Ministry of Statistics and Programme Implementation (MoSPI)

Discussion paper 2.0 on the Treatment of free PDS Items in Consumer Price Index (CPI) Compilation

The Ministry of Statistics and Programme Implementation (MoSPI) is currently undertaking a revision of the Consumer Price Index (CPI) with the objective of updating item weights, revising the consumption basket, and incorporating methodological improvements to strengthen the index. At present, the CPI is compiled every month on the basis of price data collection from 1181 rural markets and 1114 urban markets across the country.

To make the index more robust, resilient and effective, MoSPI invites views and suggestions from experts, academicians, government bodies, state governments, financial institutions and other stakeholders on the **treatment of items distributed free of cost through the Public Distribution System (PDS)** in the CPI compilation framework. This is in continuation to the brainstorming session on the treatment of PDS items in CPI on 20th November, 2024 with eminent economists, academic experts, practitioners, representatives of the Reserve Bank of India, other financial institutions and media followed by the discussion note published by MoSPI in December, 2024.

Consumer Price Index: Background

The Consumer Price Index (CPI) measures changes in the general level of retail prices of a representative basket of goods and services consumed by households. The basket includes items across major categories such as food and beverages, clothing, housing, education, healthcare, and transportation.

MoSPI compiles CPI for rural, urban, and combined sectors at both all-India and state/UT levels. The current CPI series was introduced in 2011 with base year 2010, subsequently revised to 2012. CPI indices are released on the 12th of every month at 4:00 PM, or on the next working day in case of 12th being a holiday. The compilation adheres to internationally recognized guidelines and best practices.

The CPI is compiled using the Young Index (Modified **Laspeyres index formula)**, which incorporates three essential elements:

- **Base year prices**: Average prices across all months of the base year.

- **Base year weights**: Derived from the Household Consumer Expenditure Survey. The current series uses data from the 2011–12 survey.
- **Current prices**: Collected monthly by MoSPI's Field Operations Division (FOD) for 299 weighted items across 1,181 rural and 1,114 urban markets.

With the release of HCES 2023-24, MoSPI has initiated the process of revising the CPI base year from 2012 to 2024.

Usage of CPI

The inflation data based on the CPI compiled by MoSPI is a key economic indicator with multiple applications:

- **Monetary policy**: CPI-based inflation is the principal indicator used by the Reserve Bank of India for monetary policy decisions and monitoring price stability.
- **Policy Interventions:**CPI data is also used for designing policy and social sector welfare schemes by various Central Government Ministries and Departments.
- **National accounts**: CPI serves as a deflator to adjust nominal GDP to real GDP, thus capturing actual economic growth net of inflationary effects.
- **Wage and contract indexation**: CPI is employed for revising wages, updating tax brackets, adjusting social security payments, and for escalation clauses in contracts.

The issue of how to appropriately reflect free distribution of PDS items in CPI has become more relevant following the recent policy changes under National Food Security Act (NFSA). Starting **1 January 2023**, the Central Government implemented Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY), an integrated food security scheme to provide free food grains to eligible households for one year. As per the scheme, about 75% of rural population and 50% of the urban population is provided free food grains across India.

This development raises two methodological challenges:

1. **Mid-series adjustments:** How should CPI reflect a situation where the price of a PDS item reduces from a positive value to zero, or conversely increases from zero to a positive value, during the lifetime of an ongoing CPI series?

2. **Inclusion in the CPI basket at the start of a new series:** Should items that are distributed entirely free of cost be included in the CPI basket at all, given that households incur no direct monetary expenditure on them?

Issue I: Treatment in case of reduction in the price of PDS items from a positive value to zero:

In the current CPI series, 'Rice (PDS)' and 'Rice (other sources)' are treated as distinct items under the section 'Major Cereals and Products', each assigned separate weights and compiled as individual indices. In States and Union Territories where rice is distributed free of cost to all household categories—namely APL, BPL, and AAY—the weights originally allocated to these items are redistributed proportionally across the remaining items within the same section at the State/UT level.

This is one of the three methods prescribed in the *Consumer Price Index Manual: Concepts and Methods 2020 (page 35)* in case the price of social security transfers decreases from some positive amount to zero.

However, concerns were raised on the methodology as it did not reflect the appropriate changes in the inflation due to reduction in PDS prices.. It was argued that the adopted method doesn't accurately capture the impact of free food grains distribution on inflation.

Following are the three methods prescribed in the *Consumer Price Index Manual: Concepts and Methods 2020 (page 35)* to deal with the cases where price of social transfers decreases from some positive amount to zero-

Method 1: Use a zero price and adjust the weight during the next update. (**Proposed for new series of CPI)**

Method 2: To re-distribute the weight to the other items within the class/ section. (**Adopted in the existing series**)

Method 3: To re-distribute the weight broadly over all the items of the basket.

Therefore, to address this issue in the new CPI series, it is proposed to adopt the Method 1 i.e. when price under social transfers decreases from some positive amount to zero i.e. use a zero price and adjust the weight during the next update.

Issue 2: Inclusion of freely distributed PDS items in CPI basket in updated CPI series:

In the existing CPI series, items that are distributed free of cost do not carry any expenditure share, since households incur zero out-of-pocket spending on them. Consequently, such items receive no positive weight, and both their base and current prices are recorded as zero. As a result, they are excluded from the CPI basket. This treatment of free social transfers is consistent with established international practice.

The **IMF's CPI Manual: Concepts and Methods (2020)** provides guidance in this regard. Paragraph 2.60 notes:

> *"The expenditure on social transfers in kind is incurred by governments or nonprofit institutions that pay for them, and not by the households that consume them. It could be decided that the CPI should be confined to final consumption expenditure incurred by households, in which case free social transfers in kind would be excluded from the scope of the index. Even if they were to be included, they can be ignored in practice when they are considered to be provided free, on the grounds that households incur zero expenditure on them. Of course, their prices are not zero from the perspective of the units that finance the social transfers, but the relevant prices for a CPI are those payable by the households."*

Further, paragraph 2.72 clarifies:

> *"If the main reason for compiling a CPI is the measurement of inflation or as an input into monetary policy decisions, the scope of the index should be restricted to monetary transactions only, especially since non-monetary transactions do not generate any demand for money."*

These principles suggest the exclusion of free items from CPI when the index is primarily intended for inflation measurement and monetary policy. Further, it is based on practices prevalent in Western countries, where scale of such social transfers may be miniscule. In India, not only the scale of social transfer is huge, it impacts the market price of such items also. **However, in India, the CPI serves a dual purpose: it is not only the principal indicator for monetary policy formulation by the Reserve Bank of India, but also widely used as a proxy**

for tracking changes in the cost of living and for indexation of wages, pensions, and formulation of social welfare schemes.

Given this dual role, and considering the extensive coverage and policy significance of India's free food distribution programme under PDS, disussions were held in the meetings with the IMF, World Bank and UNECE's Group of Expert on CPI and MoSPI's Expert Group on the Base revision of CPI. **Experts were of the view that considering the scale and impact on household consumption patterns and taking into account the purpose of CPI (not restricting to monetary policy only), free PDS items should be appropriately accounted for within the Indian CPI framework.** Since any change in the CPI methodology in the mid of the series is considered as break in series, it is essentially important to think through all the possible cases which may arise in future.

Proposed methodology for index compilation including PDS free and subsidized:

Keeping in view the above observations and to ensure the robustness and effectiveness of CPI series throughout its life, a methodology is developed by MoSPI. The proposed methodology will be valid for all food items distributed through PDS. The methodology considers the prices from all three categories: free distribution, Public Distribution System (PDS), and open market transactions. It is important to note that as per base prices captured in CPI, the state-level variations exist in terms of distribution of subsidized and free items through PDS. Some states currently provide rice exclusively through free distribution, others only at subsidized rates, and in certain cases, both free and subsidized rice are distributed through PDS. These variations may further change over time during the life of the series. Therefore, the proposed methodology is drafted taking into consideration all possible scenarios in future These cases are summarized as under;

a. A state currently distributing free food item through PDS may decides to charge a subsidized amount for the same i.e. price variation from zero to some positive amount
b. A State not distributing the food item free through PDS may decide to distribute it for free through PDS i.e. price variation from some positive amount to zero
c. Both free food items and subsidized items are distributed in the State through PDS system but both are stopped.

d. Both free food and subsidized food items are not distributed in the State but in future the State started distributing one or both during the mid of the series.

All these cases can be handled by considering the average PDS price for each state for the compilation purpose which are as under;

Item PDS	Period				
	0	**1**	**2**	**3**	**4**
Free	0	0	0		0
Subsidised	5	5	5	5	
Average *	2.5	2.5	2.5	5	0
				Rice available Only at subsidised prices	Only free rice available

*- Average is taken as weighted AM using quantity shares available from the HCES. In this example for easy understanding weight has been assumed to be 50% each.

Moreover, if price data is available for various PDS categories—such as APL, BPL, AAY, SFSS, PHH, and others—the overall PDS price for a state will be calculated as a weighted average of these category within that state.

Since the method of price relative cannot be used due to the existence of '0' value, the basic Laspeyres Price Index Formula may be used for the compilation of the Index using two items rice PDS and rice other sources.

$$Index = (\Sigma(P1 * Q0) / \Sigma(P0 * Q0)) * 100$$

Here "***Q0***" will be the share of the quantity derived from the HCES data.

For PDS rice the average price of PDS can be calculated as explained above. But in the case of rice other sources prices are collected from multiple markets within a state. Further the specification including quantity, variety, brand, quality etc. may vary from market to market. **The best single value for rice other sources is the elementary index of the rice other sources.** It may be noted that the monthly elementary index captures the monthly price change for the item rice other sources clearly.

Accordingly, index of rice (Rice other source and PDS Combined) can be calculated as below-

		Price for the periods					

Item PDS	Weight	0	1	2	3	4	p0q0	p1q0	p2q0	p3q0	p4q4
PDS	46	2.5	2.5	2.5	5	0	115	115	115	230	0
Other sources	54	100	101	101	102	102	5400	5454	5454	5508	5508
Total	100						**5515**	**5569**	**5569**	**5738**	**5508**
Index							**100**	**100.98**	**100.98**	**104.04**	**99.87**
Inflation								0.98	0	3.03	-4.01

Here the weights are the share of the quantity consumed by the households as per HCES 2023-24. In the above table it can be seen that the issue of 0 price can be addressed properly in the calculation of Rice index without muting the prices or distorting the index. Please note that the index value and prices used above are for illustration purposes only.

Further, in case there is no distribution of PDS items in a particular state, the above methodology will actually return the index of the rice other sources only.

In the above methodology, for PDS, the actual price values are used, whereas for rice from other sources, index values are used for compiling the index. Therefore, instead of index of rice other sources, using its price level would provide a clearer and more accurate index.

This can be achieved by identifying a suitable division factor (say c) that transforms the index value into one that approximates the average rice price per unit. Then the price used for Rice other sources = Index/c. To calculate the value of c any of the following may be used:

Option 1: c = 100/average price from HCES 2023-24

Option 2: c = 100/average price per unit from Base prices

Option 3: actual average monthly prices in place of the index; this may present practical challenges, particularly in instances where quality adjustments are required due to changes in item specifications.

The option 2 appears the most appropriate.

If c = 1.8 then the calculation of rice index will be as follows

Period	0	1	2	3	4

Rice other sources Index	100	101	101	102	102
Index/c	55.56	56.11	56.11	56.67	56.67

Item PDS	**Weights**	**Price for the periods**									
		0	**1**	**2**	**3**	**4**	**p0q0**	**p1q0**	**p2q0**	**p3q0**	**p4q4**
PDS	46	2.5	2.5	2.5	5	0	115	115	115	230	0
Other sources(Index/c)	54	55.56	56.11	56.11	56.67	56.67	3000.24	3029.94	3029.94	3060.18	3060.18
Total	100						**3115.24**	**3144.94**	**3144.94**	**3290.18**	**3060.18**
Rice Index							**100**	**100.9534**	**100.9534**	**105.6156**	**98.23256**
Rice Inflation								0.95	0	4.62	-6.99

In the current series, separate indices are compiled for 'Rice (PDS)' and 'Rice (other sources)', allowing for disaggregated analysis. In the new series a unified index for 'Rice', combining both PDS and non-PDS sources will be published as Index for Rice (PDS) is of not much importance as it is regulated by the Governments. It may be noted that the same methodology will be adopted for all PDS items.

Consultations on the methodology: The proposed methodology was also discussed with the IMF expert in the Technical Assistance Mission held during 11th to 14th August. The IMF Expert was of the view that the proposed method does not mute price changes for rice, wheat and other items distributed through PDS. It would fully reflect price changes should nominal prices be introduced for the PDS products. The methodology does not overstate or distort price changes.

Accordingly, **feedback/comments are invited** on the proposed methodology for handling PDS items in CPI compilation. Comments and suggestions may be sent to psd-nso2020@mospi.gov.in **by 22nd October, 2025**

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