

Money, Credit and Prices (Part 2 of 2)

Price Trends

3.51 The year 1998-99 was marked by the high contribution of primary articles to the overall price increases, as measured by the changes in the index of wholesale price of all commodities (WPI). The year also saw high inflation rates in most months considering the experience of the recent years. However, by the year-end, on a point-to-point basis, the rise in the WPI showed a marked deceleration. The point-to-point inflation rate declined to 4.8 per cent in 1998-99 from 5.3 per cent in 1997-98 ([Table 3.10](#)).

3.52 The inflation rate on the basis of the average of weeks, however, increased to 6.9 per cent in 1998-99 from 4.8 per cent in 1997-98. The wide difference observed between the inflation rate measured on a point-to-point basis and that on average of weeks basis in 1998-99 reflected the fact that the inflationary pressure was high in most months, with concentration in respect of certain food articles, particularly fruits and vegetables. As these articles have a short production cycle and cannot be easily supplemented with imports, the price fluctuation in these commodities could be reversed once their availability improved. Essentially, inflation in such cases would be supply-oriented. But where demand is maintained by high flush of liquidity, there will be a downward inflexibility, unless the supply improves and swamps the dominance of the demand factor.

Table 3.10 : Main Inflation Indicators

Item	1998-99	1997-98	1990-91 to 1996-97	1980-81 to 1989-90
1	2	3	4	5
1. WPI - All Commodities				
a) Point-to-point basis	4.8	5.3	9.4	7.5
b) Average basis	6.9	4.8	9.6	8.0
2. CPI - Industrial Workers				
a) Point-to-point basis	8.9	8.3	10.3	8.9
b) Average basis	13.1	6.8	10.2	9.1

3.53 A disaggregated examination of the WPI indicates that, on an average basis, the primary articles group exhibited the highest rise of 11.7 per cent (3.4 per cent in 1997-98). Within the primary articles group, on an average basis, prices of food articles like fruits and vegetables, condiments and spices, wheat, milk and rice displayed sharper increases than those in the preceding year. The index of manufactured products showed a rise of 4.5 per cent as against 4.1 per cent in 1997-98. Among the eight major manufactured products, six of them recorded an inflation rate below that of the group as a whole. The commodity groups which exceeded this mark were edible oils and chemicals and chemical products. The fuel group decelerated

substantially to 4.3 per cent as against 12.7 per cent in 1997-98 (Appendix [Table III.7](#)), primarily due to the fact that there was no change in the administered prices of these items. The average price increase was minimal in respect of administered items during 1998-99 *vis-a-vis* 1997-98 and also lower than the average rate of inflation of 6.9 per cent for 1998-99 ([Table 3.11](#)).

Table 3.11 : Hike in the Administered Prices(Average basis)

						(Per cent)
Item	Weight	1998-99	1997-98	1996-97	1990-91 to	
1	2	3	4	5	1995-96	
1	2	3	4	5	6	
1. Petroleum crude & Natural Gas	4.274	-1.7	4.5	1.5	6.2	
2. Coal Mining	1.256	3.5	11.6	13.2	8.3	
3. Mineral Oils	6.666	2.0	11.3	14.9	10.6	
4. Electricity	2.741	8.5	13.9	10.6	12.3	
5. Urea N Content	0.992	1.8	-	1.0	8.1	
Administered Items	15.929	3.2	9.2	11.0	9.7	

Memo Item :

Inflation Rate (Change in WPI)	6.9	4.8	6.4	10.2
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3.54 The weighted contributions of major commodity groups to the total price rise during 1998-99, on an average basis, indicate that the primary articles group contributed to the maximum with a share of 56.3 per cent which was substantially higher than that of 23.7 per cent in the preceding year ([Table 3.12](#) and Appendix [Table III.8](#)). The share of fuel group decelerated to 7.3 per cent in 1998-99 from 29.1 per cent in 1997-98. The weighted contribution of manufactured products decelerated to 36.2 per cent in 1998-99 from 47.6 per cent in 1997-98.

3.55 The role of primary articles (and food articles in particular) in the overall price increases in 1998-99 is revealed clearly in the annualised monthly average weighted contribution (Chart III.5). The weighted contribution of primary articles to the rate of inflation was higher for all the months in 1998-99 as compared with the corresponding months in 1997-98. The share of primary articles in the total price rise increased from 42.2 per cent in April 1998 to over 60 per cent in September 1998, and further rose to 68.3 per cent in November 1998, driven primarily by food articles whose contribution more than doubled from 24.9 per cent in April 1998 to 53.6 per cent in November 1998. There was a gradual decline in the share of primary articles to inflation from December 1998 onwards, however, the share of primary articles remained at 55.0 per cent in March 1999 as against 31.5 per cent in March 1998 partly resulting from the negative contribution of the fuel group ((-)2.9 percent) and also a deceleration in the share of manufactured products.

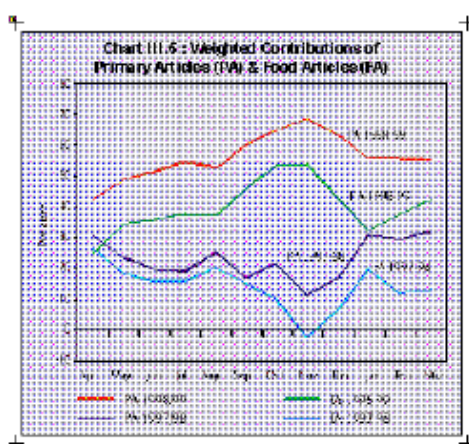
Table 3.12 : Contribution of Major Groups to Inflation (on Average Basis)

(Base : 1981-82 = 100)

(Per cent)

Item	1998-99	1997-98	1990-91 to 1998-99	1980-81 to 1989-90
1	2	3	4	5
1. Primary Articles (32.3)	56.3	23.7	36.6	33.2
Of which :				
Food Articles (17.4)	40.6	14.9	24.0	22.4
2. Fuel Group (10.7)	7.3	29.1	13.7	12.6
3. Manufactured Products (57.0)	36.2	47.6	49.7	54.2
4. All Commodities (100.0)	100.0	100.0	100.0	100.0

Note : Figures in parentheses indicate relative weights.



3.56 A noticeable aspect of the price situation during 1998-99 was that the weekly annualised rate of inflation consistently remained higher during the major part of the year than that of the preceding year. The rate of inflation during the month of April 1998 was lower than that of the preceding year before exceeding it from the first week of May 1998. This trend continued up to end-December 1998 (Chart III.6). The rate of inflation started declining as compared with the corresponding week of the preceding year, from the first week of January and reached a level of 4.8 per cent by end-March 1999 from 5.3 per cent recorded in the preceding year. The rate of inflation crossed the level of 8.0 per cent from June 26, 1998 and it peaked at 8.8 per cent on September 26, 1998, partly reflecting the effect of supply side factors. Thus, the overall price situation was under pressure during the period June to December 1998 and moderated during the months of January to March 1999 before closing for the financial year at 4.8 per cent ([Table](#)

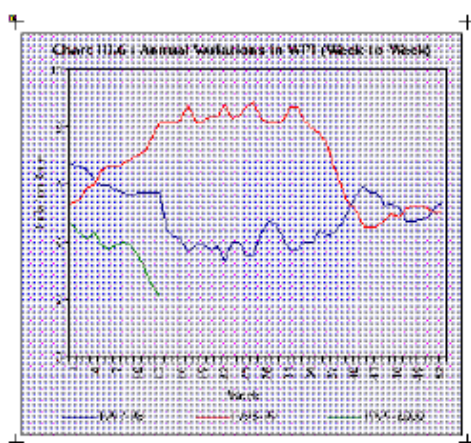
3.13).

3.57 The rate of inflation measured in terms of point-to-point variation in Consumer Price Index for Industrial Workers (CPI-IW) registered an increase of 8.9 per cent in 1998-99, close to the rate of 8.3 per cent in 1997-98. But, with the increase of CPI-IW remaining high for most part of the year and falling towards the end of the year, consumer inflation measured in terms of average of months of CPI-IW almost doubled to 13.1 per cent in 1998-99 from 6.8 per cent in 1997-98. It was also higher than the average of 10.2 per cent during the period 1990-91 to 1996-97 (Table 3.10). The trends in WPI and CPI-IW revealed significant divergence between the two.

**Table 3.13 : Frequency Distribution of Annualised Inflation Rates@
(Base : 1981-82 = 100)**

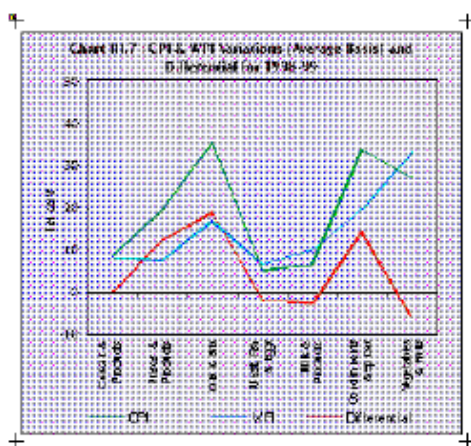
Range of Annualised Inflation Rate (Per cent)	Number of months		
	1998-99	1997-98	1996-97
1	2	3	4
3.1 - 5.0	2	7	3
5.1 - 7.0	4	5	5
7.1 - 9.0	6	-	4
Memo Items			
Average	6.9	4.9	6.4
Median	7.1	4.7	6.4
Standard Deviation	1.5	0.9	1.6

@ Month-wise (Average of weeks).



3.58 The differential in the annualised (point-to-point) variations in the CPI-IW and WPI was low at 2.3 percentage points during April 1998 and started moving upwards in the range of 3.6 to

12.0 percentage points thereafter. It exceeded the mark of 10.0 percentage points during October to December 1998 (Appendix [Table III.9](#)), reflecting the substantially higher rise in the prices of food articles, but declined subsequently to the range of 3 to 5 percentage points during January to March 1999. A detailed analysis of the annual average of indices of the sub-groups of CPI-IW, which have similar comparable commodities primarily in the food articles and food products basket of WPI, revealed a substantial difference between WPI and CPI-IW (Chart III.7) in certain items due to significant increase in prices at the retail level. Some of these commodities were pulses and products, oils and fats and condiments and spices. In addition, a higher rate of price rise at the retail level was witnessed in the case of items such as housing, medical care and personal care and effects which are not included in the WPI basket. The wide differential between the headline rate of inflation and the CPI-IW during 1998-99 is primarily due to differences in the coverage, weighting diagram and the methodology of compilation of index, which reflected different degrees of food and non-food price inflation in 1998-99 ([Table 3.14](#)). This phenomenon which has been in evidence for the past few years has raised certain issues in the measurement of inflation, with bearing on monetary policy ([Box III.4](#)).



3.59 The centre-wise data on CPI-IW indicate the uneven spatial distribution of inflation across the country. Out of the 70 centres for which the CPI-IW are constructed, only one centre recorded an inflation rate of less than 5.0 per cent as compared with 17 centres in 1997-98. A maximum of 58 centres recorded a double digit rate of inflation during 1998-99 as against 6 centres in 1997-98 ([Table 3.15](#)).

3.60 A significantly higher consumer inflation than the headline inflation brought out the critical importance of sources of price rise for the cost of living conditions in the economy. Given the weighting pattern of the WPI and CPI-IW, a higher rate of inflation, fuelled by a rise in the prices of primary articles would affect the cost of living conditions more sharply through the CPI than if such an increase in inflation was due to a rise in prices of non-primary articles. The four major primary articles which set much of the trend in consumer inflation during 1998-99 were fruits and vegetables, condiments and spices, oilseeds and cereals. Prices of these food articles had soared during the year due to a combination of factors such as crop failure and temporary supply shortages. While the CPI came under the severe influence of the food price inflation, it

was the significant moderation in the prices of manufactured products and fuel group, which played a major role in helping to contain the WPI inflation rate to a significant extent in 1998-99.

3.61 Relative roles of demand and supply side factors in causing the price rise during 1998-99 are difficult to determine. While the supply side factors appear to have played a relatively dominant role in creating pressure on prices of primary articles, the overall demand conditions alongwith the competitive cost conditions seem to have contributed significantly to the trends in manufacturing prices. The total production of foodgrains in 1997-98 had declined to 192.4 million tonnes from 199.4 million tonnes in 1996-97. While this would have generated some pressure on prices of foodgrains in 1998-99, a steady improvement in the foodgrains output to the record level of 202.5 million tonnes in 1998-99 and a simultaneous increase in the bufferstock of foodgrains to a level of 21.66 million tonnes in 1998-99 implied that the supply situation remained largely comfortable in so far as the main staple food is concerned. Supply bottlenecks were seen in the non-staple segments such as pulses and oilseeds where the total production slackened in 1997-98 and was not adequately compensated by production in 1998-99. In the edible oil segment, there had emerged a secular gap in the supply, which rose to 15.0 lakh tonnes in 1997-98, but fell to 12.0 lakh tonnes in 1998-99, primarily due to higher domestic production and imports. The supply shortage was, however, exceptionally acute in certain vegetable items such as onions and potatoes in most months of 1998-99 which raised the prices of the fruits and vegetables group to over 50 per cent in some months and provided the spike to the trends in inflation rate during the year.

Table 3.14 : Annual Variations in CPI-IW, WPI and the Differential for 1998-99 (Average Basis)

Item	1998-99		
	CPI-IW	WPI	Differential
1	2	3	4
1. Cereals and Products	8.5	8.3	+0.2
2. Pulses and Products	19.5	7.5	+12.0
3. Oils and Fats	34.9	16.5	+18.4
4. Meat, Fish and Eggs	4.7	6.6	-1.9
5. Milk and Products	6.6	9.6	-2.9
6. Condiments and Spices	33.3	19.3	+14.0
7. Vegetables and Fruits	26.6	32.5	-5.9

Table 3.15 : Centre-wise Frequency Distribution of Average Inflation Rate (CPI-IW)

Range of Inflation Rate (Per cent)	Number of Centres		
	1998-99	1997-98	1996-97

1	2	3	4
Up to 5.0	1	17	-
5.1 - 7.5	3	32	11
7.6 - 9.9	8	15	33
10.0 - 12.5	15	5	19
Above 12.5	43	1	7

Box III.4 **Statistical Measurement of Inflation - Some Issues**

Inflation is one of the most important macro-economic indicators used by policy makers, particularly the central bankers in policy formulation and it is in this context that its accurate measurement assumes profound importance for the conduct of monetary policy. In India, inflation is measured by variation in three sets of price indices, namely, the Wholesale Price Index (WPI), Implicit National Income Deflator and the Consumer Price Indices (CPI). There are differences in the compilation of each series, in respect of commodity coverage, weighting pattern, interval of release and geographical coverage, *etc.* The use of each index number is often guided by a specific purpose.

The WPI is compiled for all commodities as well as major groups, sub-groups and individual commodities and is regularly published by the office of the Economic Adviser, Ministry of Industry on a weekly basis since 1942. Presently computation of WPI is based on the Laspeyre's Index, *i.e.*, the weighted average of price relatives (current price divided by the base year's price) with base year's quantity as fixed weight. Weights are assigned to the commodities/sub-groups/major groups on the basis of the value of the wholesale market transactions at the time of changing the base year which remain valid till the next revision is made. The scope, coverage and weighting pattern of the current series, with 1981-82 as the base year, is based on the recommendations of the working group headed by Dr C. Rangarajan. The coverage in this series was enlarged to 447 commodities from 360 distinct commodities in the 1970-71 series. The Union government constituted a Working Group under the Chairmanship of Professor Y.K. Alagh in June 1993 (now under Professor S.R. Hashim) to revise the base of the existing WPI number series, to review the commodity basket of the current series, and to determine the suitable weights for the revised basket of commodities. The basic advantage of this measure of inflation is its high frequency availability, that enables continuous monitoring for policy decisions. However, this index is limited by its coverage and fails to capture the price increases in the non-commodity producing sectors, which have tended to outgrow the commodity-producing sectors in recent years.

The national income deflator could be a comprehensive measure, derived as a ratio of GDP at current prices to GDP at constant prices. Since it encompasses the entire spectrum of economic activities including services, its scope and coverage are much wider than WPI. The weighting

pattern of the GDP deflator reflects the implicit sectoral shares of nominal and real value added and therefore could be an ideal measure of inflation. But, since GDP deflator is available annually with a lag of about two years, the inflation measure based on this series has little use for conduct of monetary policy.

The consumer price index (CPI) reflects changes in the retail prices of selected goods, in the commodity basket of a homogeneous group of consumers. This is compiled on a monthly basis using the Laspeyre's index. Three separate consumer price indices are computed for a) industrial workers (CPI-IW), b) urban non-manual employees (CPI-UNME) and c) agricultural labourers (CPI-AL) to capture the consumption pattern of these three segments of the population. The weighting pattern for all the series are based on the results of the respective family budget surveys conducted from time to time. CPI-IW and CPI-UNME are compiled for selected industrial centres, while CPI-AL is constructed at the state level. The aggregation of the all-India index is done as a weighted average of respective centre-wise or state-wise indices. The current series of CPI-IW includes 260 items covering 70 selected industrial centres. The CPI-UNME is computed on the basis of the family living survey in 59 selected industrial centres. The CPI-AL covers 422 villages spread over 39 agricultural labour enquiry zones of various states.

In the literature, the measurement issue came to the fore in the 1990s in the light of inflation targeting in several countries and also indexing of debt in the advanced economies. There are two problems associated with measuring inflation. The first one concerns a transitory phenomenon or noise that emanates from seasonal patterns, energy price shocks, exchange rate changes, changes in indirect taxes, and asynchronous price adjustments. Knowledge of the extent of the presence of noise in the overall index is important for all central bankers. The second potential difficulty associated with measurement involves biases inherent in the weighting schemes, sampling techniques, and quality adjustments employed in the calculation of price indices. For example, the CPI Commission in the case of US concluded that the change in the CPI overstates the change in the cost of living by about 1.1 percentage points per year, with a range of plausible values of 0.8 to 1.6 percentage points.

In the area of measurement biases there are two approaches to measuring the cost of living indices. The first approach uses the estimated system of demand equations to make exact utility comparisons capturing the substitution effects of relative price changes. The second approach uses mathematical formulae to calculate index numbers, usually at a more detailed disaggregated level. The most common index number formula is the Laspeyre's Index, which measures the changes in the cost of a fixed basket of goods from a base period, that is, it assumes no substitution due to relative price changes. Thus, it usually is an overestimate of a true cost of living index. At other extreme is the Paasche index, which assigns weights by current consumption pattern, and thereby tends to overstates substitution and understates the cost of living index relative to an earlier base period. Superlative indices like Fisher's and Tornqvist indices approximate the true cost of living index, under certain assumptions, without having to estimate the demand equations and thus can handle the potential dimensionality problem inherent in disaggregation in a modern market economy with vast number of goods and services.

In the context of removing measurement bias, the Boskin Commission in the US has made several recommendations to the Bureau of Labour Statistics. These include using geometric

means, superlative indices, more rapid introduction of new goods and new outlets, speedier updating of consumption weights, making use of hedonics and other statistical tools which can be used to reduce the bias in the CPI.

References

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3.62 In so far as the demand pressure on prices is concerned, the aggregate demand condition in the economy remained more or less favourable during 1998-99. A substantial increase in government sector demand was indicated by a large growth in centre's fiscal deficit and the expansion of broad money by 18.4 per cent during the year. According to the latest national accounts data, private consumption and investment demand decelerated to 8.4 per cent and 6.9 per cent respectively, in 1997-98, from 17.0 per cent and 18.0 per cent in 1996-97. The private consumption demand as percentage to GDP has consistently fallen from 64.7 per cent in 1993-94 to 61.4 per cent in 1997-98. On the other hand, private investment demand as a ratio to GDP, which was 16.7 per cent in 1996-97 declined to 16.1 per cent in 1997-98. The slow growth in domestic private demand has been reinforced by a sharp deterioration in foreign trade balance (in rupee terms) representing net external demand by 43.2 per cent in 1998-99 as compared with a decline of 19.8 per cent witnessed in 1997-98.

3.63 Apart from the usual demand and supply forces, price developments in the economy needs to be seen in the context of the general competitive environment facing the manufacturing sector. Manufacturing sector generally follows a mark-up pricing process. Both costs and mark-up are affected by a host of factors, including monetary growth. While costs are expected to vary positively with money supply growth and negatively with productivity growth, the mark-up is influenced by the demand conditions in the economy - a higher rate of monetary growth leads to higher demand for manufacturing products and higher mark-up for these products. However, this transmission process could be affected by several exogenous shocks such as increased price competition from abroad and demand shocks in the nature of changes in preferences of consumers. The relative importance of these factors in the recent behaviour of manufacturing prices in India needs to be fully explored. The world manufacturing prices have been falling

since 1996; these declined by 3.9 per cent in 1998 as compared with a fall of 8.2 per cent in 1997, making imports cheaper. As a result, domestic industries have been coming under competitive pressure, which has an impact on the costs and mark-up rates in the manufacturing sector. To the extent that the growing openness of the economy and the resulting price competition is internalised by the domestic industries through higher productivity growth, slower increases in manufacturing prices would be reflected in improved competitiveness of the economy.

Trends during the First Quarter : 1999-2000

3.64 The rate of inflation during the first quarter of 1999-2000 declined significantly, primarily due to the sharp deceleration in the prices of major commodity groups in the WPI. The drop of the inflation rate was against the upswing of WPI in the first quarter of 1998-99. The declining trend in the year-on-year rate of inflation commenced from the very start of the financial year 1999-2000, with the rate drifting from 4.6 per cent on April 3, 1999 to a twenty-year low level of 2.0 per cent on June 26, 1999. The decline in the inflation rate was seen in all the commodity groups. The primary articles group showed a price rise of 1.6 per cent up to June 1999 as compared with an increase of 13.1 per cent a year ago, whereas that of the fuel group increased by 3.8 per cent as compared with 8.9 per cent in the corresponding period of the previous year. In the case of manufactured products, the price index rose by 1.9 per cent as compared with 5.0 per cent in the corresponding period of the previous year. Within the primary articles group the deceleration in price increase was prominent in certain items *viz.*, fruits and vegetables, eggs, fish and meat, coffee, fibres, raw cotton, oilseeds, minerals, petroleum crude and natural gas, *etc.* In manufactured products group, 'sugar, *khandsari and gur*' declined by 5.0 per cent as against an increase of 5.7 per cent in the corresponding period of the previous year (Appendix [Table III.7](#)). As a consequence, the weighted contribution of the primary articles group to the overall price rise at the end of June 1999 was 27.3 per cent as compared with 53.5 per cent in the corresponding period of the previous year. The CPI-IW, on a point-to-point basis, also moved in the downward direction decelerating to 5.3 per cent by the end of June 1999 as compared with the increase of 12.4 per cent in the corresponding period of the previous year. The subdued momentum in the rate of inflation in both WPI and CPI-IW could be attributed to improved supply situation of food articles and food products emanating from the bumper production coupled with the impact of macroeconomic policies in terms of demand and supply side measures undertaken in the aftermath of the spiralling price rise in the second half of 1998-99.