

Double Deflation Method in GDP Calculation

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Why in News?

The NITI Aayog Vice Chairman stated that the ongoing debate surrounding the adoption of the double deflation method in India's new Gross Domestic Product (GDP) series is "not a great battle".

Double Deflation Method

- **Definition-** A national accounts technique used to derive Real Gross Value Added (GVA) by separately adjusting the nominal value of a sector's gross output and the cost of its intermediate inputs using distinct, sector-specific price indices.
- **Formula** - "Real GVA" = ("Nominal Gross Output" / "Output Price Index") - ("Nominal Intermediate Inputs" / "Input Price Index").
- Under the earlier 2011-12 GDP series, India primarily used **single deflation (often the Wholesale Price Index or WPI)**.
- A single price index was applied directly to deflate nominal GVA or output to arrive at real figures, assuming input prices moved in exact tandem with output prices.
- **Global Standard** - Strongly recommended by the United Nations **System of National Accounts (SNA)** and widely implemented by major global economies (e.g., US, UK, EU, Australia).

ACCURATE MEASUREMENT FOR A STRONGER ECONOMY

Double Deflation Method in GDP Calculation

Removing the effect of inflation from both intermediate consumption and gross value added

1 Start with Current Prices (Nominal Values)

2 Deflate Output to Get Real Output

3 Deflate Intermediate Consumption (IC) Separately

4 Calculate Real Gross Value Added (GVA)

Collect data on output and intermediate consumption at current (market) prices for each industry.

Industry	Output	Intermediate Consumption (IC)
Manufacturing	1,000	600
Construction	800	400
Services	1,200	500

Convert the output of each industry from current prices to constant prices using the respective Output Price Index (OPI).

$$\text{Real Output} = \frac{\text{Nominal Output}}{\text{Output Price Index}} \times 100$$

Convert intermediate consumption of each industry to constant prices using the Intermediate Input Price Index (IIPI).

$$\text{Real IC} = \frac{\text{Nominal IC}}{\text{Intermediate Input Price Index}} \times 100$$

Subtract real intermediate consumption from real output to obtain real GVA for each industry. Sum across all industries to get real GDP (at constant prices).

Real GVA = Real Output – Real IC

Industry	Real Output	Real IC	Real GVA
Manufacturing	800	480	320
Construction	700	350	350
Services	1,000	400	600
Total (Real GDP)	2,500	1,230	1,270

Why “Double” Deflation?

- Both output and intermediate inputs are deflated separately, because their prices may change at different rates.
- Captures relative price changes more accurately across industries.
- Provides a more precise measure of real value added and real GDP.

Key Formula (for industry i)

$$\text{Real Output}_i = \frac{\text{Nominal Output}_i}{\text{OPI}_i} \times 100$$

$$\text{Real IC}_i = \frac{\text{Nominal IC}_i}{\text{IIPI}_i} \times 100$$

Real GVA_i = Real Output_i – Real IC_i

Real GDP = ∑ Real GVA_i

Key Advantages

- Removes inflationary effects from both output and inputs.
- More accurate estimation of real GDP and sectoral growth.
- Useful for comparing growth across industries.
- Helps in better policy analysis and productivity measurement.
- Recommended in national accounts (used by many countries, including India).

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Key Issues

- **Lack of a Producer Price Index (PPI)**
 - Economists and former statisticians (including former Chief Statistician Pronab Sen and former Finance Secretary S.C. Garg) argue that India lacks a comprehensive **Producer Price Index (PPI)** covering both goods and services.
 - Currently, the Wholesale Price Index (WPI) covers only physical goods and excludes the service sector (which constitutes over 50% of India's economy).
- **Amplification of Errors** - During volatile periods (e.g., global crude oil or commodity price shocks), input prices shift at a different speed than output prices.
- Applying imprecise deflators to both sides can distort real GVA calculations.
- **Data Disparity for Informal Sector**- Intermediate consumption ratios in India's vast unorganised/informal sector are updated infrequently, making accurate input-deflator estimation challenging.

NITI Aayog's Stance

- The Vice Chairman highlighted that double deflation simply requires separating input costs from output values, a manageable statistical exercise that improves data quality over time.
- While acknowledging that statistical systems can always be improved, NITI Aayog maintained that India currently possesses "good enough data" to implement double deflation effectively.
- The think tank questioned why the new methodology faced criticism only when the resulting GDP growth figures in the revised series appeared lower than those under the 2011-12 series, noting that the method provides a more realistic assessment.

Reference

[The Hindu | Double deflation debate over GDP methodology](#)



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