

Question 1 Fill in the blanks. You must show your work.

Year	2014	2015
Nominal gross national income (GNI) (\$ billion)	291.53	292.56
Factor income sent abroad (\$ billion)	68.30	75.90
Factor income earned abroad (\$ billion)	8.13	9.49
Nominal gross domestic product (GDP) (\$ billion)	351.7	358.97
GDP deflator	100	100.88
Real GDP (\$ billion)	351.7	355.8386

• Real GDP₂₀₁₅ = $\frac{100.88}{X} \times 100 = 355.8386$

$X = \frac{351.7 \times 100}{100.88} = 355.8386$

• Nominal GNI₂₀₁₅ = GDP - NFFI = $358.97 - 66.41 = 292.56$

• Nominal GDP₂₀₁₄ = GNI + NFFI = $291.53 + 60.13 = 351.7$

• Real GDP₂₀₁₄ : $100 = \frac{351.7}{X} \times 100$

$X = \frac{351.7 \times 100}{100} = 351.7$

Question 2 Fill in the blanks. You must show your work.

Year	2012	2013	2014	2015
Consumer price index (CPI)	99.08	100.55	102.51	107.52
Inflation rate (%)	-0.92	1.48	1.95	4.89
Employed (millions)	12.50	12.60	12.85	13.05
Unemployed (millions)	0.99	0.71	0.68	0.61
Population (millions)	20.75	21.48	21.82	22.02
Unemployment rate (%)	7.34	5.33	5.03	4.47

labor force₂₀₁₂ = employed + unemployed = $12.5 + 0.99 = 13.49$

unemployment rate₂₀₁₂ = $\frac{0.99}{13.49} \times 100 = 7.34$

labor force₂₀₁₃ = employed + unemployed = $12.6 + 0.71 = 13.31$

Unemployment rate₂₀₁₃ = $\frac{0.71}{13.31} \times 100 = 5.33$

inflation rate₂₀₁₄ = $\frac{CPI_{new} - CPI_{old}}{CPI_{old}} \times 100 = \frac{102.51 - 100.55}{100.55} \times 100 = 1.95$

inflation rate₂₀₁₅ = $\frac{CPI_{new} - CPI_{old}}{CPI_{old}} \times 100 = \frac{107.52 - 102.51}{102.51} \times 100 = 4.89$

Question 3 Calculate GDP and GNP. You must show your work.

Item	\$ billion
Imports	289
Transfer payments	253
Saving	82
Exports	234
Income from employment	1160
Taxation	396
Consumer spending	745
Investment	229
Net factor income from abroad	-111
Government spending on goods and services	437

$$GDP = C + I + G + (X - M)$$

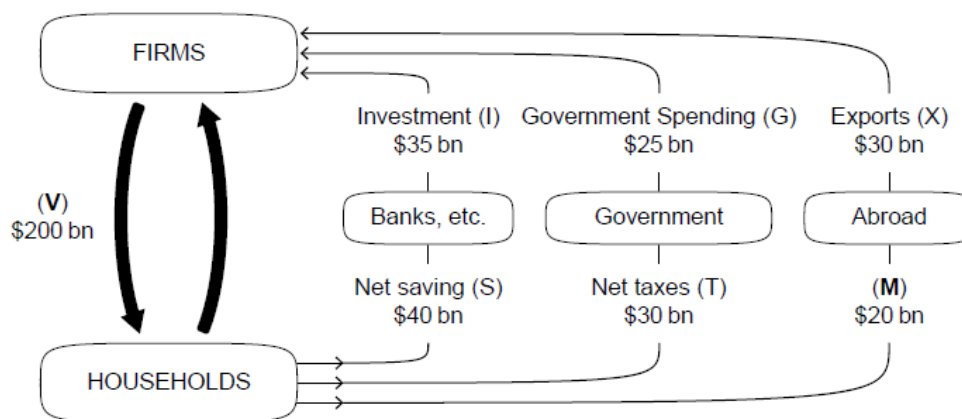
$$GNP = GDP + \text{Net Foreign Factor Income (NFFI)}$$

$$= 745 + 229 + 437 + (234 - 289)$$

$$= 1356 - 111$$

$$= 1356$$

$$= 1245$$

Question 4 Answer the following questions.

4.1 What do the flows (V) and (M) represent?

V = income, M = imports

4.2 Does the government run a budget deficit or surplus? By how much?

Surplus, 5\$. $T > G$

4.3 Does the country run a trade deficit or surplus? By how much?

Surplus, 10\$. $M < X$

4.4 Is the economy in equilibrium? Why or why not?

Yes, because aggregate expenditure = aggregate income. $(35 + 25 + 30 + 40 + 30 + 20) \rightarrow 90 = 90$

Question 5 Why does CPI tend to be higher than GDP deflator?

Year	Consumer price index (CPI)	GDP deflator	GDP (\$ million)
2014	100	100	4465
2015	105.35	105.11	4814
2016	109.21	108.92	5026

Because of the fixed in Quantity of CPI and the change in price makes overall CPI is higher than GDP deflator because inflation affects the price of product
 So CPI tends to be higher than GDP deflator.

Question 6 Answer the following questions.

	Price per unit in dollars (\$)	
	2013	2014
Pizza	12.50	12.90
Chocolate milk (litres)	1.15	1.25
Jazz concert	45.00	46.00
Total cost of the typical basket	690	714

The typical basket of goods purchased by an average consumer consists of 10 pizzas, 100 litres of chocolate milk and 10 jazz concerts.

6.1 With 2013 as the base year, calculate CPI of 2013 and 2014.

$$\text{CPI} = \frac{\sum P_{2013} \times Q_{\text{fixed}}}{\sum P_{2013} \times Q_{\text{fixed}}} \times 100$$

$$\text{CPI}_{2014} = \frac{\sum P_{2014} \times \sum Q_{\text{fixed}}}{\sum P_{\text{base year}} \times \sum Q_{\text{fixed}}} \times 100$$

$$= \frac{(12.50 \times 10) + (1.15 \times 100) + (45 \times 10)}{(12.50 \times 10) + (1.15 \times 100) + (45 \times 10)} \times 100 = 100$$

$$= \frac{(12.90 \times 10) + (1.25 \times 100) + (46 \times 10)}{(12.50 \times 10) + (1.15 \times 100) + (45 \times 10)} \times 100 = 103.4782$$

6.2 Calculate the inflation rate of 2014.

$$\text{Inflation rate} = \frac{\text{CPI}_{\text{new}} - \text{CPI}_{\text{old}}}{\text{CPI}_{\text{old}}} \times 100 = \frac{\text{CPI}_{2014} - \text{CPI}_{2013}}{\text{CPI}_{2013}} \times 100 = \frac{103.4782 - 100}{100} \times 100 = 3.4782$$

Question 7 Fill in the blanks. You must show your work.

Year	Nominal GDP (\$ billions)	GDP deflator	Real GDP (\$ billions)	Annual real growth rate (%)	Population	Real GDP per capita (\$)
2014	308.12	98.9	311.5470		13 273 644	0.00002347
2015	321.99	100	321.99	3.35	13 340 012	0.00002414
2016	332.65	102.2	325.4892	1.0867	13 473 412	0.00002416

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

$$\text{annual real growth rate}_{2015} = \frac{321.99 - 311.547}{311.547} \times 100 = 3.35$$

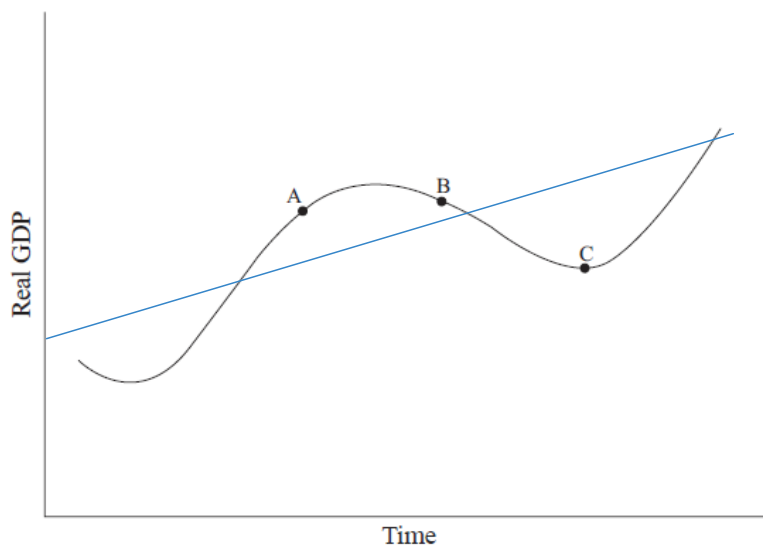
$$\text{RGDP per capita}_{2014} = \frac{\text{RGDP}}{\text{population}} = \frac{311.547}{13273644} = 0.00002347$$

$$\bullet 2014 \quad 98.9 = \frac{308.12}{x} \times 100 \quad x = 311.5470 \quad \bullet \text{RGDP per capita}_{2015} = \frac{321.99}{13340012} = 0.00002414$$

$$\bullet \text{RGDP per capita}_{2016} = \frac{325.4892}{13473412} = 0.00002416$$

$$\bullet 2015 \quad 100 = \frac{321.99}{x} \times 100 = 321.99 \quad \text{annual real growth rate}_{2016} = \frac{325.4892 - 321.99}{321.99} \times 100 = 1.0867$$

$$\bullet 2016 \quad 102.2 = \frac{332.65}{x} \times 100 = 325.4892$$

Question 8 Based on the data above, which position – A, B, or C – best describes the economy in 2016? Why?

- $$\bullet A = \text{Expansion (high AE) increasing over time}$$
- $$\bullet B = \text{Recession (Low AE) falling over time}$$
- $$\bullet C = \text{Trough (minimum point in the curve) observe deflation}$$

Question 9

Answer the following questions.

Country A is a closed economy with no government. The marginal propensity to save in the country is 0.25.

9.1 Calculate the value of the (investment) multiplier.

$$\begin{array}{l|l|l|l}
 Y = C + I & \Delta Y = \Delta C_0 = MPC(\Delta Y) + \Delta I & \Delta Y = \frac{1}{1-MPC} (\Delta I) & MPC + MPS = 1 \\
 Y = C_0 + MPC(Y) + I & \Delta Y(1-MPC) = \Delta I & \Delta Y = \frac{1}{1-0.75} (\Delta I) = \frac{1}{0.25} (\Delta I) & \nearrow MPC = 0.75 \\
 & & & MPC + 0.25 = 1
 \end{array}$$

9.2 Due to the initial investment made by firms and the multiplier effect, the (equilibrium) output in the economy has increased by \$200m. Calculate the value of the initial investment.

$$\begin{array}{l}
 \Delta Y = \frac{1}{0.25} (\Delta I) \\
 200 = \frac{1}{0.25} (\Delta I) \quad \Delta I = \$50
 \end{array}$$

Country B is an open economy with government.

9.3 Do you think the multiplier effect in Country B will be larger than that of Country A? Why or why not?

No, Because multiplier effect will only affect the change in consumption and national income

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