

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

$$\begin{aligned}\text{Nominal GDP}_{2014} &= \text{GNI} + \text{NFF} \\ &= 291.53 + 68.3 - 8.13 \\ &= 351.7 \text{ \$}\end{aligned}$$

$$\text{Nominal gross national income (GNI)} = \text{GNP}$$

$$\begin{aligned}&= \text{GDP} + (\text{Factor income earned abroad} - \text{Factor income sent abroad}) \\ &= 358.97 + (9.49 - 75.9) \\ &= 292.56 \text{ \$}\end{aligned}$$

$$\begin{aligned}\text{GDP deflator}_{2015} &= \frac{\text{Nominal GDP}_{2015}}{\text{Real GDP}_{2015}} \times 100 \\ 100.88 &= \frac{358.97}{\text{Real GDP}} \times 100 \\ \text{Real GDP} &= \frac{358.97}{100.88} = 355.8386 \text{ \$}\end{aligned}$$

$$\begin{aligned}\text{GDP deflator}_{2014} &= \frac{\text{Nominal GDP}_{2014}}{\text{Real GDP}_{2014}} \times 100 \\ 100 &= \frac{351.7}{\text{Real GDP}} \times 100\end{aligned}$$

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

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

$$\text{Labor force}_{2012} = \text{employed} + \text{unemployed} = 12.5 + 0.99 = 13.49$$

$$\text{unemployment rate}_{2012} = \frac{\text{unemployed}}{\text{Labor force}} \times 100 = \frac{0.99}{13.49} \times 100 = 7.34 \text{ \%}$$

$$\text{Labor force}_{2013} = 12.6 + 0.71 = 13.31$$

$$\text{unemployment rate}_{2013} = \frac{0.71}{13.31} \times 100 = 5.33 \text{ \%}$$

$$\text{inflation rate}_{2014} = \frac{\text{CPI}_{2014} - \text{CPI}_{2013}}{\text{CPI}_{2013}} \times 100 = \frac{102.51 - 100.55}{100.55} \times 100 = 1.95 \text{ \%}$$

$$\text{inflation rate}_{2015} = \frac{\text{CPI}_{2015} - \text{CPI}_{2014}}{\text{CPI}_{2014}} \times 100 = \frac{107.52 - 102.51}{102.51} \times 100 = 4.89 \text{ \%}$$

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

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

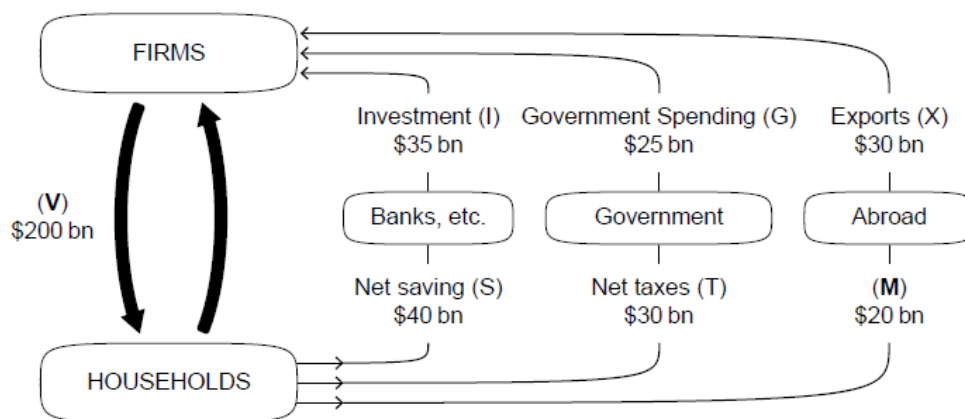
$$= 745 + 229 + 437 + (234 - 289)$$

$$= 1356 \$$$

$$GNP = GDP + \text{net Factor income from abroad}$$

$$= 1356 - 111$$

$$= 1245 \$$$

Question 4 Answer the following questions.

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

V represents incomes M represents import

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

surplus by \$ \$

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

surplus by 10 \$

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

yes, because aggregate expenditure = aggregate income

$$35 + 25 + 30$$

$$= 90$$

$$= 40 + 30 + 20$$

$$= 90$$

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 limitation of CPI, in CPI we have Fixed Basket. As a result, CPI will have substitute Bias, which can make CPI 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	100	103.4782

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.

$$CPI_{2013} = 12.50(10) + 1.15(100) + 45(10) = 100$$

$$CPI_{2014} = 12.9(10) + 1.25(100) + 46(10) = 103.4782$$

6.2 Calculate the inflation rate of 2014.

$$\pi_t = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}} = \frac{103.4782 - 100}{100} \times 100 = 3.4782\%$$

$$CPI_{2013} = \frac{12.50(10) + 1.15(100) + 45(10)}{12.50(10) + 1.15(100) + 45(10)} \times 100 = 100$$

$$CPI_{2014} = \frac{12.9(10) + 1.25(100) + 46(10)}{12.50(10) + 1.15(100) + 45(10)} \times 100 = 103.4782$$

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	311.547		13 273 644	
2015	321.99	100	321.99		13 340 012	
2016	332.65	102.2	325.4892		13 473 412	

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

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

$$\text{real GDP} = 311.5470 \text{ \$}$$

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

$$\text{real GDP}_{2016} = \frac{332.65 \times 100}{102.2} = 325.4892 \text{ \$}$$

$$\text{real GDP per capita}_{2014} = \frac{\text{RGDP}}{\text{population}} = \frac{311.547}{13273644} = 0.0002347 \text{ \$}$$

$$\text{real GDP per capita}_{2015} = \frac{321.99}{13340012} = 0.0002414 \text{ \$}$$

$$\text{real GDP per capita}_{2016} = \frac{325.4892}{13473412} = 0.0002416 \text{ \$}$$

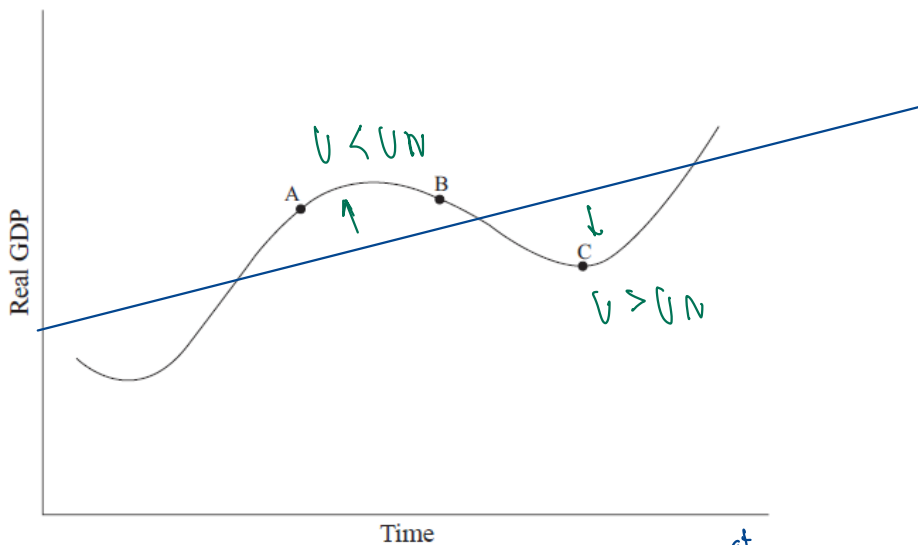
$$\text{annual real growth rate}_{2015} = \frac{\text{real GDP}_{2015} - \text{real GDP}_{2014}}{\text{real GDP}_{2014}} \times 100$$

$$= \frac{321.99 - 311.547}{311.547} \times 100 = 3.35 \%$$

$$\text{annual real growth rate}_{2016} = \frac{325.4892 - 321.99}{321.99} \times 100 = 1.0867 \%$$

Question 8

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



A is expansion in economic, increasing ^{at} that time

C is Trough, observe deflation

B is recession, falling over time

$$MPC + MPS = 1$$

$$MPC + 0.25 = 1$$

$$MPC = 0.75$$

$$MPC < 1$$

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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. 0

$$Y = C + I$$

$$Y = C_0 + MPC(Y) + I$$

$$\Delta Y = \cancel{\Delta C_0} + MPC(\Delta Y) + \Delta I$$

$$\Delta Y(1 - MPC) = \Delta I$$

$$\Delta Y = \frac{1}{1 - MPC} (\Delta I)$$

$$\Delta Y = \frac{1}{1 - 0.25} (\Delta I) = \frac{1}{0.75} (\Delta I)$$

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.

$$\Delta Y = \frac{1}{0.75} (\Delta I)$$

$$200 = \frac{1}{0.75} (\Delta I)$$

$$\Delta I = 30 \$ \text{ m}$$

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, I think it will be the same because multiplier effect will only cause the change in consumption (C) and national income (Y) #