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**On the Relevance of the Wholesale Price Index
as a Measure of Inflation in India**

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EXECUTIVE SUMMARY

Inflation Measures in India

1. The WPI in India is used extensively as a measure of inflation and important monetary and fiscal policy changes are often linked to it. It is used extensively for short term policy intervention because it is the only index that is available on a weekly basis with a two weeks' lag. In principle, inflation requires to be managed with respect to changes in prices of final goods or consumer prices. A number of consumer price indices like Consumer Price Index for Industrial Workers (CPI-IW), for Agricultural Labourers (CPI-AL), and for Urban Non-Manual Employees (CPI-UNME) are compiled on a monthly basis.
2. In spite of the extensive usage of WPI as a measure of inflation, it has several critical limitations: First, only goods are included in its purview and services are excluded. Secondly, the WPI measure captures the value of gross transactions in the economy. It amounts neither to a producers' nor a consumers' basket for the measurement of inflation. Thirdly, given the use of the Laspeyre's formula, it requires frequent base year revisions, particularly in an economy undergoing structural changes at a rapid rate.

WPI Weighting Diagrams: 1993-94 and 1981-82

3. The existing official series of Wholesale Price Index (WPI) is with reference to 1993-94 as the base year. For the 1993-94 base WPI series in India, the "top down" approach was adopted for developing the weighting diagram. Services were excluded from the total value of transactions in the economy. The weights at the individual item level were generated from within the sample basket of the groups. Weights were further corrected for the non-inclusion of the services sector.
4. In the case of primary articles, the overall weight came down by nearly 32 per cent in the 1993-94 base series as compared to the 1981-82 base series. Within this group, the weight of sugarcane came down by 52 per cent. Correspondingly, for the remaining two categories, namely fuel, power, light and lubricants and manufactured products, the weights have gone up. The main increase is in the category of fuel where the overall weight has gone up by 33.4

per cent increasing from 10.66 to 14.22. There is a smaller increase in the case of manufactured products of about 12 per cent. However, in the category of manufactured products, the weight of sugar has gone up by nearly 80 per cent from 2.013 to 3.619.

5. The changing composition of expenditure shares due to the changing pattern of consumption as income rises and the related growth in the service sector has implied that fixed weights in the WPI series become dated very fast. To illustrate, we consider the case of sugar.

Case of Sugar

6. Sugar is important from the viewpoint of its large consumer base, employment and export potential, and as a source of foreign exchange earnings. The weight of sugar increased from 2.013 in the 1981-82 series to 3.619 in the 1993-94 series. The actual share of expenditure on the category of 'sugar and gur' in total expenditure in the economy is only about 1 per cent in 2004-05 according to the National Income Accounts final expenditure data. The changing profile of weights of sugar in total expenditure can be explained in terms of the following effects:

Intra-group Substitution Effect: The increase of weight of sugar from 2.013 in the 1981-82 series to 3.619 in the 1993-94 series is due to the change in the consumption pattern leading to substitution of sugar for gur within the overall group of 'sugar, khandsari, and gur'. The weight of this overall group has actually fallen marginally in the 1993-94 series to 3.929 as compared to 4.059 in the 1981-82 series.

Falling Share of Expenditure Effect: The share of expenditure on sugar and gur in the total expenditure on consumption and investment goods has steadily fallen since 1993-94. The extent of the fall is about 2.1 percentage points, from 2.35 in 1993-94 to 1.04 in 2004-05.

Services Exclusion Effect: While the true weight of sugar and gur in 2004-05 is only 1.04 in the expenditure basket of goods and services, it is adjusted upwards to 2.02 for non-inclusion of services in WPI measurement, i.e, an adjustment of about 1 percentage point.

Limitations of WPI as a Measure of Inflation

7. The Boskin Commission (1996) in the US, while examining inflation measures, highlighted four sources of possible bias in using a methodology using fixed weights:
 - Substitution bias occurs because a fixed market basket fails to reflect the fact that consumers substitute relatively less for more expensive goods when relative prices change.
 - Outlet substitution bias occurs when shifts to lower price outlets are not properly handled.
 - Quality change bias occurs when improvements in the quality of products, such as greater energy efficiency or less need for repair, are measured inaccurately or not at all.
 - New product bias occurs when new products come in the market but are not included in the inflation measure.
8. Conceptually a 'measure of inflation' should measure the prices only at the "final demand level" and not at "intermediate demand" level. The sum total of final goods also corresponds to the national income which is the sum total of final consumption plus investment. As such the weighting diagram should exclude inter-industry transactions that are not central to the measurement of the prices of final goods and services in the system.
9. WPI would still be useful for policy interventions if these were reliable predictors of the CPI inflation. An examination of the co-movement of WPI inflation rates in pair-wise comparisons with alternative consumer prices indices, namely inflation rates of CPI-IW, CPI-AL, and CPI-UNME indicates the following. Till 1998-99, all CPI inflation measures were significantly higher than the WPI inflation (except the CPI-Agriculture labourers measure in 1997-98). Thus, in the late nineties, the WPI has under-represented the movement in consumer price inflation. In 1996-97, the CPI inflation rates were nearly twice that of the WPI inflation rate. The under-representation is also noticeable in 1997-98 and 1998-99. In more recent years, particularly in 2003-04 and 2004-05, the WPI inflation rate has overestimated the movement in consumer price indices.

10. In order to test whether the WPI is a good predictor of the CPI inflation, we have performed two statistical tests, namely (i) the Granger causality test and (ii) pair wise Granger Causality/Block Exogeneity test. Both tests indicate that, at least in the short run, the WPI is not a good predictor of the CPI measures.

Concluding Observations

11. Given the limitations of the WPI as a measure of inflation, the following suggestions are made. In the short-run, the base year of the WPI should be revised every five years. In the longer run, we need to give the responsibility of compilation of price data to a single agency. Three basic series are required: one reflecting movement in prices of consumer goods and services and one reflecting prices of investment goods and related services. From this, separate indices for goods and services can also be derived. A separate set should pertain to prices of physical assets like land and houses. The frequency of data collection and announcement should be on a weekly basis. As long as we continue with fixed weight indices, the base year should be changed every five year at a minimum.

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey – Fuller Test
AIC	Akaike Information Criterion
ASI	Annual Survey of Industries
BICP	Bureau Of Industrial Costs And Prices
BPL	Below Poverty Line
CACP	Commission For Agricultural Costs And Prices
CPI-AL	Consumer Price Index For Agricultural Labourers
CPIALI	Consumer Price Index For Agricultural Labourers Inflation
CPI-IW	Consumer Price Index For Industrial Workers
CPIIWI	Consumer Price Index For Industrial Workers Inflation
CPIUEI	Consumer Price Index For Urban Non-Manual Employees Inflation
CPI-UNME	Consumer Price Index For Urban Non-Manual Employees
Δ	First Differenced Series
ECA	Essential Commodities Act
ESS	Explained Sum Of Squares
GDP	Gross Domestic Product
GNP	Gross National Product
GOI	Government Of India
MSR	Marketed Surplus Ratios
MT	Metric Tonne
NIC	National Industrial Classification
NSSO	National Sample Survey Organisation
PDS	Public Distribution System
SAPs	State Advised Prices
SMP	Statutory Minimum Price
US	United States
VAT	Value Added Tax
WG	Working Group
WPI	Wholesale Price Index
WPI-ALL	Wholesale Price Index for All Commodities
WPII	Wholesale Price Index Inflation
WTO	World Trade Organisation

Chapter 1

WHOLESALE PRICE INDEX IN INDIA: CONCEPTS AND EVOLUTION OF WEIGHTING DIAGRAMS

The WPI is used extensively as a measure of inflation and important monetary and fiscal policy changes are often linked to it. The WPI indices are also used for the purpose of escalation clauses in the supply of raw materials, machinery and construction work. The weekly index numbers of wholesale prices have acquired considerable significance over time, as this is the only index which gives an idea of the week-to-week fluctuations in the prices of all the traded commodities. This Chapter examines the evolution of WPI and its basic characteristics and limitations.

The existing official series of the Wholesale Price Index (WPI) is with reference to 1993-94 as the base year. Historically, starting from the 1930s, the base year of the WPI has been revised roughly every 10 years. These revisions bring out changes in the weighting diagram making the WPI better aligned with the changing production and trade structure of the economy. In spite of the extensive usage of WPI as a measure of inflation, it has several critical limitations. First, only goods are included in its purview and services are excluded. Secondly, the WPI measure captures the value of gross transactions in the economy. It amounts neither to a producers' nor a consumers' basket for the measurement of inflation. Thirdly, given the use of the Laspeyre's formula, it requires frequent base year revisions, particularly in an economy undergoing structural changes at a rapid rate.

1.1 Methodology: Laspeyre's Formula

The WPI follows the Laspeyre's formula for its weighting scheme, which has a fixed base-year weighting diagram operative throughout the life span of the series. The formula used is:

$$I = \frac{\sum (I_i \cdot W_i)}{\sum W_i}$$

I = Index Number of wholesale prices of a commodity or a commodity group [= { P_t / P_0 }.100] where P_t is the price in period t and P_0 , that in the base period of the concerned commodity/commodity group.

W_i = the weight assigned to the i th item/sub-group/group/major group = $P_0 \cdot Q_0 / \sum P_0 \cdot Q_0$, i.e. expenditure in the base period evaluated at base year prices for the i th commodity as a proportion of total expenditure also evaluated at base year prices.

The commodity index is arrived at as the simple arithmetic average of the price relatives of all the varieties included under that commodity. The indices for the sub-groups/groups/major groups/all commodities are, in turn, worked out as the weighted arithmetic means of the indices of the items/sub-groups/groups/major groups falling under their respective heads.

The scheme of fixed weights has several limitations. In the US, the Boskin Commission, formally called the "Advisory Commission to Study the Consumer Price Index", was appointed by the US Senate in 1995 to study possible bias in the computation of the consumer price indices using fixed weights in the construction of the price indices on several grounds, the most important of which relates to changes in quantities as a response to changes in prices. The Commission in its final report (1996) titled "Toward A More Accurate Measure of The Cost Of Living", highlighted four sources of possible bias in using a methodology using fixed weights:

- (1) Substitution bias occurs because a fixed market basket fails to reflect the fact that consumers substitute relatively less for more expensive goods when relative prices change.
- (2) Outlet substitution bias occurs when shifts to lower price outlets are not properly handled.¹
- (3) Quality change bias occurs when improvements in the quality of products, such as greater energy efficiency or less need for repair, are measured inaccurately or not at all.
- (4) New product bias occurs when new products are not introduced in the market basket.

These critiques also apply to the preparation of WPI in India. In India's case, the omission of services is an additional and a major source of distortion. Secondly, price-

¹ Outlet substitution bias refers to trends and changes in purchase outlets. The Boskin Commission observes as follows: "In recent years, there has been a transformation of retailing. Superstores, discount stores and the like now comprise a large and growing fraction of sales relative to a decade or two ago. As important as keeping up with the basket of goods that consumers actually purchase is keeping up with the outlets where they actually purchase them, so that the prices paid are accurately recorded. These shifts to discount outlets are not properly captured in the current methods of preparing consumer price indices leading to an outlet bias."

relatives based on gross transactions rather than the prices of final goods distort the relative weights.

1.2 WPI: Evolution of Weighting Schemes

The methodology of compilation and weighting schemes of WPI have evolved over time. We trace this evolution since the 1970-71 series.

a. Changes in the 1970-71 Series

In all series prior to the 1970-71 series, the weighting system was based on the value of transactions of only those commodities which featured in the index. In the 1970-71 series, weights were assigned on the basis of the entire wholesale transactions in the economy and, for this purpose, the values of transactions of the non-selected commodities (which did not find place in the index) were assigned to those selected commodities whose nature and price trends were similar.

The weights in the 1970-71 series were based on the value of transactions consisting of : (a) value of marketable surplus in the case of agricultural commodities and value of products for sale in the case of manufactured products, (b) total value of imports, including import duties, if any, and (c) total value of excise duty, if applicable. In the agricultural sector, individual commodities were assigned weights in proportion to the average value of marketable surplus during the three-year period ending 1969-70. In the 'minerals' and 'fuel, power, light and lubricants' groups also, the allocation of weights to individual commodities was generally based on the average value of production in the three year period ending 1969-70. In the case of 'manufactured products', the value of production based on the ASI-1968 data was used for deriving the weighting pattern.

In the 1970-71 series, the 'National Industrial Classification' (NIC) was adopted to bring about a greater uniformity with the classification followed in some other important indices like the Index of Agricultural Production, Index of Industrial Production, etc. In this classification, all the commodities whether domestically produced or imported and available for sale in primary markets were grouped under three major groups, viz., A: Primary Articles; B: Fuel, Power, Light & Lubricants, and C: Manufactured Products.

The major group 'Primary Articles' comprised three groups, viz., (i) Food Articles, (ii) Non-Food Articles and (iii) Minerals. The major group 'Fuel, Power, Light and Lubricants' in the 1970-71 series consisted of coal, coke, lignite, mineral oils and electricity. The major group 'Manufactured Products' contained eleven groups, viz., (1)

Food products, (2) Beverages, Tobacco and Tobacco products, (3) Textiles, (4) Paper and Paper products, (5) Leather & Leather products, (6) Rubber and Rubber products, (7) Chemicals and Chemical products, (8) Non-Metallic Mineral products, (9) Basic Metals, Alloys and Metal products (10) Machinery and Transport Equipment and (11) Miscellaneous products.

b. 1981-82 Base Year Series

The WPI Series underwent another restructuring in terms of its base and weighting diagram in the 1981-82 Series. As against 360 items in the 1970-71 series, the 1981-82 series included 447 distinct commodities, implying an increase of 87 items in the coverage. This was the net result of the addition of 75 new items, the splitting of a group of 32 items of the earlier series into 100 distinct items and the amalgamation of 4 of the then existing items into 2 of the new series. In view of the structural changes, 54 items were deleted from the 1970-71 series for the compilation of the new series. The number of price quotations increased from 1295 of the earlier series to 2371 in the revised series. Each selected item was allocated a weight that was proportional to its share in the total value of output in the economy. The value of output of the non-selected items was distributed to those of the selected ones whose nature and price trends were considered similar.

Within the agricultural sector, individual commodities were assigned weights on the basis of the average value of marketed/marketable surplus through the triennium ending 1981-82. The 1981-82 series utilized as an innovation the marketed surplus ratios pertaining to the base year as against the marketable surplus ratios based on the surveys conducted in 1950s and early 1960s for the series it replaced. A distinct improvement in the 1981-82 series was the inclusion of the value of output of the unorganized/unregistered manufacturing sectors for assigning weights to various products. Following the National Industrial Classification (NIC), the complete list of 447 commodities of the 1981-82 base was divided into three major sectors of the economy : (I) Primary Articles; (II) Fuel, Power, Light and Lubricants; and, (III) Manufactured Products.

The Primary Articles sector was further split into (i) Food Articles (ii) Non-food Articles and (iii) Minerals. The Manufactured Products sector were sub-divided into 13 sectors, two more in number than in the preceding series. These were: (1) Food products; (2) Beverages, tobacco and tobacco products; (3) Textiles; (4) Food and food products; (5) Paper and paper products; (6) Leather and leather products; (7) Rubber

and rubber products; (8) Chemicals and chemical products; (9) Non-metallic mineral products; (10) Basic metals, alloys and metal products; (11) Machinery and machine tools; (12) Transport equipment and parts; and (13) Other miscellaneous manufacturing industries. In all, there were 334 items in the Manufactured Products list, 20 items in the Fuel, Power, Light and Lubricants list and 93 items in the primary articles list, adding up to 447 for the 1981-82 base.

c. 1993-94 Base Year Series

The 1993-94 base series contained a number of significant changes. The Working Group (WG) acknowledged that a good part of the economic activity classified as services should be incorporated in the price indices, which now accounts for more than half of the Indian economy and is buoyant in comparison with the commodity producing parts of the economy. It was also observed that while the WPI measure captures the exchange value of money in relation to other things, it is, arguably, not the most appropriate instrument for the measurement of inflation in the economy.

In the case of "manufactured products" the classification that was used in the 1981-82 series was retained, but the last category, "other miscellaneous manufactures" was dropped due to considerations of representativeness of individual items in this group. Its weight was distributed across other remaining categories of manufactured products on a pro-rata basis. There were thus 12 categories of manufactured products in the 1993-94 series, which were identical with the first 12 categories of the 1981-82 series. There are altogether 435 articles/items in the new series, comprising 98 primary articles, 19 items of "fuel, power, light and lubricants", and 318 manufactured items.

With a view to reflecting the structural changes in the economy, a large number of commodities were added and a few with diminished importance were dropped. In the revised series, "Primary articles" contributed 98 items, "Fuel, Power, Light and Lubricants" 19 items, and "Manufactured products" provided 318 items. The number of price quotations in the revised series was spread out to as many as 1918 quotations. The average number of price quotations per item was 4.40 for the revised series (1993-94 = 100).

The revised WPI series included ten items of petroleum products. Petroleum crude which is an intermediate product was dropped. Crude petroleum is used only by the refineries, and there is no general wholesale market for this. In view of this, petroleum crude was shifted from the first major group i.e. "primary articles" to the

second major group i.e. "Fuel, Power, Light and Lubricants" in the group "mineral oils" and the weight that was originally assigned to crude petroleum has been spread over the petro-products.

The values of outputs of the manufactured items in the WPI basket were based on ASI data for 1993-94. For the selection of manufactured products the basic criteria adopted was the traded value of the product with reference to the year 1993-94. The traded value of an item during 1993-94 is defined as being equal to the value of output as per ASI 1993-94 plus imports minus exports during 1993-94. Based on this, the cut-off level of Rs.120 crore or more of the traded value was adopted for determining inclusion in the series. The selection of specification as also the sources for price data in respect of manufactured products was made out of the top ten manufacturers producing a particular commodity.

For the 1993-94 series, the "top down" approach was adopted for developing the weighting diagram. Services were excluded from the total value of transactions in the economy. The weights at the individual item level were generated from within the sample basket of the groups. The WG had decided that the shares of primary and secondary sectors as found in the GNP data with the new base year (1993-94) be adopted for the WPI weighting diagram, as corrected for the non-inclusion of the services sector in the weighting diagram. Accordingly, their shares, together with the share of Group II "Fuel, Power, Light and Lubricants", were imposed from outside the sample. The shares of different sectors at the second digit level of NIC classification were also imposed from outside for similar reasons.

The weights of the items were based on the value of transactions, which consist of (a) value of (presumed) marketed surplus in the case of agricultural commodities and value of output in the case of non-agricultural products and (b) total value of imports less exports. Indirect taxes and duties were added as applicable. Within the agricultural sector, individual commodities were assigned weights on the basis of average value of production during the triennium ending 1994-95.

1.3 Weighting Diagrams: 1993-94 and 1981-82: A Comparison

A comparative statement of the complete weighting diagrams of the revised series (1993-94 base) and the 1981-82 base series of index numbers of wholesale prices in India upto item level is presented in Appendix A1.1 and up to group level in Table 1.1. The share of food articles has gone down in the revised index. It was noted by

the WG that this trend would have been more pronounced if the marketed surplus ratios (MSR) had not gone up significantly.

**Table 1.1 : Weighting Diagrams: 1993-94, 1981-82 and 1970-71 Base
WPI Series**

Major Group/Group		1993- 94 Series	1981- 82 Series	1970- 71 Series	% Change in 1993- 94 over 1981-82
All Commodities		100	100	100	
1	Primary Articles	22.025	32.295	41.667	-31.80
i)	Food Articles	15.402	17.386	29.799	-11.41
	<i>of which sugar cane</i>	1.30493	2.706		-51.78
ii)	Non-food Articles	6.138	10.081	10.621	-39.11
iii)	Minerals	0.485	4.828	1.247	-89.95
11	Fuel, Power, Light & Lubricants	14.226	10.663	8.459	33.41
111	Manufactured Products	63.749	57.042	49.874	11.76
i)	Food Products	11.538	10.143	13.322	13.75
	<i>of which sugar</i>	3.61883	2.013		79.77
ii)	Beverages, Tobacco & Tobacco Products	1.339	2.149	2.708	-37.69
iii)	Textiles	9.8	11.545	11.026	-15.11
iv)	Wood & Wood Products	0.173	1.198	0.174	-85.56
v)	Paper & Paper Products	2.044	1.988	0.851	2.82
vi)	Leather & Leather Products	1.019	1.018	0.385	0.10
vii)	Rubber & Plastic Products	2.388	1.592	1.207	50.00
viii)	Chemicals & Chemical Products	11.931	7.355	5.548	62.22
ix)	Non-Metalic Mineral Products	2.516	2.477	1.415	1.57
x)	Basic Metals. Alloys & Metals Products	8.342	7.632	5.974	9.30
xi)	Machinery & Machine Tools	8.363	6.268	5.045	33.42
xii)	Transport Equipments & Parts	4.295	2.705	1.673	58.78
xiii)	Other Misc. Manufacturing Industries*	0	0.972	0.546	-100.00

*Weights for 1993-94 has been distributed over the groups (i - xii) of Manufactured Products

In the case of primary articles, the overall weight has come down by nearly 32 per cent in the 1993-94 base series as compared to 1981-82 series. Within this group, the weight of sugarcane has come down by 52 per cent. Correspondingly, for the remaining two categories, namely fuel, power, light and lubricants and manufactured products, the weights have gone down. The main increase is in the category of fuel where the overall weight has gone up by 33.4 per cent increasing from 10.66 to 14.22.

There is a smaller increase in the case of manufactured products of about 12 per cent. However, in the category of manufactured products, the weight of sugar has gone up by nearly 80 per cent from 2.013 to 3.619.

Within the category of non-food articles, all the groups, namely "fibers", "oilseeds" and "other non-food articles", have seen a decline in their weights. The only exceptions to this trend were "raw cotton" and "raw rubber. In the case of "Minerals" within the "Primary Articles" sector, a significant change of practice took place in that the weight of petroleum crude was shifted to the "Fuel, Power, Light and Lubricants". As a result, the weight of this sector has increased by about 4 percentage points.

In the case of "Manufactured Products" sector, some interesting changes have taken place. Within the same category of "Food Products", other prominent changes are in the groups "Edible Oils", "Oil Cakes" and "Tea and Coffee processing", all of which exhibit increased shares. In the category of "Beverages, Tobacco and Tobacco Products", the "Manufacture of Bidi, Cigarettes and Tobacco" group has recorded a prominent decline from nearly 2 per cent to nearly 1 percent. Within the declining category of "Textiles", an important change relates to the decline in the shares of "Cotton Textiles" and the increased shares of "man-made Textiles". The weight of "Wood and Wood Products" has declined tangibly. There was a 4 percentage point increase in the category (imposed from outside) of " Chemical and Chemical Products", within which a 2 percent point increase was in the case of products comprising " Fertilizers and Pesticides".

1.4 Concluding Observations

The WPI in its role as a guide to policy formulation has several critical limitations. The important limitations relate to (a) non-inclusion of services (b) following a fixed weighting scheme while the economy is undergoing major structural changes, and (c) use of gross transactions data rather than data on final purchases.

The first and third problems can only be addressed by including services and including transactions not at the wholesale stage but only at the stage of final transactions. The second problem can be addressed through either changing the weighting methodology or by revising the base year more frequently. In choosing the base year, care should be taken to ensure that it is a normal year and does not contain abnormal output or price fluctuations. As the structure of the Indian economy has been changing at a rapid pace, the WG themselves recommended that the base year, and

along with this the weighting diagram, should be changed twice rather than once every decade.

If services are included in the WPI, the modified measure should look like the national income deflator, which incorporates all activities in the economy. The WG highlighted some practical problems in the context of including services in the ambit of WPI.

- (i) The problem of availability of data on different services sectors on a continuous basis.
- (ii) The problem of identifying services purchased by producers and services purchased by consumers.
- (iii) The need for mixing and matching data collected from administered prices as well as from market prices for services rendered.
- (iv) Problem of non-tradable services.

The WG also recommended that initially an attempt should be made to construct a separate index incorporating indices from the following sub-sectors:

- (a) Financial intermediation (including banking, insurance etc.)
- (b) Transport services (Road and Rail)
- (c) Communications (Postal and Telecommunication)
- (d) Water supply (Municipality rates for different groups; electricity, gas, etc. are already included)
- (e) Construction activity (in addition to the material inputs which go into them).

As mentioned earlier, a 'measure of inflation' should measure the prices only at the "final demand level" and not at "intermediate demand" level. The sum total of final goods also corresponds to the national income which is the sum total of final consumption plus trade. As such the weighting diagram should exclude inter-industry transactions that are not central to the measurement of the price of final goods and services in the system. In the next Chapter, we examine, as to how well the WPI reflects in practice the changes in prices of final goods indicated by other consumer price indices in India.

Chapter 2

MANAGING INFLATION IN INDIA : ROLE OF WPI

WPI in India is used extensively for short term policy intervention because it is the only index that is available on a weekly basis with a two weeks' lag. In principle, inflation requires to be managed with respect to changes in prices of final goods or consumer prices. A number of consumer price indices like Consumer Price index for Industrial Workers (CPI-IW), for Agricultural Labourers (CPI-AL), and for Urban Non-Manual Employees (CPI-UNME) are compiled on a monthly basis.

The Labour Bureau of Government of India prepares the CPI-IW. It attempts to measure changes in the retail prices of fixed baskets of goods and services being consumed by the target group (namely the average working class family). Based on the Income and Expenditure survey by NSSO in 78 selected centers, this index is constructed on a monthly basis. The weighting diagram for this index has been constructed on the basis of average monthly family expenditures on consumption groups: food, Pan, Supari and Tobacco, fuel and light, housing, cloth, bedding and miscellaneous (including medical care, education, recreation, transport, communication etc.). This index is also used for determining the dearness allowances to be paid to Central and State Government employees and to industrial workers besides fixation and revision of minimum wages to scheduled employments. The coverage of CPI-IW is broader than that for CPI-AL and for CPI-UNME. The CPI-AL and CPI-UNME are designed for specific groups of population with the main objective of measuring the impact of increase in prices on rural and urban poverty. The CPI-IW captures to some extent the price increase in the service sector.

One comprehensive alternative measure for inflation comes from the implicit price deflator of GDP. This is an annual series, which is available with a lag of two years. More recently, the quarterly series of GDP have become available but from time to time data revisions compromise its usability for inflation-related price interventions. For these reasons, the WPI continues to be used extensively for measuring inflation and for related policy interventions. This can however be justified only if it is a reliable predictor of the CPI inflation. We need to verify empirically whether the WPI inflation is a good predictor of CPI inflation. In this chapter, we examine first the trends in WPI inflation in recent years.

2.1. Inflation Trends in India: Recent Years

There are three widely used measures of WPI, viz., (i) the annual (52-week) average WPI inflation, (ii) the annual point-to-point inflation (as on January 22), and (iii) the monthly point-to-point average inflation. Table 2.1 summarises the inflation rates, that is, percentage change in the price index, during 1996-97 to 2005-06. The figures relate to the 52-week averages. The following observations regarding WPI inflation may be made describing the inflation trends.

- (a) WPI inflation for all commodities ranged between 3.2 to 6.9 per cent.
- (b) There was a sharp upward movement in 2000-01, when the inflation rate shot up close to 7 per cent. But thereafter it declined for two years and again started rising after 2002-03.
- (c) During this period, the manufacturing group registered a low average rate of inflation of around 2.8 per cent as against 4.7 percent inflation by the primary articles and 10.5 per cent by the fuel group.

Table 2.1: Average Annual WPI Inflation

	(Per cent)				
Year	All	Primary	Food Articles	Fuel etc.	Manu. Prod
Weights	100.0	22.03	15.4	14.23	63.75
1996-97	4.50	8.05	11.65	9.89	2.03
1997-98	4.31	2.62	2.94	12.90	2.85
1998-99	5.78	11.38	11.98	3.22	4.28
1999-00	3.22	1.15	3.76	8.70	2.66
2000-01	6.91	2.81	2.98	25.04	3.23
2001-02	3.53	3.57	3.23	8.56	1.82
2002-03	3.35	3.27	1.75	5.37	2.60
2003-04	5.31	4.22	1.28	6.20	5.52
2004-05	6.28	3.57	2.61	9.62	6.07
2005-06	4.34	2.88	4.72	9.07	3.02
Long Term Averages					
1991-92 to 1995-96	10.6	11.3		11.3	10.1
1996-97 to 2000-01	4.94	5.20	6.66	11.95	3.01
2001-02 to 2005-06	4.56	3.50	2.72	7.76	3.81
1996-97 to 2005-06	4.75	4.35	4.69	9.86	3.41

Source: Computed using basic data from Office of the Economic Adviser, Ministry of Commerce and Industry, GOI.

During the post-reforms period, the agricultural prices increased faster than manufacturing prices. The manufacturing index as a percentage of agricultural price index declined from 91.2 in 1996-97 to 84.5 in 2002-03. After that, this ratio started increasing and reached 89.9 in 2005-06 (Table 2.2).

Table 2. 2: Movement of Manufactured Prices Vis-à-vis Agricultural Prices

Year	General Wholesale Prices	Price Index of Manufacture Products	Price Index of Agriculture Products	Manufacturing Index as % of Agriculture Index
1996-97	127.2	124.4	136.4	91.2
1997-98	132.8	128.0	140.3	91.2
1998-99	140.7	133.6	157.2	85.0
1999-00	145.3	137.2	159.1	86.2
2000-01	155.7	141.7	163.7	86.6
2001-02	161.3	144.3	169.5	85.1
2002-03	166.8	148.1	175.3	84.5
2003-04	175.9	156.5	182.9	85.6
2004-05	187.3	166.3	186.7	89.1
2005-06	195.6	171.4	190.7	89.9
2006-07	205.1	177.7	202.0	88.0

Source: Office of the Economic Adviser, Ministry of Commerce and Industry, GOI.

2.2 WPI Inflation and CPI Inflation: Co-Movements

It is useful to examine the co-movement of WPI inflation rates in pair-wise comparisons with alternative consumer prices indices, namely inflations rates of CPI-IW, CPI-AL, and CPI-UNME with a view to ascertaining whether historically the consumer inflation rates are reflected by the WPI inflation rates. There were two distinct phases in which the WPI inflation moved in relation to other CPI measures of inflation. Till 1998-99, all CPI inflation measures were significantly higher than the WPI inflation (except the CPI-Agriculture laborer measure in 1997-98). After 1999-00, these measures show greater convergence although WPI inflation has generally been higher. Table 2.3 summarizes this on an annual basis. The following observations can be made:

- (a) In the late nineties, the WPI has under-represented the movement in consumer price inflation. In 1996-97, the CPI inflation rates were nearly twice that of the WPI inflation rate. The under-representation is also noticeable in 1997-98 and 1998-99.
- (b) In more recent years, particularly in 2003-04 and 2004-05, the WPI inflation rate has overestimated the movement in consumer price indices.

Table 2.3: Rate of Inflation based on different Indices

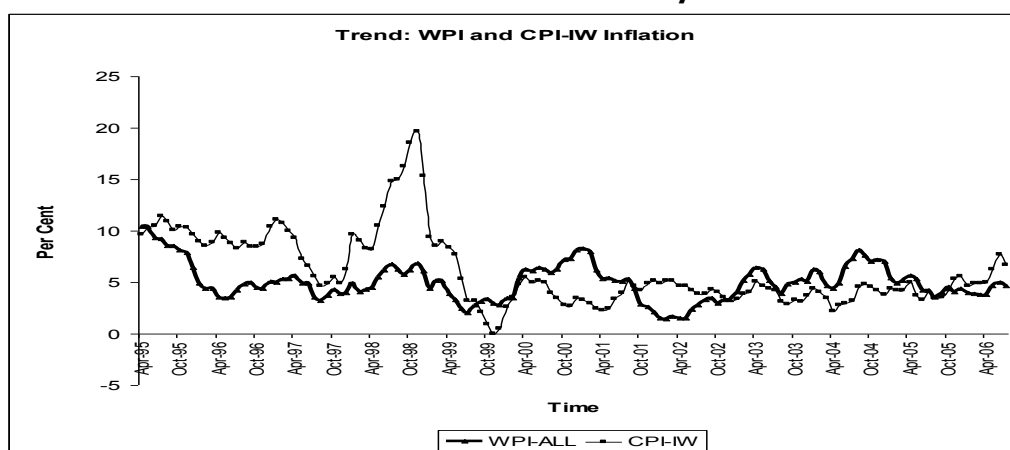
(Percent)

Year	WPI	CPI			GDP deflator
		IW	UNME	AL	
1996-97	4.5	9.4	9.3	9.1	7.18
1997-98	4.3	6.8	6.9	3.4	6.46
1998-99	5.8	13.1	11.3	11	7.64
1999-00	3.2	3.4	4.5	4.4	3.87
2000-01	6.9	3.8	5.6	-0.3	3.43
2001-02	3.5	4.3	5.1	1.1	3.34
2002-03	3.4	4.0	3.8	3.2	4.08
2003-04	5.3	3.9	3.7	3.9	3.12
2004-05	6.3	3.8	3.6	2.6	4.11
2005-06	4.3	4.4	4.7	3.9	4.34

Source (Basic Data): Economic Survey, Government of India (different years).

We can also make this comparison on monthly basis. The monthly point to point inflation is computed using the formula: $\text{Ln}(P_{m,1} / P_{m,0}) * 100$, where $P_{m,1}$ is the index number (WPI or CPI) in current month and $P_{m,0}$ is the index number in the same month last year. Charts 2.1, 2.2 and 2.3 (and Tables A2.1 to A2.4 in appendix) show the trends of monthly point-to-point WPI, CPI-IW, CPI-AL and CPI-UNME inflation since April 1995. The behavior of CPI measures of inflation during this period is characterized by two major episodes: a period of high inflation that extends from the early liberalization (not shown) era through to 1999, followed by a period of relatively low inflation.

Chart 2.1: WPI-ALL and CPI-IW: Monthly Inflation Rates



The pattern of WPI inflation rates being below that of the CPI-IW rate was changed in early 2000, after which in most months, WPI inflation has exceeded the CPI-IW inflation rates. Roughly the same pattern is visible with respect to the other consumer price indices as compared to the movement in the WPI inflation rates.

Chart 2.2: WPI-ALL and CPI-AL: Inflation Co-Movements

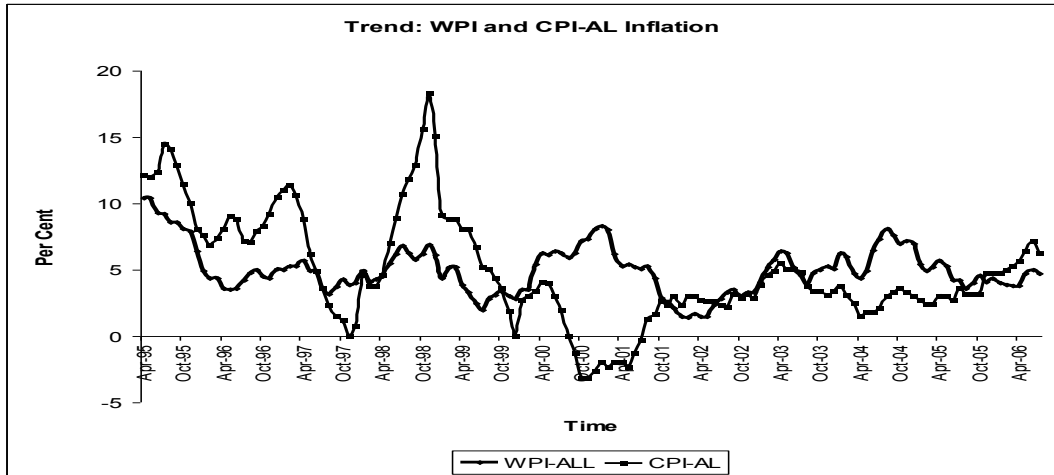
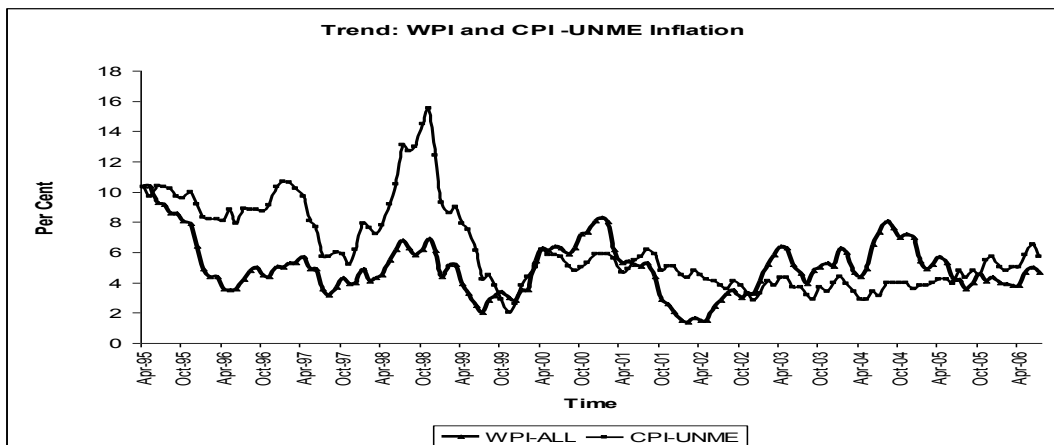


Chart 2.3: WPI-ALL and CPI-UNME: Inflation Co-Movements



Furthermore, the variability of CPI measures had declined substantially in the post 1999 era. The variability of WPI measure had also declined substantially, but reduction in variability of this measure is far less in magnitude accompanied by a reduction in volatility of supply shocks, measured by year-on-year percentage change in monthly WPI for food articles.

The WPI (all commodities) showed a high inflation rate during (i) April to December 1995 and (ii) June to December 1998 (Table A2.1), mainly because of a high inflation recorded by the food items during these months (See Table A2.5). All the CPI measures also showed a surge during these periods. Further the surge in CPI measures during these periods is stronger than that in the WPI measure.

The WPI also recorded a high inflation rate during April 2000 to February 2001, April and May 2003, January and February 2003 and June to December 2004. During these periods, the food items had not recorded high inflation. The CPI-IW inflation was lower than the WPI inflation during these periods (Table A2.2). This is because the food group has higher weights of 57 per cent in the CPI-IW basket compared to only 27 per cent in the WPI basket.

2.3 Role of WPI as a Predictor of CPI Inflation

As shown above, the variations in price level in India can be measured in terms of WPI, variants of CPIs and the GDP deflator. Each measure has its own advantages as well as weaknesses. The basket for the WPI includes a wide spectrum of raw materials, intermediate goods and final products which are traded in the wholesale markets. However, the services are excluded from its scope. On the other hand, the CPI-IW covers final products and services consumed by the industrial employees in the retail markets. While the price quotations for the WPI relate to the wholesale markets, the price quotations for the CPI-IW belong to the retail markets. However, the consumption being the end use of all economic activities, the price change in the wholesale market is expected to be reflected in the retail market. In other words, the WPI inflation should influence the CPI inflation.²

In order to test whether the WPI is a good predictor of the CPI inflation, we perform two statistical tests, namely (i) the Granger causality test and (ii) pair wise

² Changes in CPI-IW may also have some cost push impact on WPI when changes in wages occur due to indexing dearness allowances.

Granger Causality/Block Exogeneity test. Basically these are useful to see whether a variable (say), x causes another variable (say) y. Both regress y (or x) on its own past values (restricted model) to see how much of the current y (or x) can be explained by its past values and then add lagged terms of x (or y) to see whether they can improve the explanation (unrestricted model). y (or x) is said to Granger caused by x (or y) if x helps in the prediction of y or equivalently if the coefficients on the lagged x (or y) are jointly significant. The former uses the F test. The F test formula is: $F_{(r, n-m-k)} = [(ESS_r - ESS_u)/r]/[ESS_u/(n-m-k)]$; where ESS_r and ESS_u are the residual sum of squares from restricted model and unrestricted model respectively. The optimum number of lagged terms to be included in the model is decided using the Akaike Information Criterion (AIC). The latter test uses the χ^2 (Wald) statistics for joint significance of the other lagged variables in that equation. This is highly useful to see whether lagged values of many variables (such as x and z) would be jointly and significantly influencing y.

2.4 Causality between WPI Inflation and CPI Inflation Measures

The empirical investigation of testing for causality among point to point monthly (i) WPI inflation (WPII), (ii) CPI Industrial Workers inflation (CPIIWI), (iii) CPI-Agricultural labourers inflation (CPIALI), and (iv) CPI-Urban Non-Manual Employees inflation (CPIUEI) has been carried out for the period 1995:04 – 2006:07. First, we have examined the unit root properties of the variables under consideration using Augmented Dickey – Fuller (ADF) test.³ The critical values for the unit root tests presented in Table 2.4 show that the four variables contain unit root or in other words follow I (1) process. The test results are based on the optimal lags selection using Akaike Information criterion.

Table 2.4: Augmented Dickey-Fuller Unit Root Test

Variables (X)	X	ΔX
WPII	-2.6374 (12)	-4.5856 (12)*
CPIIWI	-1.4971 (14)	-5.5936 (13)*
CPIALI	-1.8178 (24)	-4.2541 (26)*
CPIUEI	-1.3149 (14)	-6.0503 (13)*

* indicates significance at 1 percent level (figures in parentheses are the optimal lags used).

³ For a stationary series, its mean and all covariances are unaffected by a change of time origin. That is, the stationary series has a constant mean, a constant variance and a constant covariance structure. The ADF test uses the following regression equation to test whether the given series (say Y) is stationary or not: $\Delta Y_t = \delta Y_{t-1} + \sum \alpha_i \Delta Y_{t-i} + e_t$ (Minimum AIC is used to decide no. of lags). If $\delta = 0$, then it contains unit root (i.e. it is not stationary).

Having established that the variables follow the same order of integration, we can test for the causal relationship among these four variables using pair wise Granger causality test. The results of pair wise Granger causality tests are presented in Table 2.5. Since variables under considerations are I(1), we use the first differenced series in the model (such as $\Delta WPII$). The WPI does not Granger cause any of the CPI series-CPII-IW, CPI-ALI and CPIUIE during the study period 1995:04 to 2006:07 as the computed F values lie below the critical value at 5 per cent level. None of the CPI indices also Granger causes the WPI. The results indicate a strong causal link only between CPIIWI and CPIUEI with direction of causality running from the former to latter. Therefore, we can conclude that the WPI inflation does not influence the CPI inflation.

Table 2.5: Pair wise Granger Causality Tests

Null Hypothesis	Obs.	F-Statistic	Probability
$\Delta WPII$ does not Granger Cause $\Delta CPIALI$	130	0.27888	0.92391
$\Delta CPIALI$ does not Granger Cause $\Delta WPII$		0.84937	0.51749
$\Delta CPIUEI$ does not Granger Cause $\Delta CPIALI$	130	1.58933	0.16828
$\Delta CPIALI$ does not Granger Cause $\Delta CPIUEI$		1.90217	0.09899
$\Delta CPIIWI$ does not Granger Cause $\Delta CPIALI$	130	1.74555	0.12946
$\Delta CPIALI$ does not Granger Cause $\Delta CPIIWI$		0.41342	0.83867
$\Delta CPIUEI$ does not Granger Cause $\Delta WPII$	130	0.63069	0.67667
$\Delta WPII$ does not Granger Cause $\Delta CPIUEI$		0.21661	0.95484
$\Delta CPIIWI$ does not Granger Cause $\Delta WPII$	130	1.38293	0.23554
$\Delta WPII$ does not Granger Cause $\Delta CPIIWI$		0.36726	0.87013
$\Delta CPIIWI$ does not Granger Cause $\Delta CPIUEI$	130	5.90874	6.5E-05
$\Delta CPIUEI$ does not Granger Cause $\Delta CPIIWI$		0.46608	0.80085

To confirm these results, we can further look at the block exogeneity test results (shown in Table 2.6). The results also indicate that the WPI and lags of WPI variables do not influence any of the CPI inflation variables as the estimated χ^2 values are not statistically significant at 5 per cent level.⁴ Thus both the Granger causality test and Block Exogeneity test results confirm that the WPI does not Granger causes the CPI measures. Therefore, it is concluded that at least in the short run, the WPI is not a good predictor of CPI measure.

⁴ Likewise, the lags of CPI variables do not influence the WPI variable.

Table 2.6: Pair wise Granger Causality/Block Exogeneity Wald Tests

Dependent variable: ΔCPIAL			
Excluded	Chi-sq	df	Prob.
Δ WPI	3.369989	3	0.3380
Δ CPIUE	2.314610	3	0.5097
Δ CPIIW	5.635904	3	0.1307
All	13.85044	9	0.1277
Dependent variable: ΔCPIUE			
Δ CPIAL	0.598116	3	0.8969
Δ WPI	0.216099	3	0.9749
Δ CPIIW	18.18264	3	0.0004
All	28.47826	9	0.0008
Dependent variable: ΔCPIIW			
Δ CPIAL	1.485372	3	0.6857
Δ WPI	1.712700	3	0.6341
Δ CPIUE	2.059800	3	0.5601
All	4.834216	9	0.8485
Dependent variable: ΔWPI			
Δ CPIAL	0.063297	3	0.9958
Δ CPIUE	0.850545	3	0.8373
Δ CPIIW	1.533060	3	0.6747
All	6.880209	9	0.6496

Chapter 3

WPI AND SUGAR PRICES: SOME ANOMALIES

We examine the case of sugar as illustrative of how policies based on WPI may be based on incomplete and distorted information. Sugar industry has a weight of 2.243 per cent in the general index of industrial production.⁵ Sugar is important from the viewpoint of its larger consumer base, employment potential, export potential, and as a source of foreign exchange earnings.⁶ It is the largest agro based industry where about 45 million farmers, their dependents and a large number of agricultural labourers are involved in sugarcane cultivation. The workforce employed directly by 575 sugar mills is estimated at 25 lakh.

3.1 Producing and Marketing Sugar in India: An Overview

The production of sugar from sugarcane, through various stages of processing, entails an array of byproducts like molasses and bagasse (the fibre residue after the cane stalks are shredded and crushed to extract the cane juice). The molasses can be used to make a variety of products, such as animal feeds, alcohols and fertilizers. The fibre content and chemical composition of bagasse are used in industrial applications such as particleboard, pulp production and various chemical industries. The bagasse serves as an input for producing energy for the sugar mills and distilleries. Further, the organic wastewater stream from ethanol production, known as vinasse, can be used as fertilizer or it can be converted to methane gas through anaerobic digestion.⁷

a. Government Controls and Policies

Sugar is one of the most regulated industries in India.⁸ Each mill is required to have a "catchment area" and is obliged to buy all the cane delivered to it by farmers in the

⁵ India has been known as the original home of sugarcane and sugar manufacture. When Alexander the great invaded India about 327 BC, he and his soldiers were the first Europeans to see sugarcane. On their return to Westward, they took sugarcane to Europe. It was between the fourth and sixth centuries that the art of sugar making was discovered in India. From India, the knowledge of sugar making went over to Persia.

⁶ Further, India is the largest consumer of sugar and the second largest producer of sugar with a share of over 15 per cent of world sugar production (Economic Survey, 2007).

⁷ The transportation fleets used in sugar factories and ethanol distilleries have in some cases been powered by methane gas.

⁸ The Government applied strict licensing rules, entry regulation and controlled expansion of existing mills. In 1990, the licensing controls over capacity expansion by existing mills were removed. The practice of allowing new mills to have a higher free sale quota was discontinued. In 1998, licence was no longer required to establish new mills. However, the new mills must establish at least 15 km away from existing mills.

designated area at statutory minimum price.⁹ The Government controls both production and sale of sugar and to a large extent sugar prices.

a1. Statutory Minimum Price: The minimum price of raw material (sugarcane) is statutorily fixed by the Central Government, known as 'Statutory Minimum Price' (SMP) under Clause 3 of the sugarcane control order on the basis of the recommendations of Commission for Agricultural Costs and Prices (CACP).¹⁰ The SMP is based on the previous year recovery from the cane. There is also a clause, whereby the miller has to pay a higher price if the recovery is higher. If the recovery is lower, the floor price will be the SMP. As the recovery rate varies by factories, the actual prices paid by factories vary (Table 3.1).¹¹

Further, the SMPs announced by the Central government are often made superfluous by the state governments, who announce state advised prices (SAPs), which are higher than the SMP. The principal cane producing states like Uttar Pradesh, Haryana, and Punjab set minimum State Advised Prices (SAPs), which are usually 30 to 50 per cent higher than the SMPs.¹²

⁹ The objective is to prevent the competition in cane purchasing in these areas from other sugar mills. Besides, there is a simple technical reason behind this rule. Since the sucrose content starts declining after just a few hours of harvesting, the cane must be brought fresh from the field to the factory gate. The full and efficient utilization of a factory's capacity requires careful scheduling of the harvest and delivery operations. Coordination of factory and field is easiest when the agricultural operations are under the control of factory itself.

¹⁰ The CACP was set up in 1995 (before that it was called the agricultural price commission). Based on surveys of farm production costs, the CACP recommends minimum price of sugarcane for each region every year. The Centre announces the Statutory Minimum Prices that are usually lower than or equal to CACP recommended prices.

¹¹ Typically the prices are fixed in terms of quintals. By government mandate, the miller has to pay the farmer this amount within 14 days of the farmer supplying the cane.

¹² In 2002-03, the sugar mills were squeezed between SAPs and falling free market sugar prices, resulting in severe financial difficulties for many mills and very large payments arrears for cane farmers. The Centre came to rescue of the industry and the State Governments with a large subsidies with a condition that the States should abandon the SAPs in the near future. However, this condition was later challenged in the High Court, which found against the Centre.

Table 3.1: SMP for Sugarcane (Rs./Quintal)

Year	Sugarcane#
1996-97	45.9
1997-98	48.45
1998-99	52.7
1999-00	56.1
2000-01	59.5
2001-02	62.05
2002-03	69.5
2003-04	73
2004-05	74.5
2005-06*	79.50
2006-07*	79.50
2007-08*	79.50

up to 2004-05, the SMP linked to a basic recovery rate of 8.5 per cent; from 2005-06 onwards it is linked to a basic recovery rate of 9.0 per cent.

a2. Levy Price of Sugar: Sugar mills are required to supply a specified quantity of their sugar outputs (known as levy sugar) to the Ministry of Food and Civil Supplies at a controlled price for resale of sugar at low prices under the Public Distribution System (PDS). The Centre determines the levy price every year based on the cost schedules prepared by Bureau of Industrial Costs and Prices (BICP).¹³ Since the BICP takes into account the SMPs and recovery rates and ignores the fact that the mills are actually paying the SAPs, the cost may be underestimated. As a result, the mills incur losses on their sales of levy sugar. However, the loss in recent years has been reduced because the quantities needed for the PDS fair price shops have drastically declined by confining PDS sugar sales only to the BPL (below poverty line) families.¹⁴

a3. Free Market Price of Sugar: After the sale of levy sugar, the mills can sell the balance of their outputs (known as free sale sugar) in the open market subject to regulations of the Sugar Controlling Office.¹⁵ Thus, the Centre indirectly regulates the free market price of sugar by changing the free sale ratio, and mill level controls over the amount of levy sugar and free sale sugar that can be sold.¹⁶

¹³ The BICP takes into account the SMPs and sugar recovery rates of regions.

¹⁴ The proportion of levy sugar was about 65 per cent in early eighties. But in recent years, it is around 10 per cent.

¹⁵ Sugar Controlling Office regulates the quantity and timing of each mill's sale in the open market through release order control. The purpose of the release order control is to stabilize the free market price. In period when the production exceeds the demand, this essentially means holding back sugar release in order to support open market prices.

¹⁶ Many argue that evasion of these controls by understating production and making unrecorded free market sale are the well-recognized classic sources of black money in India.

a4. Excess Profit Sharing Arrangement: Clause 5 A of the Sugarcane Order prescribes a formula for sharing profits earned by the factory with farmers as:¹⁷

$$R - L/2$$

where R is the realization from sale of levy and free sugar and L is the actual cost of producing one unit of sugar. The L factor is declared zone-wise by the Directorate of Sugar.¹⁸

a5. Taxes: Both domestic sales and imports of sugar are subject to an (equal) excise tax and a sugar development levy. Regarding domestic sales, varying excise tax rates are levied on levy sugar and free market sugar, thereby the Government influencing the prices received by the mills. In general, the excise rate on levy sugar is relatively low as compared to the rate on free market sugar. Further, tax on levy sugar is added to the levy prices paid to the mills. However, these taxes are not included in calculating the average ex-factory realization of the mills, which is a weighted average of the levy price and the free market price. In addition, there is a cess on mill sugar production.

a6. Export Policies: In 1997, individual sugar mills and private traders were allowed to export sugar, subject to the administered export control by APEDA (which allocated quotas). During 1999 to 2000, due to favorable growing seasons, very large of stocks of sugar accumulated. Therefore, in April 2001, the Government changed its policy to encourage rather than limit sugar exports by removing the administered controls and gradually introducing export subsidies for sugar.¹⁹

a7. Import Controls: In the past, sugar imports were canalized by a government controlled import monopoly. Later private firms were allowed to import but subject to import licencing. In March 1994, import licencing was dropped and tariff reduced to zero. In 1998, these policies were reversed in response to declining world prices. During April 1998 to February 2000 tariffs were increased up to 60 per cent. In January 1999 the discretionary non-tariff restrictions on imports were indirectly introduced through application of the Essential Commodities Act to sugar importers. Further, the APEDA notified sugar imports.

¹⁷ The Bhargava Commission decided this formula in 1974.

¹⁸ The Directorate of Sugar is expected to declare the L factor within 3 months of the close of the sugar season. But in general, it announces after two years.

¹⁹ The export subsidies are: DEPB at 4 per cent of the fob value of the exported sugar; Rs. 1000/MT for internal transport and freight charges (since June 2002); Rs. 350/MT for ocean freights (since February 2003) and Rs.500/MT for handling and marketing charges (since October 2003).

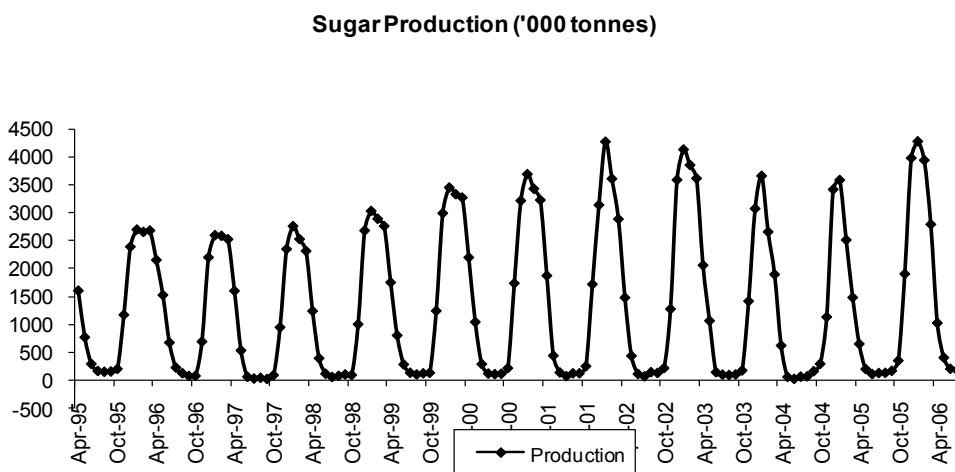
During the Uruguay Round India bound its sugar tariffs at 150 per cent. Therefore, there is no effective WTO constraint on tariff levels. Sugar imports also are subject to the same domestic indirect taxes as domestically produced sugar, so these do not provide extra protection over and above the tariff.

a8. Sugar Trading: Sugar is an essential commodity and all aspects of this industry are regulated under the Essential Commodities Act (ECA). Until July 2000, the ECA was applied to regulate stocks and turnover of sugar traders. In July 2000 and August 2001, these controls were lifted. However, in July 2003, the ECA was invoked as a *de facto* import restriction by obliging importers to get permission to resell imported sugar on the ground that they compete with Indian mills. But in 2001, the Government allowed future trading in sugar (previously banned).

a9. Subsidies: The sugar production in India has been strongly cyclical. The expansionary phases are associated with high mandated cane prices, which lead to increased cane sugar production with the expansion of sugar production overtaking demand growth. The resulting sugar prices results in financial stringency in the mills and payment arrears for farmer's cane, in response to which farmers divert cane to gur and khandsari producers and cut back cane production. This is followed by reduced sugar production, increase in sugar price, higher liquidity in the sugar mills, reimbursement of arrears, increased cane deliveries to mills and the commencement of the expansionary phase of a new cycle. It seems that there is a 3-5 years cycle. Whenever the prices decline (due to excess production), the mill owners begin to complain and ask the Government to help them out of crisis. The Government extends help and provides ad hoc subsidies to deal with the financial crisis. Besides, the Government also provides other subsidies including (i) input subsidies for sugarcane farming, (ii) subsidies for sick sugar mills, and (iii) export subsidies.

The monthly data shows that the sugar production increases during Nov-April (Chart 3.1).

Chart 3.1: Seasonality in Sugar Production



3.2 Sugarcane and Sugar in the WPI

Sugarcane is in the primary products category and is classified under 'non-food articles'. The weight of sugar cane is 1.305 in the 1993-94 base series. The weight assigned to it has come down considerably from the weight assigned to it in the previous WPI when it had a weight of 2.706. Sugar is in the manufactured products category and is classified under 'food products.' The weight assigned to sugar is 3.619. The weight assigned to sugar in the 1981-82 base series was 2.013. It may be seen that the while for sugar there was a sharp rise, for the sugar group consisting of 'Sugar, Khandsari, and Gur' there was a marginal decline from 4.059 to 3.929. The reason clearly is a shift in consumption in favour of sugar whose weight goes up from 2.013 to 3.619 from gur whose weight falls from 1.746 to 0.060 (Table 3.2).

Table 3.2: WPI: Weights at Items Levels (Selected List)

Major Group/Group/Sub Group/ Commodities	1981-82 Series	1993-94 Series	Major Group/Group/Sub Group/ Commodities	1981-82 Series	1993-94 Series
All Commodities	100	100	All Commodities	100	100
I. PRIMARY ARTICLES	32.295	22.025	III. MANUFACTURE GOOD	57.042	63.749
(A) Food articles	17.387	15.402	A. Food Products	10.143	11.538
a1. Cereals	6.824	4.406	e. Sugar, Khandsari & Gur	4.059	3.929
Rice	3.685	2.449	Sugar	2.013	3.619
Wheat	2.248	1.384	Gur	1.746	0.060
a2. Pulses	1.093	0.603	Khandsari Sugar	0.300	0.173
b1. Vegetables	1.291	1.459	<i>Bagasse</i>		0.077
b2. Fruits	2.798	1.458	C. Textiles	11.545	9.800
c. Milk	1.960	4.367	a. Cotton Textiles	6.093	4.215
d. Eggs, Meat & Fish	1.783	2.208	E. Paper & Paper Products	1.988	2.044
(B) Non-food Articles	10.081	6.138	G. Rubber & Plastic Products	1.592	2.388
a. Fibres	1.791	1.523	H. Chemical Products	7.355	11.931
Raw Cotton	1.335	1.357	c. Fertilizers & Pesticides	1.950	4.164
b. oilseeds	3.861	2.666	c1. Fertilizers	1.748	3.689
Groundnut Seed	1.296	1.029	f. Drugs & Medicines	1.065	2.532
c. Other Non-food Articles	4.429	1.949	I. Non-Metallic Mineral	2.477	2.516
Sugarcane	2.706	1.305	c. Cement	0.860	1.731
(C) Minerals	4.828	0.485	J. Basic Metals, Alloys & Metal	7.632	8.342
II. FUEL POWER ETC.	10.663	14.226	a. Basic Metals & Alloys	4.784	6.206
a. Coal Mining	1.256	1.753	K. Machinery & Machine Tools	6.268	8.363
b. Mineral Oils	6.666	6.990	a. Non-Electri. Machinery&Parts	3.277	3.379
Liquefied PetroleumGas	0.677	1.837	a1. Heavy Machinery & parts	1.393	1.822
High Speed Diesel Oil	2.154	2.020	b. Electrical Machinery	2.991	4.985
c. Electricity	2.741	5.484	L. Transport Equipment Parts	2.705	4.295
			b. Motor cycles, Scooters, Bicycles & parts	2.431	3.977

Source: Office of the Economic Advisor, Ministry of Commerce, GOI.

While the change in the weight from the 1981-82 base to the 1993-94 base series can thus be explained as 'within-group' substitution reflecting substitution of sugar for gur, the consumption expenditure weights after 1993-94 have changed drastically since then. These changes reflect change of weights between categories, and it would seem that the weight of 'sugar and gur' has fallen significantly. This is indicated in Table 3.3 where the share of expenditure on 'sugar and gur' is shown as percentage of total expenditure on consumption goods and as percentage of total expenditure on consumption as well as investment goods. In both cases, the weights are recalculated to take account of non-inclusion of services in the respective groups. These calculations are consistent with the 'top-down' methodology of calculating WPI weights for broad groups based on aggregate expenditure data. That is why we are able to trace the weight of 'sugar and gur' close to its assigned weight in the 1993-94 base series.

Table 3.3 : Weights for 'Sugar and Gur Based on their Share in Final Expenditure in National Income Accounts

	(Per cent)					
	Share of Expenditure on 'Sugar and Gur' in:					
	1993	1994	1995	1996	1997	1998
	-94	-95	-96	-97	-98	-99
Total consumption Expenditure	2.998	2.674	2.427	2.853	2.426	2.467
Consumption expenditure excluding services	3.801	3.432	3.129	3.684	3.211	3.277
Total Expenditure (Consumption and Investment)	2.347	2.038	1.822	2.189	1.838	1.918
Total Expenditure excluding Services	3.840	3.314	3.009	3.624	3.117	3.309
	1999	2000	2001	2002	200	2004
	-00	-01	-02	-03	-04	-05
Total consumption Expenditure	2.376	2.355	2.195	2.124	1.803	1.728
Consumption expenditure excluding services	3.134	3.219	3.031	3.042	2.636	2.582
Total Expenditure (Consumption and Investment)	1.842	1.730	1.567	1.430	1.153	1.042
Total Expenditure excluding Services	3.352	3.192	2.962	2.770	2.234	2.022

Source (Basic Data): National Income Accounts.

Notes: For calculations from 1993-94 to 1999-00, the 1993-94 National Income series has been used. For calculations from 1999-00 to 2004-05, the 1999-00 National Income series has been used.

Thus, the changing profile of weights of sugar in total expenditure can be explained in terms of the following effects.

Intra-group Substitution Effect: The increase of weight of sugar from 2.013 in the 1981-82 series to 3.619 in the 1993-94 series is due to the change in the consumption pattern leading to substitution of sugar for gur within the overall group of 'sugar, khandsari, and gur'. The weight of this overall group has actually fallen marginally in the 1993-94 series as compared to the 1981-82 series.

Falling Share of Expenditure Effect: The share of expenditure on sugar (and gur) in the total expenditure on consumption and investment goods has steadily fallen since 1993-94. The extent of the fall is about 2.1 percentage points, from 2.35 in 1993-94 to 1.04 in 2004-05.

Services Exclusion Effect: While the true weight of sugar (and gur) in 2004-05 is only 1.04 in the expenditure basket of goods and services, it is adjusted upwards to 2.02 for non-inclusion of services in WPI measurement, i.e., an adjustment of about 1 percentage point.

Any policy interventions based on inflation in sugar and gur prices measured through WPI are likely to be distorted both because of falling share of expenditure effect and services exclusion effect. Since the weight in the 1993-94 base WPI series is 3.6 and actual weight of sugar, properly measured is only 1 per cent, the distortion likely to be caused is quite large.

3.3 Sugarcane and Sugar Inflation

This section analyses the sugarcane and sugar inflation rates using the data on 52-week average annual WPI indices and the monthly point-to-point average WPI indices for sugarcane and sugar during 1996-97 and 2005-06.

a. Annual Inflation-Sugarcane and Sugar: As shown in Table 3.4, during 1996-97 to 1998-99, the annual inflation for sugarcane declined from 10.9 per cent to 5.9 per cent. Then, it started increasing and reached 9 per cent level in 2003-04. In 2005-06, it dramatically fell down to just 0.1 per cent (as against the inflation for all commodities of 4.3 per cent and for food articles of 4.7 per cent). Except in last two years (2004-05 and 2005-06), the sugarcane inflation was relatively high as compared to the overall inflation shown both by WPI all goods.

Table 3.4: Average Annual Inflation: Sugar and Sugarcane (Per cent)

Year	WPI					CPI-IW
	ALL	Food	Sugarcane	Manufacture	Sugar	
Weights	100.0	15.40	1.305	63.75	3.62	
1996-97	4.5	11.7	10.9	2	6.2	9.4
1997-98	4.3	2.9	7.5	2.9	13.8	6.8
1998-99	5.8	12	5.9	4.3	1.2	13.1
1999-00	3.2	3.8	6.5	2.7	1.5	3.4
2000-01	6.9	3	7.5	3.2	3.7	3.8
2001-02	3.5	3.2	7.8	1.8	-5.2	4.3
2002-03	3.4	1.7	7.5	2.6	-9.2	4
2003-04	5.3	1.3	9	5.5	0.7	3.9
2004-05	6.3	2.6	3.6	6.1	17.4	3.8
2005-06	4.3	4.7	0.1	3	10.2	4.4

Source: Computed using basic data from Office of the Economic Adviser, Ministry of Commerce and Industry, GOI.

Sugar registered an annual average inflation rate of about 4 per cent during 1996-97 to 2005-06 as against the manufacturing inflation rate of 3.4 per cent. The sugar inflation rate was significantly lower than the inflation for sugarcane (and CPI-IW) in all years except in 1997-98, 2004-05 and 2005-06 (Table 3.4). It is noted that during these three years, the inflation for Gur went up dramatically. In the last two years, the inflation rate for Khandasari also increased dramatically (Table 3.5).

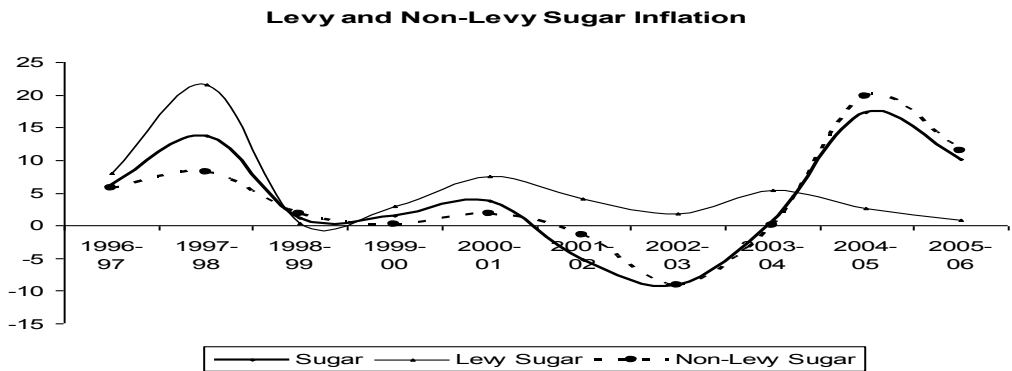
Table 3.5: Average Annual Inflation: Levy and Non-Levy Sugar, Gur and Khandasari

Year	Khand-sari	Gur	Bagasse	(per cent)			
				Levy Sugar	Non-Levy Sugar	Cocoa Chocolate Sugar & Confectionery	Sugar & sweet meat Confectionery
1996-97	8.7	-3.9	-11.8	8.1	5.7	4.8	4.8
1997-98	5.8	25.1	-30.9	21.6	8.2	2.4	2.4
1998-99	8.1	3.3	181.1	0.4	1.8	3.5	3.5
1999-00	-5.2	-0.3	4.3	3	0.2	2.4	2.4
2000-01	0	-0.6	-43.5	7.6	1.8	3.8	3.8
2001-02	5.7	6.5	-7.6	4.1	-1.5	5.9	5.9
2002-03	-8.7	-7.2	1.7	1.8	-9.1	1.8	1.8
2003-04	-2.2	-5	27.1	5.4	0	1.7	1.7
2004-05	23.1	34.9	-0.9	2.6	19.7	0.9	0.9
2005-06	18.7	10.7	-4.8	0.9	11.4	3.3	3.3

Source: Computed using basic data from Office of the Economic Adviser, Ministry of Commerce and Industry, GOI.

It is also noted that the non-levy sugar inflation rate was closely associated with the sugar inflation rate during 1996-97 to 2005-06 (Chart 3.2). The levy sugar inflation rate was relatively high as compared to the inflation for non-levy sugar (and sugar) up to 2003-04. In the last two years, the inflation rate for non-levy sugar increased dramatically.

Chart 3.2: Inflation Rates: Sugar and Levy and Non-levy Sugar



b. Trends of Monthly Point-to-Point Inflation: The monthly point to point inflation rate for sugarcane/sugar is computed using the formula: $\text{Ln}(P_{m,1} / P_{m,0}) * 100$, where $P_{m,1}$ is the index number (WPI sugarcane/sugar) in current month and $P_{m,0}$ is the index number (WPI sugarcane/sugar) in the same month last year.

Chart 3.3: Inflation Rates: WPI, Sugarcane and Sugar

WPI Inflation: All Commodities, Sugar cane and Sugar

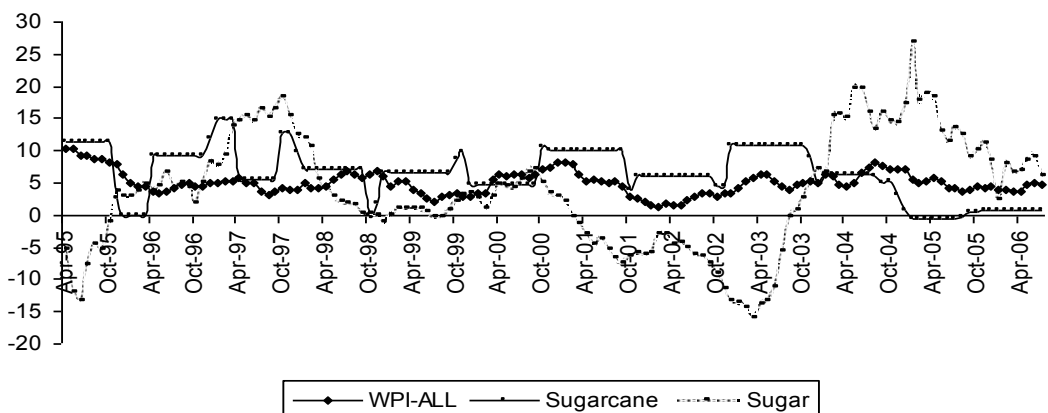
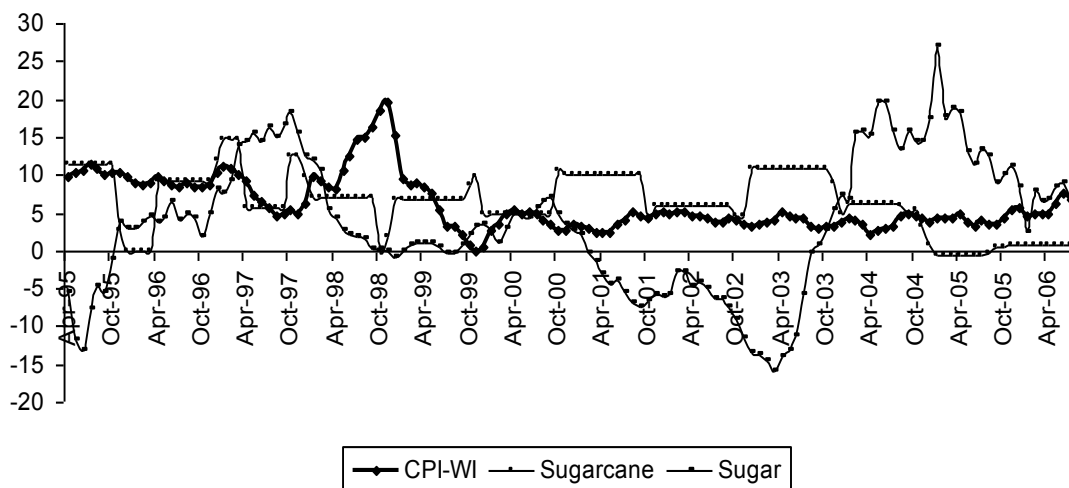


Chart 3.4: Inflation Rates: CPI-IW, Sugarcane and Sugar
Inflation Trends: CPI-IW, Sugar Cane and Sugar



Charts 3.3 and 3.4 (and Appendix Table A3.1 and A3.2) show the trends of monthly point-to-point WPI sugarcane and WPI sugar inflation (and CPI-IW inflation and WPI overall inflation) since April 1995. The behavior of sugarcane inflation during this period is characterized by two major episodes: a period of high inflation that extends from April 1996 to August 2004 (above the overall inflation), followed by a period of relatively low inflation that continues to the present day. Particularly, between January 1997 and March 1997, the inflation rate peaked at 14.8 per cent. From January 2005 onwards, it was almost close to zero as against the overall inflation rate of around 4 per cent during this period. Sugar inflation showed wide fluctuations. Up to November 1996, it was relatively low as compared to the overall WPI inflation. Then it started increasing and reached 18.2 per cent in October 1997. From April 1998 to February 2001, it fell below the sugarcane inflation and overall inflation. After that sugar registered a negative inflation till August 2003. Then it started increasing and fell above the sugarcane/overall inflation and reached 26.9 per cent in January 2005. In July 2006, it declined to 6.1 per cent. From February 2004, the rate of inflation for sugar was higher than the rate for sugarcane and the rate for all commodities in almost all months. The monthly data also reveals that the non-levy sugar inflation was closely associated with sugar inflation during 1995:04 to 2006:07. The levy sugar inflation was relatively high as compared to the inflation for non-levy sugar (and sugar) up to 2003-04. After that the inflation rate for non-levy sugar increased dramatically.

Chapter 4

CONCLUDING OBSERVATIONS

The WPI in India is used extensively as a measure of inflation and important monetary and fiscal policy changes are often linked to it. It is used extensively for short term policy intervention because it is the only index that is available on a weekly basis with a two weeks' lag. In principle, inflation requires to be managed with respect to changes in prices of final goods or consumer prices. A number of consumer price indices like Consumer Price Index for Industrial Workers (CPI-IW), for Agricultural Labourers (CPI-AL), and for Urban Non-Manual Employees (CPI-UNME) are compiled on a monthly basis.

The existing official series of Wholesale Price Index (WPI) is with reference to 1993-94 as the base year. In spite of the extensive usage of WPI as a measure of inflation, it has several critical limitations: First, only goods are included in its purview and services are excluded. Secondly, the WPI measure captures the value of gross transactions in the economy. It amounts neither to a producers' nor a consumers' basket for the measurement of inflation. Thirdly, given the use of the Laspeyre's formula, it requires frequent base year revisions, particularly in an economy undergoing structural changes at a rapid rate.

The Boskin Commission (1996), while examining inflation measures in the US, highlighted four sources of possible bias in using a methodology using fixed weights:

- (1) Substitution bias occurs because a fixed market basket fails to reflect the fact that consumers substitute relatively less for more expensive goods when relative prices change.
- (2) Outlet substitution bias occurs when shifts to lower price outlets are not properly handled.
- (3) Quality change bias occurs when improvements in the quality of products, such as greater energy efficiency or less need for repair, are measured inaccurately or not at all.
- (4) New product bias occurs when new products are not included in the market basket used for the calculation of the price index.

For the 1993-94 base WPI series in India, the "top down" approach was adopted for developing the weighting diagram. Services were excluded from the total value of transactions in the economy. The weights at the individual item level were generated

from within the sample basket of the groups. Weights were further corrected for the non-inclusion of the services sector.

The changing composition of expenditure shares due to the changing pattern of consumption as income rises and the related growth in the service sector has implied that fixed weights in the WPI series have become dated very fast. To illustrate, we consider the case of sugar. Sugar is important from the viewpoint of its large consumer base, employment and export potential, and as a source of foreign exchange earnings. The weight of sugar increased from 2.013 in the 1981-82 series to 3.619 in the 1993-94 series. The actual share of expenditure on the category of 'sugar and gur' in total expenditure in the economy is only about 1 per cent in 2004-05 according to the National Income Accounts final expenditure data. The changing profile of weights of sugar in total expenditure can be explained in terms of the following effects.

Intra-group Substitution Effect: The increase of weight of sugar from 2.013 in the 1981-82 series to 3.619 in the 1993-94 series is due to the change in the consumption pattern leading to substitution of sugar for gur within the overall group of 'sugar, khandsari, and gur'. The weight of this overall group has actually fallen marginally in the 1993-94 series as compared to the 1981-82 series.

Falling Share of Expenditure Effect: The share of expenditure on sugar (and gur) in the total expenditure on consumption and investment goods has steadily fallen since 1993-94. The extent of the fall is about 2.1 percentage points, from 2.35 in 1993-94 to 1.04 in 2004-05.

Services Exclusion Effect: While the true weight of sugar (and gur) in 2004-05 is only 1.04 in the expenditure basket of goods and services, it is adjusted upwards to 2.02 for non-inclusion of services in WPI measurement, i.e, an adjustment of about 1 percentage point.

Conceptually a 'measure of inflation' should measure the prices only at the "final demand level" and not at "intermediate demand" level. The sum total of final goods also corresponds to the national income which is the sum total of final consumption plus trade. As such the weighting diagram should exclude inter-industry transactions that are not central to the measurement of the prices of final goods and services in the system.

WPI would still be useful for policy interventions if these were reliable predictors of the CPI inflation. An examination of the co-movement of WPI inflation rates in pair-wise comparisons with alternative consumer prices indices, namely inflations rates of CPI-IW, CPI-AL, and CPI-UNME indicates that there were two distinct phases in which the WPI inflation moved in association with other CPI measures of inflation. Till 1998-99, all CPI inflation measures were significantly higher than the WPI inflation (except the CPI-Agriculture laborer measure in 1997-98). In 1999-00, all these measures showed convergence, but WPI inflation was higher than CPI inflation rates. The following observations can be made:

- (a) In the late nineties, the WPI has under-represented the movement in consumer price inflation. In 1996-97, the CPI inflation rates were nearly twice that of the WPI inflation rate. The under-representation is also noticeable in 1997-98 and 1998-99.
- (b) In more recent years, particularly in 2003-04 and 2004-05, the WPI inflation rate has overestimated the movement in consumer price indices.

In order to test whether the WPI is a good predictor of the CPI inflation, we have performed two statistical tests, namely (i) the Granger causality test and (ii) pair wise Granger Causality/Block Exogeneity test. Both these tests indicate that at least in the short run the WPI is not a good predictor of the CPI measure.

The Working Group (WG) for Analytical Issues for the 1993-94 base series highlighted some practical problems in the context of including services in the ambit of WPI, as indicated below:

- (i) The problem of availability of data on different services sectors on a continuous basis.
- (ii) The problem of identifying services purchased by producers and services purchased by consumers.
- (iii) The need for mixing and matching data collected from administered prices as well as from market prices for services rendered.
- (iv) Problem of non-tradable services.

The WG recommended that initially an attempt should be made to construct a separate index incorporating indices from the following sub-sectors:

- (a) Financial intermediation (including banking, insurance etc.)
- (b) Transport services (Road and Rail)
- (c) Communications (Postal and Telecommunication)
- (d) Water supply (Municipality rates for different groups; electricity, gas, etc. are already included)
- (e) Construction activity (in addition to the material inputs which go into them).

Given the limitations of the WPI as a measure of inflation, the following suggestions are made. In the short-run, the base year of the WPI should be revised every five years. In the longer run, we need to give the responsibility of compilation of price data to a single agency. Three basic series are required: one reflecting movement in prices of final consumer goods and services and one reflecting prices of investment goods and related services. From this separate indices of for goods and services can also be derived. A separate set should pertain to prices of physical assets like land and houses. The frequency of data collection and announcement should be on a weekly basis.

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APPENDIX

Table A1.1: WPI Weights at Items levels

Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
I. PRIMARY ARTICLES	22.025	32.295
(A) Food articles	15.40246	17.387
a. Food Grains (Cereals + Pulses)	5.00949	7.917
a1. Cereals	4.40629	6.824
Rice	2.44907	3.685
Wheat	1.38408	2.248
Jowar	0.22189	0.42
Bajra	0.11044	0.178
Maize	0.18561	0.191
Barley	0.02734	0.053
Ragi	0.02786	0.049
a2. Pulses	0.6032	1.093
Gram	0.22365	0.41
Arhar	0.13466	0.274
Moong	0.11225	0.201
Masur	0.03645	0.054
Urad	0.09619	0.154
b Vegetables & Fruits	2.91655	4.089
b1. Vegetables	1.45869	1.291
Potatoes	0.25647	0.472
Sweet Potatoes	0.02248	0.068
Onions	0.09372	0.156
Tapioca	0.06075	0.128
Ginger (Fresh)	0.0248	0.082
Peas Green	0.15383	0.137
Tomatoes	0.48065	0.117
Cauliflower	0.08361	0.131
<i>Brinjal</i>	<i>0.12713</i>	
<i>Okra (Bhindi)</i>	<i>0.09163</i>	
<i>Cabbage</i>	<i>0.06362</i>	
b2. Fruits	1.45786	2.798
Banana	0.28173	0.468
Mango	0.43561	0.964
Apple	0.13084	0.379
Orange	0.0535	0.274
Cashewnuts	0.05729	0.115

(Contd... Table A1.1)

(contd.. Table A1.1)

Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
Coconuts(Fresh)	0.24772	0.534
Papaya	0.00937	0.02
Grapes	0.08858	0.044
<i>Pine Apple</i>	<i>0.0409</i>	
<i>Guava</i>	<i>0.05239</i>	
<i>Litchi</i>	<i>0.0357</i>	
<i>Sapota (Cheeku)</i>	<i>0.02423</i>	
c. Milk	4.36708	1.96
Milk	4.36708	1.96
d. Eggs, Meat & Fish	2.20774	1.783
Fish Marine	0.39328	0.507
Mutton	0.44499	0.521
<i>Beef & Buffalo Meat</i>	<i>0.1486</i>	
Poultry Chicken	0.45163	0.375
Pork	0.04306	0.117
e. Condiments & Spices	0.66233	0.947
Black Pepper	0.02292	0.042
Chillies (Dry)	0.18866	0.319
Turmeric	0.0765	0.051
Cardamoms	0.02494	0.055
Ginger Dry	0.02991	0.038
Betalnuts	0.13381	0.151
Cummin	0.10288	0.214
Garlic	0.05905	0.077
<i>Coriander</i>	<i>0.02366</i>	
f. Other food articles	0.23927	0.689
Tea	0.15739	0.564
Coffee	0.08188	0.125
(B) Non-food Articles	6.13812	10.081
a. Fibres	1.52331	1.791
Raw Cotton	1.35674	1.335
Jute	0.10868	0.16
Mesta	0.01002	0.05
Raw Wool	0.00022	0.082
Raw Silk	0.00162	0.116
Coir Fibre	0.04603	0.037

(Contd... Table A1.1)

(contd.. Table A1.1)

Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
b. oilseeds	2.66617	3.861
Groundnut Seed	1.02883	1.296
Rape & Mustard Seed	0.58066	0.661
Cotton Seed	0.04467	1.254
Gingelly Seed	0.13166	0.142
Linseed	0.03411	0.101
Castor Seed	0.08572	0.056
Niger Seed	0.02527	0.038
Safflower (Kardi Seed)	0.05559	0.083
Sunflower Seed	0.20454	0.025
Soyabean	0.44614	0.074
Cpora	0.02899	0.111
c. Other Non-food	1.94864	4.429
Articles		
Raw Hides	0.00079	0.096
Raw Skins	0.00082	0.078
Tanning Material	0.0013	0.001
Sugarcane	1.30493	2.706
Tabacco	0.13467	0.275
Raw Rubber	0.1508	0.114
Logs & Timber	0.28811	0.571
(C) Minerals	0.48468	4.828
a. Metallic Minerals	0.29677	0.231
Iron Ore	0.20791	0.154
Fines, > 62% Fe		
Manganese Ore	0.02698	0.048
Mno2		
Bauxite	0.01621	0.011
45-50% Aluminium Oxide		
Chromite	0.04567	0.018
Lumps >47% Cr2O3		
b. Other Minerals	0.1879	0.323
Lime Stone	0.12425	0.07
Cement Grade		
Fluorite	0.00237	0.004
Metallurgical		

(Contd... Table A1.1)

(contd.. Table A1.1)

Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
Gypsum	0.00447	0.003
Cement Grade		
Fire Clay	0.00079	0.002
Refractory		
Kaolin(China Clay)	0.00659	0.004
Ceramic		
Dolomite	0.01258	0.008
Sms		
Magnesite	0.00533	0.012
Asbestos	0.00044	0.04
Barytes	0.00418	0.003
Off Colour		
Steatite	0.00347	0.002
Paper Grade		
Silica Sand	0.00252	0.001
Foundry		
Phosphorite	0.02041	
30-35% Phosphorus Pentaoxide		
Felspar	0.00018	
Ochre	0.00028	
Vermiculite	0.00004	
II. FUEL POWER LIGHT, LUBRICANTS	14.2262	10.663
a. Coal Mining	1.7529	1.256
Coking Coal	0.24148	0.353
Non Coking Coal	1.3967	0.798
Coke	0.01115	0.064
Lignite	0.10358	0.041
b. Mineral Oils	6.98964	6.666
Liquefied Petroleum Gas	1.83731	0.677
Petrol	0.88815	0.806
Kerosene	0.68928	0.868
Aviation Turbine Fuel	0.16953	0.341
High Speed Diesel Oil	2.02034	2.154

(Contd... Table A1.1)

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Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
Light Diesel Oil	0.16015	0.203
Naptha	0.41885	0.342
Bitumin	0.149	0.181
Furnace Oil	0.49335	0.641
Lubricants	0.16367	0.453
c. Electricity	5.48369	2.741
Elec.(Domestic)	0.96026	0.362
Elec.(Commercial)	0.2769	0.527
Elec.(Agriculture)	1.94557	0.317
Elec.(Industry)	2.16918	0.825
Elec.(Railway Traction)	0.13179	
III. MANUFACTURED	63.7485	57.042
A. Food Products	11.5378	10.143
a. Dairy Products	0.68696	0.642
Butter	0.17938	0.053
Ghee	0.20894	0.256
Baby Food	0.14815	0.085
Skimmed Milk Powder	0.15048	0.103
b. Canning, Preserving &Process (fish)	0.04651	0.126
c. Grain Mill Products	1.03343	1.53
Maida	0.56538	0.297
Suji (Rawa)	0.11361	0.149
Atta	0.20629	0.763
Bran (All Kinds)	0.14815	0.321
d. Bakery Products	0.44148	0.242
Bread And Buns	0.11759	0.145
Biscuits	0.2807	0.097
Cakes & Sweet Rolls	0.04318	
e. Sugar, Khandsari & Gur	3.92876	4.059
Sugar	3.61883	2.013
Gur	0.05979	1.746
Khandsari Sugar	0.17274	0.3
Bagasse	0.0774	

(Contd... Table A1.1)

(contd.. Table A1.1)

Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
f. Manufacture: common Salt	0.02126	0.035
Salt	0.02126	0.035
Cocoa, Sugar & Confectionery	0.08736	0.088
h Edible Oils	2.75515	2.445
Hydrogenated Vanaspati	0.79891	0.517
Gingelly Oil	0.05548	0.235
Solvent Extracted Ground Nut Oil	0.02325	0.021
Rape & Mustard Oil	0.48566	0.276
Coconut Oil	0.17207	0.171
Ground Nut Oil	0.1744	0.526
Cotton Seed Oil	0.27538	0.064
Rice Bran Oil	0.26077	0.067
Imported Edible Oil	0.04617	0.468
Sunflower Oil	0.13487	
Soyabean Oil	0.17838	
Unrefined Oil	0.14982	
i. Oil Cakes	1.41578	0.432
Rape & Mustard Cake	0.04285	0.041
Groundnut Cakes	0.11195	0.11
Cotton Oil Seed Cake	0.22024	1.254
Deoiled Cake	1.04074	0.079
j. Tea & Coffee Processing	0.96733	0.236
Packed Tea	0.12191	0.127
Unblended Black Tea Leaf Grade	0.44978	
Blended Tea Leaf Grade	0.21957	
Processed Tea	0.06112	
Coffee Powder	0.11494	
k. Other Food Products n.e.c.	0.1538	0.24
Cattle Feed	0.097	0.061
Malted Food	0.0568	0.053
B. Beverages, Tobacco & Tobacco Products	1.33912	
a. Wine Industries	0.26892	2.149

(Contd... Table A1.1)

(contd.. Table A1.1)

Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
Rectified Spirit	0.05411	
Indian Make Foreign Spirit	0.14559	0.099
Potable Country Liquor	0.06922	0.034
b. Malt Liquor	0.04285	0.065
c. Soft Drinks, Carbonate water	0.05274	0.059
Soft Drink (All Kinds)	0.02115	0.059
Aerated Water	0.03159	0.066
d. Manufacture of Bidi, Cigarettes,		0.066
Tobacco & Zarda	0.97461	
Bidis	0.30257	
Cigarettes	0.51216	1.925
C. Textiles	9.79992	11.545
a. Cotton Textiles	4.21549	6.093
a1. Cotton Yarn	3.31243	1.232
Cotton Yarn (Hanks)	3.02271	1.232
Other Cotton Yarn	0.28972	
a2. Cotton cloth (Mills)	0.90306	3.159
Long Cloth Sheeting	0.06197	0.36
Dhottes/Sarees & Voils	0.04244	1.188
Cotton Shirtings	0.11754	1.127
Cotton Grey Drills & Jeans	0.10044	
Cotton Grey Cloth & Canvas	0.04732	
Cotton Grey Cloth Others	0.2824	
Misc. Cotton Cloth	0.25095	
b. Man Made Textiles	4.71892	2.921
b1. Man Made Fibre	4.406	
Polyester Staple Fibre	0.82124	0.239
Viscose Filament Yarn	0.29033	0.314
Acrylic Yarn	0.09098	
Texturised Yarn	0.83009	
Nylon Filament Yarn	0.10472	
Synthetic Yarn	0.74186	
Polyster Yarn	0.9632	

(Contd... Table A1.1)

(contd.. Table A1.1)

Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
Viscose Staple Fibre	0.56357	
b2.Man Made Cloth	0.31293	
Terry Cotton Shirting	0.07754	
Sy.Cloth Dy. Printed	0.14837	
Mixed Fabrics	0.08701	
C. Woollen Textiles	0.18959	0.339
Woollen Yarn	0.05678	0.14
Woollen Cloth	0.07266	0.045
Other Woollen Cloth	0.06014	0.076
d. Jute, Hemp & Mesta Textiles	0.67592	0.689
Hessian Cloth	0.21187	0.2
Hessian Sacking & Bags	0.16364	0.456
Cotton Knitted Garments	0.12273	
Tyre Cord	0.13677	
Tyre Cord Fabric	0.04091	
D. Wood & Wood Products	0.17306	1.198
Plywood Commercial	0.05699	0.188
Timber Planks	0.11606	1.01
E. Paper & Paper Products	2.04403	1.988
a. Paper & Pulp	1.22881	0.808
Pulp	0.12321	0.09
Printing Paper White	0.3161	0.226
Map/Litho Paper	0.07985	0.059
Cream Laid Woven Paper	0.09241	0.117
Mg Poster Paper	0.04067	0.036
Kraft Paper	0.27961	0.143
Newsprint	0.29696	0.137
b. Manufacture of Board	0.23715	0.44
Duplex Board	0.08344	0.115
Other Boards (All Kinds)	0.15371	0.2
c. Printing: Newspaper, etc	0.57807	0.74
News Paper	0.32207	0.74
Periodicals	0.256	

(Contd... Table A1.1)

(contd.. Table A1.1)

Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
F. Leather & Leather Prod.	1.01933	1.018
Footwear Western Type	1.01933	0.353
G. Rubber & Plastic Prod.	2.38819	1.592
a. Tyres & Tubes	1.28627	0.766
a1. Tyres	1.14439	0.697
Giant Tyres	0.76218	0.499
Motor Tyres	0.21138	0.084
Cycle Tyres	0.08783	0.053
Tractor Tyres	0.08301	0.06
a2. Tubes	0.14188	0.069
Giant Tubes	0.05019	0.031
Cycle Tubes	0.09169	0.038
b. Plastic Products	0.93687	0.442
Decorative Laminates	0.05276	0.127
Pvc Pipes & Tubings	0.29728	0.315
Plastic Containers	0.08172	
Suitcases	0.06692	
Pvc Fittings & Accessories	0.05276	
c. Other Rubber & Plastic Products	0.16505	0.384
Rubber Chappal	0.08655	0.054
Canvas Footwear	0.0785	0.054
H. Chemical & Chemical Products	11.93121	7.355
a. Basic Heavy Inorganic Chem.	1.44608	0.764
Caustic Soda (Sodium Hydroxide)	0.34347	0.3
Soda Ash(Sodium Carbonate)	0.29601	0.149
Oxygen	0.04318	0.051
Oxygen Gas In Cylinder	0.23074	
b. Basic Heavy Organic Chemicals	0.45456	0.452
Benzene	0.14207	0.066
Acetylene	0.09526	0.028
Purified Terephthalic Acid	0.10713	
Methanol	0.06626	
Phenol	0.04384	

(Contd... Table A1.1)

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Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
c. Fertilizers & Pesticides	4.16386	1.95
c1. Fertilizers	3.6892	1.748
Ammoni.Sulphate N	0.19942	0.04
Urea N Content	2.15577	0.992
Complex Fertilizer N	0.10482	0.138
Di Ammon Phosphate N	0.11504	0.052
Super Phosphate P205	0.12592	0.064
Complex Fertilizer Npk con.	0.45752	0.322
Cal Ammonium Nitrate N	0.08801	0.025
Diammonium Phosphate	0.36424	
Other Fertilizers	0.07845	
c2. Pesticides	0.47466	0.202
Pesticides	0.32963	0.202
Endosulfan	0.0745	
Monocrotophos	0.07054	
d. Paints, Varnishes & Lacquers	0.49576	0.24
Paints	0.20371	0.106
Enamels	0.11108	0.113
Varnishes	0.05175	0.021
Thinners	0.12921	
e. Dyestuffs & Indigo	0.17503	0.336
Organic Pigments	0.09856	0.078
Pigments	0.07647	
f. Drugs & Medicines	2.53187	1.065
Vitamins Tablets (A,B,C,D&Others) !	0.03988	0.061
Vitamin Liquids	0.05175	0.043
Penicillin	0.08208	0.047
Powder /Granules Other Than Vitamins	0.05043	0.027
Liquid Oral except Vitamins	0.51455	0.116
Liquid Injectables except Vit	0.1368	0.084
Capsules Other Than Vitamin & Antibiotics	0.37413	0.047
Tablets Except Vitamin & Pencillin	0.75551	0.3
Ointments	0.0745	0.063

(Contd... Table A1.1)

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Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
Syrup	0.12229	0.03
Ayurvedic Medicine Liquids	0.04054	0.033
Trimethoprim	0.05538	
g. Perfumes, Cosmetics, Toiletries	0.97768	1.215
House Hold & Laundry Soap	0.16976	0.594
Toilet Soap	0.2581	0.121
Synth. Detergent	0.36457	0.165
Tooth Paste	0.13844	0.07
Hair Oil	0.04681	0.038
h. Turpentine, Synthetic Resins,	0.74628	0.477
Synthetic Resins	0.05307	0.065
Synthetic Rubber	0.18921	0.066
Rubber Chemicals	0.10416	0.048
Pvc Resin	0.06494	0.07
Epoxy Resins	0.08043	
Resin All Kinds	0.0478	
Bopp Film	0.08241	
Polystyrene	0.12427	0.022
i. Matches, Explosives & Other Chem.	0.9401	0.856
Prod. n.e.c.		
Safety Match	0.11504	0.233
Blasting Powder	0.06889	0.054
Cine Color Positive	0.1569	0.044
Printing Ink	0.07746	0.04
Carbon Black	0.17207	0.083
Fire Works	0.04615	0.03
Adhesives	0.08076	
Medical X Ray Film	0.09328	
Roll Films	0.06395	
Tape For Blank Cassettes	0.0656	
I. Non-Metallic Mineral Products	2.51591	2.477
a. Structural Clay Products	0.22952	0.695
Fire Bricks	0.12252	0.091

(Contd... Table A1.1)

(contd.. Table A1.1)

Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
Building Bricks	0.04681	0.454
Ceramic Tiles	0.06019	0.037
b. Glass, Earthenware, Chinaware & Their Products	0.23674	0.296
Bottles	0.16746	0.069
Sheet Glass	0.06928	0.04
c. Cement	1.73105	0.86
Portland Cement	1.73105	
d. Cement, Slate & Graphite Products	0.3186	0.529
Asbestos Cement Corrugated Sheet	0.11048	0.089
Railway Sleepers	0.09898	
Electrodes	0.10914	0.261
J. Basic Metals, Alloys & Metals	8.34186	7.632
a. Basic Metals & Alloys	6.20612	4.784
a1. Iron & Steel	3.63656	2.441
Skelps	0.05248	0.04
Ord mild Steel And Tensil Plates	0.30679	0.126
Angeles Channels & Sections	0.27319	0.218
Joist And Rolls	0.06548	0.035
Bars And Rods	1.24088	0.955
Ms Bars & Rounds	0.04095	
Alloy Stainless Steel	0.0954	
Ms/Ss Ingots	0.25749	
a2. Foundries for Castings, Forgings and Structural	0.89559	1.333
Ordinary Casting	0.2803	0.307
C.I. Casting	0.12433	
Alloy Steel Casting	0.04365	
Forgings	0.03286	
Heavy Light Structural	0.18074	0.215
Heavy Rails - 23 Kg And Up	0.14739	0.057
Brights Bars	0.08632	0.032
a3. Pipes wires Drawings & Others	1.58887	0.814

(Contd... Table A1.1)

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Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
Pipes & Tubes	0.38771	0.569
Steel Wire	0.08019	
Steel Wire Ropes	0.09147	
C.R. Coils	0.13733	
Cold Rolled Sheets	0.19987	
Narrow Cold Rolled Steel Strips	0.14591	
Wire All Kinds	0.16136	
M.S. Pipe & Tubes	0.15548	
Steel Sheets, Plates And Strips	0.13365	
Other Iron Steel	0.09589	
a4. Ferro Alloys	0.0851	0.196
Ferro Manganese	0.05542	0.049
Ferro Silicon	0.02967	0.045
b. Non-Ferrous metals	1.46625	1.025
b1. Aluminium	0.85317	0.454
Aluminum Ingots	0.3318	0.206
Aluminum Bars & Rods	0.15548	0.078
Aluminum Sheets & Strips	0.09589	0.034
Aluminum Foils	0.10202	0.064
Aluminum Rolled Products	0.0797	0.072
Other Aluminium Material	0.03826	
Aluminium Extrusion	0.05003	
b2. Other Non-Ferrous Metals	0.61308	0.571
Copper Bars And Rods	0.167	0.181
Copper Wire All Types	0.18245	
c. Metal Products	0.66949	1.823
Barrel	0.0618	0.081
Tin Boxes/Containers	0.17706	0.42
L.P.G. Cylinder	0.0564	
Bolts & Nuts	0.13145	0.292
Utensils	0.16283	0.552
Steel Furniture	0.04978	0.252
Chains	0.03016	

(Contd... Table A1.1)

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Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
K. Machinery & Machine Tools	8.36331	6.268
a. Non-Electrical Machinery	3.37871	3.277
a1. Heavy Machinery & parts	1.82158	1.393
Agriculture Implements	0.0687	
Complete Tractors	0.7276	0.343
Tractor Components & Aecessories	0.05097	
Material Handling Equipment	0.0783	
Cranes	0.0506	
Boilers Its Part & Acess.	0.18061	0.387
Complete Engines	0.5119	0.325
Excavator	0.10637	
Hydraulic Machine	0.04654	
a2.Industrial Machinery for Textile etc.	0.56804	0.713
Ring Spin & Double Frames	0.12336	0.335
Other Textile Machinery	0.14737	
Carding Mc	0.06685	
Power Looms Automatic	0.04654	0.206
Textile Machinery Parts	0.08347	
Printing Machine	0.10046	
a3. Refrigeration & Other		
Non-Electrical Machinery	0.98909	1.171
Air Conditioners	0.0879	
Power Driven Pump	0.05651	0.208
Hydraulic Pumps	0.0458	
Other Pumps	0.07128	
Mono Block Pumps	0.06611	
Valve-All Types	0.0916	
Air & Gas Compressors	0.16509	0.13
Ball Bearing	0.22973	0.362
Roller Bearing	0.11413	
Sewing Machine	0.06094	0.053
b. Electrical Machinery	4.98459	2.991
b1. Electrical Industrial Machinery	1.8105	1.147

(Contd... Table A1.1)

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Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
Furnaces	0.05577	
Electrolytic Capacitors	0.07128	
Other Elect. Instruments & Systems	0.1012	
Semi Conductors	0.07904	
Electronic Ics	0.16473	
b2. Wires & Cables	1.07625	0.728
Enameled Copper Wires	0.15364	0.102
Pvc Insulated Cables	0.1976	0.359
Rubber Insulated Cables	0.06242	0.073
A C S R Conductors	0.07313	
Other Cables	0.20166	
Jelly Filled Telephone Cables	0.38781	
b3. Dry & Wet Batteries	0.27479	0.231
Batteries	0.13887	0.067
Dry Cells	0.13592	0.164
b4. Electrical Apparatus /Applia.	1.82306	0.424
Ceiling Fans	0.13038	0.17
General Lighting Service Lamps	0.09344	0.139
Fluorescent Tubes	0.04986	0.052
Telephone Instruments	0.05208	
Electronic Equipments	0.23564	
Tv Sets B/W	0.37192	0.157
Tv Sets Colour	0.33056	
Picture Tubes Colour	0.0916	
Computer & Computer System	0.46758	
L. Transport Equipment	4.29475	2.705
a. Locomotives, Railways Wagons & Parts	0.31767	0.274
Broad Gauge Diesel Locomotive	0.09133	0.124
Braod Gauge Passenger Carriage	0.13176	
B.G. Other Coaching Vehicles	0.09458	

(contd.. Table A1.1)

Major Group/ Group/Sub Group/ Commodities	1993-94 Series	1981-82 Series
b. Motor vehicles/cycles/ Scooters, Bicycles & parts	3.97707	2.431
Truck Chassis (Diesel)	0.84292	0.683
Car Chassis Assembled	0.83787	0.214
Bus Chassis (Diesel)	0.25703	0.228
Body Manuf. For Trucks,Vans	0.14656	0.076
Body Manuf. For Bus	0.0805	
Trekkers	0.06029	
Jeeps	0.15595	0.101
Motor Cycle	0.3202	0.094
Scooters	0.31948	0.105

Table A2.1: Monthly (point-to-point) Average WPI Inflation

(Per cent)

Year/ Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
1995				10.42	10.43	9.28	9.19	8.57	8.56	8.09	7.90	6.43
1996	4.87	4.35	4.43	3.62	3.51	3.58	4.18	4.81	4.96	4.48	4.39	5.11
1997	5.04	5.34	5.26	5.66	4.94	4.91	3.56	3.23	3.68	4.29	3.91	3.97
1998	4.94	4.11	4.26	4.48	5.50	6.20	6.83	6.31	5.77	6.25	6.89	6.09
1999	4.43	5.23	5.22	3.94	3.27	2.47	1.97	2.81	3.15	3.39	3.04	2.78
2000	3.49	3.47	5.43	6.33	6.11	6.35	6.34	5.91	6.27	7.22	7.34	8.15
2001	8.35	8.00	6.22	5.26	5.45	5.17	5.09	5.27	4.43	2.87	2.56	2.06
2002	1.50	1.38	1.74	1.49	1.55	2.40	2.75	3.28	3.46	3.03	3.33	3.28
2003	4.14	5.21	5.82	6.44	6.31	5.21	4.60	3.87	4.78	5.01	5.28	5.13
2004	6.29	5.96	4.67	4.41	4.90	6.53	7.34	8.12	7.57	7.02	7.25	7.02
2005	5.39	4.88	5.20	5.75	5.35	4.23	4.20	3.60	4.04	4.60	4.12	4.35
2006	4.00	3.95	3.83	3.79	4.68	5.00	4.72	4.99	5.24	5.36		

Table A2.2: Point-to Point Inflation in Consumer Price Index for Industrial Workers#

(Per cent)

Month/ Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
1995	9.9	9.8	9.7	9.7	10.3	10.5	11.4	10.9	10.1	10.4	10.3	9.7
1996	9.0	8.6	8.9	9.8	9.3	8.8	8.3	8.9	8.5	8.5	8.7	10.4
1997	11.1	10.8	10.0	9.3	7.3	6.6	5.6	4.7	4.9	5.5	4.9	6.3
1998	9.7	9.1	8.3	8.2	10.5	12.4	14.8	15.0	16.3	18.6	19.7	15.3
1999	9.4	8.6	9.0	8.4	7.7	5.3	3.2	3.2	2.1	0.9	0.0	0.5
2000	2.6	3.6	4.8	5.5	5.0	5.2	5.0	4.0	3.5	2.8	2.7	3.5
2001	3.3	3.0	2.5	2.3	2.5	3.4	4.0	5.2	4.7	4.2	4.9	5.2
2002	4.9	5.2	5.2	4.7	4.7	4.2	3.9	3.9	4.3	4.1	3.6	3.2
2003	3.4	3.9	4.1	5.1	4.7	4.4	4.2	3.1	2.9	3.3	3.1	3.7
2004	4.4	4.1	3.5	2.2	2.8	3.0	3.2	4.6	4.8	4.6	4.2	3.8
2005	4.4	4.2	4.2	5.0	3.7	3.3	4.1	3.5	3.6	4.2	5.3	5.6
2006	4.7	4.9	4.9	5.0	6.3	7.7	6.7					

#(Base 1982=100); but from January 2006 onwards, the base is 2001=100.

Table A2.3: Point-to Point Inflation in Consumer Price Index for Agricultural Labourers (Base 1986-7=100)

(Per cent)

Month /Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
1995				12.1	12.0	12.4	14.5	14.1	12.9	11.5	10.0	8.1
1996	7.6	6.8	7.4	8.1	9.0	8.8	7.2	7.1	7.9	8.3	9.2	10.5
1997	11.0	11.4	10.6	8.8	6.2	4.9	3.6	2.3	1.5	1.2	0.0	0.8
1998	4.6	3.8	3.8	4.6	7.0	8.9	10.7	11.8	12.9	15.6	18.3	15.1
1999	9.1	8.8	8.8	8.1	8.0	6.7	5.2	5.1	4.4	3.6	1.9	1.97
2000	2.7	3.0	3.4	4.1	4.0	3.0	2.0	0.0	-1.3	-3.2	-3.2	-2.6
2001	-2.0	-2.3	-2.0	-2.0	-2.3	-1.3	-0.3	1.3	1.6	2.6	2.3	3.0
2002	2.3	3.0	3.0	2.7	2.6	2.6	2.3	2.2	3.2	2.9	3.2	2.9
2003	3.9	4.6	4.9	5.5	5.1	5.1	4.8	3.8	3.4	3.4	3.1	3.4
2004	3.8	3.1	2.5	1.5	1.8	1.8	2.1	3.0	3.3	3.6	3.3	3.0
2005	2.7	2.4	2.4	3.0	3.0	2.7	3.6	3.2	3.2	3.2	4.7	4.7
2006	4.7	5.0	5.3	5.6	6.4	7.2	6.3					

Table A2.4: Point-to Point Inflation in Consumer Price Index for Urban Non Manual Employees (Base 1984-5=100)

(Per cent)

Month /Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
1995	9.5	9.5	9.9	10.3	9.7	10.4	10.3	10.2	9.7	9.6	10.0	9.2
1996	8.3	8.2	8.2	8.1	8.8	7.9	8.9	8.8	8.8	8.7	9.1	10.3
1997	10.7	10.6	10.2	9.7	8.1	7.7	5.7	5.7	6.0	5.9	5.2	6.2
1998	7.9	7.6	7.2	7.8	9.2	10.5	13.1	12.7	13.0	14.5	15.5	12.4
1999	9.3	8.6	9.0	7.9	7.5	6.1	4.2	4.5	3.8	2.9	2.0	2.6
2000	3.8	4.4	5.0	6.2	5.8	5.8	5.7	5.1	4.8	5.0	5.3	5.9
2001	5.9	5.9	5.6	4.7	4.9	5.5	5.7	6.2	5.9	4.8	5.1	5.1
2002	4.5	4.3	4.8	4.5	4.2	4.1	3.8	3.6	4.1	3.8	3.3	2.8
2003	3.3	4.1	3.8	4.3	4.3	3.7	3.7	3.2	2.9	3.7	3.4	4.0
2004	4.4	3.9	3.4	2.9	2.9	3.4	3.1	4.0	4.0	4.0	4.0	3.6
2005	3.8	3.8	4.0	4.2	4.2	3.9	4.8	4.3	4.8	4.5	5.5	5.7
2006	5.0	4.8	5.0	5.0	5.8	6.5	5.7					

**Table A2.5 : Monthly (point-to-point) Average Inflation (Food Article-WPI)
(Per cent)**

Year/ Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
1995				13.23	11.95	8.86	9.30	7.90	9.49	8.27	8.32	6.70
1996	2.21	3.46	6.32	8.07	10.14	10.83	9.90	10.39	9.76	10.42	10.95	16.00
1997	16.04	16.11	12.50	10.19	3.80	1.97	2.17	2.28	2.44	3.20	0.14	0.35
1998	5.23	1.05	2.98	5.03	10.93	13.65	14.74	11.24	13.20	16.36	19.83	14.85
1999	5.93	8.04	8.90	9.06	5.23	2.86	2.02	6.04	4.14	0.53	-0.94	-0.43
2000	4.08	5.33	7.76	5.15	6.85	6.65	3.86	0.88	1.48	2.11	1.00	3.07
2001	2.97	2.23	-0.48	0.81	1.33	1.26	1.56	3.35	4.09	3.64	4.69	5.42
2002	4.03	4.38	4.54	2.63	1.48	1.80	2.27	2.85	2.67	1.55	1.83	-0.56
2003	1.03	1.81	1.41	1.57	2.01	3.13	1.00	-1.05	0.49	2.12	1.42	1.62
2004	2.35	0.78	-0.39	1.21	2.62	0.86	2.63	4.84	3.28	2.60	3.25	2.57
2005	1.54	2.26	3.70	3.66	2.55	2.90	5.16	3.45	4.09	4.46	5.75	6.69
2006	6.95	5.87	5.18	4.60	6.31	7.99	4.27	5.15	8.60	8.36		

Table A3.1: Monthly (point-to-point) Average Inflation (Sugarcane-WPI)**(%)**

Year/ Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
1995				11.37	11.37	11.37	11.37	11.37	11.37	11.37	2.74	0.00
1996	0.00	0.00	0.00	9.21	9.21	9.21	9.21	9.21	9.21	9.21	9.21	12.02
1997	14.76	14.76	14.76	5.55	5.55	5.55	5.55	5.55	5.55	12.60	12.60	9.78
1998	7.05	7.05	7.05	7.05	7.05	7.05	7.05	7.05	7.05	0.00	1.75	6.71
1999	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	8.66	9.80	4.84
2000	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	10.47	10.03	10.03
2001	10.03	10.03	10.03	10.03	10.03	10.03	10.03	10.03	10.03	3.97	6.01	6.01
2002	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	6.01	4.49	4.49	10.85
2003	10.85	10.85	10.85	10.85	10.85	10.85	10.85	10.85	10.85	10.85	8.92	4.79
2004	6.33	6.33	6.33	6.33	6.33	6.33	6.33	6.02	5.01	5.28	3.07	0.84
2005	-0.70	-0.70	-0.70	-0.70	-0.70	-0.70	-0.70	-0.39	0.61	0.48	0.74	0.74
2006	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.61		

Table A3.2: Monthly (point-to-point) Average Inflation (Sugar-WPI)**(%)**

Year /Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
1995				-5.35	-11.85	-13.28	-7.69	-4.64	-5.5	-1.08	3.69	2.85
1996	2.93	3.68	4.71	3.84	4.43	6.56	4.14	4.99	4.2	1.88	4.86	8.09
1997	7.56	9.15	13.79	14.5	15.47	14.47	16.39	15.07	16.5	18.23	15.39	12.41
1998	12.05	10.56	5.43	4.4	2.84	2.08	1.85	1.63	0.22	0.22	-0.15	-1.04
1999	-0.07	0.89	0.96	1.11	1.03	0.44	-0.37	-0.37	0.74	2.12	3.06	3.52
2000	2.57	1.1	2.98	4.8	4.56	4.17	5.59	6.64	7.09	4.87	3.46	2.77
2001	2.08	-0.29	-1.37	-3.13	-4.49	-3.95	-5.37	-6.79	-7.53	-6.48	-5.93	-6.22
2002	-5.76	-2.89	-2.94	-4.73	-4.17	-5.03	-6.3	-6.41	-7.51	-9	-11.45	-13.39
2003	-13.65	-14.44	-15.91	-13.86	-13.31	-11.32	-5.73	-0.4	0.71	2.62	5.3	7.15
2004	6.74	15.42	15.69	15.22	19.5	19.73	15.78	13.32	15.82	14.49	14.4	17.3
2005	26.86	17.69	18.66	18.18	12.98	11.36	13.44	12.43	9.02	9.99	11.08	8.38
2006	2.25	7.79	6.55	6.8	8.36	9	6.13	4.31	4.05	2.18		

Table A3.3: Monthly Point-to-Point) Inflation (Levy Sugar-WPI)

	(%)											
Year/ Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1995				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.18	16.98
1997	16.98	20.30	29.72	29.72	29.72	29.72	29.72	29.72	29.72	29.72	22.54	12.73
1998	12.73	9.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1999	0.41	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	4.72	4.72	4.72
2000	4.31	2.67	2.67	5.91	8.00	8.00	8.00	8.00	8.00	5.33	5.33	5.33
2001	8.89	10.03	10.03	6.78	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70
2002	1.14	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12
2003	2.12	0.00	0.00	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40
2004	5.40	5.40	5.40	0.00	0.00	0.00	3.48	3.48	3.48	3.48	3.48	3.48
2005	3.48	3.48	3.48	3.48	3.48	3.48	0.00	0.00	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

Table A3.4: Monthly Point-to-Point) Inflation (Non Levy Sugar-WPI)

	(%)											
Year/ Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1995				-8.75	-19	-21.2	-12.4	-7.57	-8.78	-1.68	6.23	4.66
1996	4.9	6.13	7.81	6.41	7.29	10.72	6.79	8.07	6.79	3.07	3.23	2.03
1997	1.06	1.23	2.18	3.52	5.58	4.16	7.31	5.2	7.45	10.4	10.36	12.09
1998	11.56	11.5	9.71	7.8	4.98	3.61	3.2	2.89	0.47	0.39	-0.31	-0.93
1999	-0.47	0	0.16	0.39	0.23	-0.77	-2.09	-2.18	-0.31	0.08	1.77	1.71
2000	1.25	-0.08	3.16	4.04	1.98	1.16	3.62	5.5	6.49	4.54	2.12	0.77
2001	-0.93	-3.26	-5.14	-1.58	-0.53	0.69	-1.52	-3.79	-5.33	-3.61	-2.58	-2.31
2002	-0.71	2.08	1.66	-3.08	-3.63	-4.52	-5.93	-6.13	-7.35	-9.06	-11.9	-14.1
2003	-14.4	-14.9	-16.5	-17	-16.5	-14.1	-7.61	-1.32	0	2.16	5.3	7.44
2004	6.93	17.1	17.32	17.74	22.7	22.97	17.75	15	17.7	16.2	16.02	19.49
2005	30.39	19.7	20.89	20.4	14.42	12.48	15.38	14.1	10.4	11.4	12.58	9.49
2006	2.47	8.75	7.37	7.63	9.33	10.11	6.89	4.8	4.53	2.4		

Table A3.5: Monthly Sugar Production in India**(000 tonnes)**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1995				1592	757	279	152	138	143	189	1159	2379
1996	2687	2644	2669	2141	1513	661	213	112	62	64	679	2189
1997	2585	2575	2513	1588	520	48	17	29	9	78	935	2338
1998	2748	2516	2303	1226	380	103	44	66	90	80	990	2669
1999	3020	2880	2750	1740	790	270	120	90	110	120	1230	2980
2000	3440	3320	3260	2187	1030	276	106	95	102	203	1724	3205
2001	3680	3419	3216	1861	427	125	59	110	110	237	1707	3128
2002	4261	3598	2875	1467	423	99	56	130	117	203	1263	3578
2003	4122	3844	3605	2047	1052	130	86	80	89	161	1404	3063
2004	3649	2646	1883	608	45	11	51	56	148	280	1120	3406
2005	3575	2501	1469	637	186	97	115	118	155	339	1892	3969
2006	4268	3930	2780	1012	392	191	168					

Source: Indiatat.

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