



# Modernizing Consumer Price Index (CPI) Production in Bangladesh

## - A Paradigm Shift in CPI Compilation from April 2023



**Mohiuddin Ahmed**  
MPH  
Deputy Director  
National Accounting Wing,  
Bangladesh Bureau of Statistics  
(BBS), SID, Ministry of Planning  
mohiuddin.bbs@gmail.com

PRESENTED BY

### BACKGROUND

Bangladesh Bureau of Statistics (BBS), the National Statistical Organization (NSO), commenced the journey of compiling the Consumer Price Indices (CPI) fifty years ago in 1973-1974. The first base year index was FY1973-74=100. Later, following ten years of interval, BBS rebased the CPI reference years three times before taking this latest initiative. Importantly, BBS releases CPIs, as one of the most important macroeconomic indicators, in a timely fashion within the first week of each month. However, in 2017 to modernize the CPI compilation, a significant initiative was taken by undertaking a government-funded project titled 'Improvement of GDP Compilation and Rebasement of Indices (IGC & RI)' where BBS has received sufficient technical assistance (TA) from the IMF regional office in this regard. Finally, BBS has started disseminating the new CPI from April 2023 by taking the index reference year in FY2021-22=100, using the chained formula instead of the fixed base formula, introducing the COICOP and the new basket weight based on HIES 2016-17.

- 1** FY1973-74=100
- 2** FY1985-86=100
- 3** FY1995-96=100
- 4** FY2005-06=100
- 5** FY 2021-22=100

### WHY REBASING?

- Structural changes in production and consumption patterns;
- Appearance of new products;
- Disappearance of old products and larger quality changes;
- Offers an opportunity to update basket, market and outlets;
- Implementation of updated methodology (index calculation formula);
- The price schedules are updated on the basis of new basket.

### FEATURES OF REBASING

#### New Base Index FY 2021-22=100

##### Introduction of COICOP

- The COICOP 1999 has been implemented to fix the basket for the first time in BBS;
- According to the COICOP, the goods and services have been divided into 12 divisions, 42 groups, and 81 classes instead of the earlier ILO 08 groups for the basket. Moreover, the grouping was customized according to the country's needs and perspective;
- COICOP 2018 will be incorporated in the immediate next CPI rebasing.

##### Basket Fixation

- Two baskets (urban & rural) are fixed (items with weight) from Household Income and Expenditure Survey (HIES) 2016-17;
- These 'basket items (goods and services) are selected based on the consumption of the population - from HIES 2016-17.

##### Sampling/Market/Outlet Section

- Based on areas, number of shops, and availability of products-
  - Top 10 (ten) markets are considered for the sampling frame at each District (64 Districts) except 2 (two) Divisional cities (Dhaka and Chattogram) ;
- Based on this sampling frame, required markets are selected through simple random sampling (SRS) method;
- Stratified random sampling method is used for markets selection in the 2 (two) Divisional cities (Dhaka and Chattogram) ;
- Number of Total Market is 154 where 3 Shops/outlets in each market.

##### COMPARISON OF PREVIOUS & NEW BASKET

	Previous Basket (Items)		Rebased/Updated Basket (Varieties)
	Urban	Rural	
Food items	151	133	242
Non-Food items	271	185	507
<b>Total</b>	<b>422</b>	<b>318</b>	<b>749</b>

##### Data Collection

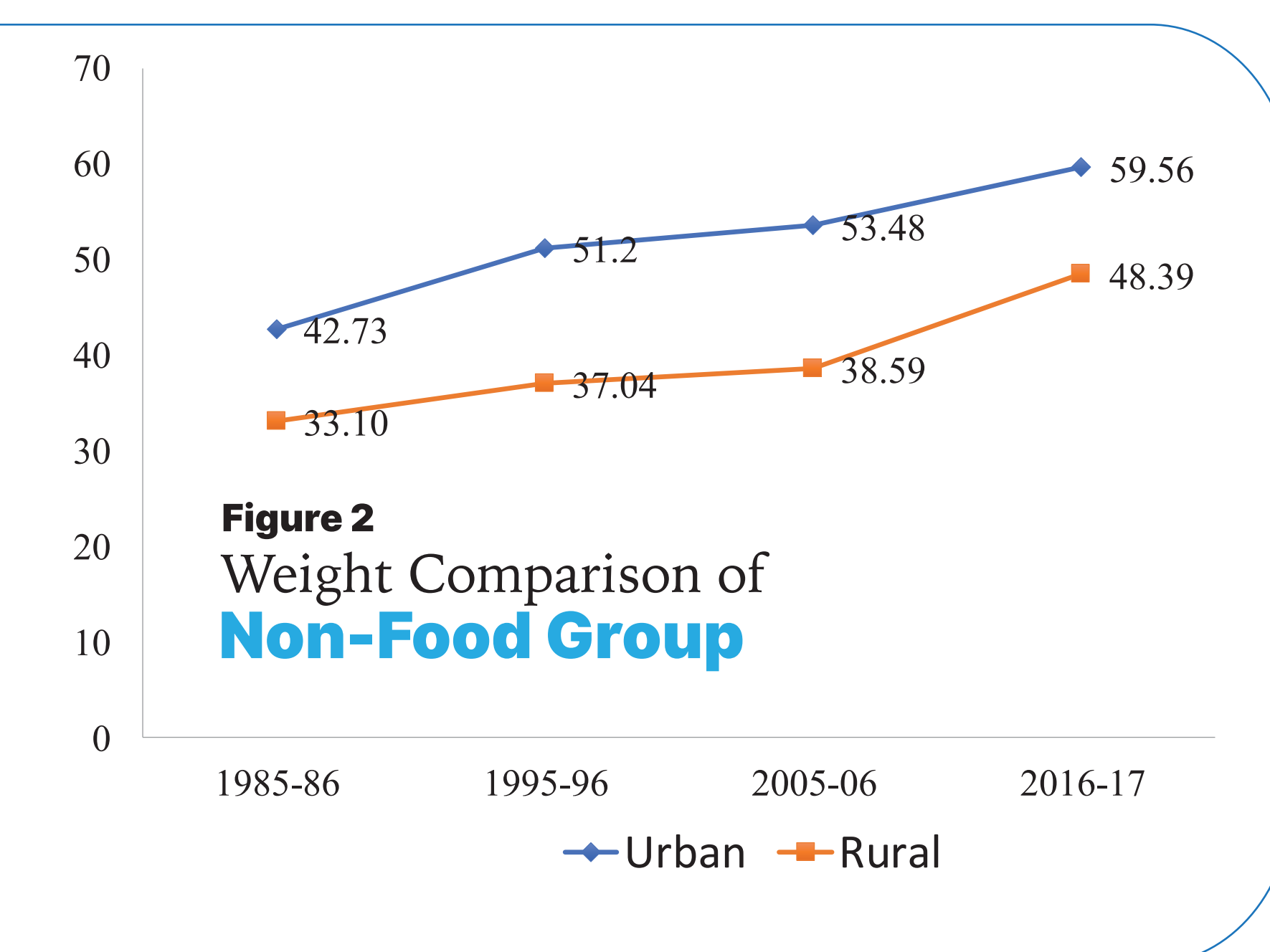
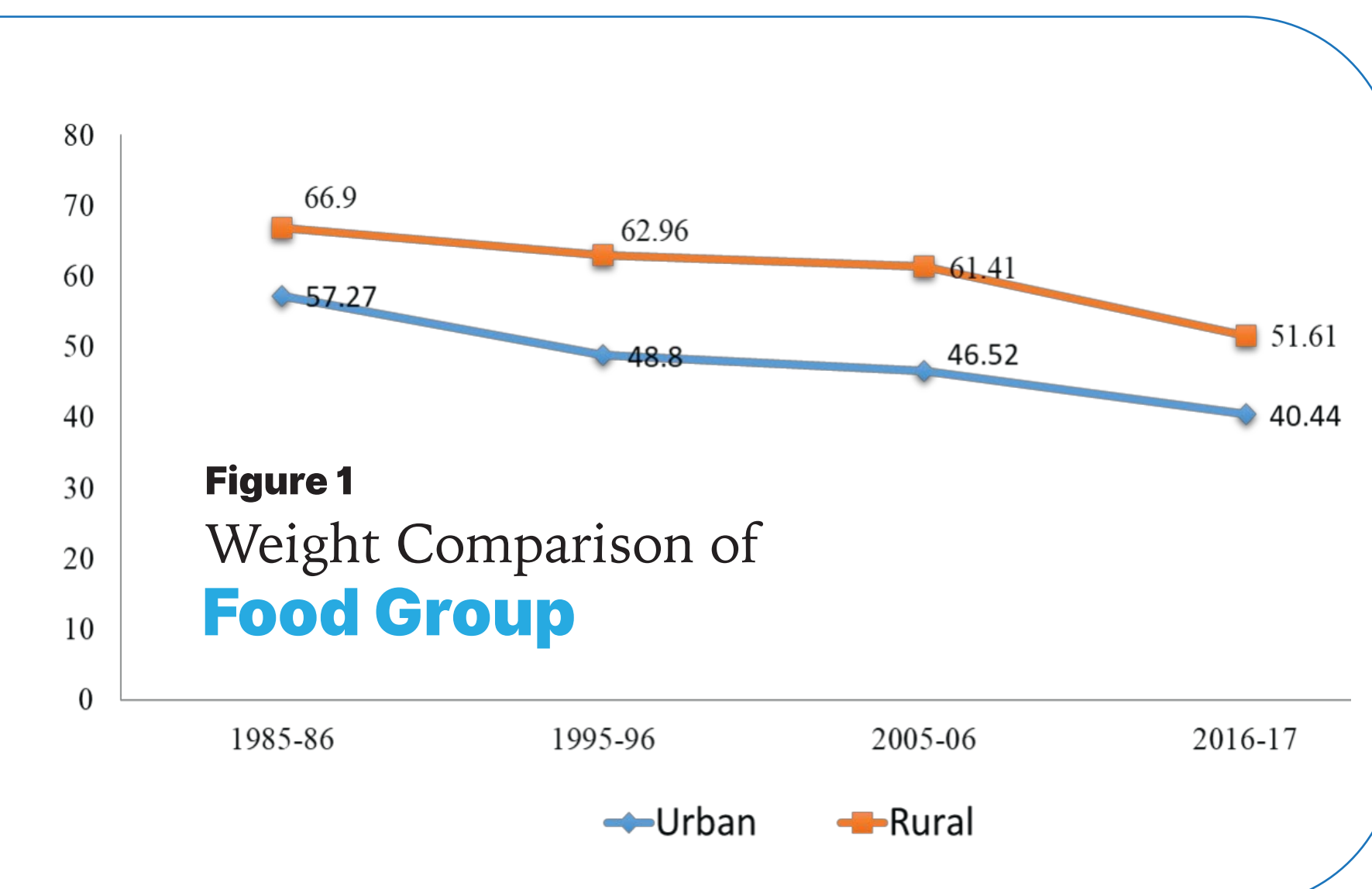
- Price data are collected on the 11th to 19th of each month from -
  - District Level  
Rural-64 markets & Urban-56 markets [01 in each District (Both rural & urban) except Dhaka and Chattogram]
  - Dhaka (12 markets) & Chattogram (04 Markets) Cities  
Food item prices are collected on Wednesday of each week and Non-food item prices in the middle of the month.
  - Other 06 Divisional Cities (18 markets)

##### Data Processing

- Data editing, cleaning, validity checking Between 20-28th day of each month
- Compilation of CPI 29-30th day of each month

##### Data Dissemination

- BBS has a long tradition to publish Consumer Price Index (CPI), Inflation Rate and Wage Rate Index (WRI) within the first week of each month;
- The CPI publication is uploaded to the official website of BBS (www.bbs.gov.bd) within the quickest possible time after getting approval.



### NEW METHOD

#### CHAINED FORMULA TWO STAGE METHOD

##### Elementary stage:

'Jevons Price Index Formula and Chained Jevons Formula'

$$I_{j,t}^{0:t} = \frac{\prod (p_t^j)^{\frac{1}{n}}}{\prod (p_0^j)^{\frac{1}{n}}}$$

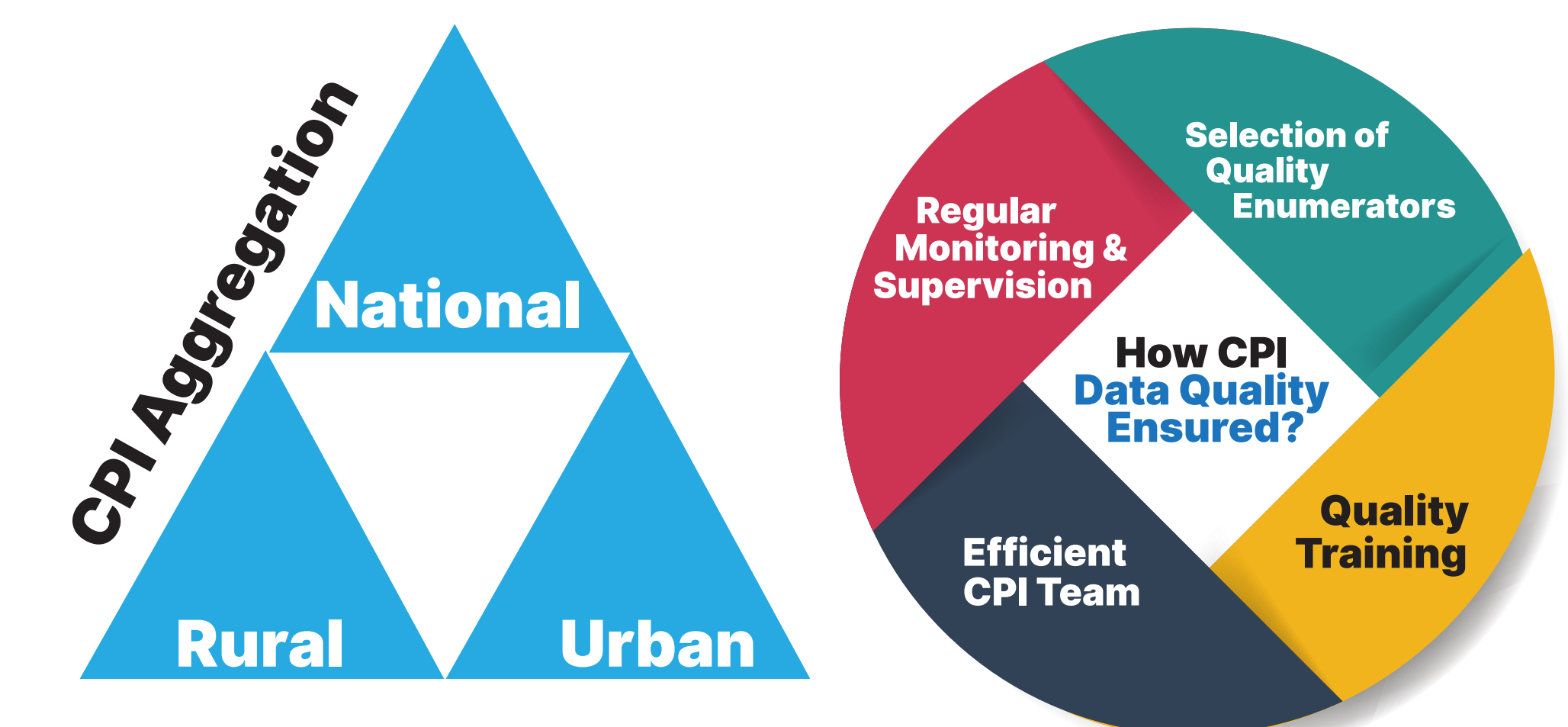
Where, 0 and t are two periods  
 $I_{j,t}^{0:t} = \prod \left( \frac{p_t^j}{p_{t-1}^j} \right)^{\frac{1}{n}} = \frac{\prod (p_t^j)^{\frac{1}{n}} \prod (p_{t-1}^j)^{-\frac{1}{n}}}{\prod (p_0^j)^{\frac{1}{n}} \prod (p_0^j)^{\frac{1}{n}} \dots \prod (p_0^j)^{\frac{1}{n}} \prod (p_0^j)^{\frac{1}{n}}}$

##### Higher Level

'Modified Young Index Formula'

$$I_{M,Y}^{0:t} = \sum w_t^p I_{j,t}^{0:t-1} I_{j,t-1}^{0:t-1}, \quad \sum w_t^p = 1$$

Where,  
 $I_{M,Y}^{0:t} = \sum w_t^p \cdot \left( \frac{p_t^j}{p_0^j} \right), \quad w_t^p = \frac{p_t^j \cdot q_t^p}{\sum p_t^j \cdot q_t^p}$



### HOW DOES IT IMPACT ?

- High frequency economic Indicator
- Key statistics for the purpose of economic policymaking especially monetary policy
- Deflator of national accounts (GDP)
- Compare the Cost of Living over time
- Assess a nation's progress towards economic stability
- Purchasing power parity (PPP) compilation
- To fix Interest Rate for Fixed Deposit Receipt (FDR)

BBS will yield advantages due to adapting the 'Chained Formula.' The best thing is that the frequent revision will not be very urgent in case of the introduction/arrival of a new variety (goods/service) or deletion of obsolete items from the existing basket.

### CONCLUSION

The current revision will undeniably be marked as a great footstep and a paradigm shift during fifty years in Bangladesh's CPI data compilation to produce reliable and quality data. Hence, it will ultimately enhance the credibility & transparency of BBS as an international standard NSO and beyond.

#### KeyWords:

BBS, COICOP, CPI, GoB, HIES, IMF, IR, Jevon's Price Index Formula, Jevon's Chained Index Formula, Modified Young Index Formula, TA.

