GS FOUNDATION FOR CSE 2024
ECONOMY-3
NATIONAL INCOME-2

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1. GDP AND RELATED ISSUES CONTINUE

1) VARIOUS WAYS OF MEASURING GDP

- Product or Output Method or Value-Added Method
- **Income Method**
- **Expenditure** or **Consumption Method**

All three approaches will give the same figure if correctly calculated.

A) PRODUCTION (OUTPUT) APPROACH (VALUE ADDED METHOD)

Here GDP is calculated as the final value of all goods and services produced.

B) EXPENDITURE APPROACH

- As per System of National Accounts (SNA), 2008 in India the formula for GDP under **expenditure method** is as follows:

- **GDP =** PFCE + GFCE + GCF + (Export of Goods and Services - Import of Goods and Services) + Discrepancies
- It is commonly represented as: **GDP/Aggregate Demand = C + G + I + NX**

- Under this method spending by the different groups that participate in the economy is calculated.
    - Where:
        1. PFCE/C = Private final consumption expenditure.
            - This is generally the biggest component of GDP and thus consumer confidence is crucial for economic growth.
        2. GFCE/G = Government Spending (Government Final Consumption Expenditure)
        3. GCF/I = Investment (Gross Capital Formation)
            - Gross Capital Formation refers to addition of new capital assets. The net addition of capital assets obtained by deducting the disposed assets from new assets added is called **Gross Capital Formation**. The capital assets are fixed assets like buildings, machinery plus inventories and valuables.
            - It is a critical component of GDP since it increases the productive capacity of an economy and boosts employment levels.
        4. NX = net exports (Exports - Imports)
        5. Discrepancies: The GDP calculated by gross value-added method and expenditure method differ as there are considerable differences in value recorded for a product between the time it is produced and the time it is consumed.

- **Note**: In India's GDP, the biggest component is the private consumption which is around 60% of the GDP, Government Consumption is around 11%, Gross Capital Formation (Investment) is around 30% and Net exports is around -2%.

- **Connecting it with income methods:**
  - Income = Consumption + Saving
  - In the above Formula: PFCE, GFCE and X-I are consumption; GCF is a saving item.

C) INCOME APPROACH (FACTOR INCOME APPROACH)

- The calculation of National Income by compiling incomes of all household is called **Income Method/ approach**.
- Here, income earned by all the factors of production in the economy is calculated. This includes wages earned by laborers, the rent earned by land, the return on capital in the form of interest, and profits for entrepreneurs.
- **GDP** = Profit + Interest + Rent + Wages

- **Why three different methods?**
  - In different sectors, different methods may be useful.
  - For e.g., in service sector, (expenditure/income method) is easy use, when compared to production method.

2) CAPITAL OUTPUT RATIO (COR) AND INCREMENTAL CAPITAL OUTPUT RATIO (ICOR)

- **Capital Output Ratio** (COR): It is a concept used to measure the efficiency of capital utilization in the economy. It is also known as capital intensity ratio.
  - The ratio quantifies the amount of capital (such as machinery, building, equipment etc.) required to produce a unit of output (goods or services)
  - **COR** = Total Capital Input / Total Output Produced
  - **Significance**:
    - The COR can be used to assess the efficiency of an economy, industry or individual firm.
    - A **low COR** indicates that a relatively small amount of capital is required to produce each unit of output, suggesting **efficient capital utilization**.
    - On the other hand, a **high COR** suggests that a significant amount of capital is needed to produce the same level of output, indicating **capital intensive production**.
  - **Key points about COR**:
    - **Variation by Industry**: Capital intensive industry has high COR.
    - **Changes over time** with changes in technology, changes in methods of production, or shift in the composition of output.
    - **Investment Decisions**: A low COR shows that additional investment can be productive, and a high COR will show the need of other strategies to improve efficiency.

- **A declining COR** indicates that economy is becoming more efficient in its use of capital.

- **Incremental Capital Output Ratio (ICOR)** means the additional amount of capital required to produce one additional product.
  - **ICOR = Incremental Capital / Incremental Output**
  - It helps to assess how much additional capital investment is needed to generate an additional unit of economic output (typically GDP or Gross Domestic Product).
  - It **quantifies the amount of capital required** for an increase in economic output.
    - **Capital Investment = Growth Rate * ICOR**
  - A lower ICOR indicates that the economy can produce more output with less additional capital, suggesting that the capital allocation is more efficient.
  - A higher ICOR implies that a significant amount of capital is needed to achieve the same level of economic growth, indicating that the capital investment may be less efficient.
  - This helps in understanding the amount of capital required to achieve a particular growth rate.

3) REAL GDP VS NOMINAL GDP

- GDP can be calculated on either a **nominal basis** or a **real basis**. In the later method, we account for inflation.

  - In case of **nominal GDP** all the goods and services are valued at the **prices that are actually sold for in that year**.

  - **Real GDP** is an inflation adjusted measure that reflects the quantity of goods and services produced by an economy in a given year, with **prices held constant from year to year** in order to separate out impacts of inflation or deflation from the trend in output over time.

  - Here, while calculating the value of total output produced, the price of a **base year** is used. This allows for the adjustment of inflation's impact.

	Quantity of Wheat	**Market Price of Wheat**	**Nominal GDP**	**Nominal GDP Growth Rate**	**Real GDP** (considering 2011-12 as the base year)	**Real GDP Growth Rate**
2011-12	10 KG	Rs 10/Kg				
2012-13	12 KG	Rs 15/Kg				
2013-14	15 Kg	Rs 15/Kg				
2014-15	18 Kg	Rs 18/Kg				
2015-16	20 Kg	Rs 20/Kg				

- **GDP Price Deflator**: Real GDP is calculated using GDP price deflator. It is the different in prices between the current year and the base year.
    - For e.g., if the price rose by 20% since base year, the GDP Price Deflator would be 1.20.
    - Nominal GDP is divided by this deflator to get real GDP.

- Nominal GDP is generally higher than real GDP since generally inflation is a positive number.

4) 2015 CHANGES IN GDP CALCULATION METHOD

- In 2018, The Ministry of Statistics and Program Implementation (MoSPI), GoI, introduced a new series of National Income Estimation (net method of calculating GDP). This was guided by international norms and is in sync with the UN System of National Accounts (SNA), 2008.

- **Key Changes Made (1. GVA Method 2. Base Year Change 3. Change in the data source)**
    - **a. Gross Value-Added Method**
        - **Earlier**, the economic growth was measured in terms of growth rate at GDP at factor cost at constant prices.

        - **GVA Method of GDP calculation**
            - **$GVA_{Basic\ price} = GVA_{FC}$ + production taxes - production subsidies**
                - Note: GVA at Basic Price is also called as GVA Producer's price.

            - **GDP_{MP} = GVA_{BP} + Product taxes - product subsidies** ($GDP_{MP} = GVA_{BP}$ + Net Indirect Taxes)
                - Note: GDP_{MP} is also known as Buyer's price.

                - **Note:**
                    - **Production taxes or subsidies** are paid or received with relation to production and are independent of the volume of actual production.
                        - **Production Taxes**: Land Revenues, Stamps and registration fees and tax on profession.
                    - **Production Subsidies** - Subsidies to railways, input subsidies to farmers, subsidies to village and small industries, administrative subsidies to corporation or cooperatives, etc.

                - For arriving at the new value of added (GVA) at basic prices, **production taxes**, such a property tax license fee, are added and **production subsidies** (subsidies to railways, input subsidies to farmers etc.) are subtracted from GVA at factor cost.
                - Product taxes are paid on per unit of product. E.g., GST, import and export duties etc.
                - Product Subsidies are received per unit of product. It includes petroleum or fertilizer subsidy.

- The new method was recommended by the **United Nations System of National Accounts** in 2008 and made India's GDP growth numbers comparable with that of the developed nations.

b. Base Year Change

- The change in base year was done in accordance with the recommendation of the National Statistical Commission, which had advised to revise base year of all economic indices every five years.
- Current Base Year: 2011-12 (starting Jan 2015)

c. **Shift from Establishment Approach to Enterprise Approach** in calculating manufacturing production.

- The **establishment approach** [calculating production plant by plant] used in Annual Survey of Industries did not capture the activities of a unit other than manufacturing.
- Whereas an **enterprise** along with its manufacturing activities is also engaged in activities other than manufacturing such as ancillary activities etc. So, under **Enterprise approach**, the activities of a manufacturing company other than manufacturing (e.g. advertisement, brand building, etc.) are accounted in manufacturing sector.

- The enterprise approach is facilitated by **MCA21** with Ministry of Corporate Affairs.
  - MCA-21 is an e-governance initiative of Ministry of Corporate Affairs.
  - MCA 21 is an annual account of companies filed with Ministry of Corporate Affairs.
  - This ensures more comprehensive data on corporate activities is considered than older methods.
    - It captures the **entire value addition done by an enterprise including on advertisement and brand building**. This is called **Enterprise based data method**. Here selling and marketing expenses are also reckoned with, instead of just production cost.
- These changes possibly have **increased the coverage of registered sector of manufacturing**

d. Incorporation of Findings of NSSO Surveys -> better representation of activities in unorganized sector

- The details of new NSS Surveys viz. Unincorporated Enterprises Surveys (2010-11) and Employment & Unemployed Survey, 2011-12 are incorporated in the new series.

- **Significance of using GVA data**
  - The GVA data is crucial to understand how various sectors of real economy is performing. The output or domestic product is essentially a measure of GVA combined with net taxes.
  - It helps policy makers to make policy interventions, where needed.
  - Further, GVA is an integral and necessary parameter in measuring a nation's economic performance as per global standards.

- **Impact of Changes**

- India's GDP calculation in sync with global practice; increased size of economy; lower fiscal deficit; more incentives to raise indirect taxes and reduce subsidies;
- **Increase in share of manufacturing sector in overall GDP:** Trading activities by manufacturing firms are now included in sector's share. This change along with better data compilation has led to manufacturing sector increase its share and so for other sectors

5) GDP BACK-SERIES DATA

- **What is back-series Data?**
  - Base years for GDP estimates are revised from time to time throughout the world over to account for changes in the production structure of the economy.
  - Whenever the base years are changed, the statistical authorities also provide comparable back series data with macro policy analysis. In India, MoSPI has produced such back series whenever base years have changed.

- **What was the problem in developing back series data this time?**
  - The GDP calculation method was changed.
  - But, more importantly, the MCA21 database was not available for the period prior to 2006-07.

6) TECHNICAL RECESSION

- What is **Recessionary Phase?**
  - When the overall output of goods and services (GDP) **- contracts** from one quarter (or month) to another, the economy is considered to be in **recessionary phase** (as opposed to expansionary phase).

- **What is recession?**
  - When a recessionary phase sustains for long duration, it is called recession i.e. when GDP contracts for a long enough period, the economy is said to be in recession. This decline in economic activities can last from a few months to more than a year.
  - Expert bodies consider various data like employment, consumption, GDP growth etc. to arrive at a decision. They also look at depth, diffusion and duration of decline in economic activity to determine whether an economy is in recession or not.
    - For e.g. Due to sudden lock down due to COVID-19 the slowdown was so well diffused throughout the economy, it would have been turned a recession even if it was for a brief period.

- **What is technical recession?**
  - This is a technical way of measuring recession, in which real quarterly GDP is used as benchmark of measurement. It occurs if real quarterly GDP remains in negative territory for **two consecutive quarters**.

7) POTENTIAL GDP (NATURAL GDP)

- It is the **sustainable level of GDP** (i.e. at a constant inflation) that is possible or attainable while the **economy is operating at a maximum resource usage rate over a period**. It represents **full employment GDP** and gauges the economy's productive capability, especially at a constant inflation rate.

    - **Sustainability** is the key concept here. Every economy has certain natural limits, determined by its available labor force, technology, natural resources, and other limitations.

    - **When GDP falls short of its natural limit**, it means the country is failing to live upto its economic potential. When GDP exceeds that natural limit, inflation is likely to follow. Therefore, Potential GDP is also sometimes referred to as Natural GDP.

- **What does the potential GDP reveal about the health of the economy**?
    - If real **GDP is less than potential GDP** (i.e. if output gap is negative), it means demand for goods and services is weak. It's a sign that economy may not be at full employment.
        - Here, central banks may consider lowering of interest rates to stimulate income.
    - If the real GDP exceeds potential GDP (i.e. if the output gap is positive), it means that the economy is **producing above its sustainable limits**, and the aggregate demand is outstripping aggregate supply. In this case, inflation and price increase are likely to follow.
        - Here, the central banks may consider increasing the interest rates to control inflation.
    - Thus, potential GDP provides policy makers an important benchmark when making decisions about monetary policy.
    - The, Central Bank (fed in USA) wants to keep real GDP aligned with potential GDP.

- **Key factors in estimating potential GDP:**
    - Capital accumulation is a key factor in estimating Potential Gross Domestic Product and Potential GDP growth.
    - Growth of workforce is another significant factor in determining sustainable Potential GDP growth.

- **Potential GDP is not the most useful took for** forecasting or guiding policy because it is unpredictable and varies greatly in value, especially in recent years.

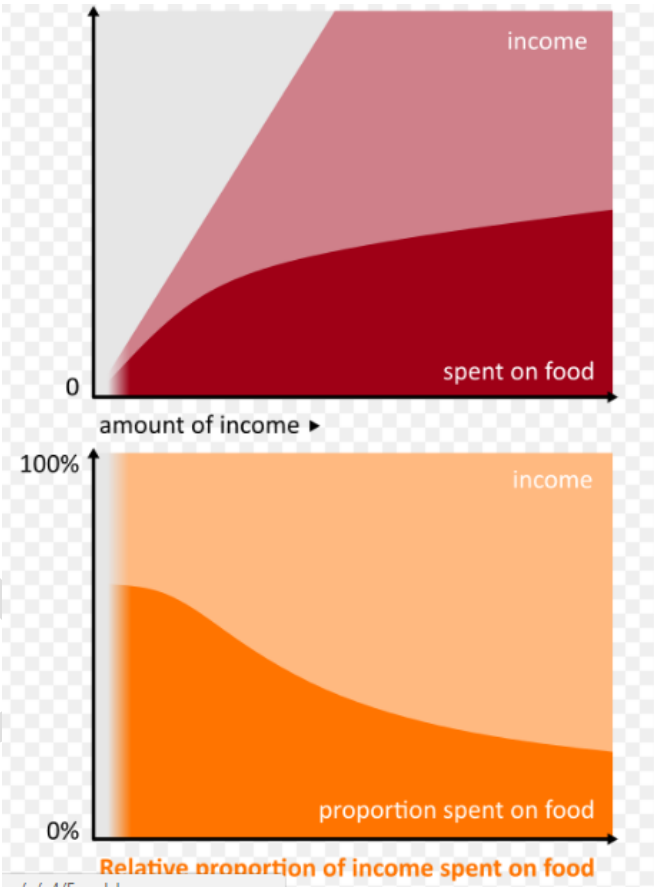
- **How is Potential GDP estimated?**
    - Different economists use different methods.
        - The Congressional Budget Office (CBO) uses a combination of growth forecasts and gauges of inflationary pressures for its estimates of potential GDP.
        - Other economists use other methods. But the differences aren't mere academic. These differences have serious implications for what monetary policies like fed and other central banks pursue.
            - For e.g., calculating natural rate of unemployment is an especially thorny problem.

- **Factors inhibiting India from achieving its Potential GDP**

- Weakness in manufacturing sector
- Global Financial Crisis
- Decline in total factor productivity.
- Crisis in financial sectors

8) ENGEL'S LAW

- It is an economic theory introduced in 1857 by Ernst Engel, a German statistician, which states that the percentage of income spent on food decreases as income rises. In other words, the income elasticity of demand of food is **between 0 and 1**.



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9) GDP (PPP)

- **Understanding Nominal Exchange Rate** (NER): It is the rate at which one country's currency can be exchanged for another country's currency.
  - NER = Price of one unit of foreign currency / Price of one unit of domestic currency
  - Or **NER = Price of one unit of foreign currency in terms of domestic currency**
    - For e.g. 1$ = 80 Rupees
    - NER = 80.
  - NER depends on market forces of demand and supply.
    - If demand of foreign currency increases wrt domestic currency, NER increases and vice versa.

- **Purchasing Power Parity (PPP) Exchange Rate**:
  - **PPP Exchange Rate** is a theoretical exchange rate used in economics to compare the relative value of currencies and assess whether a currency is overvalued or undervalued.

  - It is based on the concept of the **law of one price,** which suggests that identical goods in different countries should have the same price when expressed in common currency, taking into account the exchange rates.

  - **Let's understand this with an example**:
    - **Suppose** an Apple costs 1$ in USA, the same apple (in terms of quality, weight and other features) cost Rs 40 in India.
    - If the two economies only produce apple, we can say that:
      - 1$ = Rs 40 (both would just by an apple). This is what is called PPP Exchange rate.

  - **In reality**, there are several goods and services produced by both countries. Therefore, to calculate the PPP exchange rate, the same basket of commodities being produced in both the countries is considered.
    - Suppose this basket of commodities cost $100 in USA and Rs 4,000 in India.
    - It will give us $100 = Rs 4,000 or 1$ = Rs 40
    - This is the PPP Exchange rate.

- **How does PPP exchange rate changes with inflation**?
  - If inflation is same in both countries:
  - If inflation is zero in both countries:
  - If inflation is higher in one country and lower in another:

- When Nominal Exchange Rate is equal to the PPP Exchange rate, the exchange rate accurately reflects the relative price levels of the two countries, and the currencies are neither overvalued nor undervalued. They are at **Purchasing Power Parity (PPP)**.

- **GDP at PPP**:
  - Let's say India's GDP is Rs 300 Lakh crore.
  - If we convert this in $ using the NER (1$ = 80 Rs), we would get **$ 3.75 lakh crores**.
  - If we convert this in $ using the PPPER (1$ = 40 Rs), we would get **$7.5 lakh crores**.

- So, GDP at PPP is a measure of GDP in "international dollars" while adjusting for differences in local price and cost of living in order to make cross-country comparisons of real output, real income, and living standards.
  - For e.g., Currently, India's economy is fifth largest in the world after US, China, Japan and Germany.
  - But, in terms of PPP, since 2011, India's economy is the third largest in the world.

10) REAL GDP AND WELFARE

- Real GDP is considered as an index of welfare of the people. Welfare thus is measured in terms of availability of goods and services per person.

- Increase in real GDP thus implies increase in the level of output in the economy. Other things remaining constant, this would mean an increase in availability of goods per person implying higher level of welfare. Therefore, economic planners lay emphasis on the GDP growth rate.
- **Limitations of this measure of welfare:**
    - **Distribution of Income**
    - **Composition of GDP**: For e.g., increase in the production of defence goods doesn't lead to any direct increase in welfare of people.
    - **Non-Monetary Exchanges**: For e.g., in rural areas, some barter system may continue. Payment to farm laborers is often made in kind. These transaction remains unrecorded. This causes under-estimation of GP.
    - **Externalities**: Externalities refer to good and bad impact of an economic activity without paying the price or penalty for that.