

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

Year	2014	2015
Nominal gross national income (GNI) (\$ billion)	291.53	444.36
Factor income sent abroad (\$ billion)	68.30	75.90
Factor income earned abroad (\$ billion)	8.13	9.49
Nominal gross domestic product (GDP) (\$ billion)	215.1	358.97
GDP deflator	100	100.88
Real GDP (\$ billion)	215.1	355.84

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

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

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

$$= 355.84$$

$$\text{GNP}_{2014} = \text{GDP}_{2014} + \text{NFFFI}_{2014}$$

$$291.53 = \text{GDP}_{2014} + (68.30 + 8.13)$$

$$215.1 = \text{GDP}_{2014}$$

$$\text{GDP deflator}_{2014} = \frac{\text{Nominal GDP}_{2014}}{\text{Real GDP}_{2014}} \times 100$$

$$100 = \frac{215.1 \times 100}{\text{Real GDP}_{2014}}$$

$$\text{Real GDP}_{2014} = \frac{215.1 \times 100}{100}$$

$$\text{GNP}_{2015} = \text{GDP}_{2015} + \text{NFFFI}_{2015}$$

$$\text{GNP}_{2015} = 358.97 + (75.9 + 9.49)$$

$$\text{GNP}_{2015} = 444.36$$

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

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

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

$$= 1.95\%$$

$$\text{inflation rate}_{2015} = \frac{\text{CPI}_{2015} - \text{CPI}_{2014}}{\text{CPI}_{2014}} \times 100$$

$$= \frac{107.52 - 102.51}{102.51} \times 100$$

$$= 4.89\%$$

$$\text{Labor force} = \text{unemployed} + \text{employed}$$

$$\text{Labor force}_{2012} = 0.99 + 12.50$$

$$\text{Labor force}_{2012} = 13.49 \text{ millions}$$

$$\text{Unemployment rate}_{2012} = \frac{\text{unemployment}}{\text{Labor force}} \times 100$$

$$\text{Unemployment rate}_{2012} = \frac{0.99}{13.49} \times 100$$

$$\text{unemployment rate}_{2012} = 7.34\%$$

$$\text{Labor force}_{2013} = 12.6 + 0.71$$

$$\text{Labor force}_{2013} = 13.31 \text{ millions}$$

$$\text{Unemployment rate}_{2013} = \frac{\text{unemployment}}{\text{Labor force}} \times 100$$

$$\text{unemployment rate}_{2013} = \frac{0.71}{13.31} \times 100$$

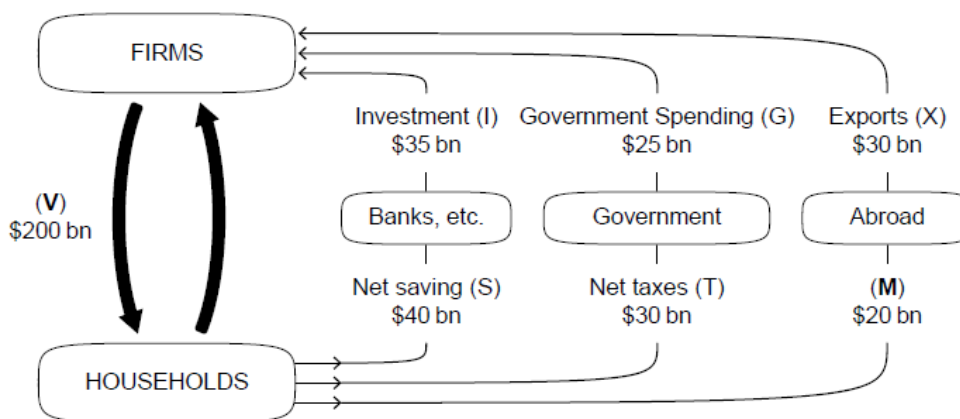
$$\text{unemployment rate}_{2013} = 5.33\%$$

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

$$\begin{aligned}
 GDP &= C + I + G + (X - M) \\
 GDP &= 745 + 229 + 437 + (234 - 289) \\
 GDP &= 1356 \\
 GNP &= GDP + NFFI \\
 GNP &= 1356 + (-111) \\
 GNP &= 1245
 \end{aligned}$$

Question 4 Answer the following questions.



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

$V = \text{Income}$, $M = \text{Imports}$

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

Surplus, \$5

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

Surplus, \$10

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

No, Firms get \$90, but households get \$200

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

$$CPI_{Year X} = \frac{\sum P_{Year X} Q_{Basket}}{\sum P_{Base Year} Q_{Basket}} \times 100$$

Based Year Cost of Fixed Basket

$$GDP \text{ deflator}_{Year X} = \frac{Nominal GDP_{Year X}}{Real GDP_{Year X}} \times 100$$

CPI use Q_{Basket} in formula but GDP deflator doesn't fix Q so CPI tend 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.

$$CPI_{2013} = \frac{\sum P_{2013} Q_{Basket}}{\sum P_{2013} Q_{Basket}} \times 100$$

$$CPI_{2013} = \frac{(12.5 \times 10) + (1.15 \times 100) + (45.00 \times 10)}{690} \times 100$$

$$CPI_{2013} = 100$$

$$CPI_{2014} = \frac{\sum P_{2014} Q_{Basket}}{\sum P_{2013} Q_{Basket}} \times 100$$

$$CPI_{2014} = \frac{(12.9 \times 10) + (1.25 \times 100) + (46.00 \times 10)}{690} \times 100$$

$$CPI_{in Year X} = \frac{Cost of Fixed Basket in Year X}{Based Year Cost of fixed Basket} \times 100$$

$$CPI_{in 2013} = \frac{690}{690} \times 100 = 100$$

$$CPI_{in 2014} = \frac{714}{690} \times 100 = 103.48$$

6.2 Calculate the inflation rate of 2014.

$$Inflation \text{ rate}_{2014} = \frac{CPI_{2014} - CPI_{2013}}{CPI_{2013}} \times 100$$

$$= \frac{103.48 - 100}{100} \times 100 = 3.48\%$$

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		13273644	23471.32
2015	321.99	100	321.99	$\frac{321.99 - 311.55}{311.55} \times 100 = 3.350\%$	13340012	24137.16
2016	332.65	102.2	325.48	$\frac{325.48 - 321.99}{321.99} \times 100 = 1.083\%$	13473412	24189.37

$$\frac{\text{Real GDP}_{2014}}{\text{Population}_{2014}}$$

$$\frac{\text{Real GDP}_{2015}}{\text{Population}_{2015}}$$

$$\frac{\text{Real GDP}_{2016}}{\text{Population}_{2016}}$$

$$\text{GDP deflator}_{\text{year } 2014} = \frac{\text{Nominal GDP}_{2014}}{\text{Real GDP}_{2014}} \times 100$$

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

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

$$\text{GDP deflator}_{\text{year } 2015} = \frac{\text{Nominal GDP}_{2015}}{\text{Real GDP}_{2015}} \times 100$$

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

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

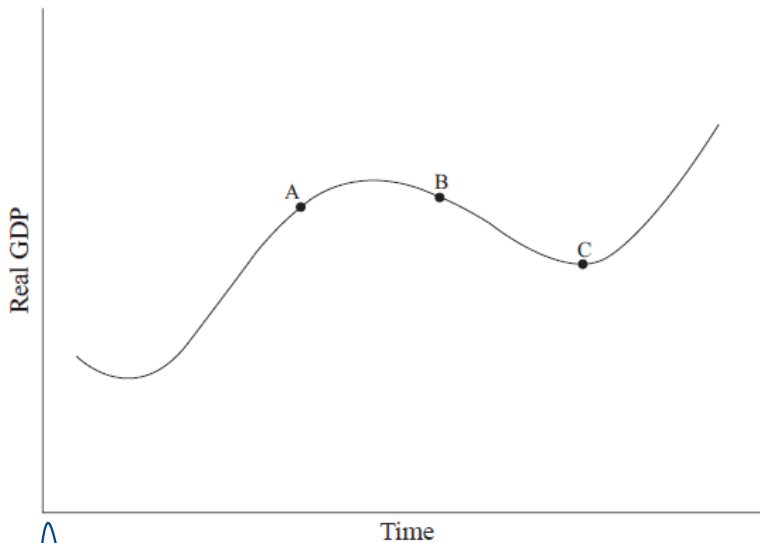
$$\text{GDP deflator}_{2016} = \frac{\text{Nominal GDP}_{2016}}{\text{Real GDP}_{2016}} \times 100$$

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

$$\text{Real GDP}_{2016} = 325.48$$

$$\text{Growth rate}_{2015} = \frac{\text{Real GDP}_{2015} - \text{Real GDP}_{2014}}{\text{Real GDP}_{2014}} \times 100$$

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



A, Real GDP in 2016 is 325.48 and population is 13473412, so it is increasing, and in the table Nominal GDP, GDP deflator, Real GDP, and Real GDP per capita is increasing every year.

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.

$$\frac{\Delta Y}{\Delta I} = 0.25$$

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.

$$Y = AE = C + I \quad \left(Y - bY = a + I_0 \right) \quad \Delta Y = \frac{1}{1-b} (\Delta a + \Delta I_0)$$

$$Y = (a + bY) + I_0 \quad \left((1-b)Y = a + I_0 \right) \quad \frac{\Delta Y}{\Delta I} = \frac{0.25}{1-b} + 200$$

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?

Yes, because Country B have import and export, and government can help the economic.