of 14 seasonal items were not reported during the month.

Table A3: Distribution of Price Changes - Selected CPI Items, December 2006

Groups	Decrease or no change	Subdued increase (upto 5%)	Moderate increase (5 to 10%)	Increase of over 10%
Food Group	Chowkelate Candy (Small Size) Chicken Farm Broiler (Live) Eggs Farm Apple	Wheat Flour Bag Wheat Flour Fine/Superior. Wheat Rice Basmati Broken Av.Qlty	Sugar Refined Vegetable Ghee Tin Cooking Oil (Dalda) Potatoes	Milk Fresh (Unboiled) Vegetable Ghee (Loose) Onion Tomatoes Pulse Gram
Apparel & Textile	Ladies Sandal Bata Child Shoe Power Lite Bata	Lawn Av.Qlty. Long Cloth Av.Qlty. Shirting Av.Qlty.	Tailoring Awami-Suit (Male) Tailoring Suit Female Gents Sandal Bata	Nylon Jogger 27 Size 2-5 Gents Shoe, Art 1109 Service
House Rent Index			HRI	
Fuel & Lighting	Elect. Charges Above 1000 Uni, Elect. Charges 301 - 1000 Uni	Elect.Charges 101 - 300 Unit	Kerosene Oil	Gas Chrg 10.1157 - 13.4876Mmb Gas Chrg Upto 3.3719 Mmbtu Gas Chrg 6.7438 - 10.1157Mmb
H/hold Furniture	Refg. Dawlence 10 Cft. D.Doo Sewing Machine(Singer)	Quilt (Lihaf) 3 Kg. Cotton Tea Set Pak. Chinaware 21 Pc	Bedsheet Single Bed Sup.Qlty Household Servant Female P/T	Pedestal Fan 22" Super Qlty
Transport & Comm.	Telephone Charges Local Call Tel Charges Out Side City Bus Fare Outside City	Petrol Super Car Service Charges Tyre Car With Tube General	Bus Fare Max (Within Cit Suzuki Fare Min.With In City	Train Fare Eco. > 500 Km. Cng Filling Charges Air Fare Economy Class.
Recreation	Tv.Licence Feedomestic Daily "Jang" Daily "Nawa-E-Waqt"	Cinema A/C. Highest Class Weekly "Mag"		Dry Cell 1.5 Volt(Local)
Education	Govt. College Fee Ist. Year Govt. College Fee 4Th. Year English Book Class V1	Paper Foolscape (27"X17") Exercise.Book Lined 80/100 P Urdu Book Class Ix/X(T.B.B)	School Fee 2Nd-Ry Eng.Med.	School Fee Primary Eng.Med. Eng. Book Ist.Yr Complete Se Govt. University Fee Msc.
Cleaning & Laundry	Toilet Soap Lux 95 Grams Washing Powder 1000 Grm	Shampoo Plain Medora 200 ML.	Haircut Charges For Men Washing Soap Nyl(135-160Gms) Dry Cleaning Suit Coat Pant	Robin Blue (35 Grams) Gold Tezabi 24 Ct Toothpowder Dentonic 90 Grm
Medicare	Cac. 1000 Tab Renitec Tab. 5 Mg. Thermometer China	Thermometer China	Jouhar Joshanda Lederplex Syrup	Doctor (Mbbs) Clinic Fee

Table A4: Top Ten CPI Items (Ranked by Weighted Contribution, Percentage changes and Weights)					
Items	weights	YoY change		Weighted Contribution	
		Dec-05	Dec-06		
A. Ranked by Weighted Contribution					
1	House Rent Index (Combined)	23.43	10.29	6.37	17.24
2	Onions	0.59	17.01	244.56	12.84
3	Milk Fresh	6.66	12.85	11.87	9.29
4	Natural Gas	2.05	12.70	26.07	8.18
5	Tomatoes	0.45	-28.53	208.90	7.93
6	Meat	2.70	11.95	11.49	5.15
7	Vegetable Ghee	2.67	-0.97	11.76	3.56
8	Tuition Fees	2.36	6.45	8.77	2.31
9	Readymade Food	1.68	9.53	11.29	2.29
10	Potatoes	0.55	24.03	23.13	1.94
Total		43.1			70.7
B. Ranked by Percentage Change					
1	Onions	0.59	17.01	244.56	12.84
2	Tomatoes	0.45	-28.53	208.90	7.93
3	Besan	0.13	2.06	51.95	0.63
4	Pulse Gram	0.43	-2.54	47.13	1.74
5	Pulse Mash	0.20	24.41	44.45	0.81
6	Air Fare	0.10	-4.95	39.97	0.54
7	Gram Whole	0.15	29.12	26.59	0.40
8	Natural Gas	2.05	12.70	26.07	8.18
9	Gur	0.07	50.67	24.04	0.19
10	Pulse Moong	0.22	37.56	23.16	0.62
Total		4.4			33.9
C. Ranked by Weights					
1	House Rent Index (Combined)	23.43	10.29	6.37	17.24
2	Milk Fresh	6.66	12.85	11.87	9.29
3	Wheat Flour	5.11	-1.84	1.66	1.00
4	Electricity	4.37	0.00	0.00	0.00
5	Bakery & Confectionary	2.98	1.84	4.89	1.43
6	Meat	2.70	11.95	11.49	5.15
7	Vegetable Ghee	2.67	-0.97	11.76	3.56
8	Tuition Fees	2.36	6.45	8.77	2.31
9	Transport Fare/Charges	2.12	23.64	2.83	0.87
10	Natural Gas	2.05	12.70	26.07	8.18
Total		54.5			49.0
Note: Weighted contribution is the ratio of price change (YoY) of an item to the overall change in CPI multiplied with its weight; for exact formula see technical note 9 in annexure B.					

Table A5: City-wise Inflation (YoY) by Income Groups, December 2006							
		Upto Rs:3000			Rs 3001-5000		
		General	Food	Non-Food	General	Food	Non-Food
1	Lahore	9.1	13.4	6.0	8.7	11.9	6.5
2	Faisalabad	7.6	12.4	4.3	8.0	12.0	5.1
3	Rawalpindi	12.0	18.3	7.6	11.9	17.8	8.0
4	Multan	13.7	17.8	10.9	13.5	17.6	10.6
5	Gujranwala	10.8	15.9	7.2	10.5	14.2	8.0
6	Islamabad	10.9	16.3	7.3	11.3	16.5	7.7
7	Sargodha	10.4	15.4	7.0	10.4	14.9	7.4
8	Sialkot	8.9	12.2	6.5	9.3	12.5	6.9
9	Bahawalpur	11.2	15.1	8.5	11.1	14.9	8.5
10	Karachi	9.2	13.5	6.2	9.9	14.7	6.6
11	Hyderabad	10.5	14.3	7.8	10.5	14.5	7.8
12	Sukkur	8.1	10.4	6.4	8.0	9.4	7.0
13	Larkana	11.0	15.6	7.6	11.2	15.4	8.1
14	Peshawar	10.2	14.6	7.1	10.7	14.4	8.2
15	Bannu	9.5	12.0	7.8	11.1	14.7	8.7
16	Quetta	13.2	19.2	9.0	11.9	18.0	7.7
17	Khuzdar	9.7	14.1	6.5	8.4	11.3	6.3
		Rs 5001-12000			above Rs 12000		
		General	Food	Non-Food	General	Food	Non-Food
1	Lahore	8.2	11.1	6.2	7.5	10.3	5.5
2	Faisalabad	7.6	11.4	4.9	6.4	10.5	3.6
3	Rawalpindi	11.3	17.0	7.4	10.6	16.3	6.8
4	Multan	12.5	17.3	9.1	11.2	16.3	7.6
5	Gujranwala	10.2	13.7	7.8	9.3	12.5	7.1
6	Islamabad	10.8	16.1	7.2	10.5	15.7	7.1
7	Sargodha	10.3	14.3	7.5	9.0	14.6	5.1
8	Sialkot	8.8	12.0	6.5	7.9	11.3	5.4
9	Bahawalpur	10.3	14.5	7.4	8.2	13.3	4.6
10	Karachi	9.5	13.9	6.5	8.4	11.8	6.2
11	Hyderabad	9.6	13.2	7.1	8.7	12.2	6.3
12	Sukkur	7.4	8.5	6.7	7.3	8.1	6.7
13	Larkana	10.1	13.9	7.4	8.0	11.0	5.9
14	Peshawar	9.9	13.8	7.1	8.6	12.9	5.5
15	Bannu	11.3	15.9	8.2	10.5	15.3	7.2
16	Quetta	10.7	16.1	7.0	9.4	13.6	6.6
17	Khuzdar	7.4	10.6	5.1	6.2	8.1	4.7

Table A6 : Income Group-wise Inflation (YoY)								
	May-06	Jun-06	Jul-06	Aug-06	Sep-06	Oct-06	Nov-06	Dec-06
<u>Up to Rs. 3000</u>								
General	7.5	8.0	7.6	9.3	9.4	8.8	9.3	10.1
Food	7.2	8.4	7.8	11.0	11.5	11.0	12.2	14.1
Non-food	7.7	7.6	7.6	8.1	8.0	7.3	7.2	7.4
<u>Rs. 3001-5000</u>								
General	7.1	7.7	7.5	9.2	9.3	8.7	9.0	10.0
Food	6.5	8.0	7.5	10.9	11.3	10.8	11.7	13.7
Non-food	7.6	7.5	7.5	8.1	7.9	7.3	7.1	7.4
<u>Rs. 5000-12000</u>								
General	6.9	7.6	7.5	9.0	9.0	8.4	8.4	9.3
Food	5.9	7.9	7.4	11.0	11.2	10.6	10.9	13.0
Non-food	7.6	7.3	7.5	7.7	7.5	6.8	6.6	6.8
<u>Above Rs. 12000</u>								
General	7.3	7.7	7.8	8.7	8.3	7.7	7.4	8.1
Food	4.8	7.6	7.4	11.3	11.3	10.3	9.7	11.9
Non-food	9.2	7.8	8.1	7.0	6.3	5.8	5.8	5.5
<u>All income groups</u>								
General	7.1	7.6	7.6	8.9	8.7	8.1	8.1	8.9
Food	5.6	7.8	7.4	11.1	11.3	10.5	10.6	12.7
Non-food	8.2	7.5	7.8	7.4	7.0	6.4	6.3	6.2

Table A7: Distribution of Wholesale Price Changes (YoY) , December 2006				
Groups	Decrease or no change	Subdued increase (upto 5%)	Moderate increase (5 to 10%)	More than 10% increase
Food	Bajra Chicken Maize Jowar Vegetables	Dry Fruits, Fish Fresh Fruits, Maida Sugar Refined, Eggs Sugar Confectionary Mineral Water Masoor, Wheat Flour Condiments, Rice Powdered Milk Wheat, Spices	Milk Food Beverages Cooking Oil Salt Fresh Milk Tea	Vegetables Prepared/Preserved Meat, Cotton Seed Oil Vegetable Ghee Mustard & Rapeseed Oil Fruit Prepared/Preserved Beans, Moong, Gur, Potatoes Gram Whole, Oil Cakes Mash, Besan, Gram Split Tomatoes, Onions
Raw material	Pig Iron Skins		Hides Cotton	Tobacco Cotton Seeds Mustard/Rapeseeds Wool Sugar Cane
Fuel & lighting	Coal Coke Electricity Ind. Supply Tariff-B Elec. Agriculture Tariff-D	Motor Sprit Diesel Oil	Kerosine Oil Furnace Oil	Fire Wood Mobil Oil Natural Gas
Manufactures	Fertilizers Woolen Textiles Blended Yarn Other Electrical Goods Glass Products Nylon Yarn Cosmetics Sole Leather Chrome Leather Audio-Visual Instruments Matches	Drugs & Medicines Machinery Dying Materials Foot Wear Tubes Utensils Plastic Products Ready Made Garments Paper Cotton Textiles Tyres Transports Silk & Reyon Textiles	Cotton Yarn Soaps Cigarettes Mattresses Jute Manufactures Hosiery Pesticides & Insecticised	Chemicals
Building material		Paints & Varnishes Tiles Bricks Iron Bars & Sheets Cement Blocks Glass Sheets Sanitary Wares	Pipe Fittings Cement	Timber Wires And Cables

Table A8: SPI Item-wise Price Movements					
S.No	Items	Unit	Price	Percentage change over	
			Dec -06	Dec-05	Nov -06
1	Wheat	Kg.	12.2	4.5	2.4
2	Wheat flour a.qlt.	Kg.	13.8	5.0	1.7
3	Rice basmti. broken	Kg.	21.1	5.3	1.8
4	Rice irri-6	Kg.	16.3	2.5	0.9
5	Masur pulse washed	Kg.	45.5	0.1	7.2
6	Moong pulse washed	Kg.	53.0	26.1	-0.1
7	Mash pulse washed	Kg.	69.4	47.7	2.0
8	Gram pulse washed	Kg.	44.9	56.5	5.0
9	Beef	Kg.	118.2	12.5	0.1
10	Mutton	Kg.	222.8	12.5	0.2
11	Egg hen (farm)	Doz.	50.3	-2.4	16.8
12	Bread plain m.s.	Each	15.5	8.3	0.0
13	Sugar	Kg.	31.1	9.2	-6.2
14	Gur	Kg.	39.9	23.6	-4.2
15	Milk fresh	Litr	26.6	12.7	0.8
16	Milk powdered Nido	400g	119.7	11.4	2.4
17	Curd	Kg.	31.0	10.7	0.5
18	Veg.ghee tin	2.5k	216.1	6.1	1.2
19	Veg.ghee loose	Kg.	68.5	16.4	4.9
20	Mustard oil	Kg.	74.7	11.8	3.9
21	Cooking oil	2.5l	216.5	5.9	1.2
22	Potatoes	Kg.	18.1	12.6	-28.8
23	Onions	Kg.	35.9	228.1	3.3
24	Tomatoes	Kg.	46.0	169.4	76.7
25	Bananas	Doz.	28.3	18.0	-2.3
26	Salt powdered	Kg.	4.8	25.1	-0.2
27	Red chillies (powd)	Kg.	97.6	39.6	7.0
28	Garlic	Kg.	66.8	18.1	5.5
29	Tea packet	250g	69.8	12.8	0.5
30	Tea (prepared)	Cup	6.3	10.4	0.3

continued

S.No	Items	Unit	Price Dec -06	Percentage change over	
				Dec-05	Nov -06
31	Cooked beef plate	Each	30.2	17.4	1.2
32	Cooked dal plate	Each	17.9	17.0	0.7
33	Cigarettes k-2	10's	7.9	10.9	0.0
34	Coarse latha	Mtr.	34.9	1.3	0.0
35	Lawn (avg.+s.qlty)	Mtr.	78.2	3.5	-0.6
36	Voil printed	Mtr.	37.6	2.9	-0.4
37	Shirting	Mtr.	65.4	5.2	0.0
38	Sandel gents bata	Pair	399.0	0.0	0.0
39	Sandel ladies bata	Pair	299.0	0.0	0.0
40	Chappal spng. Bata	Pair	89.0	0.0	0.0
41	Kerosene	Litr	39.1	7.0	0.0
42	Firewood	40kg	190.0	13.9	1.5
43	Elec. Bulb 60-wats	Each	12.1	5.7	0.5
44	Match box	Each	0.7	11.3	1.5
45	Washing soap	Cake	8.1	5.3	0.0
46	Bath soap lifebuoy	Cake	14.0	0.4	0.4
47	Chicken (farm)	Kg.	58.1	-17.6	-13.8
48	Gas chrg. All clb. Comb	D.mmbt	243.7	186.6	0.0
49	L.p.g .(cylinder 11kg.)	Each	516.8	8.0	-3.0
50	Elec.chrg.all slabs com	Bd. Unit	4.7	93.4	0.0
51	Petrol	Litr	57.8	2.5	0.0
52	Diesel	Litr	38.9	4.2	0.0
53	Telephone local	Call	2.3	0.0	0.0
Max:				228.1	76.7
Median				10.4	0.3
Min:				-17.6	-28.8

Table A9: Daily Labor Wages (Rs. per day) – Average of 35 Cities						
	Carpenter	Mason	Laborer	Plumber	Electrician	Average
Annual Averages						
FY03	218	225.4	107.7	219.8	216.4	197.4
FY04	224.5	237.4	114.5	225	221.9	204.6
FY05	245.8	261.4	129.5	245.5	240.3	224.5
FY06	283.2	306.0	154.7	283.2	270.1	259.4
Monthly averages						
Jan-05	248.5	263.3	130.4	245.8	242.8	226.1
Feb-05	248.2	265.6	130.9	245.7	242.8	226.6
Mar-05	250.5	269.2	132.5	250.0	244.3	229.3
Apr-05	253.3	269.8	134.4	255.4	247.7	232.1
May-05	256.0	273.1	136.5	256.8	247.7	234.0
Jun-05	258.1	275.2	138.5	258.6	248.8	235.8
Jul-05	264.2	280.9	142.5	264.6	252.1	240.8
Aug-05	269.9	284.1	145.8	270.2	256.0	245.2
Sep-05	275.8	293.6	149.3	276.6	257.7	250.6
Oct-05	280.8	302.1	152.2	280.4	263.8	255.9
Nov-05	281.5	304.2	152.9	281.3	265.5	257.1
Dec-05	283.8	308.6	154.7	282.5	266.8	259.3
Jan-06	284.9	311.2	156.0	286.1	267.9	261.2
Feb-06	287.4	311.4	156.2	287.4	267.9	262.1
Mar-06	286.5	312.1	157.7	287.8	269.6	262.8
Apr-06	290.9	313.9	159.4	291.0	274.3	265.9
May-06	293.4	319.9	163.6	292.7	297.7	273.5
Jun-06	299.2	329.4	165.6	297.8	302.0	278.8
Jul-06	303.9	332.7	168.9	301.7	302.0	281.8
Aug-06	306.0	334.5	170.4	305.7	303.6	284.0
Sep-06	312.4	338.2	173.7	310.1	303.7	287.6
Oct-06	313.9	340.3	176.9	310.4	303.7	289.0
Nov-06	315.0	342.2	178.4	311.8	304.8	290.4
Dec-06	318.1	347.6	180.7	315.5	306.9	293.8

Figure A1: CPI Non-food Sub-indexes' Inflation

— YoY — 12-month moving average

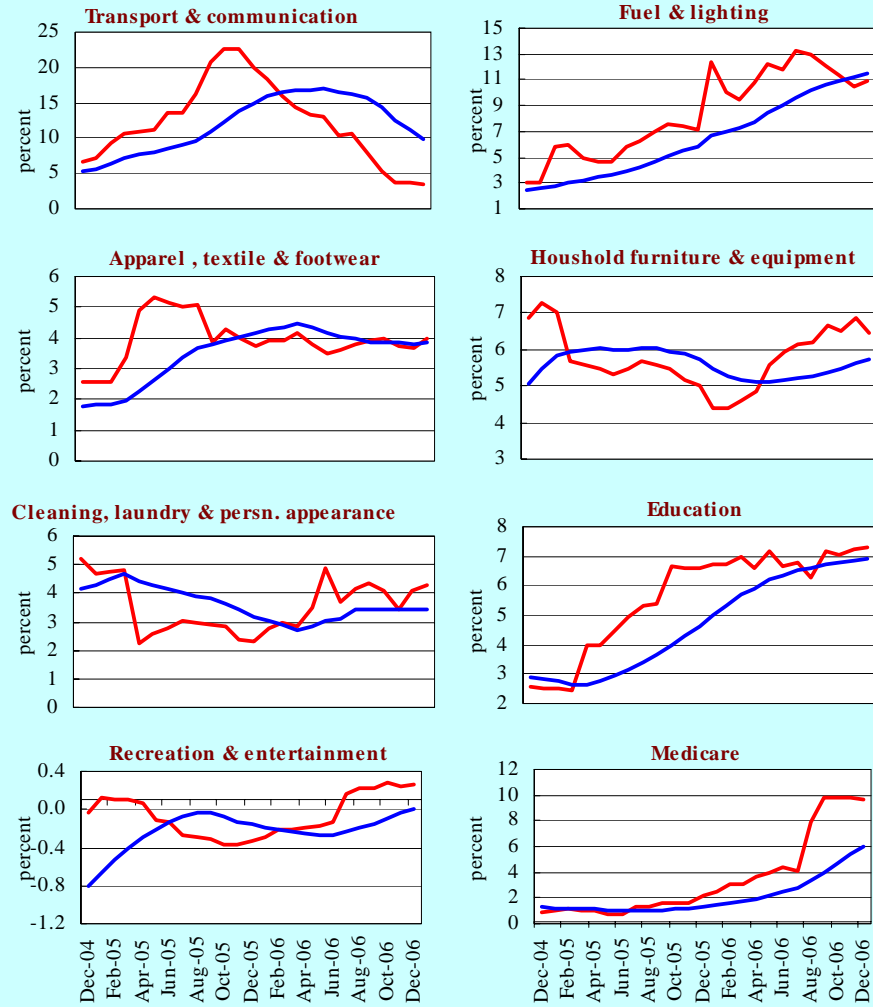


Figure A2: Frequency Distribution of Price Changes of CPI Items, December 2006

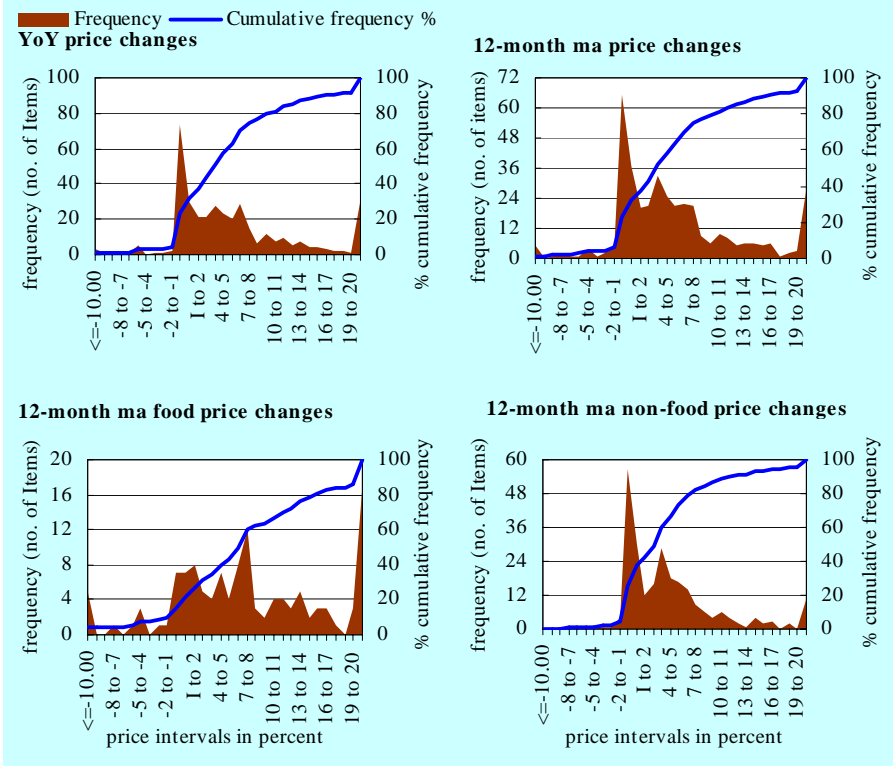
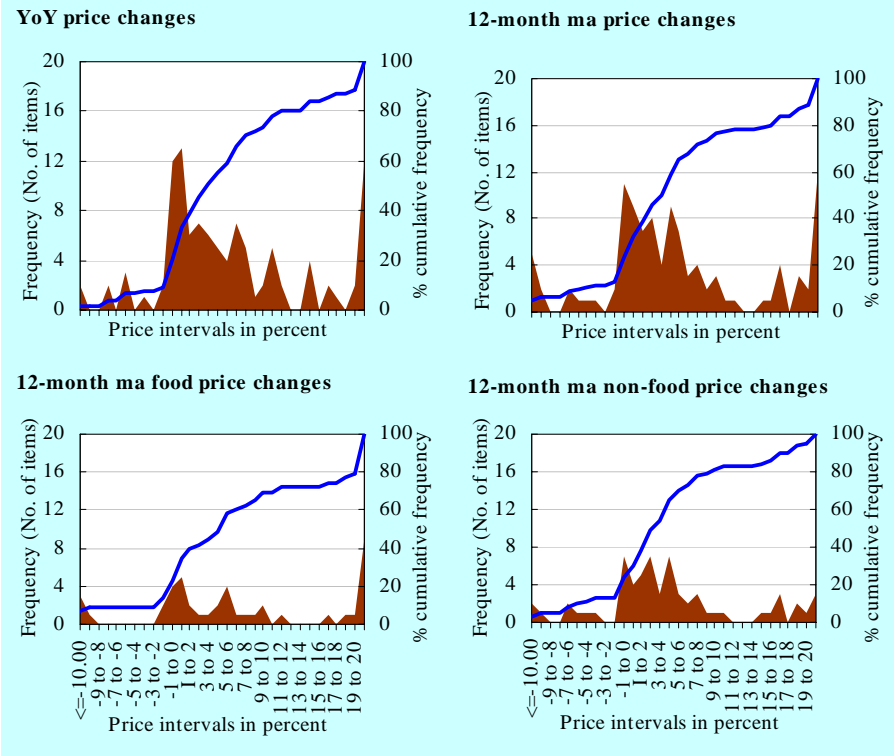


Figure A3: Frequency Distribution of Price Changes of WPI Items, December 2006



Annexure B

Technical Notes

1. All the three measures of inflation, viz. CPI, WPI and SPI are computed by the following Laspeyres Index formula:

$$I_t = \sum_j w_0^j \left(\frac{P_t^j}{P_0^j} \right)$$

where I_t is price index, w_0^j is weight of commodity j in the overall basket, P_t^j is price of commodity j in period t and P_0^j is its price in the base year.

2. Base year for all the indices is the year 2000-01.
3. CPI basket contains 374 consumers' goods; WPI basket contains 425 commodities; SPI contains 53 commodities, list of which is given in Table A3.
4. YoY inflation is the percent change of an index in a given month over the index in the same month of the last year. It is computed as follows:

$$\pi_t = \left(\frac{I_t}{I_{t-12}} - 1 \right) \times 100$$

5. Period average inflation is the percent change of the average index during the period from July to the given month of a fiscal year over the average index during the corresponding period of the last year. It is computed as follows:

$$\bar{\pi}_t = \left(\frac{\sum_{i=0}^{t-v} I_{t-i}}{\sum_{i=0}^{t-12-v} I_{t-12-i}} - 1 \right) \times 100$$

where v is the serial number of the month of July of current fiscal year in a given time series.

6. Monthly inflation is the percent change of an index in a given month over the index in the preceding month. It is computed as follows:

$$\pi_t = \left(\frac{I_t}{I_{t-1}} - 1 \right) \times 100$$

7. 12-month moving average inflation (Long-run trend inflation) is the percent change of 12-month moving average of a price index; it is computed as follows:

$$\tilde{\pi}_t = \left(\frac{\sum_{i=0}^{11} I_{t-i}}{\sum_{i=0}^{11} I_{t-12-i}} - 1 \right) \times 100$$

8. Core Inflation is defined as the persistent component of measured inflation that excludes volatile and controlled prices. It reflects the normal supply and demand conditions in the economy. Core inflation is computed by the following two methods:

a) Non-food, Non-energy inflation (NFNE inflation); it is computed by excluding food group and energy items (kerosene oil, petrol, diesel, CNG, electricity and natural gas) from the CPI basket.

b) 20% trimmed-mean inflation; it is computed through the following steps:

- i. All CPI items are arranged in ascending order according to YoY changes in their prices in a given month.
- ii. 20 percent of the items showing extreme changes are excluded with 10 percent of the items at the top of the list (corresponding to cumulative weight of 90% or more) and 10 percent of the items at the bottom of the list (corresponding to cumulative weight of 10 percent or less).
- iii. The weighted mean of the price changes of the rest of the items is core inflation.

9. Weighted contribution of different items (or sub-groups) to total inflation is worked out as below:

Let the overall index (I_t) is the weighted average of price indexes of individual items or sub-groups (I_{it}), i.e.

$$I_t = \sum_i w_i \cdot I_{it}$$

The weighted contribution of a single item (or a sub-group) to overall inflation is defined as below:

$$C_{it} = \alpha_{it-12} \cdot w_i \cdot \left(\frac{\pi_{it}}{\pi_t} \right)$$

Where C_{it} : Contribution of i^{th} item to the overall inflation

$$\alpha_{it-12} = \frac{I_{it-12}}{I_{t-12}}; \text{ i.e. ratio of item's index to overall index in}$$

the reference month

w_i : Weights of i^{th} item

π_{it} : Inflation of i^{th} item

π_t : Overall inflation