

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

$$GNI = GNP$$

Year	GNP	2014	2015
Nominal gross national income (GNI) (\$ billion)		291.53	292.56
Factor income sent abroad (\$ billion) <i>to</i>		68.30	75.90
Factor income earned abroad (\$ billion) <i>from</i>		8.13	9.49
Nominal gross domestic product (GDP) (\$ billion)		351.7	358.97
GDP deflator		100	100.88
Real GDP (\$ billion)		351.7	355.84

$$\begin{aligned} GNP &= GDP + NFFI \\ &= 358.97 + (9.49 - 75.90) \\ &= 292.56 \end{aligned}$$

$$\begin{aligned} GDP &= GNP - NFFI \\ &= 291.53 - (8.13 - 68.30) \\ &= 351.7 \end{aligned}$$

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

$$100 = \frac{351.7}{\text{Real GDP}} \times 100$$

$$\text{Real GDP}_{2014} = 351.7$$

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

$$100.88 = \frac{358.97}{\text{Real GDP}} \times 100$$

$$\text{Real GDP}_{2015} = 355.84$$

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

$$\text{Inflation rate} = \frac{CPI_{\text{new}} - CPI_{\text{old}}}{CPI_{\text{old}}} \times 100\%$$

$$\frac{102.51 - 100.55}{100.55} \times 100\%$$

$$\text{Year 2014} = 1.95\%$$

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

$$= 4.89\%$$

$$\text{Unemployment rate} = \frac{\text{Unemployed}}{\text{Labour force}} \times 100\%$$

$$\text{Year 2012} = \frac{0.99}{12.50 + 0.99} \times 100\% = 7.34\%$$

$$\text{Year 2013} = \frac{0.71}{12.60 + 0.71} \times 100\% = 5.33\%$$

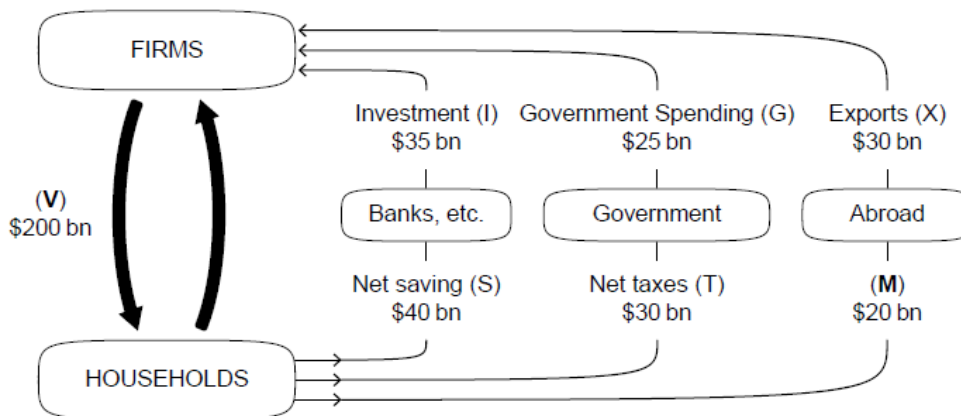
**Question 3** Calculate GDP and GNP. You must show your work.

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

$$\begin{aligned}
 \text{GDP} &= C + I + G + X - M \\
 &= 745 + 229 + 437 + 234 - 289 \\
 &= 1356
 \end{aligned}$$

$$\begin{aligned}
 \text{GNP} &= \text{GDP} + \text{NFFI} \\
 &= 1356 - 111 \\
 &= 1245
 \end{aligned}$$

**Question 4** Answer the following questions.



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

(V) = income (M) = import

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

budget surplus, 5 dollars

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

trade surplus, 10 dollars

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

leakage = injection = 40 + 30 + 20 = 35 + 25 + 30  
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

Use Fixed Q

because CPI focus on consumer when the price change the quantity remain the same because of inflation that fixed Q (people are not going to buy another brand they still want to buy same brand).

**Question 6** Answer the following questions.

	Price per unit in dollars (\$)		
	2013	2014	
Pizza	12.50	12.90	x 10
Chocolate milk (litres)	1.15	1.25	x 100
Jazz concert	45.00	46.00	x 10
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.

$$CPI_{2013} = \frac{\text{Market Basket in Desired year}}{\text{Market Basket in Base year}} \times 100$$

$$= \frac{690}{690} \times 100$$

$$CPI_{2013} = 100$$

$$CPI_{2014} = \frac{714}{690} \times 100$$

$$= 103.48$$

6.2 Calculate the inflation rate of 2014.

$$\text{Inflation}_{2014} = \frac{CPI_{\text{new}} - CPI_{\text{old}}}{CPI_{\text{old}}} \times 100\%$$

$$= \frac{103.48 - 100}{100} \times 100\%$$

$$= 3.48\%$$

**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	$2.35 \times 10^{-5}$
2015	321.99	100	321.99	3.35	13 340 012	$2.41 \times 10^{-5}$
2016	332.65	102.2	325.49	1.09	13 473 412	$2.42 \times 10^{-5}$

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

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

$$\text{Real GDP}_{2014} = 311.55$$

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

$$\text{Real GDP}_{2015} = 321.99$$

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

$$\text{Real GDP}_{2016} = 325.49$$

$$\text{Annual Real growth rate} = \frac{\text{Real GDP}_{\text{new}} - \text{Real GDP}_{\text{old}}}{\text{Real GDP}_{\text{old}}} \times 100\%$$

$$2015 = \frac{321.99 - 311.55}{311.55} \times 100\% = 3.35\%$$

$$2016 = \frac{325.49 - 321.99}{321.99} \times 100\% = 1.09\%$$

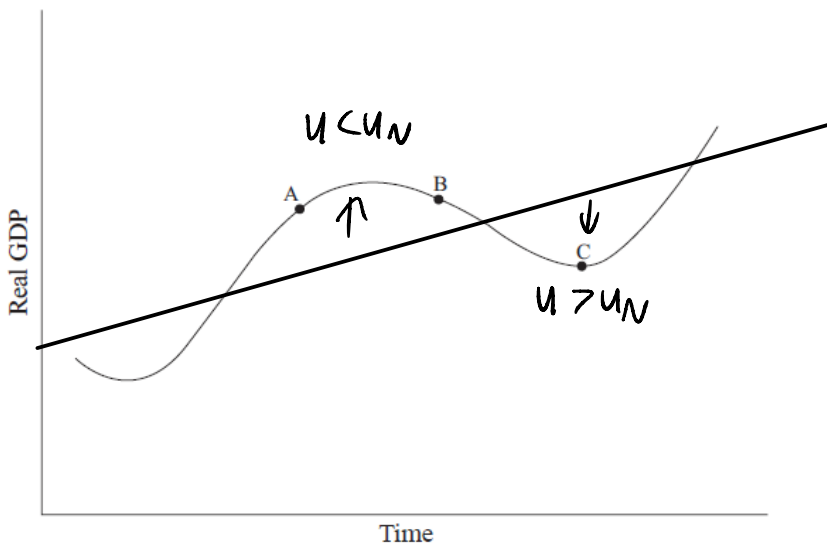
$$\text{Real GDP per capita} = \frac{\text{Real GDP}}{\text{population}}$$

$$2014 = \frac{311.55}{13\,273\,644} = 2.35 \times 10^{-5}$$

$$2015 = \frac{321.99}{13\,340\,012} = 2.41 \times 10^{-5}$$

$$2016 = \frac{325.49}{13\,473\,412} = 2.42 \times 10^{-5}$$

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



A = Expansion (high AE) increasing over time

B = Recession (LOW AE) falling over time

C = 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.  $MPS + MPC = 1 \Rightarrow \frac{1}{1-MPC}$

$C+I$   $MPS = 0.25$

$$\frac{1}{1-MPC} = \frac{1}{1-0.75} = \frac{1}{0.25} = 4$$

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.

$$\frac{\Delta Y}{\Delta I} = 4 \quad \text{if } y \uparrow \text{ by 1 unit} = I \uparrow 4 \text{ units}$$

$$\text{if } y \uparrow \text{ by 200 units} = I \uparrow 4 \times 200 \text{ units} = 800$$

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?

When the country B is open it will have imports and exports so it will have a smaller multiplier.  $MPC > \text{multiplier}$  is more &  $MPC > \text{multiplier}$  then the multiplier is less.