MACROECONOMICS

National Income Accounting

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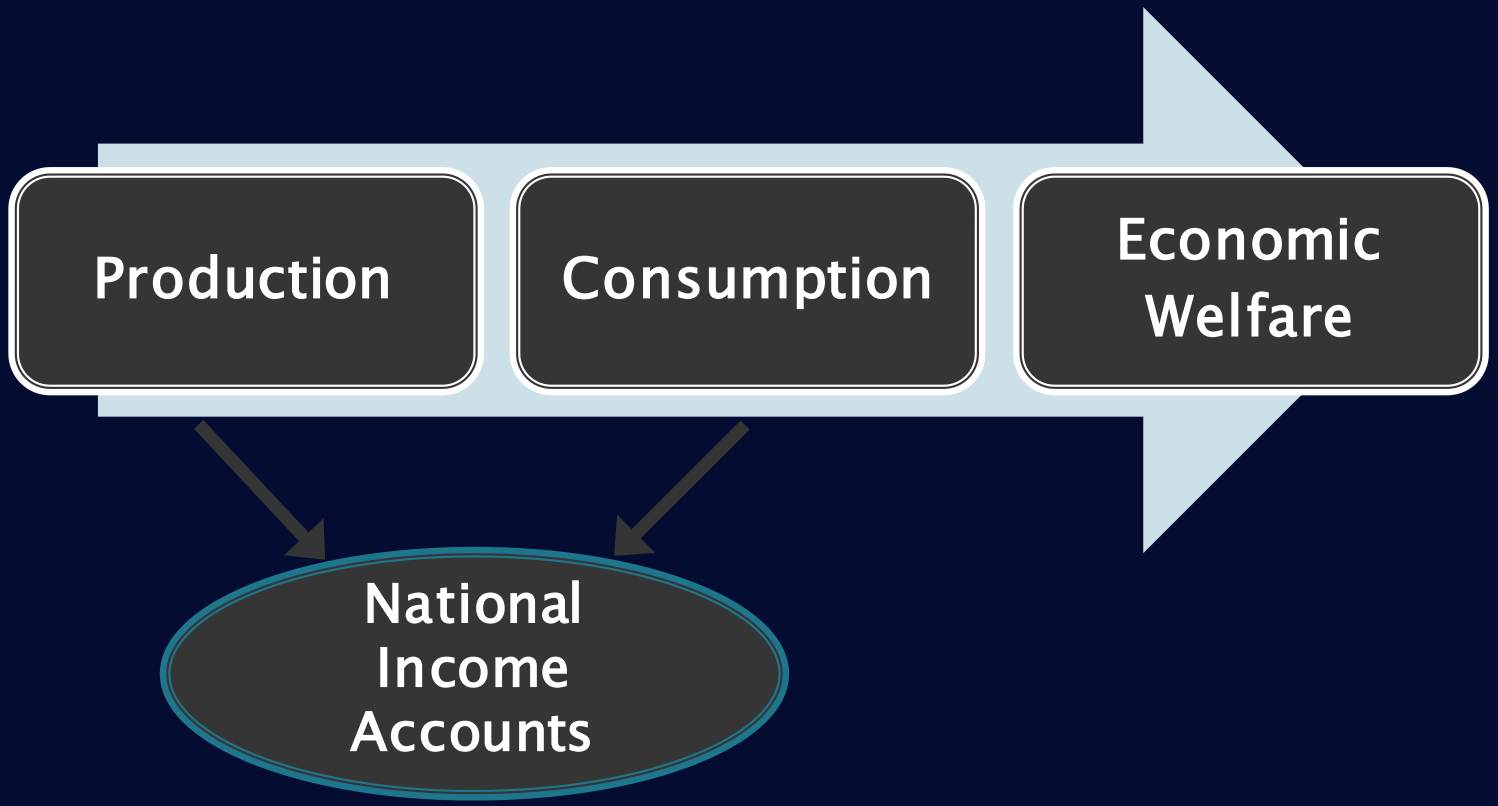
i. National income and national income accounting

National income is more often than not a generic expression that is used to indicate the production performance of an economy.

However, as economists we will have to be more specific about what all is included in the concept of national income.

Implicit is the logic that national income or production performance of an economy defines the boundaries of consumption possibilities which in turn are used as the proxy for welfare of people of that economy.


Production
Consumption
Economic Welfare
National Income Accounts

Though National Income is a proxy for production or consumption possibilities of an economy, National Income Accounting is much more than that. It is a systematic method of recording the levels of production, consumption and other macroeconomic aggregates, such as, savings, investment, exports, imports, etc. The method is also referred to as the System of National Accounts (SNA).

ii. When, Why and How Did the Practice of National Income Accounting Start?

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When….

The estimation of national income dates back to the early 1930s. These accounts were first presented for the United States in 1934 (for the period *1929–32)* by Simon Kuznets and his research team.

How…

The arrival of 'The General Theory of Employment, Interest and Money' by John Maynard Keynes in 1936 provided a new framework for the conduct of macroeconomic policies.

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It opened up new vistas for government intervention in economic activity under the conditions of less than full employment.

Why…

These accounts serve as the background information for designing economic policies.

iii. Circular Flow of Economic Activity and National Income accounting

We can visualize that an economy can consist of the following types of economic agents:

1. Households (HH) and business firms (F):
   Two sector model
2. HH, F and Government (G)
   Three sector model
3. HH, F, G and Rest of the world (ROW)
   Four sector model

This classification of economic agents helps in identification of consumers producers

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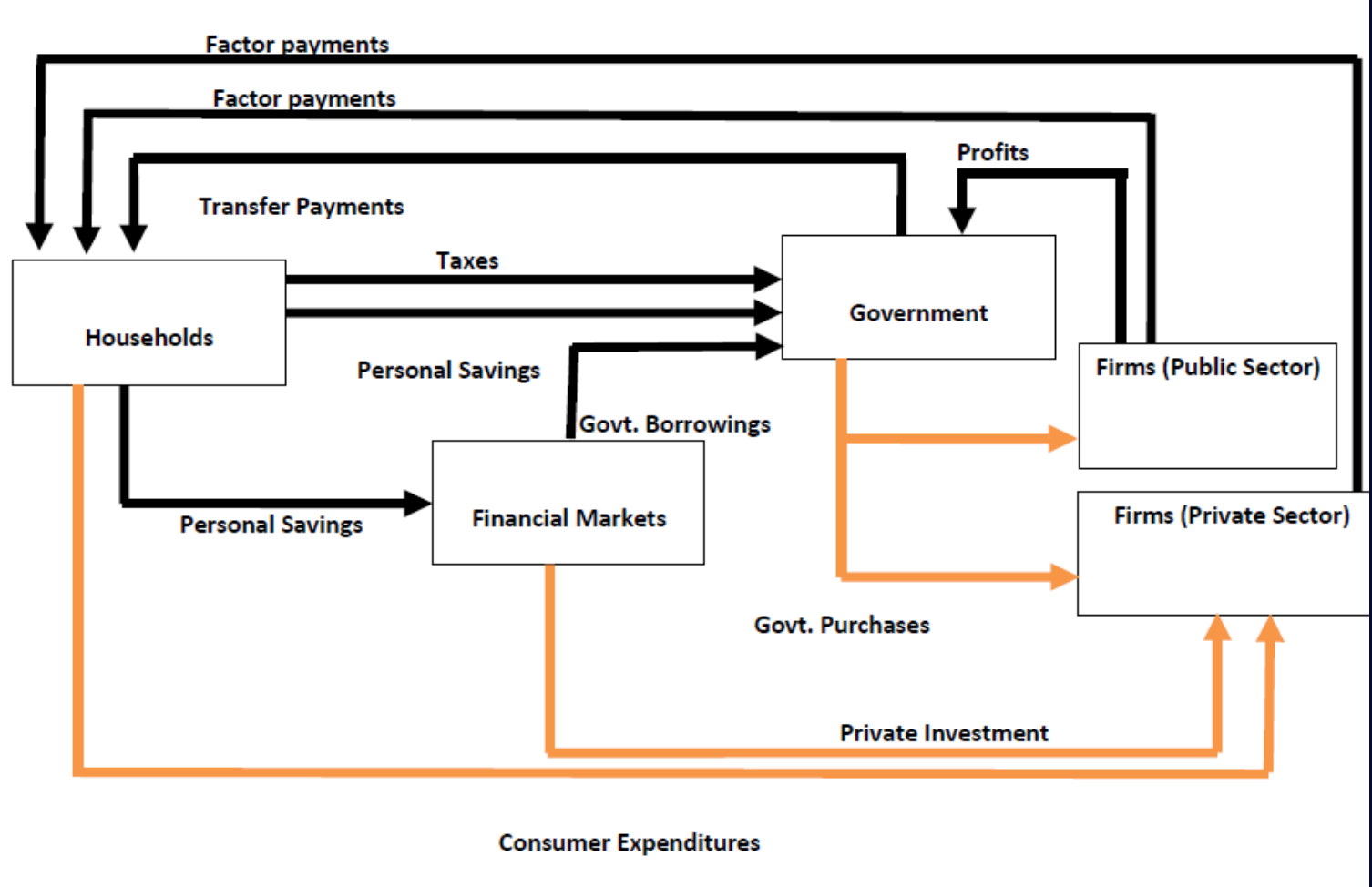


2. Concepts, Definitions and Identities

- As mentioned earlier, the term, national income is used very often in a generic sense. However, as economists, we must distinguish between the various concepts related to the national
- income accounting. We often hear about GDP, GNP, Real National Income, growth rate, etc.

Gross Domestic Product (GDP)

- GDP is the total market value of all final goods and services produced within a country during a given period of time.
- Note that each of the word in the above definition of GDP is important.
- Market value: indicates preferences of consumers and producers and sold legally in markets.
- All: Comprehensiveness of good and services included in the national income accounting.

Final goods and services: We do not include intermediate goods whose value is embedded in the final products

Within a country: Specifies geographical location of production within the boundaries of a country

During a given time period: indicates that it is a flow concept, i.e., it measures production between two time.

National Income Identities

- GNP at market prices includes indirect taxes. This differs from the value of goods received by the producers. The value of goods and services received by the producers is referred to as the net price or factor cost.

National Income Identities

- Gross value added = GDP at factor cost = Gross Output – Intermediate consumption
- GDP at Market Prices = Gross value added + Indirect taxes – Subsidies
- GDP at factor cost = GDP at market prices – indirect taxes + subsidies
- NDP (National Income) = GDP – Consumption of fixed capital (depreciation)

- Disposable income = NDP – direct taxes- net business savings + transfer payments
- GDomesticP + net factor income earned abroad = GNationalP
- Net Exports = Exports – Imports

  Net factor incomes earned abroad = Factor income earned by domestic residents from abroad – income earned by foreigners from the domestic economy.

Relationship between Deficits and National Income

$Y = C + I + G + X - M$

$Yd = Y - TX + TR = [C + I + G + X - M] - TX + TR = C + S$

$[I - S] = [TX - G - TR] + [M - X]$

$X = M$ is Balanced Trade

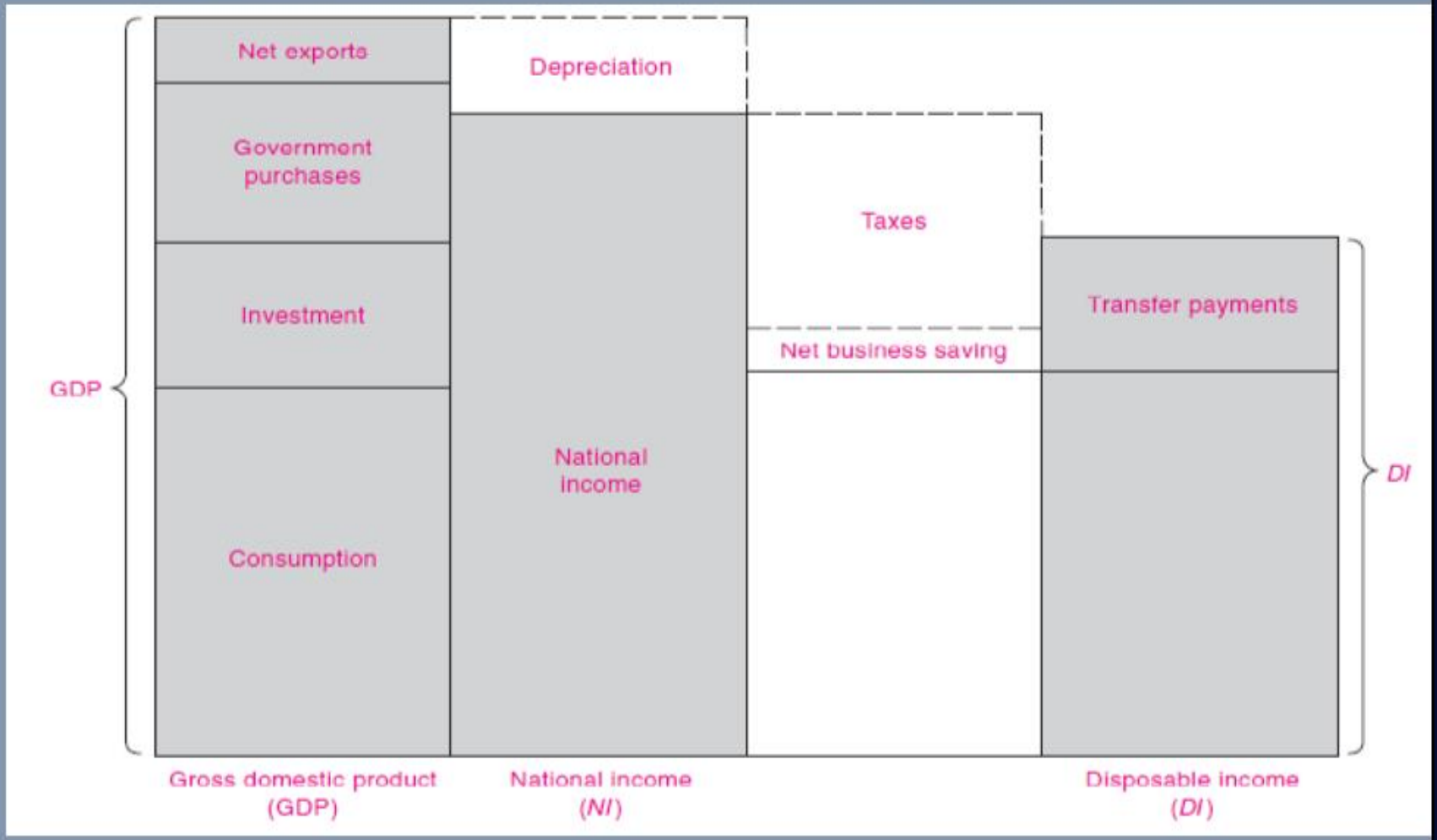
$X < M$ is trade Deficit and $X > M$ is trade surplus

$[S - I] = [G + TR - TA] + [X - M]$

$[I - S] = [TX - \{G + TR\}] + [M - X]$

Given $Yd = C + S$ [Fiscal policy is any measure that influences govt revenue and/or expenditure].

From GDP to National Income to Disposable Income (assuming that NFIA = 0)



Source: Samuelson and Nordhaus, Economics, 19th Edition

3. REAL VERSUS NOMINAL GDP

- *Nominal GDP (YN)* values the production of goods and services at *current prices*. If 'i' denotes final products or services, 'P' as price, 'Q' as quantity, 't' is the time and '0' as the base year, then nominal GDP in period 't' is the sum of prices times quantities ($\Sigma P^i_t Q^i_t$). Thus, nominal GDP changes due to a change in P and/or *Q.*

3.1 Decomposing changes in GDP into changes in prices and output

- If we are very interested in measuring change in nominal GDP due to change in Q or growth of production in the economy over time, we need to estimate real GDP. Real GDP (YR) values the production of goods and services at constant prices. ($\Sigma P^i_0 Q^i_t$).

$$V_t = \sum_{i=1}^{n} P_{it} Q_{it} \quad (1)$$

$$V_o = \sum_{i=1}^{n} P_{io} Q_{io} \quad (2)$$

$$V_{t,o} = \sum_{i=1}^{n} P_{io} Q_{it} \quad (3)$$

$$V_t / V_o = [Vt / V_{t,o}] \times [V_{t,o} / V_o]$$

Change in price Change in Quantity

1. Growth Rate: g_t

$$g_t = [V_{t,0} - V_{t-1,0}] / [V_{t-1,0}] * 100$$

2. GDP deflator index with $P_{t,0}$ (price index at 't' with base '0')

$$P_{t,0} = [V_t / V_{t,0}] * 100$$

$$\text{GDP deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$

3. $\Pi_{t,0}$ ***is the rate of inflation*** *at time 't' derived from a series with base year '0'.*

$$\Pi_{t,0} = [P_{t,0} - P_{t-1,0}] / [P_{t-1,0}] * 100$$

4. Approaches to Measurement of National Income

4.1 Flow-of-product

Σ Pi Qi = R where i is the number of items included in GDP, P is the price, Q is the quantity and R is the total revenue or the value of the products sold in the markets

Value Added vs Product Flow Approach

When a car manufacturer orders glass from a glass company to use in its automobiles, the glass is considered an *intermediate good.* The value of this glass should *not* be measured as part of GDP, because when the car (i.e., the final product) is sold, the purchase price will include the value of the glass. If we counted the glass when the car manufacturer purchased it, we would have counted the glass twice. This is the *double-counting problem* that GDP statisticians try to avoid.

4.2 Expenditure Method

Possibilities of various economic agents

2 sectors: closed economy:
HHs & Firms

3 sectors: closed economy:
HHs, Firms & Govt

4 Sectors: open economy:
HHs, Firms, Govt & ROW

In an economy with HH, firms, government and ROW, there are four main categories of spending:

- Expenditure by households or consumers (*C*)
- Investment spending by businesses (*I*)
- Expenditure on goods and services by government (G)
- Net exports, which is the difference between the value of our exports to other countries and the value of the products that we import from abroad (X -M)

•GDP or aggregate demand Y = C+I+G+X-M

X–M is trade balance : Balanced Trade (=0), trade surplus (>0), trade deficit (< 0)

4.3 Sum of Earnings or Cost Approach

1. The earnings or cost approach is used to calculate GDP by summing up all the costs of doing business. These costs include the wages paid to labor, the rents paid to land, interest paid to capital and the profits paid to enterprise. Since households ultimately provide all the factors of production, all the money received by the firms is paid to factors of production.
2. R = Wages + Rent+ Interest + Profits

(pls go through the diagram on circular flow of economic activity)

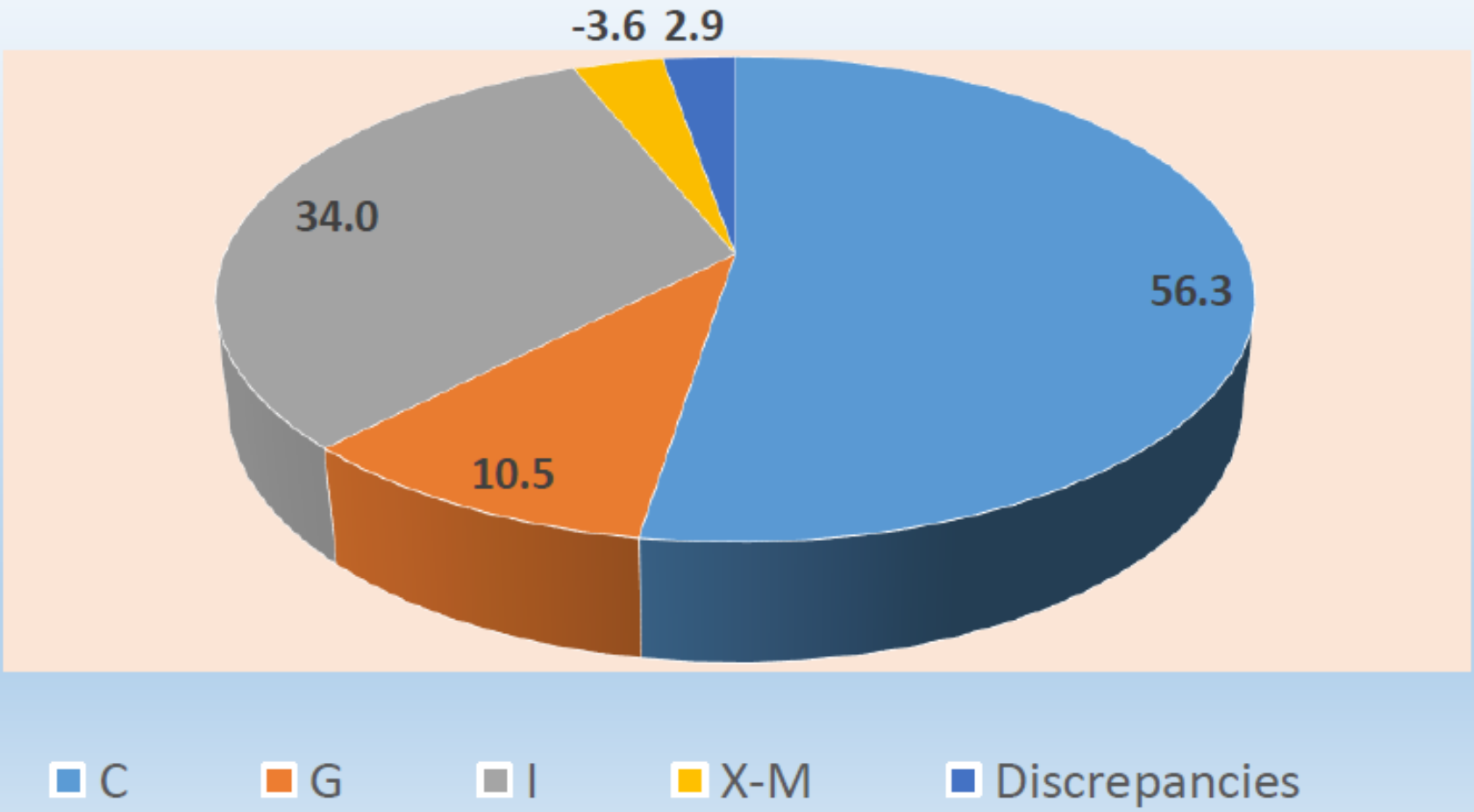
When all transactions are measured accurately, the GDP estimated with these methods should be the same, because profits are also added in the sum of earnings approach.

One person's expenditure is another person's income!

5. A synoptic view of India's NI

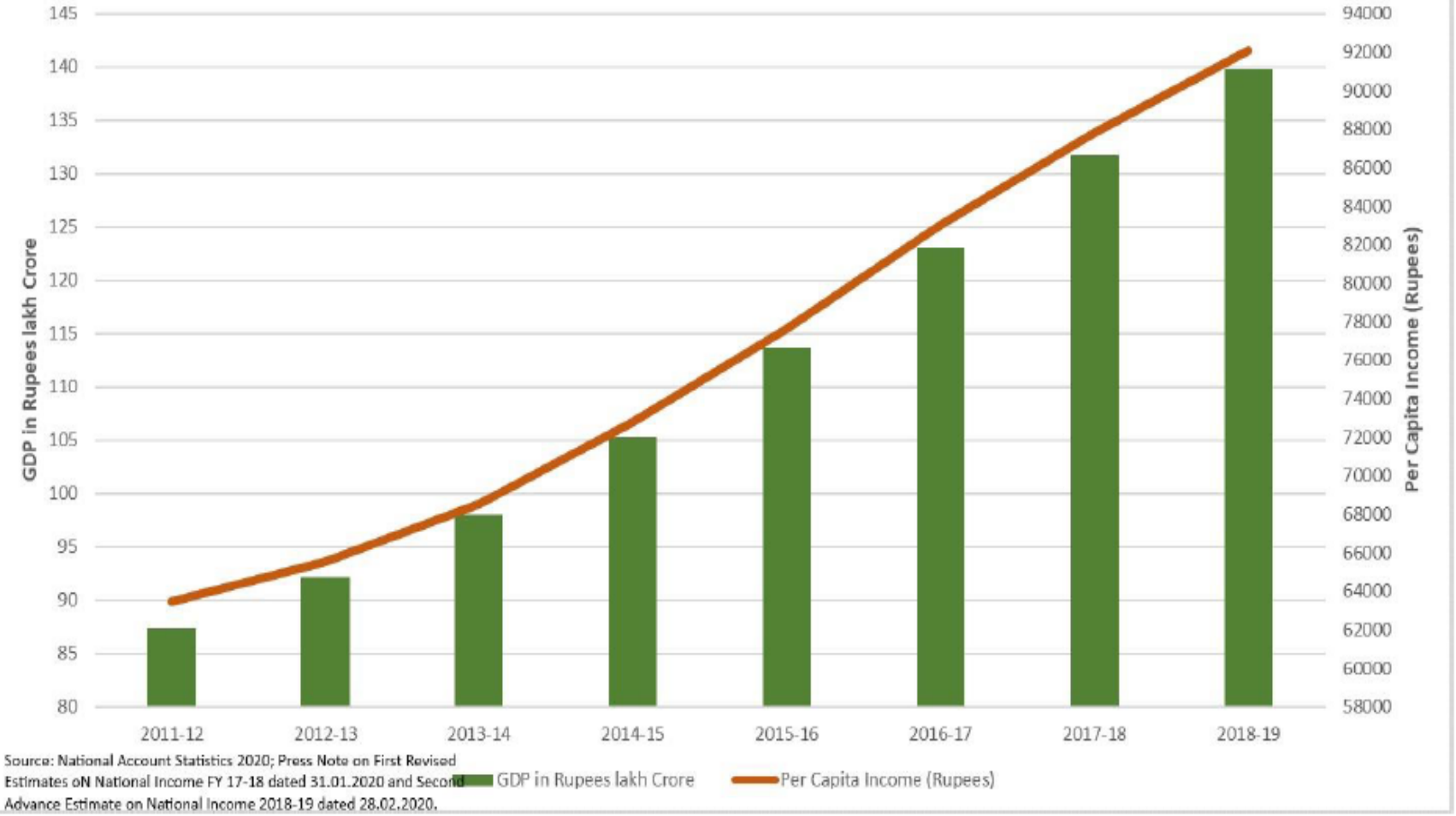
- GDP excludes 'most' items that are produced and consumed at home and that never enter the marketplace.
- It excludes items produced and sold illicitly, such as illegal drugs.

COMPONENTS OF GDP (%) IN INDIA; 2018-19



Graph based on the data sourced from
http://www.mospi.gov.in/sites/default/files/reports_and_publication/statistical_publication/National_Accounts/NAS19/NAS%202019.pdf

REAL GDP AND PER CAPITA INCOME OVER THE YEARS For India



Source: National Account Statistics 2020; Press Note on First Revised Estimates oN National Income FY 17-18 dated 31.01.2020 and Second Advance Estimate on National Income 2018-19 dated 28.02.2020.

http://mospi.nic.in/slider/graph-3

6. Limitations and Omissions

- GDP excludes 'most' items that are produced and consumed at home and that never enter the marketplace.

- It excludes items produced and sold illicitly, such as illegal drugs.

7. Is GDP a Good Measure of Economic Well-being?

GDP is one of most used single measure of the economic well-being of a society.

NNP per person rather than total GDP tells us the income and expenditure of the average person in the economy.

Higher GDP per person is used as an indicator of a higher standard of living, even though it hides the information on distribution of income

GDP is not a perfect measure of the happiness or quality of life. However, it is one of the most crucial, crude and convenient approximation of welfare that is widely used.

Thank you for your attention!