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# A STUDY TO INVESTIGATE THE HOUSEHOLD AND ILLEGAL ECONOMY GDP UNDERESTIMATION IN INDIA

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## ABSTRACT

GDP measures the market value for all final goods and services produced in an economy. There are many factors of the GDP which go unaccounted for in its calculation due to insufficient data. This includes the household economy as well as the illegal economy. Essentially, such a miscalculation can mean that the actual economic growth of the country will not be accurate and will not be able to provide its stakeholders an appropriate analysis. This study aimed to explore the factors that cause the underestimation of the GDP in a country like India and the methods used by the government to cope with it. In order to facilitate the aforementioned, secondary information was collected through official websites specific to the country as well as prior research in the field. The main findings of this paper are that there is an undeniable consequence of underestimation of GDP to India's economy, justifying a need for a more accurate estimation model as well as a need for further efforts made by the government to combat this issue.

**Keywords:** Gross Domestic product, Illegal economy, Household economy, Underestimation, Gross National Income

**Research Question: To what extent can the incorporation of non-market transactions in the GDP of India be improved through data collection methods?**

## Introduction:

Gross domestic product (GDP) is the measure of total economic activity in the economy. It measures the monetary/market value of final goods and services (those bought by the final user) produced in a country over a period of time (usually a year) (Dynan, 2018). GDP is most often used by the government of a single country to measure its economic health and well being. GDP is important because it gives information about the size of the economy and how an economy is performing. The growth rate of real GDP is often used as an indicator of the general health of the

  

ISSN: 2455-8834

Volume:08, Issue:10 "October 2023"

economy. Usually, an increase in real GDP is interpreted as a sign that the economy is doing well.

The GDP calculation accounts for spending on both exports and imports (Fernando, 2023). Thus, a country's GDP is the total of consumer spending (C), business investment (I), government spending (G), and net exports, which is calculated as the difference between total exports and total imports (X – M).

The generic formula used to calculate an economy's GDP is:

$$GDP = C+I+G+(X-M)$$

GDP is usually calculated by the national statistical agency of the country following the international standard or methods of that particular country. Any country has two ways of evaluating the value of aggregate output in the nation: nominal GDP and real GDP. Nominal GDP measures output using current prices, while real GDP does so using constant prices (Mankiw, 1997).

GDP can also be used as a satisfactory measure of comparing the economic growth of different countries (Seth, 2021). The demographic trends show that LEDCs try to follow the MEDCs in terms of their economic policies such as economic liberalisation in India in the 1990s. Hence by analyzing inflation rates, exports and expenditure within the respective countries, developing countries can understand where they stand on the spectrum of economic growth and their future trends in terms of the business cycle.

Another measure of calculation for macroeconomic well being is GNI. The Organisation for Economic Co-operation and Development (2023) Gross National Income (GNI) is the total amount of money earned by a nation's people and businesses. It is used to measure and track a nation's wealth from year to year. GNI is calculated using the sum of the nation's gross domestic product (GDP) and the income it receives from overseas sources. However, even this widely accepted form of economic growth measurement has limitations that impact the data of different countries. It is widely claimed by statisticians across the world that national income statistics (the statistical data used to measure national income and output and other measures of economic performance) do not accurately measure the 'true' value of output produced in an economy (Stiglitz, 2020).

Other than this, it is not likely but often the case in developing countries that economic well-being is not well-reflected by the GDP or GNI, the reason being that the distribution of income in an economy is heavily right-skewed. As a result, per capita figures of both GDP and GNI may be

  

ISSN: 2455-8834

Volume:08, Issue:10 "October 2023"

misleading when used to make comparisons over time or comparisons between countries, and hence deriving faulty conclusions for economic well-being (Pogatchnik, 2021).

Many studies say that GDP/GNI may be misleading. Some reasons are that GDP/GNI does not account for income inequality, income distribution or the variation in the value of domestic prices. Additionally, it disregards the negative externalities of production (environmental costs of economic expansion) such as pollution and the depletion of natural resources. According to Tregates (2020) GDP can also be misleading due to the fact that it disregards non-market activities like domestic chores or volunteer work because of lack of sophisticated management and transaction tracking systems. Moreover, in many cases GDP can be manipulated through government policies, such as increased public spending, or changes in the exchange rate, thereby leading to inaccurate representation of the overall progress of an economy (Picardo, 2021).

Furthermore, because GDP is frequently used to gauge a nation's performance, economic growth is prioritized above other crucial factors of development including social advancement, living standards, and equity. Many foreign investors are interested in a country's GDP as it predicts the outcomes of their future investments. For instance, many investors seek a high and stable GDP which indicates opportunities for infrastructure development, resource availability and good return on investment. Also, international organizations like the World Bank and the IMF use the GDP to analyze lending practices. Therefore, GDP/GNI estimates miss out on important metrics of overall progress and well-being for a country including living quality, access to healthcare, education, or social support, all of which are not only reflect living standards in a country but also to a certain extent affect the future growth of a country (Acemoglu & Johnson, 2007; Mahumud et al., 2013; Demissie, 2015) Consequently, alternative measures to account for economic progress have been developed including the Human Development Index (HDI), Gross National Happiness, Inequality-adjusted HDI, Genuine Progress Indicator (GPI), etc.

Lastly, GDP/GNI estimates often fail to account for underground economies. An underground economy (also known as parallel/informal/shadow economy) constitutes the illegal activities in an economy in addition to unreported income from the production of legal goods and services in an economy (Kenton, 2022). More notably, a report by the IMF found that the size of the underground and shadow economy has been growing over the years and is roughly 35 to 45 percent of the GDP in developing economies (Schneider &Enste, 2002). By not accounting for unreported activities (given its significant size) in an economy, the GDP misses the true productivity and revenue generated by small-scale, undocumented, or underground businesses in a country and again may not accurately represent the living standards in an economy.

  

ISSN: 2455-8834

Volume:08, Issue:10 "October 2023"

Keeping in mind that the estimates for total national income and GDP are used for policy purposes by lawmakers and government officials, underestimation of the GDP can lead to several policy implications as discussed by Feldstein (2017) including but not limited to:

1. **Inaccurate economic planning:** GDP underestimation can lead to inaccurate economic planning by governments. If the actual economic situation is not adequately reflected in the GDP figures, it may result in incorrect policies or underfunding of key sectors.

2. **Misleading picture of the economy:** GDP underestimation can create a false impression of the state of the economy, leading to misplaced optimism or pessimism among investors, businesses, and consumers. This can result in less investment, lower economic activity, and job creation.

3. **Reduced government revenue:** GDP underestimation can also lead to reduced government revenue, as taxes and other fees are based on GDP figures. This can lead to budget cuts, reduced funding for public services, and infrastructure projects.

4. **Limited access to international financing:** GDP figures are used as a measure of a country's creditworthiness, and GDP underestimation may limit a country's access to international financing. This can further lead to lower investment in key sectors and slower economic growth.

5. **Incomplete understanding of economic trends:** GDP underestimation can make it more challenging for economists and policymakers to identify economic trends and forecast future economic growth. It can also limit the ability to understand the sources of economic growth or decline (Everett et al., 2010).

Considering the major implications of inaccurate calculation and underestimation of GDP, this paper would first review the methods and means by which GDP is calculated, both in general as well as in India, and then discuss the means through which India can accurately account for the size of the household economy and the illegal economy in their GDP estimates.

**Discussion:**

**How is GDP calculated?**

There are three methods of measuring GDP that have been employed worldwide.

Output Approach: It measures the value of each good and service produced in the economy over a particular time period (usually a year) and then sums them up to obtain the total value of output produced (CFI Team, 2023).

  

ISSN: 2455-8834

Volume:08, Issue:10 "October 2023"

GDP Formula = Real GDP (GDP at constant prices) – Taxes + Subsidies.

Income Approach: It adds up all income earned by the factors of production within a country over a time period (usually a year). These include wages earned by labour, rent earned by land, interest earned by capital and profits earned by entrepreneurship.

TNI=Sales Taxes + Depreciation + NFFI

Where,

TNI = Total national income

NFFI = Net foreign factor income

Expenditure Approach: It is a system for calculating gross domestic product (GDP) that combines consumption of goods and services (C), investment (I), government spending (G), and net exports (X - M). It is the most common way to estimate GDP (Tuovila, 2020).

$$GDP = C + I + G + (X\text{-}M)$$

The three major approaches are similar in the sense that they all focus on market transactions, the value-added concept, statistical data requirements, focus on final goods and services and calculate GDP for the same time frame and geographical area. However, for a developing country like India, given the vast variety in social classes in the population and other reasons, the expenditure method works the best.

India's GDP is calculated with two different methods, one based on economic activity (at factor cost), and the second on expenditure (at market prices). To assess productivity, the factor cost method is applied across eight industries and the expenditure method is used to analyze how different areas of the economy are performing (Chatterjee, 2019). However, these methods are still limited in their consideration of living standards, household transactions and parallel markets, leading to inaccurate results.

**How to account for the size of the household economy in India?**

The household economy refers to all financial activities and transactions that take place within a household or family unit. It involves managing and allocating resources such as money, time, and labor to meet the needs and fulfill the goals of the household. The household economy includes earning income, budgeting, paying bills, managing debt, saving, investing, and making household financial decisions. It also involves the allocation and division of household chores, responsibilities, and tasks among family members to create a productive and efficient household.

  

ISSN: 2455-8834

Volume:08, Issue:10 "October 2023"

This is often not included in calculating the GDP of countries like India that essentially follow the expenditure approach. This is because unpaid work that people do for themselves and their families isn't traded in the marketplace, so there are no transactions to track. Hence, there can be no data recorded for this.

Widely, countries across the world use various methods to measure the household economy such as Household Income and Expenditure Surveys (HIES), Consumer Price Indices (CPI), Gross Domestic Product (GDP) per capita, labor market surveys and the income tax data method (The United Nations, 2012). However, India measures the household economy through a variety of its own methods. This is usually an underestimation to ensure that the final GDP calculated for the nation is a close approximation to what it would be in reality. Each method used for this underestimation has it's pros and cons:

**1. National Sample Survey (NSS):** This is a large-scale survey conducted by the government of India to assess the economic condition of households. The survey collects data on various aspects such as income, consumption, assets, and liabilities. Moreover, this survey method allows the government to get a clear understanding of how women taking care of the household (especially given their prominent role in performing household chores), are spending their time. As per a United Nations report (2021), 75 percent of the world's unpaid care and domestic work is done by women. Also, unpaid domestic work accounts for 13 percent of the global GDP.

This data can hence be used to better capture the household economy in India. The greatest advantage of this method is that by sample survey, results can be produced more quickly. This is because, given the crucial credentials, the national sample survey reduces time to collect and process data to produce results. Also there is a reduction in cost, both in terms of finances and manpower requirement and management. This is because fewer people are required to provide the required data. Due to greater flexibility, the sample survey enables the characteristics to be tested, which cannot be otherwise done.

However, there can be crucial disadvantages that can hold back receiving accurate data results through this method. For example, data received from any particular ethnic group is not reliable as it varies due to personal views of that particular community. Also, data for small geographical places are not useful as they are unreliable. Moreover, studies have shared that detailed analysis of relationships between multiple variables may not be as practical as expected. Further, there may be gaps between data derived from surveys and the real data, which creates difficulty in application of the data of the survey.

Overall, this method of data collection is quite preferred given the wide target audience that it captures. It is appreciated for its wide span of data factors that come under income inequality and

  

ISSN: 2455-8834

Volume:08, Issue:10 "October 2023"

its division in genders. This study acknowledges that one of its limitations is the unreliability of some of the data, which may prevent it from drawing reliable findings.

**2. Consumer Expenditure Survey (CES):** Consumption expenditure is a crucial indicator of a household economy, providing insights into how a household allocates its income to goods and services. The National Statistical Office conducts a survey every five years to determine the household expenditure pattern, collecting data on items such as food, clothing, housing, education, and health. This data is useful for market researchers, government and private agencies, and economic policymakers to analyze demand for goods and services, study the welfare of specific segments of the population, and understand the impact of policy changes on socioeconomic groups.

However, data collection has limitations, including measurement errors in censuses, sampling and non-sampling errors in surveys, judgment errors by staff members in estimating production or output, and evidence of bias in CE expenditure estimates due to item non-response and measurement error. Additionally, only a small percentage of the population is surveyed, leading to sampling errors and non-sampling errors.

Despite these limitations, consumption expenditure is preferred due to its ability to capture personal factors and provide thorough analysis every five years. However, the study acknowledges the limitations of certain data reliability due to the difficulty in measuring such values. Overall, household survey data is valuable for understanding the size of a household economy and its allocation of income to various goods and services.

**3. Labour Bureau Surveys:** The Labour Bureau conducts surveys on employment and wages to assess the economic condition of households. These surveys collect data on various aspects such as employment status, wages, and hours worked, estimating the number of Domestic Workers across the country. They provide valuable insights into economic activities within households and help estimate the size and contribution of the household economy to the overall economy.

These surveys are useful in providing comprehensive data on employment, unemployment, wages, and related variables, helping in better policy-making. They are conducted on a regular basis, typically monthly or quarterly, providing timely data for decision-making. They cover a representative sample of the population, making the results more reliable and accurate.

Local labour market surveys are conducted in a transparent and objective manner, ensuring data is not biased or manipulated. They are publicly available, allowing researchers and analysts to access the data and conduct their own analysis.

  

ISSN: 2455-8834

Volume:08, Issue:10 "October 2023"

However, there are disadvantages to Labour Bureau surveys. Firstly, they may not have a large sample size, leading to biases and inaccuracies in the data. Secondly, they may focus on specific industries or regions, which may not provide a comprehensive picture of the overall labour market. Lastly, the labor market keeps shifting due to regular shifts in employment and unemployment levels, making it harder to select samples for the surveys.

**4. Participatory Rural Appraisal (PRA):** PRA is a method of data collection that involves the participation of households in the assessment and analysis of their economic condition. It is used in rural areas to assess the economic condition of households and identify their needs and priorities. The information gathered through PRA can inform development interventions and policies to support and enhance the economic well-being of households.

PRA empowers communities to take ownership of their own development processes, encouraging the participation of a wide range of community members. It is cost-effective, takes a holistic approach to development, and can be adapted to suit different communities and development contexts. PRA processes can generate rapid results and allow for quick decision-making, especially in emergency situations. This helps build partnerships between communities, government agencies, and NGOs for effective and sustainable development interventions.

However, there are disadvantages to PRA, such as limited representation, potential bias due to personal beliefs, technical expertise, communication difficulties, confidentiality and informed consent issues, and potential resistance from community members. Additionally, some information may be incomplete or inaccurate, limiting the reliability and validity of data collected.

PRA cannot be used as a standalone method due to specialized training and skills required, time-consuming and resource-intensive work with large or remote communities, and potential lack of capacity or knowledge among local communities. Other techniques of estimating the GDP must also be paired by authorities to achieve accurate results. Overall, PRA is useful in capturing the participation of rural households and targeting the needs and priorities of these unheard voices.

Participatory Rural Appraisal (PRA) is a participatory methodology used in India to understand and engage with rural communities, gathering information about their needs, preferences, and socio-economic conditions. While it is valuable for community development and planning, it is not used by the government of India for calculating household economies or for official statistical purposes. Instead, PRA provides qualitative insights and deeper understanding of community-specific issues, often used by NGOs, researchers, and development organizations.

  

ISSN: 2455-8834

Volume:08, Issue:10 "October 2023"

**The illegal economy, its subsets and why is it challenging to measure it:**

The illegal economy, commonly referred to as the 'underground economy' or the 'shadow economy', is a vast network of operations that take place outside of a nation's legal system. It includes economic activities that are not fully regulated or reported to the government, often involving cash transactions or other means of avoiding taxes, regulations, or official oversight. Some examples of the illegal economy in India are the black market, counterfeiting goods, counterfeiting currency, smuggling, illegal gambling, illegal mining, prostitution, human trafficking, drug trade, cybercrime, environmental crimes, tax evasion, and corruption.

All of these segments generate income and output within the economy in various ways, but both elements fail to get included in the calculation of the GDP. For instance, drug trade comprises the creation, transportation, and distribution of illegal narcotics, the black market entails the purchase and sale of unlawful commodities and services. The illegal recruitment, transportation, and exploitation of persons for forced labor or sexual exploitation constitutes human trafficking. In some circumstances, prostitution may be illegal, which would give rise to an illicit sex trade. Smugglers smuggle goods illegally across borders while evading taxes, restrictions on immigration, and other laws. Furthermore, the black market is fueled by counterfeit items such counterfeit designer apparel, gadgets, drugs, and money.

The challenge of capturing segments of the illicit economy is difficult and complex for law enforcement organizations and government authorities. This is due to several reasons. First, illicit activities are often conducted in secrecy and outside the bounds of the formal economy. This lack of transparency makes it challenging for authorities to track and monitor these activities. Furthermore, many segments of the illegal economy are controlled by well-organised and sophisticated criminal networks. These networks can span across regions, countries and even continents, making it difficult for law enforcement to penetrate or quantify them. Such activities are increasingly globalized, with illegal goods and funds flowing across borders. This requires international cooperation, which can be challenging to achieve due to differing legal systems and priorities among countries.

**Methods to capture the illegal economy:**

The illegal economy, which includes transactions deemed illegal or non-compliant with governmental reporting requirements, is often underestimated in GDP calculations. Measuring the size and scope of the illegal or underground economy is challenging due to its clandestine and unregulated nature. However, various methods and approaches are used worldwide to estimate and analyse the extent of the illegal economy. These methods often rely on indirect indicators and data sources. Some common methods include:

  

ISSN: 2455-8834

Volume:08, Issue:10 "October 2023"

1. **Currency demand approach:** This method estimates the size of the economy by looking at the demand for cash. The assumption here is that the underground economy significantly operates on cash transactions. Under this method, central banks and monetary authorities track the circulation of currency to estimate the size of cash transactions relative to GDP.

2. **Labor Market Approach:** Under this approach discrepancies between the number of workers and tax revenue are analyzed by comparing the official employment figures with the income tax revenue generated from those workers. If there is a large gap, it may indicate underreporting of income, suggesting a substantial underground economy.

3. **Production and Consumption Approach:** Herein economists compare official measures of production and consumption with actual GDP. If the reported production and consumption exceed the official GDP figures, the difference is attributed to the underground economy.

4. **Surveys and Studies:** Researchers often conduct surveys and studies to gather information directly from individuals and businesses involved in the underground economy. These surveys may be designed to collect data on informal employment, unreported income, and illegal activities. While surveys provide valuable insights, they can be subject to underreporting due to the sensitive nature of illegal activities.

5. **Tax Gap Analysis:** Tax authorities may estimate the size of the underground economy by calculating the "tax gap," which represents the difference between the expected tax revenue and the actual tax revenue collected. This method relies on tax compliance and evasion data.

6. **Data Analysis and Forensic Accounting:** Techniques such as data mining and financial profiling can be used to identify irregularities and anomalies that may be indicative of illegal economic activities. Data analysis is a method used by the Indian government to track the flow of black money, providing more accurate estimates and insights into trade patterns. This method can capture a full range of economic activity, from small informal businesses to unreported labor. It is non-intrusive, less expensive, and can facilitate international comparisons of the size of the informal sector and other indications of economic activity. Trade data is often used to estimate the size of the informal sector in some countries, but it may not be accurate due to some informal transactions not being captured in official trade records. Economic fluctuations may also render estimates obsolete, and some economic activities that could fall under informal sector classification may not be easily identifiable.

  

ISSN: 2455-8834

Volume:08, Issue:10 "October 2023"

7. **Analysis of Seizures and Confiscations:** Examining the value and volume of seizures and confiscations related to illegal activities, such as drugs, counterfeit goods, and tax evasion, can also provide some insight into the scale of the underground economy.

8. **Satellite Imagery and Remote Sensing:** In some cases, satellite imagery and remote sensing technologies can be used to monitor activities like illegal mining or deforestation, providing data that can be used to estimate the extent of these illegal operations.

Advanced data analytics and algorithms are utilized to detect abnormalities and questionable activity, and data analysis helps find patterns and linkages inside the criminal economy. Blockchain analysis, AI-powered algorithms, and digital forensics are examples of technological breakthroughs that can help identify and seize unlawful economic activity.

It is essential for law enforcement organizations to work together at the local, national, and international levels to trace unlawful actions that may take place in several different countries. Fighting transnational crime, exchanging information, and coordinating actions all need international collaboration. Authorities can find and apprehend criminals with the aid of increased public knowledge of and education about the negative effects of engaging in the illicit economy. Through the development of trust and open lines of communication, community policing increases knowledge about unlawful activity in the area.

**Conclusion**

Non-market transactions refer to those economic activities that do not involve any monetary exchange, such as housework, volunteering, etc. India has a large informal sector where many economic activities take place without being accounted for in the official GDP statistics. Therefore, the incorporation of non-market transactions in the GDP of India can be improved through better data collection methods. A great way used by the government of India to improve data collection is by conducting surveys that capture the informal sector activities. These surveys such as the National Sample Survey (NSS) and the Consumer Expenditure Survey (CES) can be used to estimate the value of goods and services produced in the informal sector and then included in GDP calculations. However, the accuracy and reliability of data collection methods depends on various factors like the size and diversity of the informal sector, availability of relevant data, financial resources, and technical expertise. It is often seen that such data is over or underestimated based on the values collected. The issues associated with these methods can be overcome with enhanced government participation.

Furthermore, it is important to note that addressing the underground economy is an ongoing challenge for any economy, and success often requires a combination of the above mentioned methods tailored to the specific context and nature of illegal activities in a given region or

  

ISSN: 2455-8834

Volume:08, Issue:10 "October 2023"

industry. Additionally, the effectiveness of these methods can vary widely depending on the level of resources, political will, and cooperation available to authorities. Therefore, more precise and intensive methods can be used to collect accurate data. For instance, the illegal economy can be identified most accurately through the currency demand approach and tax analysis. By comparing statistics and evaluating inputs received by the general public, it is likely to understand the errors and the faults in the current GDP calculation system. Hence, improving the incorporation of non-market transactions in the GDP of India requires a sustained effort to develop better data collection methods and investment in technology.

**Scope for future research:**

The outcomes of this study are dependent on the findings of other authors and researchers. In order to substantiate the accuracy of the findings some primary data needs to be recorded and tested. Hypothesis testing is an accurate form of using and verifying data and this can work especially well when understanding non-market areas and the workings of them. Not only will this provide greater insight into the research, but will also help arise new concepts and perspectives that may be overshadowed. Moreover, this research was limited to enlisting the ways of accurately estimating economic growth in India and it can be deduced that the idea of GDP being the sole indicator of economic growth can be challenged. Future studies can also consider exploring more methods used in countries other than India.

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