Real GDP vs Nominal GDP

Real GDP	Nominal GDP
It refers to market value of final goods and services produced in a country during an year, measured at price of base year.	It refers to market value of final goods and services produced in a country during an year, measured at price of Current year.
It is a better tool for measuring the economic growth of country.	It is not a good tool for measuring the economic growth of a country.
It can increase only when output of goods and services rise in current year.	It can rise either when output of goods and services rise or when current price rise.
It is also called National income constant price.	It is also called National income at current price.

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$$\text{Nominal GDP} = \overset{2022}{P_1} \times \overset{2022}{Q_1}$$

2015 $\begin{cases} \text{Base Year Price} \rightarrow P_0 \\ \text{Base Year Qty.} \rightarrow Q_0 \end{cases}$

$$\text{Real GDP} = \overset{2015}{P_0} \times \overset{2021}{Q_1}$$

2022 $\begin{cases} \text{Current Year Price} \rightarrow P_1 \\ \text{Current Year Qty.} \rightarrow Q_1 \end{cases}$

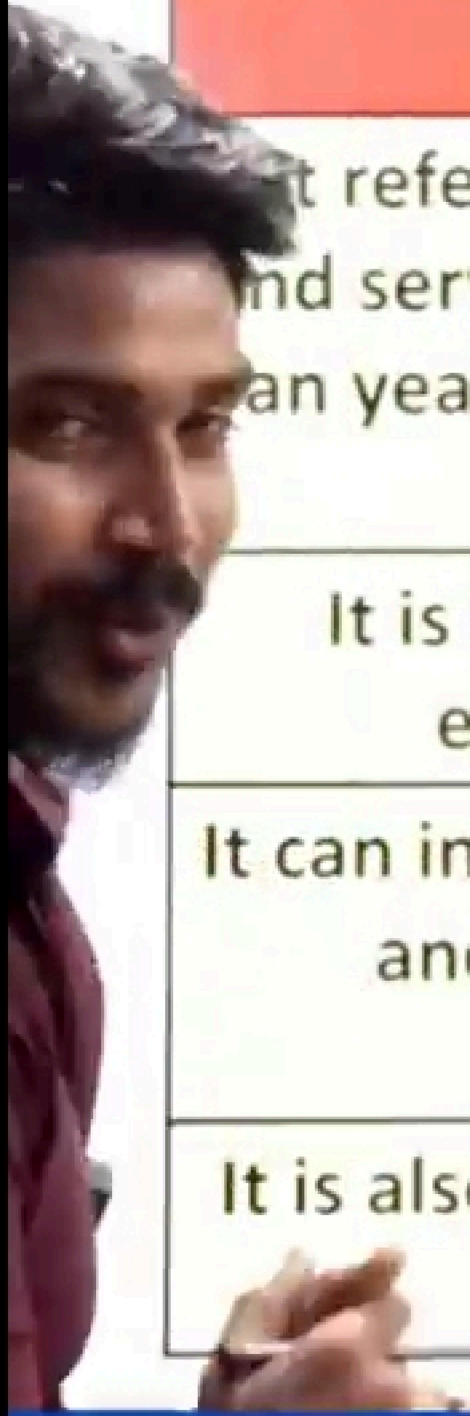
$$\text{Nominal GDP} = \overset{2022}{P_1} \times \overset{2022}{Q_1}$$

2015
- Base Year Price $\rightarrow P_0$
- Base Year Qty. $\rightarrow Q_0$

$$\text{Real GDP} = \overset{2015}{P_0} \times \overset{2021}{Q_1}$$

2022
- Current Year Price $\rightarrow P_1$
- Current Year Qty. $\rightarrow Q_1$

Real GDP vs Nominal GDP



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	P	Q
2011	10	7
2012	15	10
2013	20	20

Base Year = 2011

Nominal GDP $= P_1 \times Q_1$

2011 → $10 \times 7 = 70$ ₹

2012 → $15 \times 10 = 150$ ₹

2013 → $20 \times 20 = 400$ ₹

Real GDP $= P_0 \times Q_1$

2011 → $10 \times 7 = 70$ ₹

2012 → $10 \times 10 = 100$ ₹

2013 → $10 \times 20 = 200$ ₹

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2022

Nominal GDP

	P_1	Q_1	
A	10	6	60
B	10	5	50
C	15	4	60

Nominal GDP = 170 ₹

GDP ↑

Production ↑

emp. ↑

income ↑

Poverty ↓

education ↑

Health ↑

2010

	P	Q	
A	5	6	30
B	8	5	40
C	10	4	40

GDP = 110₹

2022

Real GDP

	P_0	Q_1	
A	5	6	30
B	8	5	40
C	10	4	40

Real GDP = 110₹

Nominal GDP

	P_1	Q_1	
A	10	6	60
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2010 $\longrightarrow$ 2022

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A	5	6	30
B	8	5	40
C	10	4	40

GDP = 110₹

Real GDP

	P_0	Q_1	
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Limitation of Real GDP

1) Distribution of GDP/Income: A only rise in GDP (or National Income) may not shows that there is rise in economic welfare. If there is unequal distribution of income with rise in GDP, means Rich is getting rich and the poor is getting poor, i.e., there is wide gap between poor and rich. Such a situation may not be called as welfare. Then there will be no effect on economic welfare with rise in GDP.

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2) Composition of GDP: Composition of GDP means what is the share of different types of Goods in GDP. If in an economy, there is increase in production of war materials (like, tanks, guns, bomb etc.), dangerous goods (liquor, cigarette, tobacco etc.), then these goods doesn"t have any effect on economic welfare, it will not increase economic welfare.

3) Non – Monetary Exchange: Non monetary exchange are those activities in an economy which cannot be evaluated in monetary terms. when goods are exchanged with goods its called barter exchange or non monetary exchange. Example, payment for farm labour are often made in kind rather than cash. All such transaction remain unrecorded. These transaction raise the economic welfare but not to be included in estimation of national income. So, GDP is not a proper index of welfare.

4) Externalities : Externalities refer to good and bad impact of an economic activity without paying the price or penalty for that. There are both positive and negative externalities. Social benefits are called positive externalities. Social harm/costs are called negative externalities (also called economic bads). If any activity generates positive externalities social welfare will increase. And if negative externalities are generated, social welfare will fall. The GDP remains unaffected by externalities. Hence, it is an inappropriate index of welfare.

$$\text{GDP Deflator (Price Index)} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$

e.g. Nominal GDP (2022-CY) = 250 ₹

Real GDP (Base Year = 2015) = 200 ₹

$$= \frac{250}{200} \times 100$$

Price Index = $\boxed{= 125}$

(Price Index) Real GDP

e.g Nominal GDP (2022 - CY) = 250 ₹

Real GDP (Base Year = 2015) = 200 ₹

$$= \frac{250}{200} \times 100$$

Price Index = $\boxed{= 125}$

always minus 100

Inflation = 25 %

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always minus 100

Inflation = 25 %

GDP Deflator

$$\textbf{Real GDP} = \frac{Nominal\ \ GDP}{Price\ \ Index} \times 100$$

$$\text{Or } \textbf{Nominal GDP} = \frac{Real\ \ GDP \times Price\ \ Index}{100}$$

$$\text{Or } \boxed{\textbf{GDP Deflator (Price Index)} = \frac{Nominal\ \ GDP}{Real\ \ GDP} \times 100}$$