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Q ①

Year	Price of Milk	Quantity of Milk	Price of Honey	Quantity of Honey
2010	\$1	100	\$2	50 quarts
2011	\$1	200	\$2	100
2012	\$2	200	\$4	100

- (a) Compute nominal GDP, real GDP, and the GDP deflator for each year, using 2010 as base year.
- (b) Compute the percentage change in nominal GDP, real GDP & GDP deflator in 2011 & 2012 from preceding year. For each year, identify the variable that does not change.
- (c) Did economic well-being rise more in 2011 or 2012? Explain.

(d)

$$\begin{aligned} \text{Nominal GDP of 2010} &= (1 \times 100) + (2 \times 50) \\ &= 200 \\ \text{Nominal GDP of 2011} &= (1 \times 200) + (2 \times 100) \\ &= 400 \\ \text{Nominal GDP of 2012} &= (2 \times 200) + (4 \times 100) \\ &= 800 \end{aligned}$$

$$\begin{aligned} \text{Real GDP of 2010} &= (1 \times 100) + (2 \times 50) \\ &= 200 \end{aligned}$$

$$\begin{aligned} \text{Real GDP of 2011} &= (1 \times 200) + (2 \times 100) \\ &= 400 \end{aligned}$$

$$\begin{aligned} \text{Real GDP of 2012} &= (1 \times 200) + (2 \times 100) \\ &= 400 \end{aligned}$$

$$\text{GDP deflator for 2010} = 100 \times \left(\frac{\text{nominal GDP}}{\text{real GDP}} \right)$$

$$= 100 \times \left(\frac{200}{200} \right) = \underline{100}$$

$$\begin{aligned} \text{GDP deflator for 2011} &= 100 \times \left(\frac{\text{Nominal GDP of 2011}}{\text{Real GDP of 2011}} \right) \\ &= 100 \times \frac{400}{400} = \underline{100} \end{aligned}$$

$$\begin{aligned} \text{GDP deflator for 2012} &= 100 \times \left(\frac{\text{Nominal GDP of 2012}}{\text{Real GDP of 2012}} \right) \\ &= 100 \times \frac{800}{400} = \underline{200} \end{aligned}$$

(b)
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$$\begin{aligned} \% \text{ change in Nominal GDP for 2011} \\ &= \left(\frac{400 - 200}{200} \right) \times 100 \\ &= \underline{100\%} \end{aligned}$$

$$\begin{aligned} \% \text{ change in Nominal GDP for 2012} \\ &= \left(\frac{800 - 400}{400} \right) \times 100 \\ &= \underline{100\%} \end{aligned}$$

$$\begin{aligned} \% \text{ change in real GDP for 2011} \\ &= \left(\frac{400 - 200}{200} \right) \times 100 = \underline{100\%} \end{aligned}$$

$$\begin{aligned} \% \text{ change in real GDP for 2012} \\ &= \frac{400 - 400}{400} \times 100 = \underline{0\%} \end{aligned}$$

$$\begin{aligned} \% \text{ GDP deflator for 2011} \\ &= \frac{100 - 100}{100} \times 100 = \underline{0\%} \end{aligned}$$

$$\begin{aligned} \% \text{ GDP deflator for 2012} \\ &= \frac{200 - 100}{100} \times 100 = \underline{100\%} \end{aligned}$$

Prices did not change from 2010 to 2011. Thus % change in GDP deflator is 0. Likewise output level did not change from 2011 to 2012. Thus, % change in Real GDP is 0.

(c)

-o Economic well being rose more in 2011 than in 2012, since real GDP rose in 2011 but not in 2012. In 2011, real GDP rose but prices did not. In 2012, real GDP did not rise but prices did.

Q2. Suppose that an auto company owned entirely by German citizens opens a new factory in South Carolina.

- (a) What sort of foreign investment would this represent?
- (b) What would be the effect of this investment on US GDP?
- (c) Would the effect on US GNP be larger or smaller?

(a) This will show Foreign Direct Investment (FDI) because company is completely owned by German citizens & hence operated by them.

(b) This will increase the US GDP because it increases the production in US. Hence per capita income & consumption increases. Tax revenue & government spending also rises.

(c) The effect on US GNP would be smaller because the owner would get paid a return on their investment which will be the part of German GNP rather than US GNP.

Q3. Suppose GDP is \$8 trillion, taxes are \$1.5 trillion, private saving is \$0.5 trillion, public saving is \$0.2 trillion. Assuming the economy is closed, calculate.

- (a) Consumption
- (b) Govt. purchase
- (c) National Saving & investment

$$Y = \$8 \text{ trillion}$$

$$T = \$1.5 \text{ trillion}$$

$$S_{\text{priv}} = \$0.5 \text{ trillion}$$

$$S_{\text{pub}} = \$0.2 \text{ trillion}$$

$$(a) \quad S_{\text{priv}} = Y - T - C$$

$$C = Y - T - S_{\text{priv}}$$

$$C = 8 - 1.5 - 0.5 = \$6 \text{ trillion}$$

Consumption will be \$6 trillion.

$$(b) \quad S_{\text{pub}} = T - G$$

$$G = T - S_{\text{pub}}$$

$$= 1.5 - 0.2 = \$1.3 \text{ trillion}$$

Government purchase is \$1.3 trillion.

$$(c) \quad \text{National Saving} = S_{\text{priv}} + S_{\text{pub}} \\ = 0.5 + 0.2 = \$0.7 \text{ trillion}$$

National saving is \$0.7 trillion.

In a closed economy investment equals to national saving. so

$$\text{investment} = \$0.7 \text{ trillion}$$