

# ANALYSIS OF IMPACT OF RE-WEIGHTING OF CPI BASKET

11<sup>th</sup> November 2020



# FLOW OF THE PRESENTATION

- ❖ Consumer Price Index (CPI) compilation in India
- ❖ Effect of COVID-19 on CPI Compilation in India
- ❖ Maintaining Continuity in CPI Series in line with ISWG-PS Guidelines
- ❖ Analysis of Impact of Re-weighting Item Basket
- ❖ Filling gaps in CPI Series
- ❖ Concluding Remarks


# CPI COMPILATION IN INDIA

- ✓ National Statistical Office (NSO) in India compiles monthly Consumer Price Index (CPI) on base 2012=100 and releases it on 12<sup>th</sup> day of following month.
- ✓ Government and Central Bank are main users and also used as deflators in the National Accounts.
- ✓ NSO follows well established and internationally accepted methodologies and practices.
- ✓ Technical Advisory Committee on Statistics of Prices and Cost of Living (TAC on SPCL), an apex technical body on Price Statistics in the country.

# SUMMARY OF CPI COMPILATION IN INDIA

Sl. No.	CPI Feature	Description
1.	Current Base Period (fixed base)	2012=100
2.	Coverage of CPI	Pan India (Both Rural & Urban Sector)
3.	Methodological Approach	Bottom-up Approach : Sub-National to All India
4.	Frequency of Release	Monthly, with a lag of 12 days
5.	Size of Item Basket (No. of items covered)	299
6.	No. of markets covered on monthly basis	2295
7.	No. per records received every month	549352
8.	No. of Sub-groups/Groups	23
9.	Mode of Price Collection	Personal Visits of Price Collectors
10.	Item Specification	At Micro-Level (Market Level)

# COMPONENTS OF CPI



**Food and Beverages**

- Cereals and products
- Meat and fish
- Egg
- Milk and products
- Oils and Fats
- Fruits
- Vegetables
- Pulses and products
- Sugar and confectionery
- Spices
- Non-alcoholic beverages
- Prepared meals, snacks, sweets etc.



**Pan, Tobacco and intoxicants**



**Clothing and Footwear**

- Clothing
- Footwear



**Housing**



**Fuel and light**



**Miscellaneous**

- Household goods and services
- Health
- Transport and communication
- Recreation and amusement
- Education
- Personal care and effects

299 weighted items  
23 sub-groups  
6 groups

# WEIGHING PATTERN OF CPI BASKET (BASE YEAR 2012)

Group Description	Rural	Urban	Combined
1. Food and Beverages	54.18	36.29	45.86
2. Pan, tobacco and intoxicants	3.26	1.36	2.38
3. Clothing and Footwear	7.36	5.57	6.53
4. Housing	--	21.67	10.07
5. Fuel and Light	7.94	5.58	6.84
6. Miscellaneous	27.26	29.53	28.32
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

# EFFECT OF COVID-19 LOCKDOWN ON PRICE COLLECTION

- ✓ Price collection through personal visits were suspended during April-May, 2020 (w.e.f 19<sup>th</sup> March, 2020)
- ✓ Price collection through telephonic enquiry, nearby outlets, administrative records and personal purchases were attempted by NSO officials.
- ✓ The No. of Quotations/Markets reported price data during January-September, 2020:

Month-Year	Rural		Urban	
	Market reporting (%)	Prices reporting (%)	Market reporting (%)	Prices reporting (%)
Jan-20	98.2	87.9	98.7	94.1
Feb-20	98.3	87.9	98.3	93.9
Mar-20	66.9	58.7	64.9	62.0
Apr-20	44.3	17.8	61.4	25.5
May-20	73.0	39.2	92.0	48.1
Jun-20	85.8	64.2	95.4	70.3
Jul-20	92.2	73.7	96.0	77.1
Aug-20	96.1	78.6	96.4	84.4
Sept-20	98.0	83.0	97.9	87.9

# EFFECT OF COVID-19 LOCKDOWN ON CPI COMPILATION

NSO adopted following adequacy criteria:

*“The price of only those items were included which have been reported from at least 25% of markets, separately for Rural & Urban sector and constituted more than 70% weight of the respective Sub-groups/Groups.”*

After applying above adequacy criteria at sub-group level, NSO was able to bring out, the indices of only 13 sub-groups in April, 2020 and 15 sub-groups in May, 2020, out of the total 23 sub-groups under CPI and, initially, refrained from publishing Overall CPI numbers and headline inflation.

- ✓ Several rounds of discussions were held with domestic stakeholders, other countries and international agencies for searching methodology/practice to be followed to bridge the gaps in CPI series during this period.
- ✓ NSO carried out an exercise in line with **Business Continuity Guidelines** brought out by Inter-Secretariat Working Group on Price Statistics (ISWG-PS) in May, 2020.



# BUSINESS CONTINUITY GUIDELINES OF ISWG-PS

*“If an entire index is missing, it is recommended to use the next level up in aggregation as the basis for making the imputation. For example, if all prices for oranges are missing, the index for citrus fruits can be used as the basis for making the imputation. If all citrus fruits are missing, the index for fruits is used as the basis for making the imputation. If all fruits are missing, the index for fruits and vegetables is used, and so on”.*

*“Missing elementary aggregates could be imputed by the all items index calculated using the price movements of those sub-indices for which there are data. First, all sub-indices which have been calculated based on a majority of observed prices are used to compile the all item index. Second, the short-term change of the all items index is then used as the basis for imputing the missing indexes. Imputation with the all items CPI corresponds to leaving the elementary aggregate out of the calculation of the CPI.”*

# RELEASE OF IMPUTED OVERALL CPI

- ✓ After carrying out higher levels imputation in line with Business Continuity Guidelines of ISWG-PS NSO release imputed Indices of missing sub-groups/groups and re-worked out General CPI to users with regular release of CPI for June, 2020.
- ✓ Simultaneously, a detail 'Technical Note' about the imputation methodology used for filling gaps in CPI series was also brought out for apprising and explaining the users and stakeholders of CPI.
- ✓ Imputation Method used:

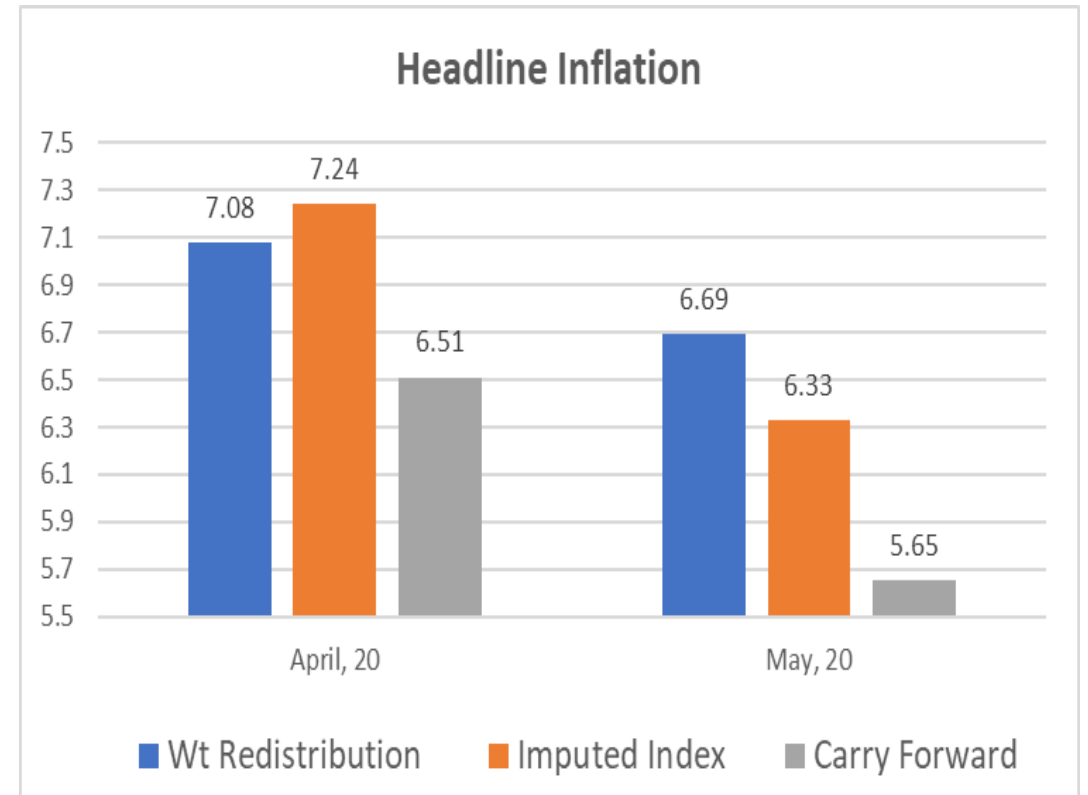
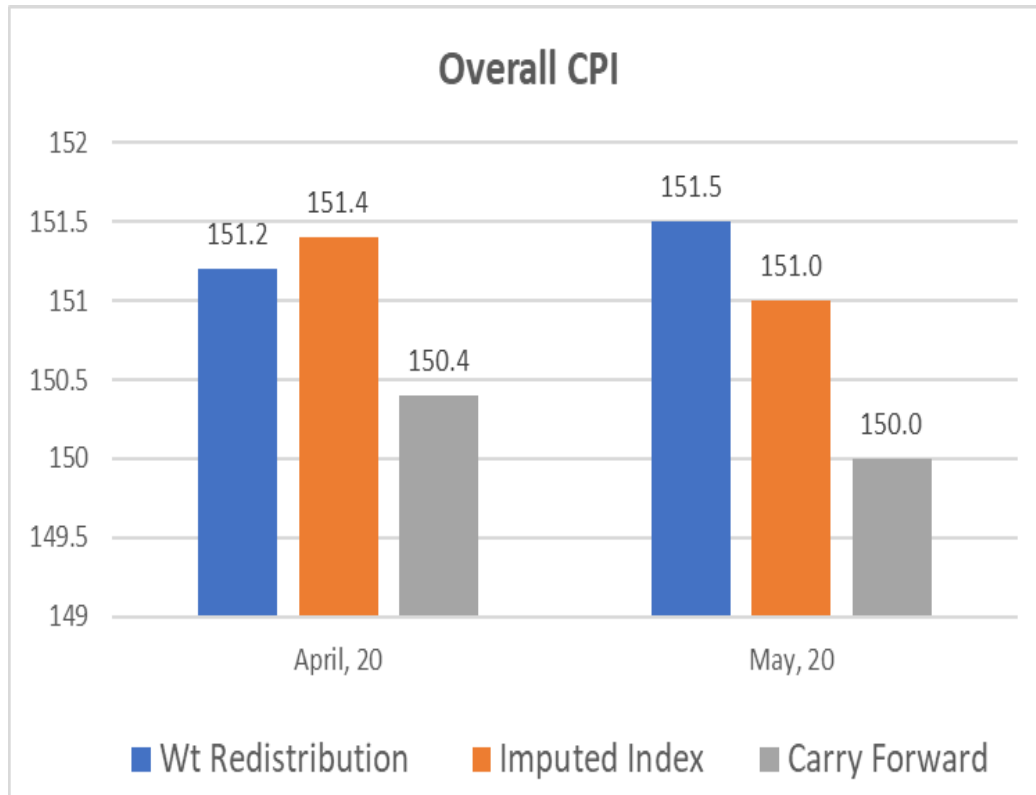
## Formula I: Food Sub-groups

Imputed Sub-group Index (Food Group) = (Last Observed Index of Sub-group) x (Food Index of Current Month/Food Index of last Observed Month)

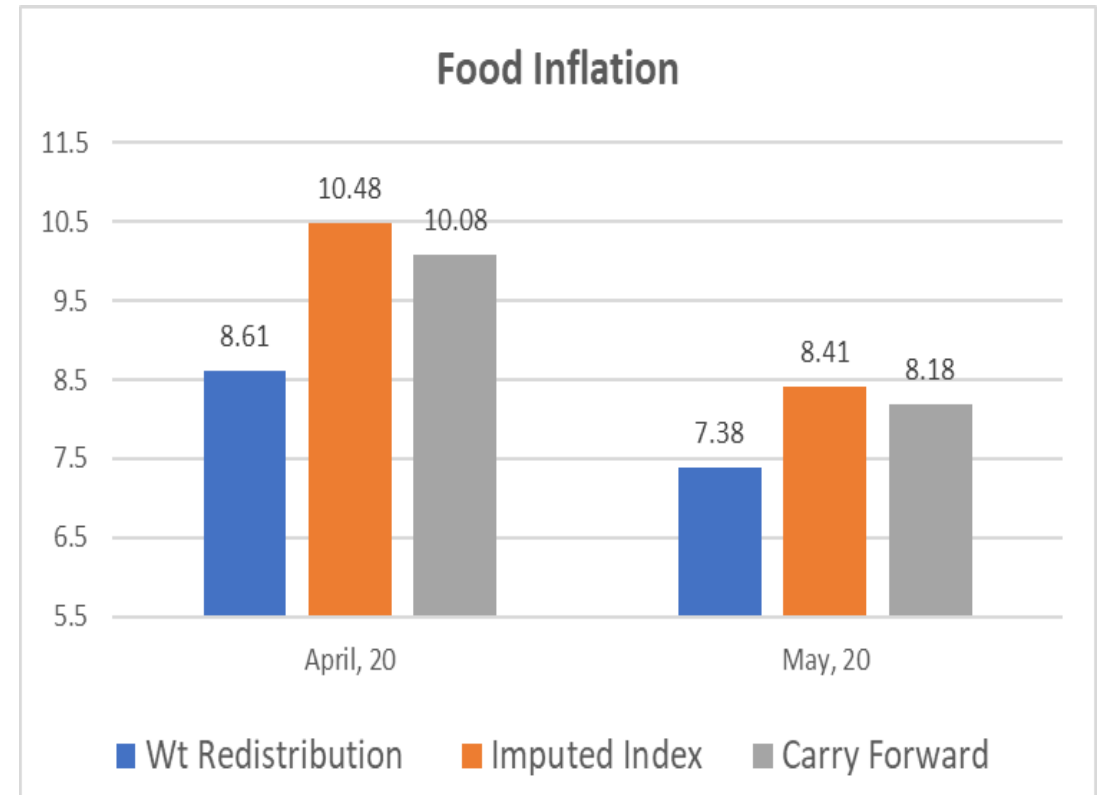
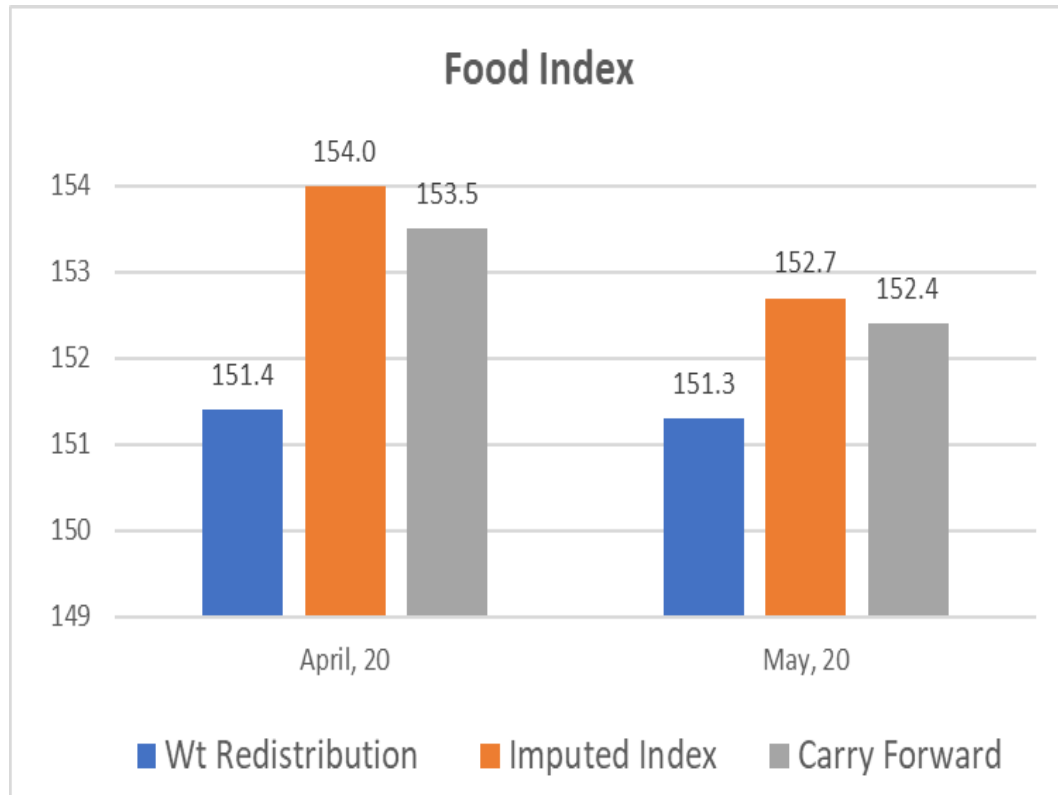
## Formula II: Non-Food Sub-groups/Group

Imputed Sub-group Index (Non-Food Group) = (Last Observed Index of Sub-group) x (General CPI of Current Month/General CPI of last Observed Month).

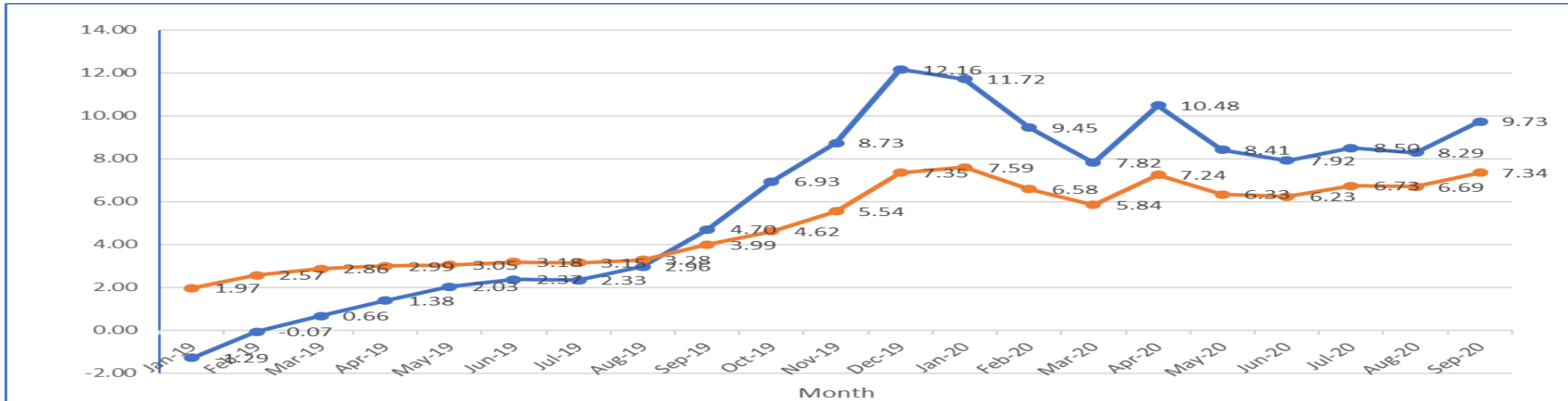
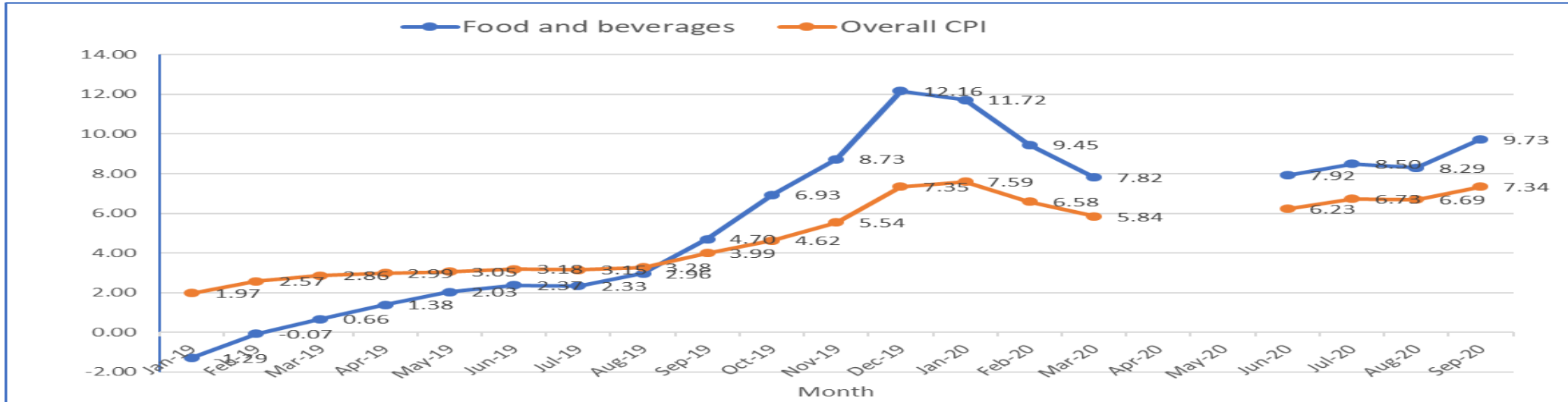
# IMPACT OF RE-WEIGHTING OF CPI BASKET VIS-À-VIS IMPUTATION



# IMPACT OF RE-WEIGHTING OF FOOD BASKET VIS-À-VIS IMPUTATION



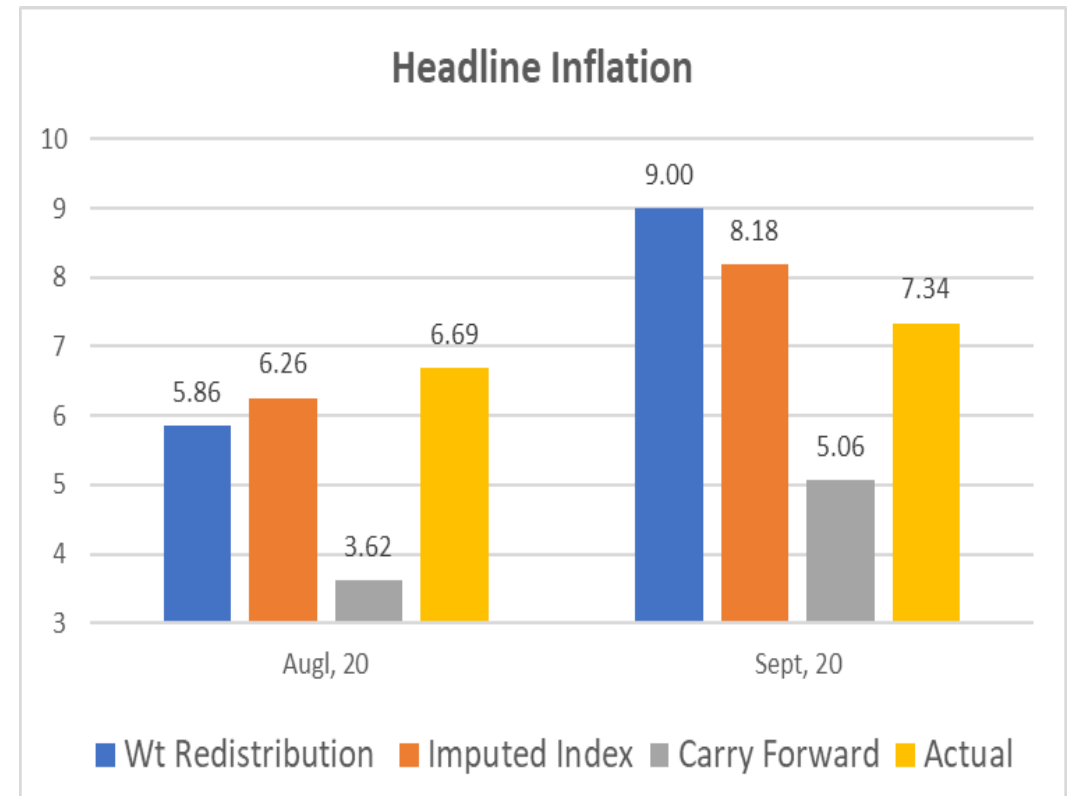
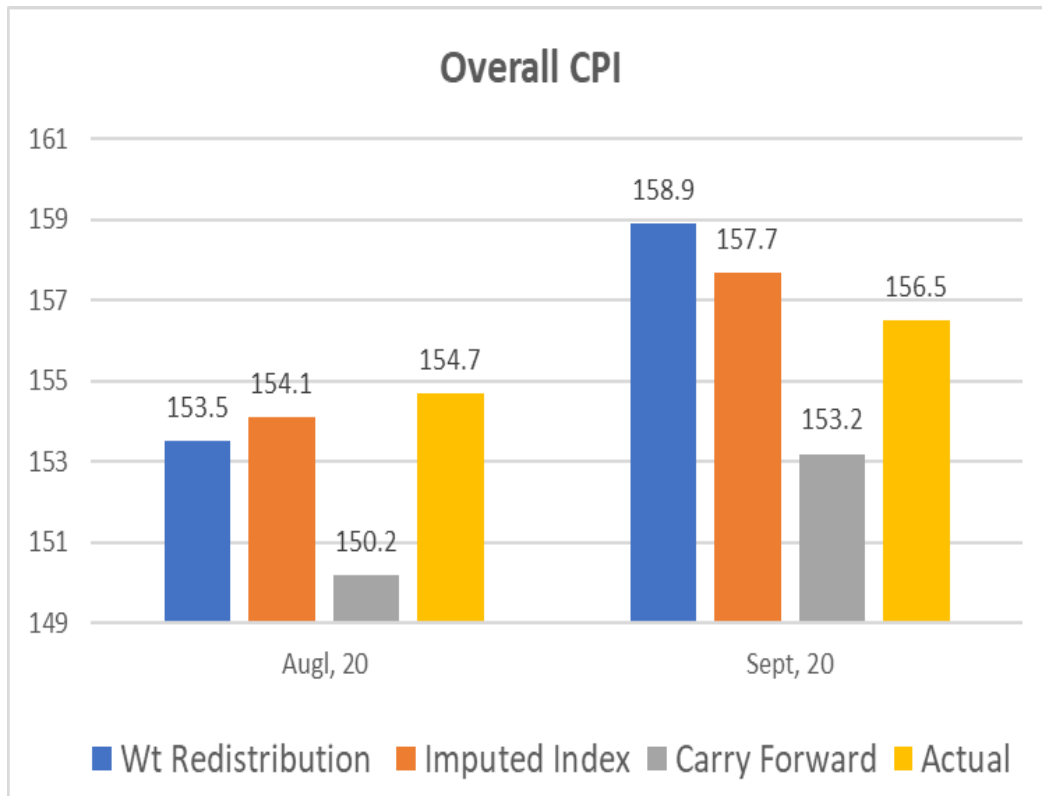
# TRENDS OF HEADLINE INFLATION AND FOOD INFLATION DURING JAN 2019 - SEPT, 2020



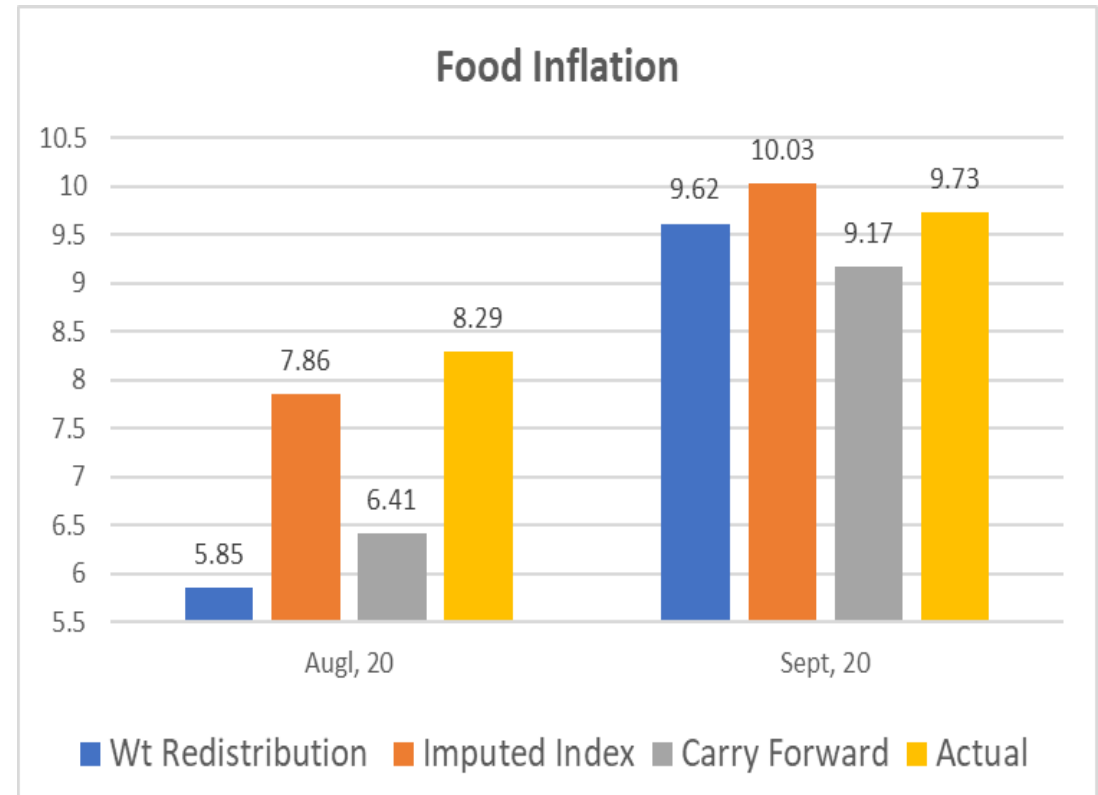
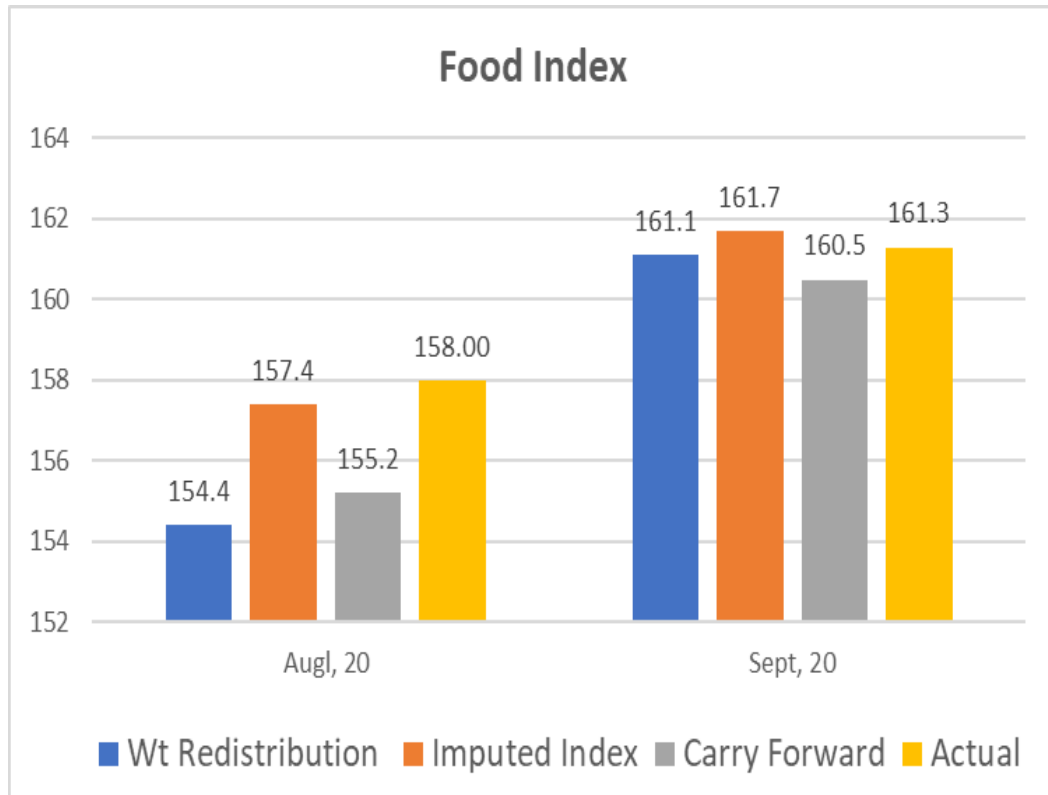
# RE-ASSESSMENT OF METHODOLOGY IN NORMAL SITUATION

- ✓ The unprecedented condition of pandemic lockdown was replicated when conditions were near to normal in August-September, 2020.
- ✓ Out of total 23 sub-groups, same 13 sub-groups were artificially assumed transacted in August, 2020 & remaining were assumed non-transacted (in line of April, 2020) and 15 sub-groups were assumed transacted in September, 2020 & remaining non-transacted (in line of May, 2020)
- ✓ The whole exercise was re-worked out and impact of different scenarios were reassessed.
- ✓ However, for these months, we had with us 'Actual CPI' figures also for comparison and fair assessment of impact of different scenarios.
- ✓ This analysis consolidated our efforts and validated the methodology adopted during unprecedented period of pandemic.

# IMPACT OF RE-WEIGHTING OF CPI BASKET VIS-À-VIS IMPUTATION



# IMPACT OF RE-WEIGHTING OF FOOD BASKET VIS-À-VIS IMPUTATION





# CONCLUDING REMARKS

- Temporary Re-weighting of item basket to transacted items/groups/sub-groups for non-transacted items/groups/sub-groups, may add more fluctuation in overall CPI.
- Carry forward (unadjusted) for non-transacted item prices/higher level indices, generally, suppressed overall CPI downward.
- Inflation adjusted carry forward (Imputation), based upon observed items/groups/sub-groups, for non-transacted items/groups/sub-groups, seems to lead closest approximation of overall CPI.

# THANK YOU

	Price Statistics Division	IS/ ISO	9001: 2015
			CERTIFIED