MACROECONOMICS SEM-II

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Real versus Nominal GDP

- Why it is necessary to understand the difference between Real and Nominal GDP?
- The answer of the above question is related with another question: Whether GDP is a good measure of well being?
- Consider an economy producing two Goods: Rice and Potato
- So GDP = (Quantity of Rice X Price of Rice) + (Quantity of Potato X Price of Potato)
- That means The GDP can rise due to either quantity rise or price rise.
- If GDP rises due to quantity rise then that means people are getting more goods with same price.
- But if GDP rises due to price increase then it indicates an inflationary situation

Real versus Nominal GDP

- So we need a measure which will be free from that of inflationary impact and Real GDP gives that measure.
- Real GDP measures the value of goods and services using a constant set of prices.
- Constant Set of prices is termed as *Base year price.*
- Real GDP makes it possible to compare well being among different years.
- With a numerical example we try to understand the process of computing Real GDP as well as its usefulness.

Real versus Nominal GDP

Goods / YEAR	Qty of Rice (Kg)	Price of Rice (Rs.)	Qty of Potato (Kg)	Price of Potato (Rs.)
2018	100	10	50	8
2019	125	10	80	8
2020	125	20	80	15

Real versus Nominal GDP

- Nominal GDP:
- 2018: 100 X 10 + 50X 8 = 1400
- 2019: 125 X 10 + 80 X 8 = 1890
- 2020: 125 X 20 + 80 X 15 = 3700
- Find that there is a steady increase in GDP, but whether that means people are getting more goods at their disposal? Now we have to calculate the Real GDP.
- Use the price of 2018 as *Base year price.*
- We have to evaluate GDP at base year price: Real GDP = qty of rice of current year X Price of Rice at base year + qty of potato of current year X price of potato at base year

Real versus Nominal GDP

- Real GDP:
- At 2018: 1400 (As 2018 is the base year so nominal GDP=Real GDP)
- At 2019: 125 X 10 + 80 X 8 = 1890
- At 2020: 125 X 10 + 80X 8 = 1890
- Now look at the Real GDP: there is a change from 2018 to 2019, but there is no change from 2019 to 2020 though there is a huge chage within the same period in case of Nominal GDP.
- That indicates that production of goods services increased from 2018 to 2019 but there is no increase in production from 2019 to 2020
- Increased production can provide satisfaction to the people.
- Real GDP serves this necessity.

GDP Deflator

- GDP Deflator = $\frac{Nominal\ GDP}{Real\ GDP}$
- The GDP deflator reflects what's happening to the overall level of prices in the economy.
- Let there is one commodity produced. The quantity of the commodity is q and p is the current year price. Let p_{base} is the base year price. So
- GDP Deflator = $\frac{q\ X\ p}{q\ X\ p_{base}} = \frac{p}{p_{base}}$
- GDP deflator at 2018 = 1400/1400 = 1
- GDP deflator at 2019 = 1890/1890 = 1
- GDP deflator at 2020 = 3700/1890 = 1.95

Cost of Living Index

- If my salary is Rs. 100 at 2001 and it remains same at 2020 then the question is whether can I purchase the commodity basket in 2020 which I can purchase at 2001. The clear answer is NO.
- This is due to inflation. Cost of Living Index measures this change in price.
- Consumer Price Index (CPI) is most commonly used cost of living index.
- Computation of CPI:
- Suppose two goods are produced: X and Y. Consumer purchase x amount of X and y amount of Y. Current price is given by $P_x \; and \; P_y$. The base year prices of both the commodities are given by P_x^B and P_y^B. Now
- CPI = $\frac{x \times P_x + y \times P_y}{x \times P_x^B + y \times P_y^B}$
- CPI looks similar to GDP Deflator, but there are differences.

Difference Between GDP Deflator & CPI

- First difference: GDP Deflator measures the prices of goods and services produced, whereas CPI takes into account the prices of those goods and services which are purchased by consumer. So if the price of Airplane increases then GDP deflator will rise but not the CPI.
- 2nd Difference: GDP Deflator includes only those goods and services which are produced domestically. That means the price of Toyota produced in Japan and sold in India will not be a part of GDP deflator, but surely it will be included in CPI.
- 3rd Difference: this is the most important. GDP deflator computes with changing basket of goods, whereas CPI is calculated on the basis of fixed basket. Potato is one of the important member of our food basket. Now for a huge flood the production of potato falls to zero in India. So the price of potato remained in the market from the previous year will be sky high. Now as potato is not produced so it will not be included in GDP Deflator, but it will be included in CPI.

Different Price Index

- *Laspeyers Index:* A price index with fixed basket of goods. Example: CPI
- *Paasche Index:* A price index with changing basket of goods. Example: GDP Deflator.
- Which one is better?
- No one.
- When the prices of different commodities change in different amount then Laspeyers index overstate the cost of living index as it does not consider that people can substitute the cheaper goods with the dearer one. On the other Paasche Index, though it allows substitution, understate the cost of living index as it does not take into account the loss of welfare of consumer for not getting potatos.