

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)	351.70	358.97
GDP deflator	100	100.88
Real GDP (\$ billion)	351.70	355.84

$$GNI = GDP + \text{Factor income earned abroad} - \text{Factor income sent abroad}$$

$$= 358.97 + 9.49 - 75.90 \quad \therefore GNP_{2015} = 292.56$$

$$GDP_{2014} = GNI + \text{Factor income sent abroad} - \text{Factor income earned abroad}$$

$$= 291.53 + 68.30 - 8.13 \quad \therefore GDP_{2014} = 351.70$$

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

$$\therefore \text{Real GDP}_{2014} = \frac{351.70 \times 100}{100} = 351.70$$

$$\therefore \text{Real GDP}_{2015} = \frac{358.97 \times 100}{100.88} = 355.84$$

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

$$\frac{CPI_t - CPI_{t-1}}{CPI_{t-1}} \times 100$$

$$\frac{\text{Unemployed}}{\text{Employed} + \text{Unemployed}} \times 100$$

$$\text{Inflation rate (\%)}_{2014} = \frac{102.51 - 100.55}{100.55} \times 100 = 1.95\%$$

$$\text{Inflation rate (\%)}_{2015} = \frac{107.52 - 102.51}{102.51} \times 100 = 4.89\%$$

$$\text{Unemployment rate (\%)}_{2012} = \frac{0.99}{(12.50 + 0.99)} \times 100 = 7.34\%$$

$$\text{Unemployment rate (\%)}_{2013} = \frac{0.71}{(12.60 + 0.71)} \times 100 = 5.33\%$$

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

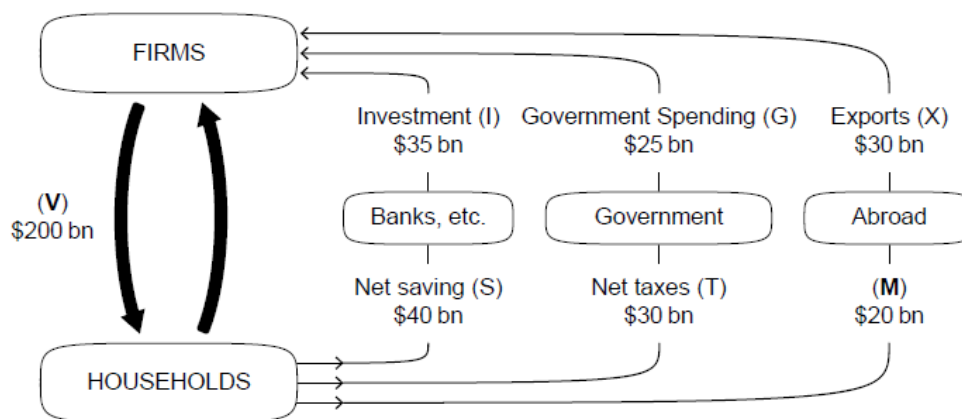
Item	\$ billion
Imports	289
Transfer payments	253
Saving	82
Exports	234
Income from employment	1160
Taxation	396
Consumer spending	745
Investment	229
Net factor income from abroad	-111
Government spending on goods and services	437

$GDP = \text{Consumer Spending} + \text{Investment} + \text{Government Spending on goods and services}$

$+ \text{Exports} - \text{Imports} \therefore GDP = 745 + 229 + 437 + 234 - 289 = 1356 \text{ \$ billion}$

$GNP = GDP + \text{Net factor income from abroad}$

$= 1356 + (-111) = 1245 \text{ \$ billion}$

Question 4 Answer the following questions.

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

V is GDP or National Income. M is imports.

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

Government runs a budget surplus of \$5 bn, \$30 - \$25

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

The country runs a trade surplus of \$10 bn, \$30 - \$20

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

Equilibrium in economy is when national income or GDP is equal to Aggregate Demand,

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

$200 = C + 35 + 25 + (30 - 20)$

I cannot find the equilibrium because I do not know an amount of consumer spending.

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

CPI and GDP deflator are price indices that are calculated using fixed weights. They fix prices at some base year. Typically, CPI tends to be higher than GDP deflator because CPI ignores substitution effect.

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.

$$\text{Market basket}_{2013} = (12.50 \times 10) + (1.15 \times 100) + (45 \times 10) = 125 + 115 + 450 = 690$$

$$\text{Market basket}_{2014} = (12.90 \times 10) + (1.25 \times 100) + (46 \times 10) = 129 + 125 + 460 = 714$$

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

$$\text{CPI} = \frac{\text{Market Basket in desired year} \times 100}{\text{Market Basket in Base Year}}$$

CPI₂₀₁₃ always adds up to 100 because 2013 is a base year.

$$\text{CPI}_{2014} = \frac{714}{690} \times 100 = 103.48$$

6.2 Calculate the inflation rate of 2014.

$$\text{Inflation rate}_{2014} = \frac{\text{CPI}_t - \text{CPI}_{t-1}}{\text{CPI}_{t-1}} \times 100 = \frac{103.48 - 100}{100} \times 100 = 3.48\%$$

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	311.55		13 273 644	23,471.32
2015	321.99	100	321.99	3.35	13 340 012	24,137.15
2016	332.65	102.2	325.49	3.31	13 473 412	24,157.94

Annual Rate Growth rate (%)

$$2015 = \frac{321.99 - 311.55}{311.55} \times 100$$

$$= 3.35$$

$$2016 = \frac{332.65 - 321.99}{321.99} \times 100$$

$$= 3.31$$

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

$$\text{Real GDP per capita (\$)} = \frac{\text{Real GDP}}{\text{Population}}$$

$$\text{Real GDP}_{2014} = \frac{308.12 \times 100}{98.9} = 311.55$$

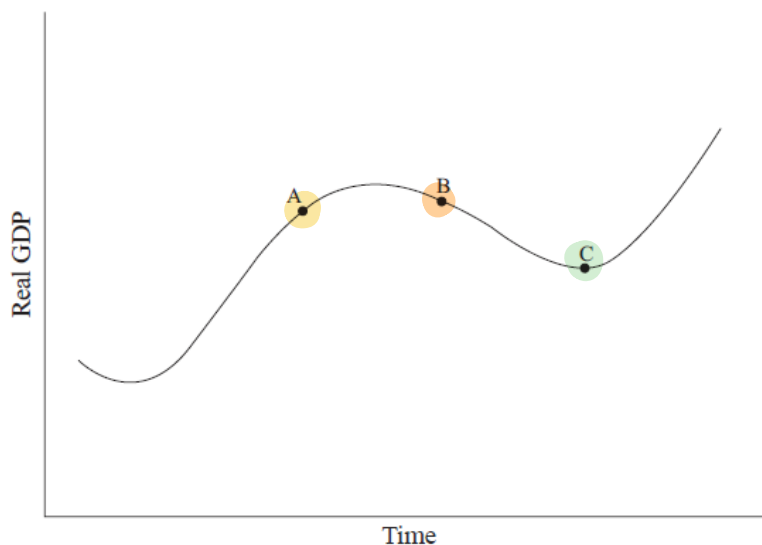
$$\text{Real GDP per capita}_{2014} \times 1,000,000,000 = 23,471.32$$

$$\text{Real GDP}_{2015} = \frac{321.99 \times 100}{100} = 321.99$$

$$\text{Real GDP per capita}_{2015} \times 1,000,000,000 = 24,137.15$$

$$\text{Real GDP}_{2016} = \frac{332.65 \times 100}{102.2} = 325.49$$

$$\text{Real GDP per capita}_{2016} \times 1,000,000,000 = 24,157.94$$

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

• A is **Peak period**, when the fluctuation curve is before reaching the peak.

• B is **Recession period**, following the peak, all the economic activities start falling accordingly.

• C is **Trough period**, the economic indicators are at their lowest. This means they do not decrease any further. Prices and output decrease.

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.

$$\text{Investment multiplier} = \frac{1}{1 - MPC} = \frac{1}{MPS} = \frac{1}{0.25} = 4$$

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.

$$\begin{aligned} \text{Change in output} &= \text{Initial investment} \times \text{Investment multiplier} \\ \therefore \text{Initial investment} &= \frac{200}{4} = \$50 \text{ m} \end{aligned}$$

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?

Multiplier effect of investment in Country A is the same as Country B. Therefore, closed economy with no government and open economy with government have the same multiplier effect of investment. $\frac{1}{(1 - MPC)}$