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A Note on Data Relating to Prices in India

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Working Paper No. 52

Revised June 2000

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A NOTE ON PRICE STATISTICS IN INDIA

Classified by their nature and purpose, besides other features price data for India fall broadly into the following four categories:

- (a) Wholesale price indexes
- (b) Consumer price indexes
- (c) Rural-Urban and State Specific Consumer Prices.
- (d) Implicit NAS deflators

This note is intended to outline the availability of these price indices focusing on sources, frequency of publication, methodology of computation and coverage. Since we are only concerned with prices of goods and services items such as security prices, wages or interest rates are left out.¹

1. Wholesale Price Indexes (WPI)

Wholesale price indexes are the most widely used, most often quoted in professional discussions and, most frequently published of all price data. In fact they are calculated every week and preliminary figures made available for each week in a cyclostyled form with only a two to three week lag. The revised indexes relating to individual commodities and subgroups and groups of commodities are eventually published with a longer lag on monthly basis in the publication: *Index Number of Wholesale Price in India*, issued by the Economic Advisor, Ministry of Industry. Wholesale price indices (WPI), except in case of the earliest series, are weighted arithmetic means using Laspeyre's formula based on an increasing number of price quotations and an increasing coverage of commodities.

The history of price statistics in India goes as far back as the closing years of the last century when data on prices were collected for a number of items including those of export commodities. However, a serious attempt at the compilation and publication of price indexes

¹ Discussion of the unit value indexes of imports and exports has been omitted on the ground that important issues arising in their context can better be taken up as part of a discussion of international trade statistics.

started only during the second world war. It was in January 1942 that a crude wholesale price index with the week ending on Aug. 19, 1939 as the base, was first published. The index covered 23 commodities falling into four categories, namely, (a) food and tobacco, (b) agricultural products (c) raw materials and (d) manufactures. For each item covered there was only one price quotation and the overall price index was a simple unweighed arithmetic mean of price relatives.

A special wholesale price index for food articles was published in 1945 with base as the last week of August 1939. The price index was a weighted geometric mean - weights being proportional to the value of marketable surplus for each commodity during 1938-39. Subsequently the base of this index was changed to the year ending August 1939. It remained unchanged in all other respects.

The first serious effort to compile a proper wholesale price index had to wait until 1947. It was then that a price index was compiled, with base as the entire year ending August 31, 1939, relating to 78 commodity prices with 215 price quotations. The price index was a weighted geometric mean like its predecessor. The groups of commodities covered were

- (a) food articles.
- (b) industrial raw materials,
- (c) semi manufactures
- (d) Manufactures and
- (e) Other miscellaneous items.

Weights used were proportional to the value of marketed surplus during 1938-39.

In view of major structural changes in the economy continuation with a wholesale price index with base 1939 became increasingly inappropriate after independence. Quite correctly, therefore, a new index was constructed with 1952-53 as the base and published April 1956 onwards. Unlike the preceding indexes the new index was a weighted arithmetic mean rather than a geometric mean. The new index included 112 commodities following the standard International Trade Classification (SITC) with five groups as,

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- (a) food articles,
- (b) liquor and tobacco,
- (c) fuel, power, light and lubricants,
- (d) industrial raw materials and,
- (e) manufactures.

Unlike in the earlier series (b) and (c) were treated as sperate groups. The data base consisted of 555 price quotations. Weights used in compiling the index were based on values of transactions relating to the year 1948-49 rather than 1952-53 which served as the base year.

The next wholesale price index series was started in July 1969 and continued until December 1976 - the base year being the entire fiscal year 1961-62. The index included prices of 218 commodities and 767 quotations. Compared to the preceding WPI which had five groups of commodities this one had seven groups. Group 5 which consisted of manufactures was subdivided into chemicals, machinery and transport equipment, and manufactures.

In January 1977 came into existence a WPI with 360 commodities and for 1295 price quotations. The items included were those for which the total value of output exceeded 3. a crore in 1965 as per ASI data as well as items with large import volume. The fiscal year 1970-71 serves as the base year for this series. For agricultural products weights were determined according to the value of marketable surplus whereas for nonagricultural commodities weights are determined according to the value of sales plus the value of imports. Tariffs and excise duties are included in calculating these values. For agricultural commodities and lubricants sale values were obtained as averages of figures for the three years 1967-68, 1968-69 and 1969-70. For manufactures they are based on ASI data for 1968. It is noteworthy that weight corresponding to excluded items is not proportionately spread across all included items. On the other hand the weight for the excluded items is assigned to items with similar general nature and price movements.

Another major aspect of the new index is its breaking away from the SITC classification adopted in the preceding series. Instead commodities were grouped according

to the Standard Industrial Classification (SIC). This was intended to bring about a harmony between output classification as used for computing GDP by the Central Statistical Organisation and that use for the wholesale prices. In turn this would make it easier to devise appropriate price deflators for components of output.

The next revision of the wholesale price index which was effective July 1989 brought forward the base to 1981-82². The number of commodities covered too was raised to 447 (from 360) and the number of price quotations nearly doubled raising it to 2371 (from 1295). Besides making the price index more broad based in terms of both coverage of commodities as well as the number of price quotations the distinguishing feature of the current wholesale price index is that it attempts to take also into account the value of output of the unorganised/ unregistered manufacturing. The price index is a weighted arithmetic mean - with weights determined by the base year values. Like the 1970-71 series it follows the SIC classification. Another major departure from the earlier series was that for agricultural commodities weights were determined on the basis of the value of actual marketed surplus rather than on the basis of marketable surplus³. This has meant a considerable reduction in the weight assinged to agricultural commodities.

Table 1 Weighting Diagram for WPI*

	Base Year	1961-62	1970-71	1981-82	1993-94
I.	Primary Articles	42.60 (61)	41.67(80)	32.30 (93)	22.02 (98)
II.	Fuel, Power, Light etc.	6.00 (8)	8.46 (10)	10.66 (20)	14.23 (19)
III.	Manufactured Products	51.40(149)	49.87(270)	57.04(334)	63.75 (318)

* Number of commodities covered are given in the parentheses.

² See Reserve Bank of India (1990)

³ EPW Research Foundation (1993) gives a useful comparison of the three WPI series with bases 1961-62, 1970-71 and 1981-82. The paper also analyses trends in wholesale price indexes and consumer price indexes over the period 1950-51 through 1992-93 with varying disaggregation. The period 1982-83 through 1992-93 is treated in greater detail.

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A Sketch of Different-WPI Series S.no Starting date Base Averaging and Number of Number of quotations weights commodities/ categories/SITC/ SIC Groups Week ending One for 1. Jan. 1942 23 Geometric (4 groups) each Price Aug. 19, 1939 Mean with Equal Weights 2. 1945 Last week of Food Articles 46 Geometric Mean August 39 Weighted 3. Jan 1947 to Year ending Weighted 78 215 April 1960 Aug. 1939 Geometric Mean 4. April 1956 112 555 1952 - 53 Weighted (SITC 5 groups) to Sep. 1969 Arithmetic Mean 5. July 1969 to 1961 - 62 218 767 **,,** Dec. 1976 SITC groups 6. Jan. 1977 1970 - 71 360 1295 **,**, SIC groups 7. July 1989 1981-82 447 2371 ,, SIC groups April 2000 н 8. 1993-94 435 1918

Table 2

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The latest revised series of wholesale prices available since April 2000 has 1993-94 as the base. This series broadly follows the same methodology as the earlier one, in almost all respects. Price quotations used are those prevailing in wholesale markets for agricultural products and ex-factory / ex-mine prices inclusive of excise duty in case of manufacturer. Prices of imported items are similarly inclusive of import duties. Items whose value of trade is equal to or exceeds Rs. 120 crores according to the Annual Survey of Industry 1993-94 are included in the index. In addition, items whose value of output plus net imports is equal to at least Rs. 120 crores are also included. The weighting diagram (see the appendix for comparison with the 1981-82 series) is based on value of transactions consisting of (a) value of marketed surplus in case of agriculture or value of sales in case of manufactures, (b) total value of imports including import duty and (c) total value of excise duty. Two changes in the new series that need to be noted are that (i) some residual categories in manufactures like "other miscellaneous products" "manufacture of textiles not elsewhere counted" have been dropped and (ii) "petroleum crude and natural gas" has been moved out of minerals in the primary sector and included in fuel, power, light and lubricants [For more details on the new index see Government of India (1999)]. For users the most welcome news is that all data on WPI are now available on the WEB site] [See HTTP//EAINDUSTRY.NIC.IN]. Thanks to National Informatics Centre.

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2. Consumer Price Indexes (CPI)

Unlike the wholesale price indexes which are sometimes also referred to as the Producer's Price Indexes (PPI) the Consumer Price Indexes (CPI) are characterised by the following:

- (a) CPI is by its nature specific to a given area and an economic class of population.
- (b) CPI is based on retail rather than wholesale prices.
- (c) While WPI relates only to goods CPI relates to goods as well as services which are priceable consumable & popular.

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¹t follows from (a) that there is an unavoidable need to compile a number of CPIs relevant to different regious and classes of consumers. Keeping this in view there are in fact a large number of CPI series for different centres in India. At the All India level too there are three series CPIIW, CPIAL and CPINM for industrial workers, agricultural labour and nonmanual urban workers respectively. We shall take these up in the subsequent discussion.

Since CPI turns out to be of considerable importance in the context of issues relating to labour the responsibility of compiling statistics on CPI for industrial workers (CPIIW) and for agricultural labour (CPIAL) has been with the Labour Bureau (LB). In fact, for the same reason and in view of (a) above the task relating to CPIIW has also been carried out by state governments. Thus there are two sets of CPI series for various centres in India one by the state government agencies and another by the Labour Bureau (LB). Since series compiled by the states do not have the same base, these cannot be used right away to obtain an All India series on CPI. The Labour Bureau does however have a common base in case of its series for all 15 centres for which it compiles CPI⁴. A Committee appointed in 1978 to review the ways and means to improve the construction of consumer price index for industrial workers, has gone into a number of ticklish issues like black market prices or prices of rationed goods supplied under the public distribution system. In 1981 another committee was appointed to deliberate on the preparation of a new CPIIW with base 1980-81⁵.

Though some scattered data on retail prices have been collected in India for a long time, they were never put together methodically in the form of a price index. All the same the compilation and publication of CPI in India has a longer history than WPI. Since labour emerged as an organised class around the first world war there had been a growing concern for compiling cost of living index for workers in different locations with considerable industrial activity. Consequently, Socio economic and family budget surveys (usually referred to as family living surveys, (FLS) in government publications) were conducted in the twenties in Bihar, Bombay, Ahmedabad and Sholapur. It was however the recommendations of the Royal Commission on Labour disputes which gave a fillip to the compilation of CPI by both

⁴ For detailed information relating to the fifties and the sixties see Sivasubramonian (1961) and Gupta and Premi (1970), Chs.7 and 8 For the later period see Labour Bureau (1989)

⁵ See Government of India (1978, 1981, 1989)

central and state/provincial governments. During the early seventies there were at least 50 series of CPI relating to different cities and classes. The data collected under family budget 'urveys provide the basis for weighting diagrams for the construction of CPI for different classes and locations.

The Labour Bureau started with the construction of a working class cost of Living Index for 42 centres with base 1939 in a few cases and 1944 for most of them. But this was subsequently replaced by a consumer Price Index for industrial workers for different cities. This index had base 1947 and was available for 16 centres. These include: Ahmedabad, Ajmer, Bangalore, Bombay, Calcutta, Cuttack, Delhi , Guwahati, Hyderabad, Jamshedpur, Kanpur, Ludhiana, Madras, Nagpur, Sholapur and Trichur. In addition, there is also an All India CPI for the whole country.

A Consumer Price Index for industrial workers for 38 centres and an All India index had also been published giving jointly the series for 21 centres by the Labour Bureau and 17 centres by the state governments. For most of them the base was 1951. Using the CPI for 27 Centres the Labour Bureau compiles an All India Consumer Price Index for Industrial workers. Of these the price indexes for 15 centres are compiled by the Labour Bureau. These include :

Guwahati, Silchar, Tinsukhia, Jamshedpur, Moghyr, Dehri-on-sone, Akola, Jabalpur, Cuttack, Berhampur, Ludhiana, Howrah, Kharagpur, Ajmer and Delhi.

State government series are used for the remaining 12 centres which include :

Bombay, Sholapur, Jalgaon, Nagpur, Ahmedabad, Madras, Kanpur, Calcutta, Hyderabad, Mysore, Bangalore and Trichur.

The All India Index for industrial workers(CPIIW) is computed as a weighted arithmetic mean of the indexes for the 27 centres. The weights assigned to each centre is proportional to the factory employment at that centre. Starting the series with the year 1944, it was published in April 1954 with base 1949.

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Building upon the series described above the Labour Bureau came forward with a new series of CPI for Industrial workers with base 1960. Weights for this series were determined on the basis of the first comprehensive family budget surveys conducted in 1958-59 in 50 industrial centres. These consisted of 32 factory, 10 plantation and 8 mining centres. The new index covered 100 items of consumer expenditure as compared to about 40 to 70 items covered in different centres in the earlier series. This series has been regularly published on a monthly basis in Indian Labour Journal. and also reproduced in other prominent publications like CSO's Monthly Astract of Statistics, Finance Ministry's the Economic Survey and the Reserve Bank's, Report on Currency and Finance. Yet another revision was undertaken with effect from October 1988 when the base was shifted to 1982. Weighting diagram for this index is based on the FLS conducted in 1981-82 for 70 centres, consisting of factories, mines, plantations, railways, public motor transport undertakings, power generating stations and docks and posts. The new index covered nearly 260 items. Further, there is regular publication of a general index and a food index. Both are available on a monthly basis. The series begins with 1983-84 but conversion factors (4.93 for general index and 4.98 for food index) can be used to obtain a consistent series for the earlier years.

The current price series on CPIIW, published on a monthly basis in *Indian Labour Journal* are of two types. The first is a set of consumer price indexes for 70 centres and on All India basis relating to the following items.

- 1. Food articles
- 2. Pan-supari, tobacco and intoxicants
- 3. Fuel and light
- 4. Housing
- 5. Clothing, bedding, footwear
- 6. Miscellaneous items which include services for health, education, recreation, transport etc.

As stated earlier, weights for these indices are based on 1981-82 household surveys. The second set of data are actual average unit prices for 24 selected articles for different centres, again on a monthly basis. The methodology for the current series has been given in the January 1989 issue of the *Indian Labour Journal*. In addition, since January 1994, CSO has also been publishing all India average retail prices of 260 commodities and services in the *Monthly Abstract of Statistics*. These prices are collected from 600 villages. Prior to this such price date related only to 126 commodities and services collected from 422 villages. For more recent years the number of villages from where price quotations are obtained has gone up to 1000.

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Since 1958 the Labour Bureau has also published a preliminary CPI for agricultural labour, CPIAL, with 1950-51 as the base. The base prices and weights used in the index were taken from the first Agricultural Labour Enquiry conducted during March 1950 and February 1951. For the reference year the index used rural retail price data collected by the National sample survey. Laspeyre's formula has been used for computing the price index. Following the second All India Agricultural Labour Enquiry in 1956-57 a new series of CPI for Agricultural Labour was started in September 1964 with weights relating to 1956-57 and price base 1960-61. The series, is published in the *Indian Labour Journal* and reproduced in *Economic Survey* and other important official publications. This series, covering 65 items is currently being published on a monthly basis. Annual index can easily be obtained as a twelve month average. A new series on CPIAL is being published by the LB with effect from November 1995. The agricultural year 1986-87 (July 1986 through June 1987) is the base for this series. The earlier series with base 1960-61 stands terminated but a conversion factor equal to 5.89 can be used to compile a continuous series. With the revised series (base 1986-87) LB has introduced two separate price indexes - one for food only and one general.

The prevailing consumer price index for agricultural labour (CPIAL) with base 1984-85 covers four categories of items, namely,

- 1. Food
- 2. Fuel and light
- 3. clothing, bedding and footwear
- 4. Other miscellaneous items

These are given for every month and for 15 states along with an All India index. Actual retail unit prices are also given for each of the 15 states for 20 selected items.

For urban nonmanual employees the Central Statistical Organisation has been publishing a separate Consumer Price Index CPINM. It was started initially with base 1960 and weights obtained from middle class family living surveys undertaken with the help of NSS in 1958-59 for 41 centres. Commodities covered for the index include (a) food, beverages and tobacco (b) fuel and light (c) housing, (d) clothing, bedding and footwear and (e) miscellaneous items like medical care, education, recreation, transport etc. The current series on CPI for urban nonmanual employees is only a general index with base 1984-85.

This series was introduced in 1987 and can be extrapolated backwards using the earlier series (base 1960) and a conversion factor of 5.23. CPINM is reproduced on annual basis in the *National Accounts Statistics*. Monthly figures are also given in the *Economic Survey*.

The Current CPINM series is published for 34 urban centres. The All India index is however based on data for 59 centres.

Index	CPIIW		CPIAL		CPINM		WPI
Base Year	1960	1982	1960-61	1986-87	1960	1984-85	1981-82
1. Food	60.92	57.00	78.12		47.15		27.53
2. Intoxicants etc	4.79	3.15					
3. Fuel and Light	5.77	6.28	.7.96		4.73		
4. Housing	6.26	8.67	-		10.79		
5. Clothing & Bedding	8.54	8.54	6.11		9.66		
6. Miscellaneous	13.72	16.36	7.81		26.08		

Table 3

Weighting Diagrams for CPI's Different Bases

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3. Rural-Urban and State Specific Cost of Living Indexes

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It should be clear from the foregoing description that abundant price data relevant to a wide variety of situations have been available in India for the past half a century. Moreover, there has also been a considerable volume of survey data on expenditure patterns which do permit government agencies and researchers to calculate appropriate consumer price indexes needed for various purposes at regional levels, by rural urban breakdown and, by income groups, or even at the aggregate All India level. It is rather surprising, that this has not been done so far. Thanks, however, to the sustained efforts of a research team (comprising B. S. Minhas, L. R. Jain, S. M. Kansal, M. R. Saluja and Suresh Tendulkar) which has taken up this task in the late eighties and has brought out a number of useful studies on the movements of cost of living at the national All-India level across states and by rural and urban categories.⁶

Some work in this direction was, indeed carried out earlier by others like Maitra (1959), Rath (1973), Chatterjee and Bhattacharya (1974), Radhakrishna and Sarma (1976) Joshi and Raychaudhry (1980) by computing state specific consumer price indices. Some of these were for only for rural and some for both rural and urban populations. Also, Chatterjee and Bhattacharya worked out consumer price indices separately for five quintile groups of the rural population. However, in all these exercises the consumption items/item - groups covered did not exhaust the entire consumption basket. Indices were also not constructed for specific fractile groups of the urban population. These lacuna have been filled by Minhas, Jain and Saluja (1990), by constructing state-specific consumer price indices, one for total urban population and one for the middle fractiles . These indices are useful in devising price deflators for adjusting the poverty line over time for changes in general level of prices relevant for the middle range of the population.

The study by Minhas, Jain and Saluja is largely based on NSS data on implicit prices (for 31 items) supplemented by market prices (for 19 item). The latter (market prices) are the same as are being used for the construction of CPI for industrial workers and for non manual

⁶ See Minhas, Jain, Kansal and Saluja (1988, 1990), Jain and Tedulkar (1989), Minhas, Jain and Tendulkar (1991) and Jain and Minhas (1991).

employees at various centres in India. NSS data base was also used for working out the appropriate weighting diagrams. This study builds up an earlier one [Minhas et. al. (1988)], which computed state-specific cost of living indices for urban population.

In another exercise Minhas, Jain, Kansal and Saluja (1990) have estimated State-Specific as well as All-India Cost of Living indices_for_rural population for 1972-73 (Oct-Sept), 1973-74 (Oct-June), 1977-78 (July - June) and 1983 (Jan.-Dec.). NSS, once again provides the weights for this study as for other similar ones by this team of researchers. In all cases the period covered is the same as that by the National Sample Survey in its corresponding rounds. In addition, benchmark consumer price indices have been worked out for 1963-64 (rural population). These have been extended for other years by Minhas et. al. by using the state-specific and All India consumer price indices.

Another direction of research that has turned out to be useful is the disaggregation of consumer price index for rural and urban populations by broad consumer item groups. Thus, Jain and Minhas (1991) calculate such indices for 13 rural and 17 urban consumer item-groups separately for 20 states/union territories and for five years, 1970-71, 1972-73, 1973-74, 1977-78 and 1983. It should be noted that earlier attempts to achieve this objective were thwarted by the fact that no consumer price indices were available so that they had to use the not so appropriate wholesale price indices. Notable earlier contributions in this regard have been those by Iyenger, and Jain (1976), Radhakrishna and Sarma (1976) and Murty and Murty (1977). The indices compiled by them are also based on wholesale price indices and are fractile group specific at the all India level.

The methodology of combining the price data for the compilation of the official consumer price indices for agricultural labourers (CPIAL), industrial workers (CPIIW) and non manual employees (CPINM) on the one hand and the NSS-based consumer expenditure patterns-using weighting diagrams for 1960-61 and 1970-71 was carried forward to the post-1983 years by the same research team. More specifically, Minhas, Jain and Tendulkar (1991) obtain state specific cost of living indices separately for rural and urban population for the four years, 1984-85, 1986-87,1987-88 and 1988-89. For all of these the period covered has

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been July through June. Disaggregative indices are also separately calculated for two broad consumer item-groups, namely, all food, and all nonfood, besides the aggregate general index.

The general methodology is to use state specific prices relative to All India prices, setting the latter to 100. Weights correspond to data from different NSS rounds, For urban prices the consumer price indexes used are those relating to industrial workers (CPIIW) and those to nonmanual workers (CPINW). The rural price indices are based on consumer price index for agricultural labour (CPIAL)⁷. Thus the price relative for the ith item/item-group is the state specific price divided by the All India price for the particular item/item-group. While some have used WPI others have used CPI based price statistics. Weights are generally based directly on the NSS expenditure shares though some have used the more sophisticated weights implied by linear expenditure system (LES) or addilog system (ALS).

Thus, we have a variety of state specific consumer price indexes by rural-urban disaggregation for 1961-62, 1970-71, 1972-73, 1973-74, 1977-78, 1983, 1984-85, 1985-86, 1986-87, 1987-88, and 1988-89. These also relate to general population with weights corresponding to the average consumption basket and also those appropriate to the poverty line with weights relating to the middle range income groups.

4. Implicit National Accounts Deflators

It should be clear that both wholesale price index as well as the consumer price index are specific in their coverage and weighting diagrams with the result that neither of them reflects price variations for the entire economy. Thus, they do not represent what may be called the 'price level' relevant to the totality of economic activity over a given period of time. Also, even though there has been a deliberate effort since 1970 - 71 to devise a proper mapping of wholesale prices to outputs in different sectors of origin and destination or the pattern of allocation for final use such a mapping remains hazy.

⁷ As pointed out in the preceding section CPIAL is based on price quotations from 600 villages for the earlier years and 1000 villages for the recent years.

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All the same, wholesale price indexes are used in a variety of ways in calculating the real and nominal values of outputs and expenditures pertaining to different sectors and uses. Since the two together determine implicit price deflators there is an implied relationship between such deflators and the corresponding wholesale price indexes. For a number of reasons however, the relationship need not be very direct. These are (a) inclusion of the services in almost all components of GDP and gross domestic expenditure (b) Weights oeing based on value added, implying the exclusion of the value of intermediate inputs from value added and, (c) much wider coverage of gross domestic product and gross national expenditure as compared to that of wholesale price or consumer price indexes. (d) difference in the weights in the two series, across commodities/services and over time.⁸

Broadly, we have two sets of implicit deflators explicitly given or computable from the national accounts data published by the Central Statistical Organisation in its annual publication *National Accounts Statistics (NAS)*. The first set relates to gross domestic product and its sectoral breakdown. NAS gives value added at current as well as constant prices for 16 subsectoral items⁹. Subtotals are given in accordance with the conventional classification, viz., (a) agriculture and allied activities including Mining (b) Industry including construction (c) Services and (d) public administration and defense. However, it should be clear that the 16 disaggregative items can be aggregated in any alternative way desired. Implicit deflators thus derived, it should be noted, would relate to value added at factor costs.

As far as implicit deflators for production are concerned it is pertinent to note the following. Value added in agriculture at constant prices is obtained by separately deflating value of gross output (at current prices) and the value for intermediate inputs (at current prices) - using separate deflators. The value of gross output and the corresponding deflators are based on disaggregated data sets relating to each principal crop. However, obvious data limitations and the nature of cultivation at household levels does not permit calculation of value of inputs or the deflator crop wise. Hence a single deflator is used for each of the inputs

⁸ It should be clear that the implicit deflators are Paasche's rather than Laspeyre's price indexes.

⁹ The disaggregative data relating to the currently available series at 1980-81 prices available for all 16 items since 1980-81 have been projected backwards upto 1950-51. However the values added at 1980-81 prices have been clubbed together for a couple of services items.

aggregated across all crops. However, for manufacturing the value added at constant prices for all industries is obtained by aggregating value added at constant prices across industries. But, for each industry, value added at constant prices is obtained by using a single deflator. In other words the value added at current prices for each industry is deflated by a single appropriate wholesale price index for the corresponding sectoral output. For organised manufacturing we have value of output in addition to value added at current and at 1980-81 prices so that a more meaningful implicit deflator can be derived for this item. cas

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The second set of implicit deflators relates to the various components of expenditure. Gross national expenditure in domestic markets is conventionally disaggregated into household and government consumption expenditure, gross capital formation and for imports (which are a negative entry) and exports. Both consumption expenditure as well as gross capital formation are subdivided into their private and public government components as also into fixed capital formation and changes in stocks. Private consumption expenditure is further disaggregated into a number of items like, food, clothing, etc.

Gross domestic capital formation can be meaningfully classified into not only public and private but also into fixed and inventory investment, by type of assets and by sectors of destination. Private gross capital formation itself is broken into that of household sector and the corporate sector. Thus, in principle, it is possible to obtain implicit deflators for all these items. How reliable these would be is a different question. It is pertinent to point out that one of the items in different categories is usually derived as a residual, both at current as well as at constant prices. For such a residual item, particularly if it is of a small magnitude the implicit deflator may often be meaningless. Changes in stocks is an excellent example in this context. Annexures B and C give the level of disaggregation at which various implicit deflators can be calculated.

5. Some Concluding Remarks

In the foregoing pages we have discussed three sets of price statistics namely, wholesale prices, consumer (retial) prices and implicit deflators which form the published and officially authentic data base for price analysis relating to the Indian economy. In each of the

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cases we have highlighed the commodity/services coverage, sources of the underlying data base computational formulae and the weighting diagrams, lag and frequency of publication, sources for realy reference and the status of computerisation. In addition we have highlighted some of the attempts by independent scholars from time to time to compute state specific cost of livign indexes pertaining to rural urban and income classes. Such price data are neither official nor available on a continuous basis. All the same we have felt strongly peruaded to include them in this discussion in view of their proven usefulness in the measurement of poverty and its variation across time and over regious.

Perhaps the most important application of the price data is measurement of inflation. That inflation is a sensitive issue and a matter of widespreas concerns is hardly surprising in case of India where a large proportion of households lives in a state of absolute poverty and deprivation. Many household living near the poverty line may frequently get pushed below it as a result of persistent and sizeable inflation. From this point of view deeply rooted in issues of welfare it should be easy to see that WPI is of only a limited use. For, as highlighted earlier (a) ultimate consumers pay retail rather than wholesale price, (b) households need services in addition to commodities (c) consumers do not buy many of the items included in WPI. Thus, while WPI is an excellent measure of general price movement in the economy it is not capable of adequately capturing the welfare implications of inflation.

Despite the foregoing argument why is it that govenment agencies, in general, always choose to rely on WPI in matters of policy formulation, policy evaluation and general public information. Some of the reasons have been identified as follows. *First*, the implicit GDP deflator though more comprehensive is available only on an annual basis and with a considerable lag. As against this WPI is computed every week and available with only a few week's lag.

Second, generality in the sense that CPI is far too specific to location and consumer class. The large disparities in the living habits and patterns across regions and income classes in India particularly accentuate the problem. There are also some misgivings about the quality of the available CPI data. While the second point made above in relation to CPI has considerable merit it only begs the question. Thus in a geographically large and culturally diverse country like India with phenomenal material inequities conceptulising a representative CPI is a herculian if not an impossible task¹⁰. But this is equally true of WPI on top of its other limitations mentioned earlier. There is no reason why a general CPI on an all India basis cannot be devised which is a much better indicator of general trends in the cost of living than WPI - though by no means capable of representing such trends for all classes and locations. Somehow one feels that government agencies have given a secondary place to CPI and built into it a measure of inaccuracy. There is no reason once again that with a due importance given to CPI why such measures would not be available with the same accuracy, regularly an dexpeditionness as WPI. To start with a first approximation would be a weighted mean of the available all India CPIs. In fact, apart from what has been stated above there is independently a strong case for improving CPI data and bringing them at par with those on WPI. In

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A second suggestion once would like to make is that the work of Minhas et. al. discussed in some detail in section 3 above could be taken up 'y an official agency, e.g., Planning Comission on a regular basis. Admittedly it may be difficult to routinise this process and yet maintain the accuracy of results. But, even a less than perfect such product, available every two years or so, if not annually, should be useful particularly if a watch has to be kept on absolute poverty and its variations across regions and over time, which, I believe, will have to be done over the next few decades.

It is pertinent to point out that the discussions on NAS methodology outlined in various publications of the CSO tend to remain passively silent with regard to prices. A clear exposition of how prices are used in arriving at magnitudes of values at current prices is badly needed.

Finally, with regard to the easy access of the data under discussion to researchers and academics one major factor is the state of their computerisation. It is in this context that there is a good news. All published data on WPI are now readily available in a machine readable form on diskets and can be obtained from the office of the Economic Advisor, Ministry of

¹⁰ Upto a point one hardly needs to mention that difficulty in devising representativeness is endemic to all aggregates - indexes in particular.

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Industry. As mentioned earlier these are also available on the WEB site of the Economic Advisor, Minsitry of Industry [HTTP//EAINDUSTRY.NIC.IN]. All published data on national accounts including the implicit deflators are similarly available from the National Accounts Division, Central Statitical Organisation. CPINM compiled by the CSO is also available in a computerised form and can be obtained from the Central Statistical Organisation. Last, but not the least all series on CPI-compiled by the Labour Bureau were getting computerised.¹¹ The latest position is not yet clear.

¹¹ Relevant address are listed in Annexure D.

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Annexure A

Weighting Pattern in WPI by Groups and Subgroups: A Comparison of the Old and New Series

				<u>1981-82</u>	<u>1993-94</u>
I.	<u>PI</u>	RIMARY	ARTICLES	32.295	22.025
	A	. a.	Food Articles	17.386	15.402
			al. Cereals	6.824	4.406
			a2. Pulses	1.093	0.603
		b.	Fruits and Vegetable	4.089	2.917
			b1. Vegetables	1.291	1.459
			b2. Fruits	2.798	1.458
		c.	Milk	1.961	4.367
		d.	Eggs, Fish and Meat	1.783	2.208
		e.	Condiments and Spices	0.947	0.662
		f.	Other food articles	0.689	0.239
			(Tea and Coffee)		
	В	. <u>Nor</u>	n food Articles	10.081	6.138
		a.	Fibres	1.791	1.523
		b.	Oilseeds	3.861	2.666
		c.	Other Non food Articles	4.429	1.949
	C	. <u>Mir</u>	nerals	4.828	0.485
		a.	Metallic Minerals	0.231	0.297
		b.	Other Minerals	0.323	0.188
•		с.	Petroleum Crude and Natural Gas	4.274	
			(This item has now been moved out		
			to II.b below)		

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Annexure A

Weighting Pattern in WPI by Groups and Subgroups: A Comparison of the Old and New Series

		,	<u>1981-82</u>	<u>1993-94</u>
PRIN	MARY	ARTICLES	32.295	22.025
A.	a.	Food Articles	17.386	15.402
		al. Cereals	6.824	4.406
		a2. Pulses	1.093	0.603
	b.	Fruits and Vegetable	4.089	2.917
		b1. Vegetables	1.291	1.459
		b2. Fruits	2.798	1.458
	c.	Milk	1.961	4.367
	d.	Eggs, Fish and Meat	1.783	2.208
	e.	Condiments and Spices	0.947	0.662
	f.	Other food articles	0.689	0.239
		(Tea and Coffee)		
B.	Non	food Articles	10.081	6.138
	a.	Fibres	1.791	1.523
	b.	Oilseeds	3.861	2.666
	c.	Other Non food Articles	4.429	1.949
C.	Min	erals	4.828	0.485
	a.	Metallic Minerals	0.231	0.297
	b.	Other Minerals	0.323	0.188
	C.	Petroleum Crude and Natural Gas	4.274	
		(This item has now been moved out		
		to II.b below)		

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II.	FUEL, PO	WER, LIGHT AND LUBRICANTS	10.663	14.226
	a.	Coal Mining	1.256	1.753
	b.	Mineral Oils	6.666	6.990
	с.	Electricity	2.7451	5.484
m	MANHEAD	TIDED BOOMET	CT 040	(0.010
	A For	ad Declarate	57.042	63.749
	A. <u>FO</u>	Director	10.143	11.538
	a.	Dairy products	0.642	0.687
	b.	Canning and Preserving of Fruits	0.068	ann blir, sinn bail yng
		and Vegetables		
	с.	Canning, Preserving and	0.126	0.047
		Processing of Fish	*	
	d.	Grains Mill Products	1.530	1.033
	e.	Bakery Products	0.242	0.441
	f.	Sugar, Khandsari and Gur	4.059	3.929
	g.	Manufacture of Common Salt	0.035	0.021
	h.	Cocoa, Chocolate, Sugar and	0.088	0.087
		Confectionary		
	i.	Edible Oils	2.445	2.755
	j.	Oil Cakes	0.432	1.416
	k.	Tea and Coffee Processing	0.236	0.967
	1.	Other food products n. e. c.	0.240	0.154
	B Bey	verages. Tobacco and Tobacco Broducto	2 140	1 220
		Wine Industries	2.147	1.339
	a. h	White Hiddstries	0.099	0.269
	U.	Mait Liqnor	0.059	0.043
	с.	Soft Drinks and Carbonated water	0.066	0.053
	d.	Manufacture of Bidis, Cigarattes,	1.925	0.975
`	· .	Tobacco and Zarda		

C.	Tex	tiles	11.545	9.800
	a.	Cotton Textiles	6.093	4.215
	b.	Manmade Textiles	2.921	4.719
	С	Woolen Textiles	0.339	0.190
	d.	Jute, Hemp and Mesta Textiles	0.689	0.676
	e.	Manufacture of Textiles n. e. c.	1.503	
D.	<u>Woo</u>	od and Wood Products	1.198	0.173
E.	Pape	er and Paper Products	1.988	2.044
	a.	Paper and Pulp	0.808	1.229
	b.	Manufacture of Board	0.440	0.237
	c.	Printing and Publishing of	0.740	0.576
		Newspapers, Periodicals etc.	x	
F.	Leat	ther and Leather Products	1.018	1.019
G.	Rub	ber and Plastic Products	1.592	2.388
	a.	Tyres and Tubes	0.766	1.286
	b.	Plastic Products	0.442	0.937
	c.	Other Rubber and Plastic Products	0.384	0.165
H.	<u>Che</u>	micals and Chemical Products	7.355	11.931
	a.	Basic Heavy Inorganic Chemicals	0.764	1.446
	b.	Basic Heavy Organic Chemicals	0.452	0.455
	c.	Fertilisers and Pesticides	1.950	4.164
	d.	Paints, Varnighes and Lacquers	0.240	0.496
	e.	Dyestuff and Indigo	0.336	0.175
	f.	Drugs and Medicines	1.065	2.532
	g.	Perfumes, Cosmetics, Toiletaries	1.215	0.978
	h.	Turpentine, Synethetic Resius and	0.477	0.746
		Plastic Materials		
	i.	Matches, Explosives, Inedible oils	0.856	0.940
		and other Chemical Products n.e.c.		

27. Carlo Manufactura (1990)	Minerals Froducts	2.411	2.516
a,	Structural Clay Products	0.695	0.230
b.	Glass, Earthen wares, China ware	0.296	0.237
	and their Products	• •	
с.	Cement, Lime and Plaster	0.916	1.731
d.	Mica Products	0.041 ¦	
e.	Cement, State and Graphite Products	0.529	0.319
Basic Metals	, Alloys and Metal Products	7.632	8.342
a.	Basic Metals and Alloys.	4.784	6:206
b.	Non-ferrous Metals	1.025	1.466
c.	Metal Products	1.823	0.6 69
Machinery a	nd Machine Tools including Electric	6.268	8.363
a.	Non electrical Machinery and Parts	3.277	3.379
b.	Electrical Machinery	2.991	4.985
<u>Transport Ec</u>	uipment and Parts	2.705	4.295
a.	Locomotives, Railway Wagons and Parts	0.274	0.318
b.	Motor Vehicles, Motor Cycles,	2.431	3.977
	Scooters, Bicycles and Parts		
Other Miscel	laneous Industrial Products	0.972	
e: <u>Index</u>	Numbers of Wholesale Prices in India Base	e (1981 - 82) Se	ptember 1994.
	a, b, c, d, e, <u>Basic Metals</u> a, b, c, <u>Machinery a</u> <u>Machinery</u> a, b, <u>Transport Ec</u> a, b, <u>Cransport Ec</u> a, b, Cransport Ec a, b, Cransport Ec a, b, Cransport Ec a, b, Cransport Ec a, b, Cransport Ec a, b, Cransport Ec a, b, Cransport Ec a, c, Cransport Ec a, b, Cransport Ec a, Cransport Ec Cransport Ec Cransport Ec Basta Cransport Ec Cransport Ec Cranspo	 a. Structural Clay Products b. Glass, Earthen wares, China ware and their Products c. Cement, Lime and Plaster d. Mica Products e. Cement, State and Graphite Products Basic Metals, Alloys and Metal Products a. Basic Metals and Alloys. b. Non-ferrous Metals c. Metal Products Machinery and Machine Tools including Electric Machinery a. Non electrical Machinery and Parts b. Electrical Machinery Transport Equipment and Parts a. Locomotives, Railway Wagons and Parts b. Motor Vehicles, Motor Cycles, Scooters, Bicycles and Parts Other Miscellaneous Industrial Products	a. Structural Clay Products 0.695 b. Glass, Earthen wares, China ware 0.296 and their Products 0.916 { c. Cement, Lime and Plaster 0.916 { d. Mica Products 0.041 { e. Cement, State and Graphite Products 0.529 Basic Metals, Alloys and Metal Products 7.632 a. a. Basic Metals and Alloys. 4.784 b. Non-ferrous Metals 1.025 c. Metal Products 1.823 Machinery and Machine Tools including Electric 6.268 Machinery 3.277 b. Electrical Machinery and Parts 3.277 b. Electrical Machinery 2.991 Transport Equipment and Parts 2.705 a. a. Locomotives, Railway Wagons and 0.274 Parts b. Motor Vehicles, Motor Cycles, 2.431 Scooters, Bicycles and Parts 0.972 e: Index Numbers of Wholesale Prices in India Base (1981 - 82) Se Office of the Economic Advisor Ministry of Industry Grut of

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Bhawan. and, *Revision of Index Numbers of Wholesale Prices in India*, Report
of the Working Group, Government of India, Office of the Economic Advisor,
Ministry of Commerce and Industry, New Delhi, November, 1999.

	Anne	xure B	
2.516			
0.230	Economic Activities use	d in GDP I	Disaggregation
0.237			Ø
1.731	1. Agriculture	10.	Trade hotels and restarants
	2. Forestry and logging	11.	Railways
).319	3. Livestock	12.	Transport by other means and
	4. Fishing	10	storage
3.342	5. Mining and quarrying	13.	Communications
5.206	6. Manufacturing (Registered)	14.	Banking and insurance Real estate and related activities
.466	7. Manufacturing (unregistered)	15.	Other Services
1.669	8. Electricity, gas and water supply	10.	CHARA DOL TROOM
	9. Construction.		
.363			
.379			
.985			~
.295			
.318			
977			
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Annexure C

Disaggregation of National Expenditure

	4 °		•			
I.	Priva	ate Final	Consumption by Object			
	1.	Food,	beverages and tobacco			1. WI
	2.	Cloth	ing and footware			
	3.	Rent,	fuel and power			
	4.	Furni	ture		with further disaggregation	
	5.	Medi	cal care and health services		1	
	6	Trans	port and Communication		1	
	7. Recreation and education				1	2. NA
8. Other miscellaneous items				1		
II.	. Capi	tal Form	nation by Type of Assets and	l Type	of Institution	
	1.	Gross	Place Capital formation	i		2 CD
		(1)	Public Sector	ł	Classified by	J. CF.
		(11)	Private Corporate Sector	1	(a) Construction and	
		(iii)	Household Sector	1	(b) Machinery and equipment	A
	2.	Chan	ge in stocks			
		(i)	Public Sector			
		(ii)	Private Corporate Sector			
		(iii)	Household Sector			
	3.	Cons	umption of fixed capital.		,	
	4.	Net C	Capital formation			
III.	Capi	tal Form	nation by Industry of use with	1 nearl	y the same disaggregation as given in	v.
	Anno	exure B.				Į

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Annexure D

Addresses for Securing Data

1. WPI

3. CPI

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Office of the Economic Advisor Ministry of Industry Udyog Bhavan New Delhi 110 001.

WEB site: HTTP//EAINDUSTRY.NIC.IN

2. NAS Deflators and CPINM

Director General Central Statistical Organisation, (Ministry of Planning) Patel Chowk, Parliament Street New Delhi - 110 001.

: Director General

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Labour Bureau, Ministry of Labour SCO 28-31, Sector 17A Chandigarh - 160 017.

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