

Needo-data on Inflation in India: An Analysis of Methodology of Measuring Inflation

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Abstract: To understand, analyze and interpret the needo-data and measurement issues on inflation falls in the domain of this paper. Good data is at the heart of public policy making. To enable data-driven policy making, we need to create data infrastructure of measurement for various performance indicators including inflation. As consumer, every Indian is affected by inflation but its data is faulty as measurement is based on wrong methodology. In India we use three different indices for measuring inflation including the Wholesale Price Index (WPI), Consumer Price Index (CPI) which is calculated for different types of workers namely Industrial Workers (CPI-IW), Urban Non-Manual Employees (CPI-UNME), Agricultural Laborers (CPI-AL) and Rural Laborers (CPI-RL) and the Gross Domestic Product Deflator (GDP Deflator). The measurement of inflation is done as a ritual monthly to calculate annual rate of inflation which is a wrong method of doing so. We need to do our best in terms of the awareness of the stakeholders about the needed data on inflation in India and its methodology of measurement.

Keywords: Needo-data, WPI, CPI, GDP Deflator

I. INTRODUCTION

It hardly needs to be stated that good data is at the heart of public policy formulation. The study's goal is to comprehend, analyze, and interpret the process of assessing inflation in India. The monitoring of inflation may be done properly provided inflation measurement is done thoroughly. Unfortunately, inflation is measured on a monthly basis to compute the yearly rate of inflation, which is an incorrect method. Who is stopping the government from replacing the incorrect methodology for estimating the rate of inflation on a point-to-point basis? Furthermore, because inflation is a location-specific phenomenon, it must be adequately detected and monitored.

1.1 Inflation Measurement In India

In India, we use three different indices to measure inflation: the Wholesale Price Index (WPI), the Consumer Price Index (CPI), and the Gross Domestic Product Deflator. The Consumer Price Index (CPI) is calculated for different types of workers, such as Industrial Workers (CPI-IW), Urban Non-Manual Employees (CPI-UNME), Agricultural

Laborers (CPI-AL), and Rural Laborers (CPI-RL) (GDP Deflator).

The World Bank has helped the Indian government make a new inflation index called the Producer Price Index. This new index is called the PPI (PPI). A committee led by Dr. Abhijit Sen, a member of the planning commission, was set up to make a PPI from the current WPI every month. In order for it to be done, it had to be based on the price of agricultural products at the farm level. Ex-factory prices would have been taken into account when making manufactured goods. It would use 2000-01 as its base year. To solve the problems that WPI is having with collecting data, we came up with a new way to do it. People thought PPI would be a real thing in two or three years. It didn't happen.

There is a working group led by a member of the government's new Niti Ayog called Ramesh Chand that is working on modifying the current series of the WPI and making a new one called the PPI. The WPI base year is 2011-12, and the PPI base year is 2014. An 18-member panel may come up with a plan for moving from the WPI to the PPI, says a statement from the Commerce and Industry

Ministry. This is called the Producer Price Index (PPI). It shows how the price of goods and services sold in the local market and exported changes on a general level. PPI is a better way to measure inflation because it doesn't include taxes like WPI does. "There have been a lot of talks about moving to PPI for a long time," said an anonymous member of the group. To make sure there isn't a lot of double-counting, they said that the main reason to change the WPI from the PPI is to make indices that are conceptually consistent with National Accounts Statistics so they can be used as deflators.

There are now eight people in the group, including four people from the National Statistics Office and two people from the Finance Ministry. There are also people from the Departments of Agriculture, Consumer Affairs, Petroleum and Natural Gas, and the Reserve Bank of India on it. India used to pay more attention to WPI because it has more coverage and is published more often and quickly than other news sources. The WPI is released every week. The preliminary index is released two weeks after the final index, and the final index is released ten weeks after the preliminary index.

At the point of consumption, the CPI is the second most important metric, after the price of a good or service. It comes out once a month, with a one-month delay. It's important to look at inflation with the CPI (IW) because other CPI measures are made for specific groups of people with the goal of figuring out how price rises affect rural and urban poverty. This is why the IW is so important. The GDP deflator is a broad metric that is statistically calculated from national account data that is published by the central statistical organization. It is based on this data (CSO). Once a year, it's on sale for one year.

II. W.P.I METHODOLOGY

The WPI is the primary inflation indicator frequently used in India. The WPI is accessible for all commodities and subgroups, as well as for specific commodities. The primary advantage of this inflation measure is that it is available often, on a weekly basis with a gap of around two weeks,

allowing for continual monitoring of the price situation for policy purposes.

2.1. History Of Wholesale Price Index In India

The Office of the Economic Adviser to the Government of India began issuing an index number of wholesale prices for the first time on January 10, 1942, with a base week ending August 19, 1939 equal to 100. The index was constructed by averaging the price connections of 23 items classified into four categories: food and tobacco; agricultural commodities; raw materials; and manufactured products. Each item was assigned an equal weight, and each item received a separate price quote. This was a modest beginning to what has become into a vital weekly exercise for monitoring and controlling the Indian economy, as well as a standard for business transactions.

In 1945, a new index of 'food items' was created, using data from the final week of August 1939. This index was built as a weighted geometric mean of price connections, with weights matching to key commodity marketable surplus values in 1938-1939. The index's base period was then changed to August 1939. Subsequently, the 'food articles' category's scope was expanded to include more subdivisions. Since 1947, the Economic Adviser's Office has issued a weekly series of wholesale price weighted index data using August 1939 as the basis year. This collection had 215 different quotations and 78 items divided into five categories: (1) food products; (2) industrial raw materials; (3) semi-manufactures; (4) manufactured goods; and (5) miscellaneous. The index was constructed by calculating the weighted geometric mean of price relationships. The series aired till March 1956. In response to the Standing Committee of Departmental Statisticians' suggestions, the Economic Adviser's Office developed a new set of indexes with a 1952-53 price base and a 1948-49 weight base, including 112 commodities and 555 individual quotations. The following five commodity classes were used: (1) Food Products; (2) Alcohol and Tobacco; (3) Fuel, Electricity, Light, and Lubricants; (4) Industrial Raw Materials; and (5) Manufactures. Cereals were extensively

studied in detail, using market data given by the Agricultural Prices Enquiry Committee. Additional agricultural markets have been developed with the aid of the Ministry of Agriculture. We picked non-agricultural goods based on pricing data available in producing and consuming countries. Markets were chosen based on submissions from state governments, business and trade associations, and other stakeholders. The weighted arithmetic mean was employed in place of the previously utilized weighted geometric mean. From April 1956 through September 1969, this weekly programme aired.

While the 1952-53 series (on a 1948-49 weight base) covered all agricultural goods completely, non-agricultural items were progressively neglected. To overcome this problem, the Government of India established a committee to expand the scope and method of gathering price quotes for non-agricultural items. In July 1969, the committee recommended the introduction of a new set of wholesale price index numbers with a base of 1961-62 = 100. There were 774 quotes and 139 goods included. The 'Standard International Trade Categorization' (SITC) was used for commodity classification, with slight revisions to account for Indian reality. (2) Food Articles; (3) Liquor & Tobacco; (4) Industrial Raw Materials; (5) Chemicals; (6) Machinery & Transport Equipment; and (7) Manufactures. From December 1976 to December 1977, this series aired.

While the series was initially introduced with a base year of 1961-1962, it was decided to create a working group to study the index's methodological components in comparison to the updated series with a more current base year. In January 1977, a new series with a base year of 1970-71 was developed as a consequence of the recommendations of the Working Group on Revision of Wholesale Price Index Numbers. Due to the fact that this series comprised 360 goods and 1295 price quotations, it covered a substantially greater variety of issues.

The pieces included in this collection were chosen using a rigorous procedure. Non-agricultural goods having a total output value more than one crore rupees apiece, as established by the Annual Survey of Industries, 1965, as

well as those with minimal indigenous production but significant imports, were frequently included, depending on the availability of price data. Commodities for the agriculture sector were selected in consultation with the Directorate of Economics and Statistics of the Ministry of Agriculture. These were crucial steps in developing a scientific procedure for compiling index numbers.

All preceding data were weighted using the value of transactions in the index's component commodities. Weights were awarded based on the total wholesale transactions of the economy in the 1970-1971 period, and as a result, the values of non-selected commodities (which did not make the index) were assigned to those selected commodities with comparable natures and pricing patterns. This was a significant adjustment in terms of weight sampling for the WPI. Additionally, the process for weighting certain commodities has been enhanced. To the extent possible, all identifiable items classified as quotations (without a specified weight) in the prior series were treated as separate commodities, each with its own weight.

The weights in this series (base 1970-71) were determined by the transaction's value, which included (a) the value of marketable surplus in the case of agricultural commodities and the value of products for sale in the case of manufactured products, (b) the total value of imports, including any import duties, and (c) the total value of excise duty, if any. Weights were allocated to individual commodities in the agricultural sector based on the average value of marketable surplus for the three-year period ending in 1969-1970, as determined using available data. The weights assigned to certain commodities within the groupings of minerals and energy, power, light, and lubricants were also substantially determined by the average value of production throughout the three-year period ending in 1969-70. However, in the case of 'Manufactured Products,' the weighting pattern was determined using the ASI-1968 data on the value of production.

The 'National Industrial Categorization' (NIC) was introduced in the 1970-71 series to provide consistency with other key indices such as the Index of Agricultural

Production, the Index of Industrial Production, and so on. All items, whether manufactured locally or imported, that were available for sale in primary markets were classified into three main categories: (a) primary articles, (b) secondary articles, and (c) secondary articles. (b) Energy, transportation, lighting, and lubricants; and (c) manufactured products.

The broad category 'Primary Articles' was broken into three subcategories: Food Articles, Non-Food Articles, and Minerals. Coal, coke, lignite, mineral oils, and electricity were included in the 1970-71 series' main group 'Fuel, Power, Light, and Lubricants.' Eleven sub-groups comprised the main group 'Manufactured Products': (1) Food Products, (2) Beverages, Tobacco, and Tobacco products, (3) Textiles, (4) Paper and paper products, (5) Leather and 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.

The Wholesale Price Index Series underwent another redesign in terms of base and weighting scheme commencing in 1989. For this reason, the base year was confined to the period 1978-1979 to 1981-1982, with the later year serving as the correct foundation. It was deemed to be such for three key reasons: (a) it was a typical year in terms of pricing and production data; (b) it was closer to the genuine data era of the 1990s; and (c) it was near to the base year of other updated index series that are heavily utilised for economic decision making.

The new series, which began in 1981-82, continued the intellectual legacy created by its forerunners. However, significant enhancements were made in the process of rebuilding the series; these changes included expanding the range of product coverage and reorganising commodity categories. In compared to the 360 products covered in the 1970-1971 series, the 1981-1982 series contained 447 unique items. Thus, the total number of things covered by the commodities increased by 87. This was the net result of

the addition of 75 new items, the division of a group of 32 items from the previous series into 100 distinct items, and the amalgamation of four previously existing items into two new series; 54 items from the 1970-71 series were deleted for the compilation of the new series due to structural changes. The new dataset contains 2371 price quotes, an increase of 1295 over the prior series. The new dataset showed the underlying economic activity more accurately and effectively, probably because it was more representative.

The weighting diagram was weighted according to the economic value of wholesale transactions. Each item was assigned a weight based on its contribution to the economy's total output value. The production value of non-selected products was distributed among those of selected commodities with comparable natures and pricing patterns.

Weights were allocated to each agricultural commodities based on the average value of marketed/marketable excess during a three-year period ending in 1981-82. The 1981-82 series introduced marketed surplus ratios for the base year, replacing the series' predecessor's marketable surplus ratios based on 1950s and early 1960s surveys. Additionally, the updated series often used marketed surplus ratios rather than marketable surplus ratios; the weight of opinion clearly favours the first concept over the second. Weights for manufactured articles were calculated using the 1980-1981 ASI value of production. The 1981-82 series made a significant advancement by include the value of production from unorganized/unregistered industrial sectors when giving weights to different commodities. Despite the fact that price trends in the two divisions of the manufacturing industry are thought to be in lockstep, the unassigned weights for the unorganized/unregistered sector may impart a significant negative bias on the manufacturing output share of the overall economy. This possible source of manipulation is visible in the weighting diagram that appears in the 1981-82 dataset when compared to its predecessor.

The produced goods were classified similarly to previous years using the National Industrial Classification

(NIC). This enabled unrestricted comparisons with the past while also reclassifying individual commodities and commodity groups as appropriate. The 447 commodities included in the 1981-82 base were classified into three major economic sectors: (I) primary goods, (II) energy, electricity, light, and lubricants, and (III) manufactured products.

Primary Articles were further categorised into three categories: I Food Articles, (ii) Non-food Articles, and (iii) Minerals. The Manufactured Products sector has been subdivided into 13 subsectors, two more than in the previous series. Food and beverage products; Tobacco and tobacco products; Textiles; Food and food products; (5) Leather and leather products; (6) Paper and paper 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. The list of manufactured products comprised 334 items, the list of fuel, power, light, and lubricants contained 20, and the list of primary articles contained 93 things, for a total of 447 items for the 1981-1982 base.

1981-1982 was compiled in the same manner as prior years. It was calculated using Laspeyre's formula in conjunction with the concept of weighted arithmetic mean. The approach for constructing the weekly price index was significantly improved over the one utilised in the last Working Group report. It successfully transitioned from the traditional manual approach of employing desktop calculators to high-speed computers with the support of the National Informatics Center (NIC), which created a comprehensive software package for this purpose. This has resulted in significant advancements in breadth, coverage, accuracy, and the capacity to do additional research and analysis on both the price series and a range of analytical studies based on the richness of information included in the time series data.

A number of substantial adjustments have been recommended in the adjustment for the new base year. It is

argued that a significant proportion of economic activity classed as services might and should be included in price indices, given that the services sector now accounts for more than half of the Indian economy and is robust in comparison to commodity-producing industries. Similarly, while the WPI represents the exchange value of money in relation to other commodities, it is not always the best measure of economic inflation. The Working Group determined that another approach may be employed to establish an index that is more acceptable. The WPI indicator, with the exception of the service sector, measures the value of gross economic transactions. It is neither a producer's nor a consumer's basket for inflationary reasons.

2.2. Revised Series Based On 1993-94

The updated series of the Index of Wholesale Prices in India (Base 1993-94=100) replaced the previous WPI series (Base 1981-82=100) on April 1, 2000. The government formed a Working Group to revise India's WPI, which was led by Prof. S.R. Hashim, then a member of the Planning Commission. Based on the Working Group's suggestions, the Government of India has decided to replace the current series of Index Numbers of Wholesale Prices (Base: 1981-82) with a revised series utilising 1993-94 as the base year. The commodities basket of the new series will be separated into three essential categories: (I) primary articles; (II) fuel, power, light, and lubricants; and (III) manufactured products. The three primary groups are further segmented into separate Groups/sub-groups/sub-sub-groups based on the size and composition of a major group or groups. The new series has a total of 435 articles/items, including 98 main materials. The sample basket for the 1993-94 WPI series includes 19 "fuel, power, light, and lubricants" items and 318 manufactured products, with a total of 1918 price quotes. (Appendix 4 has a detailed list of goods.) To the greatest extent practicable, all items having significant economic transactions have been included in the updated series. As a consequence, the revised series will comprise a considerably updated and representative basket of commodities, together with their varieties/grades and markets. Coverage in the new series has been rationalised by

integrating significant new themes, deleting extraneous things, and merging items with those to which they are connected.

Primary products account for 13 of the 136 new items added to the revised series basket, Fuel Group contributes one, and Manufactured Products comprise 122 new commodities, while 150 are removed from the present series. As a consequence, the current and revised series share 68 percent of the items/commodities.

Purified Terephthalic Acid (PTA), Injection Molded Plastic Items, Oxygen Gas in Cylinder, Railway

Sleepers (Cement product), Thinner, MS/SS Ingots, Cold Rolled Sheets, LPG Cylinder, Jelly Filled Telephone Cables, Color TV Sets, Computer and Computer Based Systems are some of the significant items that enter the WPI commodities basket for the first time.

Mica, imported petroleum crude, indigenous petroleum crude, Khadi, handloom cloth, broad gauge open waggons, and wrist watches are among the items that have been eliminated. The coverage offered by the existing and revised Series is compared in the table below:

Table 1: Comparative Details of the coverage of existing & revised series

Description	Existing		Revised		No. Quotations	
	No. of items	weightage	No. of items	weightage	Existing	Revised
	1981-82		1993-94		1981-82	1993-94
I. Primary Articles	93	32.3	98	22.02	519	455
II. Fuel, Power, Light & Lubricant	20	10.66	19	14.23	73	72
III. Manufactured Products	334	57.04	318	63.75	1779	1391
All Commodities	447	100	435	100	2371	1918

Source: Prepared from GOI publications

The following table gives comparative details of the weighting diagrams of the revised and the existing series:

Table 1 also demonstrates that the weight of main goods has decreased drastically in the revised series, while the weight of 'Fuel, Power, Light, and Lubricants' and 'Manufactured products' has grown significantly. This represents the economic structural shift that happened between 1981 and 1982. Because the weight of 'Manufactured Products' and 'Fuel, Power, Light, and Lubricants' has increased in comparison to the previous series, any general upward movement in their prices (all else being equal) will have a greater impact on the all-commodity index and inflation rate than it did in the 1981-82 series.

2.3 Nature Of Basic Data

The WPI is only produced at the national level; it is not compiled at the state/union territory level separately. WPI statistics are published by the Office of Economic

Adviser, Ministry of Commerce and Industry, whereas CPI data are published by the National Statistical Office (NSO), Ministry of Statistics and Programme Implementation (MoSPI). The basis year for WPI is 2011-12, whereas the base year for CPI is 2012.

The vast majority of information on "Primary Articles, as well as Fuel, Power, Light, and Lubricants" is derived from government departments/organizations/agencies. Prices for "Manufactured Products" are obtained from individual manufacturers. Except in a few cases when small changes, such as taking averages or adding excise duty, are required, price data generated using this approach is usually suitable for use.

India's Wholesale Price Index Numbers for the Month of November 2021 (Base Year: 2011-12) The Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade, has released wholesale price

index data for November 2021 (Provisional) and September 2021 (Final) in India (Base Year: 2011-12). (Final). WPI preliminary numbers are released on the 14th (or the following working day) of each month, with a two-week lag from the reference month, and are calculated using data from institutional sources and selected industrial units around the country. After ten weeks, the index is finished, and final statistics are disclosed before being frozen. The annual rate of inflation in November 2021 (over November 2020) is 14.23 percent (provisional), compared to 2.29 percent in November 2020. When compared to the same

month the previous year, the high rate of inflation in November 2021 is mostly due to rises in the cost of mineral oils, basic metals, crude petroleum and natural gas, chemicals and chemical products, food goods, and other things. WPI inflation rate estimated over the corresponding month the previous year 3. The month-over-month change in the WPI index in November 2021 was 2.73 percent as compared to October 2021. The table below details the All India Wholesale Price Indices and Inflation Rates for key commodity groups in November 2021.

Table 2: Index Numbers & Annual Rate of Inflation (Y-o-Y in %) *

All Commodities/Major Groups	Weight (%)	Sep-21 (F)		Oct-21 (P)		Nov-21 (P)	
		Index	Inflation	Index	Inflation	Index	Inflation
All Commodities	100.00	137.4	11.80	139.1	12.54	142.9	14.23
I. Primary Articles	22.62	157.7	5.98	159.7	5.20	168.6	10.34
II. Fuel & Power	13.15	119.0	29.49	124.7	37.18	131.7	39.81
III. Manufactured Products	64.23	134.0	11.57	134.9	12.04	136.1	11.92
Food Index	24.38	162.1	2.59	164.8	3.06	170.4	6.70

Source: Press Information Bureau, GOI

Note: P: Provisional, F: Final, * Annual rate of WPI inflation calculated over the corresponding month of previous year

The month over month change in WPI index for the month of November, 2021 stood at 2.73 % as compared to

October, 2021. The monthly change in WPI index for last six-month is summarized below:

Table 3: Month Over Month (M-o-M in %) change in WPI Index#

All Commodities/Major Groups	Weight	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21 (P)	Nov-21 (P)
All Commodities	100.00	0.60	0.97	0.89	0.88	1.24	2.73
I. Primary Articles	22.62	1.86	0.85	0.71	1.48	1.27	5.57
II. Fuel & Power	13.15	0.82	4.07	2.34	0.93	4.79	5.61
III. Manufactured Products	64.23	0.08	0.53	0.68	0.60	0.67	0.89
Food Index	24.38	-0.06	0.44	0.44	1.25	1.67	3.40

Source: Press Information Bureau, GOI

Note: P: Provisional,# Monthly rate of change, based on month over month (M-o-M) WPI calculated over the preceding month

2.4 *Compilation Practices Of Data On Inflation*

Traditionally, WPI was computed weekly, with a two-week lag, for the week ending on Saturday. This provisional weekly index was created using the most recent data available at the time. This interim weekly index is finalised after eight weeks, using the most recent data available. The inflation rate is calculated on a point-to-point basis, that is, by comparing the preliminary index for the most recent week of the current year to the final index for the corresponding week in the previous year.

2.5 *Accounting Conventions For Measuring Inflation*

The index is based on the notion of weighted arithmetic means, as defined by Laspeyre's formula, with a set base year weighting scheme that operates throughout the series' lifetime. The weighted arithmetic average of the individual constituent indices is used to calculate the index for each sub-group, group, main group, and all commodities. The index is released weekly, with a two-week lag, at commodity, sub-group, group, and major group levels. The index is originally labeled preliminary due to late receipt of a small fraction of returns. After a period of around eight weeks, the final index is distributed, which takes into consideration late price quotations.

The formula used is:

$$= \text{Sum of } (I_i \times W_i) / \text{Sum of } W_i$$

Where: Sum represents the summation operation.

I = Index No. of wholesale prices of a sub-group/group/major group/all commodities.

W_i = the weight assigned to the i -th item/sub-group/group/major group.

I_i = Index of the i -th item/sub group/group/major group.

The percentage ratios between current and base period prices are derived by dividing the current price by the base period price and multiplying the quotient by 100. Commodity indices are constructed by taking the basic arithmetic average of all the variations included within a commodity's price family. The indices for sub-groups/groups/major groups/all commodities are calculated using the weighted arithmetic means of the indices of the

items/sub-groups/groups/major groups falling under their respective categories.

III. CONSUMER PRICE INDEX (CPI)

In both theory and practice, a Consumer Price Index (CPI) measures changes in the overall level of prices for goods and services that a reference population obtains, consumes, or pays for consumption over time. Four CPIs are issued at the national level. Industrial Workers' CPI (IW), Agricultural Labourers' CPI (AL), Rural Laborers' CPI (RL), and Urban Non-Manual Employees' CPI are the four categories (UNME). The Labor Bureau of the Ministry of Labour compiles and publishes the first three, while the Central Statistical Organization (CSO) of the Department of Statistics and Programme Implementation of the Ministry of Planning and Programme Implementation compiles and distributes the fourth.

3.1. *CPI (IW)*

Since August 1968, the Labor Bureau has published monthly CPI (IW), first on a 1960 base, which was later updated to 1982. The current CPI (IW) series started publication in October 1988, using 1982 as the baseline year. Retail prices for selected products and services are obtained from 226 marketplaces in 70 cities for the current CPI (IW) series by people from a variety of State Directorates of Economics and Statistics and State Labor Commissioners, among others. The number of products in the consumption baskets of various centres varies between 120 and 160, depending on the present state of the centre and its consumption pattern. The six categories of goods and services include food, pan, supari, tobacco & intoxicants, fuel & light, shelter, clothes, bedding & footwear, and miscellaneous. Weekly price data are compiled for commodities such as cereals, vegetables, oils & fats, and other products with regular price fluctuations, as well as for textiles, furniture, kitchenware, home appliances, and durable goods. Monthly prices are acquired from two outlets/shops in the targeted markets. Additionally, data on the pricing and availability of commodities sold via subsidised outlets (fair price stores) are gathered in order to

determine weighted average prices. The weights of the index are estimated using data from the 1981-82 Working-Class Family Living Survey (WCFLS).

A working-class family was defined for the 1981-82 WCFLS as one that (i) was centrally located, (ii) had at least one member employed as a manual worker in any of the seven sectors of employment covered, namely factories, mines, plantations, ports and docks, public motor transport undertakings, electricity generating and distributing establishments, and railways, and (iii) earned 50% or more of its income during the telecommunications period. Given the rise in working-class population since the previous survey in 1958-59, as well as the available resources, it was decided that the 1981-82 survey would include 70 centres (WCFLS). The centres were chosen to fulfil administrative criteria for center-based indices as well as adequate geographic and industry representation. Various state governments provided a list of locations with a high concentration of employees, as well as overall employment in the state, all of which were associated with three industries: factories, plantations, and mining. Based on this information, the number of centres was first assigned to three industries in proportion to their employment: manufacturing, mining, and plantation. Second, the number of centres allocated to three sectors, namely the number of centres allotted to each sector, was distributed among states based on industrial employment in each state, with a "maximum of five centres per state in a sector." Finally, real-world centres were chosen in partnership with state governments based on their specific job opportunities. In addition to these 70 locations, the survey was carried out in six more, namely Kothagudem in Himachal Pradesh, Chhindwara in Chhindwara, Bhilwara in Bhilwara, Tripura in Tripura, and Goa in Goa, to update the foundation for their CPI (IW) series. While a total of 76 locations were surveyed, only 70 were used to generate the all-India Consumer Price Index. Annexure III has a list of 70 centres grouped into the following sectors: (i) 54 manufacturing plants (ii) 9 plantation centres (iii) There are seven mining centres.

Despite the fact that industry hubs are predominantly urban, plantation and mining centres have a modest semi-urban and rural population. A total of 34,722 working-class families from 76 different cities were polled. At a centre, a minimum of 216 and a maximum of 1,512 homes were polled. Each centre conducted a market analysis prior to the start of regular pricing data collection to establish the representativeness and popularity of markets, retailers, and outlets among the working class.

The housing index is calculated using the rent paid/payable by employees for a dwelling unit. Rental data for the housing index are gathered twice a year through a half-yearly House Rent Survey, and the rent index is calculated once every six months, namely in January and July, and then repeated for the following five months. The Housing Index is derived using the chain base approach, which compares rent variations to the six months prior to the base period rather than the base period itself. To construct the weighted housing index, three distinct indices for free, rented, and owner-occupied housing are created and then combined using their respective weights.

The index is constructed using Laspeyre's base weighted technique. The sub-group, group, and general indices of a centre are calculated as weighted arithmetic averages of the component indices. The All-India index is derived as a weighted arithmetic average of indices-indices, where the weight represents the ratio of a center's projected number of households' consumption expenditure to the sum of all such expenditures across all centres in the nation. Weekly indices for the whole country of India (computed from the indices of 70 centres) and 76 centres are published with a one-month lag. A new WCFLS for basket selection of items and services has been introduced, as has a revision of the current series' base year from 1982 to a more recent year.

3.2. CPI (UNME)

Since 1961, the Central Statistical Organization has been compiling CPI (UNME) on a monthly basis, first on a 1960 base that was amended to 1984-85. Since November 1987, the current CPI (UNME) series, based on 1984-85, has been released. NSSO collects retail prices for selected items of

goods and services from 1022 markets in 59 urban locations for the current CPI (UNME) series. The quantity of commodities and services for which retail prices are collected for CPI (UNME) compilation varies by center. The least number of pieces is 146 in the instance of Imphal. The city of Delhi has the most items, with 345 in total. The numerous commodities and services are classified into five major categories: i) food, beverages, and tobacco; ii) fuel and light; iii) housing; iv) clothing, bedding, and foot wear; and v) miscellaneous. Prices for items in various commodity groups are collected on specific days of the week from specified shops/outlets, so that comparisons between two quotations from the same outlet are not influenced by changes in data collection time. Prices collected are those paid for real transactions, including sales tax and other expenses generally due by the consumer, after accounting for any permitted discounts or refunds. The weights for this series are based on estimates obtained from data collected during the 1982-83 Middle Class Family Living Survey (MCFLS).

The weights at all-India level, in respect of different groups/sub-groups of items of goods and services are given in table.

In the 1982-83 MCFLS, an urban non-manual household was defined as one that earned 50% or more of its income from gainful employment on activities of one or more of its members doing non-manual work in the non-agricultural sector. Given the limited financial resources available for the survey, it was decided that the total number of centers chosen would not exceed 60. Initially, a technique combining purposive and probabilistic methods of selection was proposed when picking metropolitan centers for the survey. According to this approach, all major cities and important centers for which specific-specific indices were deemed necessary (namely, state capitals and some other centers for which indices were already being compiled and used) were to be included on a purposeful basis, with the remaining centers being chosen on a sample basis. However, given that the number of large cities (population greater than 5 lakhs according to the 1981 Population Census) was quite

large, and if all state capitals and centers deemed important from an index standpoint were to be included on a purposeful basis, there was practically no room for probability selection. Based on these considerations, it was decided that all survey centers should be chosen entirely on purpose, and a total of 59 urban centers were chosen with the following criteria in mind: i) concentration of UNME population in the center; ii) inclusion of state capital cities; and (iii) regional representation. The centers were distributed to different states in roughly proportion to their 1981 urban population, with the exception that no state could get more than 5 centers. The poll included a sample of approximately 45,000 urban non-manual employees' families from 59 urban locations. The number of families canvassed in a center during the survey ranged from 432 to 1,728 depending on its size. Prior to the start of regular price data collecting, a market study was conducted in each of the 59 centers in 1983 to pick markets, shops/outlets. A selection of markets and outlets/shops in each center was purposefully chosen based on market attractiveness among the target group. Circular systematic sampling was used to select a random sample of retail marketplaces other than general key markets.

A representative sample of rented dwellings occupied by the target population was drawn from the list of families canvassed during the 1982-83 survey, and a repeat house-rent enquiry is carried out at six-monthly intervals to collect comparable house rent data for use in the compilation of the house rent index, which is a constituent of the CPI (UNME). Data on 'off-take' are also collected periodically from the sample of families canvassed for house-rent enquiry in order to calculate off-take weights in respect of sources of purchase, as regards selected commodities such as rice, wheat, sugar, and kerosene (whose supply/prices in the open market are regulated by fair price shops and consumer co-operative stores). The chain base approach is used to create the housing index, which consists of three independent indices for free, rented, and owner-occupied dwellings, which are then merged using their respective weights to create the weighted housing index.

The Laspeyre's formula is used to calculate CPI (UNME) for a specific center. The sub-group, group, and general indices for each center are calculated as weighted arithmetic averages of the constituent indices. The All-India index is a weighted arithmetic average of indices-indices, with the weights proportionate to the aggregate estimated expenditure of the targeted population represented by the individual center indices. The wise-wise and all-India indexes are released once a month, with a two-week lag.

3.3. CPI (AL) and CPI (RL)

Since September 1959, the Labour Bureau has also started compiling CPI (AL) on a monthly basis, initially on a 1950-51 base that has been amended from time to time. Since November 1995, the current CPI (AL) series, based on the 1986-87 base, has been released. Since November 1995, the Labour Bureau has been producing (CPI (RL), on a basis of 1986-87. For both the current series of CPI (AL) and CPI (RL), the NSSO collects retail prices for 260 types of commodities and services from fixed markets in 600 sample villages distributed across 20 states. The numerous commodities and services are divided into four categories: I food, ii) fuel and light, iii) clothing, bedding, and footwear, and iv) miscellaneous. The commodities and services are ubiquitous, although the variants of the majority of the items vary from town to village. The retail price collection is staggered across four weeks of the month, with one-fourth of the samples covered each week. Prices are collected on the predetermined price collection day, which might be a "Hat" or non-daily market day, or any market day for daily markets. The average price for items provided through the public distribution system is a weighted average of the open market price and the price in fair pricing stores, with the weights representing the proportion of availability of these commodities in the Public Distribution System. The data for each rationed item is collected in a specially built Performa in order to calculate the availability ratio. The weights for both indexes are based on estimates obtained from data collected during the NSSO's 38th round of household consumer spending enquiry in 1983. Only the weights at the compilation step differ between the two labor class homes,

i.e. agricultural labor households and rural labor households. The population of agricultural labor homes is roughly 60% of the population of rural labor families.

For the purposes of the household consumer spending inquiry, an agricultural labor/rural labor household is one that derives 50% or more of its income from gainful work on activities of one or more of its members as agriculture/rural labor. A person is regarded to be involved in agricultural labor if he or she works in one or more of the following agricultural activities as a waged manual laborer, whether paid in cash, kind (excluding exchange labor), or both.

(i) Farming, (ii) Dairy farming, (iii) Production of any horticultural commodity, (iv) Raising of livestock, bees, or poultry, and (v) Any practice performed on a farm as an incidental to or in conjunction with farm operations (including forestry and timbering) and the operation for market and delivery to storage or to market of farm produce. The term "transportation carriage" refers to the first stage of transportation from the farm to the first point of disposal. Fisheries work was not permitted for agricultural laborers.

A wage paid manual laborer is someone who conducts manual labor in exchange for cash or kind remuneration, or partially in cash and partly in kind (excluding exchange labor). Self-employed manual laborers are not treated the same as waged manual laborers.

Rural laborers are people who live in rural areas and perform physical labor in agricultural and/or non-agricultural occupations in exchange for remuneration paid in cash or kind (excluding exchange labor) or both. As a result, rural laborers comprise both agricultural and non-agricultural laborers.

A Working Group convened by the Director, Central Statistical Organization, with the Director, Labour Bureau as convener, the Director, FOD, NSSO, and a representative each of the Director, SDRD, NSSO, and Economic and Statistical Advisor, Ministry of Agriculture as members, considered various aspects of rural retail price collection for the index, including the current sampling frame of markets and price villages, and recommended an overall sample of

about The NSSO examined the Group's recommendations and, after consulting with the Labour Bureau and the CSO, proposed certain changes to the system for collecting rural retail prices. The amended plan called for collecting prices from a new set of 600 villages at first, then from 1000 villages, with one-fifth of the sample villages replaced each year. The allocation of these 600 villages among 20 states was based on the suggestions of the Working Group, which investigated price variance within each state to find the ideal sample size to give an estimate of the index with an error of no more than 2%. Some modifications from the ideal size were made while keeping in mind the operational framework of the NSSO's Field Operations Division (FOD). During the period March-July 1986, the NSSO conducted preliminary research for the identification of markets and shops for the determination of requirements for commodities to be priced in 600 sample villages distributed across 20 states. The routine gathering of rural retail prices on a monthly basis began in July 1986. In the first phase, the number of sample villages will be expanded from 600 to 1000, and each year, one-fifth (200) of the sample villages will be replaced by new communities.

Since this rural labor population's housing costs were found to be negligible in the base year, data on home rent were not collected, and so the housing index (as part of the general index) was not calculated. The Laspeyre formula is used to calculate the index from state-level price relatives. In the first instance, an index is created for each state at both a broad and granular level (i.e., group/sub-group/commodity). The all-India index is then calculated as a weighted average of 20 state index figures, with weights representing the expected consumption expenditure of all Rural/Agricultural households in each state as a percentage of the all-India expenditure. The indices for the entire country and 20 states are released once a month, with a three-week delay.

For the month of November 2021, the National Statistical Office (NSO) of the Ministry of Statistics and Programme Implementation (MoSPI) has released data on the All India Consumer Price Index (CPI) on Base 2012=100, as well as the corresponding Consumer Food Price Index (CFPI) for

Rural (R), Urban (U), and Combined (C) (Provisional). The price data is collected on a weekly basis from 1114 urban markets and 1181 villages throughout all states and UTs by field employees from the NSO's MoSPI's Field Operations Division. NSO received prices from 99.7% of villages and 98.4% of urban Markets in November 2021, with 89.4% of rural and 92.8 percent of urban Markets reporting prices. The following are the weights of the All India consumer price indices:

IV. THE NATIONAL INCOME DEFLATOR

The national income deflator, on the other hand, is a more detailed measure that is based on national accounts data from the CSO. It is a ratio of GDP at current prices to GDP at constant prices. It covers all kinds of economic activities, including services. The scope and coverage of the national income deflator is bigger than that of any other measure. At the moment, the GDP deflator is only available once a year with a long delay of more than a year, so it isn't very useful for making decisions about how to run the country.

GDP Deflator is a different kind of price index from the CPI, but both are used to measure prices.

- There are a lot more G&S in it than there used to be (basically whatever is in GDP not just consumer goods consumed by typical urban family).
- Imports are part of the HH basket, but the deflator doesn't include them because they are taken out of GDP, so the CPI does.
- The CPI has a fixed bundle, which means it doesn't take into account substitutions as prices rise. This means that the COL is overestimated.

Deflator shows how changes in the GDP composition caused by market reactions to price changes show up in the figure. I.e., the deflator looks at the current basket of G&S, not a pre-made basket.

GDP Deflator

= Cost of this Year's GDP in current year/Cost of this Year's GDP in base year X 100

= GDP in current \$'/GDP in constant \$'s X 100

$$= \text{Nominal GDP / Real GDP} \times 100$$

Finally, to get inflation

$$\text{Inflation} = \frac{\text{Deflator}_t - \text{Deflator}_{t-1}}{\text{Deflator}_{t-1}}$$

V. AN APPRAISAL

Thus, we can observe that the Government employed three distinct types of indexes. However, neither the WPI nor the CPI properly captures price increases across all products and services. Each metric has its own set of disadvantages. In the case of the WPI, it does not reflect the underlying rate of inflation. The government is aware of this and admits it: "(the WPI) is not a suitable measure of inflation in the basket of final used commodities, nor does it include the range of services that cater to both businesses and consumers and have come to account for the majority of national expenditures incurred by urban consumers," the Working Group on the WPI admits in its submission to the ministry of commerce and industry.

In October 2001, the national statistics commission, chaired by Andhra Pradesh Governor Dr C. Rangarajan, made a similar remark in their report. Between the existing and updated series, there is no change in the wholesale pricing idea or collecting mechanism. In terms of the nature of the price quotations used to compile the wholesale price index, they reflect bulk transactions, often at the outset of trade.

Two points are critical to this examination of wholesale pricing. To begin, a wholesale trade market for many commodities may not exist. For example, acquisitions of big capital equipment, components of infrastructure projects, and even consumer durables such as passenger automobiles are done on a project-by-project basis or on a retail or end-user basis. However, there is no conceptual barrier in include them in the series on price quotes because the wholesale trade market is defined by the dependability and relative stability of price quotations over time and space.

Due to the high rate of non-response and delay in providing the data, the current system of data collecting by mail appears to be fairly inactive. The following point was critical in the past and will become much more critical in the future as the economy evolves toward market-based competition. Historically, a wide variety of prices could be acquired directly from manufacturers, particularly for manufactured goods, which dominate the weighing diagram. When market-based competition was restricted both domestically and through tariff protection, and when government-controlled and managed pricing ruled the day, it was feasible to obtain price quotations in a fairly straightforward manner. As competition becomes more open, pricing strategies based on cost information and cost paring become increasingly important; and, as the office of the Economic Adviser, Ministry of Industry, has already begun to observe, obtaining producer prices through the willing cooperation of producers will become less of a rule and more of an exception. Thus, it would be necessary to gather data directly from market deals, probably at the wholesale level, that are dependable and generally consistent in time and place. Market pricing would also be more indicative of true "wholesale prices."

From a coverage standpoint, the WPI basket encompasses a broad range of raw materials, intermediate and finished goods sold in wholesale marketplaces, but excludes services. The service sector accounts for about half of the economy and continues to expand in significance.

The index's methodology is faulty. According to B.B. Bhattacharya, a professor at Delhi's Institute of Economic Growth and a member of the WPI committee, these faults contributed to the lower inflation projections. The Wholesale Pricing Index is not a price index for consumers. It tracks the costs at which manufacturers, primarily in the industrial sector, may get critical inputs. As a result, the weights allocated to various commodities in the price basket reflect the makeup of industrial output rather than consumption patterns.

A cause of consternation when it comes to comprehending inflation data is the government's use of

point-to-point inflation figures. That instance, if bananas cost Rs. 10 a dozen on July 1 last year and Rs. 12 a dozen on July 1 this year, a 20% price increase is indicated. However, it is possible that bananas were Rs 14 throughout the most of this year and only fell to Rs 12 on July 1; hence, the point-to-point technique does not accurately depict the annual rate of inflation. Alternatively, it is possible that the price on July 1 was particularly high for that year (it might have been just Rs 8 in June and August 1997). In that situation, the genuine price increase over the previous year would be obscured by comparing July 1, 1998, to July 1, 1997. A more appropriate metric would be to use averages (e.g., averages of three months over the preceding year's corresponding three months; or averages of point-to-point increases for all the preceding year's months; etc.). The use of point-to-point figures is one of the reasons why the inflation rate suddenly "falls" without any price declines: the reason could be that there was a sharp price increase just prior to the previous year's corresponding date, on top of which the latest date's prices have not increased significantly.

Another cause of consternation is that the inflation statistics we generally see in the news are preliminary; they are corrected later, however the revised values are not trumpeted in the headlines and are instead hidden in certain documents. In general, the corrected inflation figures are greater than the provisional figures. (In reality, the Government's provisional inflation estimates use a dubious method: they multiply today's provisional price index figure by the corrected index value from a year ago.) As it turns out, if one instead compares today's preliminary index data to the provisional index figure from a year ago, the inflation rate estimated from that figure is rather close to the final, updated figure.

Thus, the WPI is not a measure of inflation as experienced by consumers; rather, it is employed as a proxy for inflation measurement in the absence of a more competent index.

The CPI should be the appropriate measure of inflation based on consumer experience; but, the composition of the products and services it monitors is out of date. The composition implies that about half of all

expenditures by urban non-manual workers households are on food and drinks. That may have been true 20 years ago, but not anymore. It is a well-documented reality that urban consumers' spending habits have shifted substantially.

Over half of the country's GDP is now spent on services such as building, transportation, administration, banking, telecommunications, and Medicare. Food accounts for less than a fourth. And services are a market that sees significant annual price increases. However, no consumer price index captures these rises in their entirety. For one thing, some of these services may not be included in the index, and even if they are, their weight is insignificant in comparison to the total score.

At a more layman's level, there are several notable reasons why the two indexes are not indicative of inflation. To begin, the coverage, particularly the omission of the services sector from the WPI, is problematic, considering the significant growth of the services sector's percentage of GDP. Second, there are significant biases due to the base year and weights. Third, because the two indexes have been out of date for an extended length of time, data quality and consistency have decreased, resulting in a poor portrayal of the phenomena. While the GDP Deflator appears to be a useful metric, it is an annual inflation rate and hence has limited application.

VI. CONCLUSION

We have seen that in India we have used different types of indices to measure inflation but none of the measures present the true and actual inflation rate in the economy. Each measure has its own limitations. Thus, it is necessary to understand the problem of increasing or decreasing inflation rates that we should have a proper measuring rod in our hands which justifies our study. To prepare a plausible plan for controlling inflation, we need to conduct survey of consumers at various locations. We have to motivate the investigators collecting data on inflation for influencing policy making on monetary and non-monetary measures. To enable data-driven policy making, we need to create data infrastructure of measurement for various

performance indicators including inflation. We need integrated, transparent and credible data system. There is a need for creating resilient data system. We have to promote the culture of collecting good data which is reliable and trustworthy. We need meta-data for researchers to analyze in an unbiased and principled ways. We require politically neutral autonomous data system. We have to identify critical data gaps on socio-economic performance indicators in useable format. Data should be predictive. Outcome data analysis cannot afford data-paucity, data-opacity and data denial for policy making. Data luminosity is to be rekindled for needo-data on inflation for necessary remedial steps for its control.

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