# GDP Estimation In India: Challenges, Criticisms, And The Path Towards Transparent Reforms

GDP is a statistical indicator that defines a country's economic progress and development. The percentage growth in GDP during a period is considered the standard of economic growth. GDP is the monetary value of all final goods and services produced within a country over a specified period. GDP is measured over market price and there is a base year for computation. The GDP growth rate, an important indicator of economic health, is driven by four components– personal consumption, business investment, government expenditure, and net trade. So when the economy is expanding, the GDP growth rate is positive and If the GDP growth rate turns negative, the country is in a state of regression.

Though the GDP is an important tool of economic measurement in India, there have still been concerns regarding the reliability of the data, which is crucial in any market economy. The article addresses the major challenges and criticisms of GDP estimation in India and suggests a path toward more transparent reforms in the GDP estimation process.

## I.  Background

India is a developing economy with significant developments that have shaped its economic landscape. Tracing its history can help understand the trajectory of GDP estimation in India. The economy started with the Indus Valley civilization, which followed a barter system and had certain trade practices with overseas trade networks. Then gradually monetization came into being with commodity money, where goods like livestock were used as a medium of exchange, followed by metallic coins, and finally paper currency was introduced.

During the colonial period, methods of economic measurement were not inclusive and focused only on assessing the agricultural output and trade data. The colonial government never sincerely attempted to estimate India's national and per capita income. Some individual attempts to measure such incomes yielded conflicting and inconsistent results. Among the notable estimators—Dadabhai Naoroji, William Digby, Findlay Shirras, V.K.R.V. Rao, and R.C. Desai—it was Rao whose estimates during the colonial period were considered very significant.

**Dadabhai Naroji in 1876 made the first attempt to estimate the national income.** He made the first crude estimates for the years 1867–68. He estimated the national income by estimating the agricultural production and adding a certain percentage of non-agricultural output. However, the main purpose of the national income statisticians, including Naroji up to 1934, was to point out the stark poverty and the marginal conditions of Indians due to the alien rule. In 1934, **V.K.R.V. Rao published "An Essay on India's National Income, 1925–29,"** which is widely regarded as the first authentic academic exercise into the estimation of the national income of India. After realizing the importance of reliable estimates of national income for policy purposes the National Income Committee (NIC) under the chairmanship of PC

Mahalanobois and included D.R. Gadgil and V.K.N.V. Rao was appointed. The NIC assisted by the National Income Unit, prepared the estimates of national income every year. This was under the Ministry of Finance, which later became the central statistical organization.

The Indian economy post-independence was based on the five-year planning model, where the GDP estimates primarily focused on domestic output (agricultural and industrial sectors). The transitioning of India from a closed economy to an open one through the LPG reforms led to an increase in global trade flows. This required a more accurate and inclusive method of GDP estimation therefore, The Ministry of Statistics adopted the United Nations system of national accounts, and program implementation aligned with global standards. This also led to a revision in the base year prices for GDP calculations and included all the emerging sectors like information and telecommunications. Despite such advancements, certain setbacks need to be addressed.

## II.   The debate between the old and new GDP series of India

GDP (gross domestic product) measures a country's economic well-being. The Ministry of Statistics and Program Implementation regularly revises the base year to capture recent economic developments. The base year of the national accounts is chosen to enable inter-year comparisons. It gives an idea about changes in purchasing power and allows the calculation of inflation-adjusted growth estimates.

The GDP based on 2011–12 did not correctly reflect the current economic situation. So, in 2015, a new series was announced, complying with new data sources to meet UN standards.

**Major changes in pre-2015 and post-2015 methodology**

a.   The base year has been revised to capture the economic information accurately. The pre-2015 used 2004-05 as the base year, but the revised base year is 2011-12.

b.   The data used to measure the manufacturing sector's growth have changed. The pre-2015 phase evaluated the sector's performance using the data from IIP and the annual survey of industries, but now the firm's annual accounts filed with the Ministry of Corporate Affairs (MCA-21) database are used.

c.   Another major change was that GDP at factor cost was replaced with GDP at market price. The new measure included product subsidies and taxes apart from the cost of production.

d.   Pre-2015, labor was considered to be equal, and post-2015, a concept called effective labor input was utilized.

e.   There has been a change in the way value addition in agriculture was captured. In pre-2015 it was confined to farm produce but now it is even calculated beyond farm produce. The livestock data is now critical to the new method.

f.   Post-2015, the coverage of the financial sector has been expanded by including mutual funds, pension funds, stock exchanges, asset management companies, as well as regulatory bodies like SEBI, IRDA, and PFRDA.

Thus, the new series is considered more robust as it estimates more indicators, such as consumption, employment, and enterprise performance, and incorporates factors that are more responsive to changes.

# III. Challenges

The GDP estimation faces numerous challenges in India which has been discussed in subsequent paragraphs.

## a. Issues with estimates of private corporate sector (PCS)

The PCS, especially in the manufacturing sector, continues to be at the core of the GDP measurement debate. The major problem arose due to the shift of the MCA-21 database from the annual survey of industries database. Companies need to file their financial returns in the MCA 21 database, but not all companies adhere to this.

For the GVA(Gross Value Added) estimation of any given year, the CSO( Central Statistical Office) first considers those companies that filed their returns in that year, which constitutes the sample for that year. They then use a blow-up factor to estimate the GVA of non-filing companies. New questions regarding the quality and reliability of the MCA 21 database arose with the release of NSSO's technical report on the service sector survey in May 2019. The MOSPI( Ministry Of Statistics and Program Implementation) claims that GDP estimates and growth rates are valid as missing, and fake, shell companies are outside the active set. However, there are **certain problems** with MOSPI claims. **First**, the active companies are not as watertight as claimed and include non-responding and non-working companies as well. **Second**, for obtaining the sample GVA estimates, the CSO uses financial data of non-active companies, which is theoretically incorrect. Thus there is a discrepancy relating to the sample of companies being used.

Further, The non-filing would include shell companies with fake accounts, dead companies with zero GVA, and loss-making companies, and since these companies are shrinking, the overall growth rates will be overstated because positive growth rates will be imputed to them.

Apart from these, the MCA database seems incomplete and inconsistent, leading to differing estimates when the disaggregated data is used compared to when aggregated data is used. TN Srinivasan in this regard says that "the move to MCA 21 data from a bunch of self-selected companies are biased with size and direction of bias is unknown. He argues that we need to discuss the statistical issue of validity and the reliability of estimates. However, given the inconsistencies in the MCA database, there is a need for a thorough review of the database, and it needs to be made public to verify the official estimates.

## b. Effective labor Input method

Nagaraj and Srinivasan raised certain questions about the effective labor input method for the unorganized sector. Different sectors vary in terms of productivity, and the earnings of various categories of workers vary according to the work. However, this method assumes that other labor categories are perfect substitutes in production. This assumption is unreliable and unrealistic when seen in the unorganized sectors, where working capacity and efficiency levels differ. It leads to underestimation and distorted productivity estimates. To assume that the workers in some sectors have equal productivity without conducting proper empirical analysis and this undermines the

credibility of the results. Therefore, for a more nuanced result, sectoral data must be disaggregated, and robust checks and production functions for all relevant sectors must be estimated.

### c. Single vs Double Deflation

The standard international practice uses the double deflation method, wherein an output deflator deflates the output price while a raw material deflator deflates raw material prices, and then the real input value is subtracted from the real output value to obtain real GVA estimates. However, the CSO first commutes nominal GVA and then deflates this using a single deflator to obtain the real GVA. The main issue is that if the input prices are in tandem with the output prices, it will result in similar results from both methods. But if the two price series diverge, as in India, single deflation can overstate growth by a big margin. In India, with the adoption of the new series, the issue of deflator has regained as now the real growth rate is calculated using a value-based measure, which is even more critical.

### d. Wholesale price index (WPI) vs consumer price index (CPI)

The WPI does not measure the price of services, which constitute around one-third of the Indian economy; it is heavily weighted towards communities, especially oil. So when the oil prices fall, the WPI falls, leading to measured deflation in the service sector even if the service cost seems to be rising. Thus, growth in the services could be overstated by a large margin. The change in the CPI can make sense as it is extensive and has more information based on price movements of various service sub-sectors; however, the problem caused by a single deflation would never be resolved.

### e. Issues in compiling regional growth [gross state domestic product]

After the introduction of the MCA 21 database, estimates of organized manufacturing and services are available at only all Indian levels. This is because the consolidated financial statements of enterprises are not available as per the geographical regions, plant locations, and products. As a result, state-level GDP for organized manufacturing and service sectors is driven largely by allocation rather than by actual estimation done in each state. The problem faced is that the older labor input method took into account all interstate variation as output per worker varied across states, the new effective labor input method does not take into account variations in productivity at the state level. At the regional level, the lack of credible state domestic product estimates could adversely affect the state's ability to plan resources and budget. A series of regulatory and policy efforts could help in resolving the issue.

### f. Use of base prices while calculating the real GDP

The nominal value of GDP influences inflation. When the real GDP is calculated, the value of final goods and services is measured in the base price, i.e., formed in the market of goods and services during the period taken as the base. However, the structure of the output remains unchanged. In various sectors like high-tech, manufacturing, and telecom industries, considerable changes have taken place. without revising the base year prices, these would not be reflected while calculating the real GDP.

# IV. Criticisms

GDP is the universal denominator for comparing indicators across countries or for sizing up tax burdens or welfare expenditures. There are two types of GDP: nominal and real GDP. The nominal GDP is calculated by adding up the market value, and for real GDP, the statisticians remove the price inflation from the nominal GDP. The real GDP is estimated for the base year, requiring a variety of datasets on output, prices, and employment. However, every 5–10 years the National Statistical Office is required to revise the GDP series to account for the recent dynamic changes in relative prices and output composition.

Recently, there has been a lot of debate regarding the credibility of Indian GDP data showing a 7.8% increase in the first quarter of FY 2023-24. Various experts point out the discrepancies in India's GDP statistics presenting a positive image of economic growth while the underlying issues like the rising inequalities, job scarcity, and the decline in manufacturing jobs persist. The growth rate of India's 7.8% came under a lot of criticism and debate.

The entire debate between the various leading economists and statisticians stems from the credibility of the GDP estimation method and the data used. Economists like Arvind Subramaniam, the former chief economic advisor; Ashoka Mody, a visiting professor at Princeton University; and Arun Kumar, who retired as a professor of economics at Jawaharlal Nehru University. From the statisticians' side, we have Pronob Sen, currently the chairman of the standing committee on statistics, and T.C.A. Anant, the chief statistician from 2010-2018.

**The three main issue areas identified by the economists are listed below:**

a. The overall GDP growth seems to be robust while consumption, according to other government sources, appears tepid which points out the measurement problems as mentioned by Subramaniam.
b.  The economists also highlight the discrepancy problem between the two methods of estimation, i.e., expenditure and production methods.
c. How the Indian system is accounting for the effect of inflation on GDP growth—deflator problem

**A. Issues related to consumption numbers**

Arvind Subramaniam, along with his co-author Josh Felman, argued that there are certain weaknesses in the consumption numbers released by the household consumption expenditure surveys, which are released as part of the national sample survey (NSS), while the GDP data forms the national account statistics. (NAS). The economists also point out the two possibilities, i.e., either the NSS estimates are better than the NAS estimates or vice versa; however, the former one is preferred by the economists. In this line of argument, the statisticians raise objections and believe that NSS data is inferior to the NAS data. the main concern however pointed out by them is that the comparison of these two is a flawed exercise.

Anant's major issue is the quality of HCES  data, as it does not measure how much households spend on education and health, which form an increasing share of consumption expenditures.

Pronob Sen argues that comparing data on the production and consumption sides is fraught with difficulties as both are of varying quality.

B. **The Deflator problem**

Economists like Subramaniam question whether the deflator captures the true picture of inflation in a country and whether it was incorporated in the GDP numbers. The economists also argued that GDP is not hard data and is a derived number calculated through certain methodologies which has its own set of problems. They also point out wrong deflator was used for the wrong sectors WPI was used as the deflator for non-traded services and instead, CPI could be used. However, Anant and Sen point out certain structural flaws in their criticism and instead argue that particular indices need to be made to measure the price movements in these sectors. So for all the sectors that are unmeasured devising price indices could solve some problems.

**The India's GDP deflator has separate problems :**

The NSO does not use the international standard of measure of output prices to deflate GDP as it does not have a producer price index, so it proxies it with the WPI. but WPI does not track the producer prices well and does not measure the price of services which constitute almost 2/3rd of the economy.

Most G-20 countries calculate the GVA in manufacturing using the deflation method but India on the contrary deflates using the single deflation method. So if the input prices diverge from output prices the single deflation can misstate the growth by a big margin. So, if the nominal increase in GVA is 10 percent as the result of rising profits, while WPI falls by 1 percent, the real increase will be calculated as 11 percent, even if the real output has not changed at all.Thus the economists suggest that NSO should use CPI as it has more extensive information even on the services sub-sectors and is closer to producer price. The CPI - WPI differential points out the extent to which the real GDP numbers might be distorted.

C. **The discrepancy problem**

The critics have pointed out that in comparison to the 2022–23 number, the share of GDP has risen by a staggering 6.2% in a category called discrepancy, whereas the share of all the other categories has declined, showcasing substantial errors in the GDP growth rate figure. However, the officials claim that the discrepancy represents the difference between the figures obtained from the two methods (the income and expenditure method). It has also been argued that the critics cherry-pick the data, as when the growth rate is low it is not pointed out by the critics, but as and when the unemployment figures rise, the critics argue about the growth rate being, contrary to the official data. The official methodology for measuring the GDP estimates is compiled through the production approach, and quarterly expenditures of GDP are compiled through the expenditure method. Moreover, the official document mentions **three factors that need to be taken note of regarding the production-side calculation:**

1. The production approach used for compiling the QGVA estimates is broadly based on the benchmark indicator method.

2. In this method, estimates of Gross Value Added (GVA) are compiled for each of the industry groups.
3. In general terms, quarterly estimates of GVA are extrapolations of the annual series of GVA.

According to the officials, the production method is more reliable, but for it, current data is not used; it has to rely on previous references, as fresh surveys are not conducted; thus, it does not represent the current reality. Ashok Mody, an economist and visiting professor of International Economic Policy at Princeton University, argues that India's official GDP figures are misleading and should consider both income and expenditure sides. Apart from these the experts also point out certain criticisms in the light of GDP data. They argue that the usage of outdated data sets may not reflect the economic scenario accurately and the delayed census also leads to inaccuracies in the assessment of economic performance. The experts also point out that a positive image of GDP being painted by the government masks the economic struggles faced by a significant proportion of the population. The experts also worry about the political motivations that might influence the economic data. Thus the above-stated problems are inadequate in capturing the complex and evolving economic landscape of India.

## V. Impact of over-estimation of GDP

The growth estimates play a significant role not just for reputational reasons but also for internal policy-making. The new evidence implies that both the monetary and fiscal policies over the last few years have been overly tight from a cyclical perspective. Furthermore, the inaccurate statistics about the economy's health weaken the drive for reform. For instance, if it was known that India's GDP growth was 4.5%, the urgency to act on the banking system or agricultural challenges may have been greater.

The estimation of GDP drives the macro policy and the numerical values of GDP directly go into fiscal planning. When there is an overestimation it puts pressure on tax collection and the government borrowing program Ajay Shah a professor at the National Institute of Public Finance and Policy discussed the consequences of GDP overestimation. He argues that many economists have retreated from taking the Indian GDP data seriously due to various debates around it and the discrepancy issue. Instead of this, economists rely on other data sources through which the business cycles can be roughly measured without using official statistics.

GDP is the core concept of macroeconomists and if it isn't measured properly it creates problems for policymakers. For the monetary policy to take on any step they need to be aware of the business cycle similarly the finance commission requires estimates but due to the weaknesses in the estimation of GDP it can't be done and the task of policymakers is made more difficult.

The Budgetary process is shaped through GDP ratios. In all aspects including taxation, expenditure, deficits, borrowing, or debt, the Budget process uses the projected value for nominal GDP and multiplies this with a sound value for the ratio to GDP. for instance, the discussion on the fiscal deficit is only

conducted as a percentage of GDP. Once the Budget makers agree that they want a fiscal deficit of 2 percent of GDP, it is multiplied by the GDP forecast to get the Budget estimate for the fiscal deficit in the coming year, in rupees.

The GDP overestimation would lead to tax targets being set high. There would be gnawing problems in achieving those tax targets resulting in many small decisions to increase tax rates to get back to normative estimates for tax collections. India has a bad concept of tax collection targets assigned to senior managers of the tax administration. When GDP is overestimated, the targets sent to the CBDT hierarchy are too high. Perhaps it gives a greater propensity to use harsh tactics in collecting taxes. Similar problems are seen with deficits and the borrowing program. When GDP is overestimated, a borrowing plan that appears reasonable in terms of the borrowing/GDP ratio involves asking for too much debt from the economy. This results in stress where the market unable to absorb the borrowing. **The scenario of overestimating the level of GDP thus results in three predictions:-**

    a.   Pressure to raise tax rates in tax policy
    b.   pressure to use harsh tactics in tax administration
    c.   difficulties in executing the borrowing program.

These three problems are indeed present in varying degrees in the observed reality. It acts as a reminder of the importance of sound economic measurement and how GDP overestimation can cause major problems in the macroeconomic landscape of India.

## VI.   The path toward transparent reforms

The GDP debate in India requires some reforms by thoroughly reexamining the changes brought about in the new GDP series. The foremost change that needs to be brought is revising the base year which serves as a reference point for analyzing all the economic variables and assessing the comparative performance of indicators across the periods. The updation would ensure that all the new changes are incorporated like shifts in consumption patterns, sectoral changes, or any incorporation of new sectors.

To instill confidence in the GDP data, there is a need to appoint an official agency that can protect against the hasty application of unverified datasets and the use of wrong methodologies. The NSO to protect this needs to initiate pilot studies to verify the GST datasets' suitability for value addition of specific industries, sectors, and states.

The GDP deflator is the major problem that needs to be revised with a proper method of deflation. In most countries, the nominal values are estimated using the producer price index (PPI) but India lacks it. Therefore efforts must be made to develop the PPI for being used as an ideal deflator for nominal GDP estimates. Further, the use of WPI for service sector deflator is also inherently problematic. An alternative can be the use of CPI to deflate service sector estimates as it has extensive information on the price movements of various subsectors. There is a need to develop a proper service sector price index to better analyze the estimates.

There is also a need for MoSPI to develop a comprehensive system to utilize surveys like the consumer expenditure surveys and all the available datasets need to be examined properly. Apart from this, a detailed statistical audit of the new GDP series needs to be conducted to look into the problems of using the MCA-21 database. An independent committee can be set up with national and international experts to recognize the problems of the new GDP series and find out the ways to resolve them.

The release of the new GDP series and the debate surrounding it has significantly eroded the credibility of the CSO, so there is a need to reestablish its credibility by adopting a more nuanced approach. The users need to be timely updated with the changes in the estimation of data or its sources in order to instill a sense of confidence.

**To conclude,** GDP estimation is important as it reflects the size and performance of the economy. Policymakers use the GDP data to make various monetary and fiscal decisions. It further aids as a benchmark for international comparisons and can influence various decisions about investment and trade. However, despite the positives, the GDP estimation method has various issues associated with it like the outdated base year, no fresh surveys, deflator issues, discrepancy problems, issues in the samples for estimating the database, issues in the compilation of regional growth, etc and therefore various economists have criticized it leading to a debate about the overestimation of GDP figures. In this regard, there is an urgent need to bring some transparent reforms, for better analysis of the economic landscape of India. the accurate and nuanced analysis of data, use of surveys can help better analyse the economic performance of a country. Thus systematic efforts need to be made to bring some changes in the GDP estimation methodology to make it more reliable.

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