Student ID: 6309690540

Krittayanan Pilaikiat (Jeen)

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

Year	2014	2015
Nominal gross national income (GNI) ($ billion)	291.53	292.96
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	355.84

GNP (GNI) = GDP + NFFI

GNI 2015 = 358.9 + (9.49 - 75.90) = 292.96 #

GDP 2014 = GNP - NFFI

= 291.53 - (8.13 - 64.3)

= 351.7 #

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

$\text{real GDP}_{2015} = \frac{\text{norminal gdp}}{\text{GDP deflator}} \times 100$

$= \frac{358.97}{100.88} \times 100$

= 355.84 #

$\text{real GDP}_{2014} = \frac{\text{norminal gdp}}{\text{GDP deflator}} \times 100$

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

= 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

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

$= \frac{102.51 - 100.55}{100.55} \times 100\% = 1.95\%$

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

$\text{Unemployment rate}_{2012} = \frac{\text{unemployed}}{\text{employed + unemployed}} \times 100 = \frac{0.99}{12.5 + 0.99} \times 100 = 7.34\%$

$\text{Unemployment rate}_{2013} = \frac{0.71}{12.6 + 0.71} \times 100 = 5.33\%$

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

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

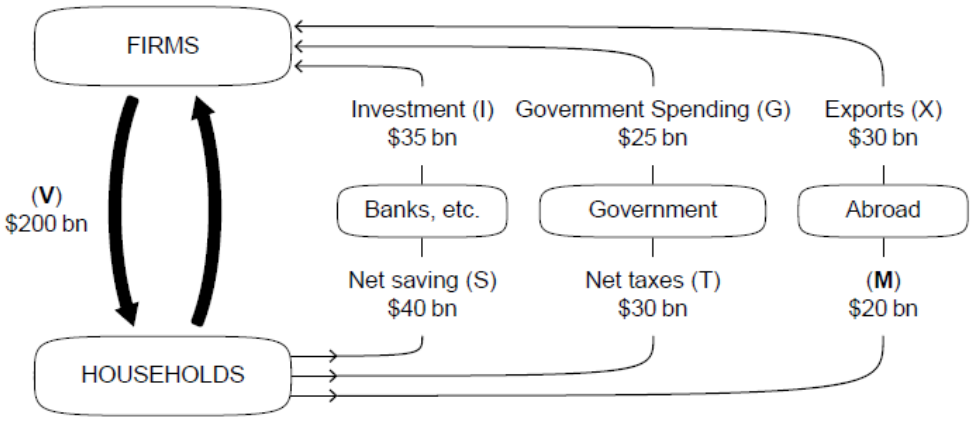
GDP = C+I+G+(X-M)

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

= 1356 #

GNP = GDP+(NFFI) = 1356+(-111) = 1245 #

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$

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

trade surplus = 10$

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

leakage = injection

40+10+20 = 35+25+30

90 = 90

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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

When we calculate CPI, we need to fixed Quantity. To clarify, when price rise, people will substitute for cheaper good, but CPI, we calculate fixed quantity, which mean eventhough price rise, Quantity is fixed. That why, CPI tend to be higher than GDP deflator.

Question 6 Answer the following questions.

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

$$CPI_{2013} = \frac{\sum P_{2013} \times Q_{fixed}}{\sum P_{2013} \times Q_{fixed}} \times 100 = \frac{690}{690} = 100 \#$$

$$CPI_{2014} = \frac{\sum P_{2014} \times Q_{fixed}}{\sum P_{2013} \times Q_{fixed}} = \frac{129 + 125 + 460}{125 + 115 + 450} = \frac{714}{690} \times 100 = 103.48 \#$$

6.2 Calculate the inflation rate of 2014.

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

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

$$= 3.48\% \#$$

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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	2.347×10^{-5}
2015	321.99	100	321.99	3.351	13340012	2.414×10^{-5}
2016	332.65	102.2	325.49	1.09	13473412	2.416×10^{-5}

Real GDP per capita = Real GDP / population

= 311.55 / 13273644

= 321.99 / 13340012

= 325.49 / 13473412

GDP deflator 2014 = (nominal GDP 2014 / Real GDP 2014) × 100

Real GDP 2014 = nominal GDP 2014 / GDP deflator 2014 × 100

= 308.12 / 98.9 × 100 = 311.55 #

Real GDP 2015 = 321.99 / 100 × 100 = 321.99 #

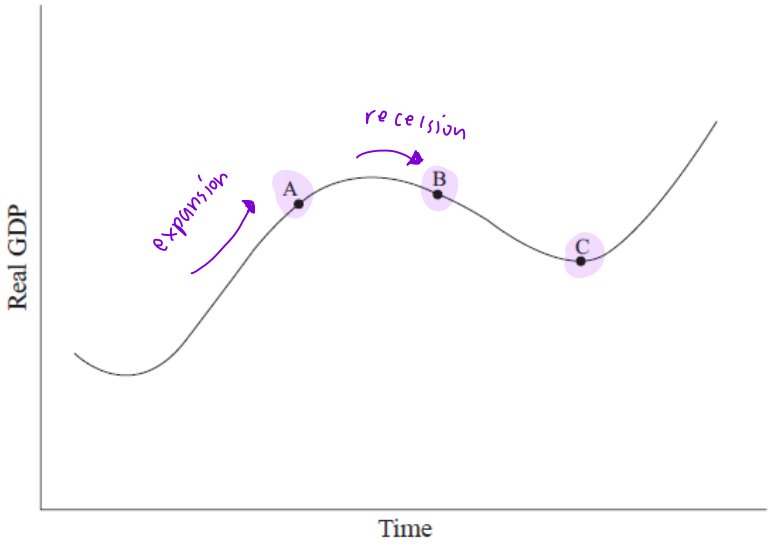
Real GDP 2016 = 332.65 / 102.2 × 100 = 325.49 #

Annual Real Growth rate = (New real GDP − Old real GDP) / Old real GDP × 100 %

Annual Real Growth rate 2015 = (321.99 − 311.5) / 311.5 × 100% = 3.351 % #

Annual Real Growth rate 2016 = (325.49 − 321.99) / 321.99 × 100% = 1.09 % #

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



A → Expansion time → the economy is growing up. (before peak)

B → Recession time → the economy is growing down. (After peak)

C → Trough time → U > Un (unemployment rate is more than natural rate of unemployment)

↳ economy is in the bad time, output is low

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Question 9 Answer the following questions.

MPS = 0.25

MPS + MPC = 1

MPC = 0.75

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.

Closed economy with no government = C + I

$Y = a + bY + I$

$\frac{\Delta Y^*}{\Delta I} = \frac{1}{1 - MPC} = \frac{1}{1 - 0.75} = 4$ #

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.

$\frac{\Delta Y^*}{\Delta I} = 4$, If Y increase by 1 unit, I increase by 4 units.

If Y increase by 200 units, I increase by $4 \times 200 = 800$ units #

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?

Country A (closed economy) has larger multiplier effect. To clarify, an increase in goverment spending leads to an increase in output and also trade deficit. The effect of government spending in the open economy is smaller (the multiplier is smaller) than in closed economy.