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Problem Set II

EE212 — Principles of Macroeconomics

Semester 2/2019-2020

Total mark: 20 points

Due date: Saturday 29 February 2020 **before midnight** to jenmana@econ.tu.ac.th.

Any late submission **will not** be graded.

Please submit in pdf form, and not word document.

Dear students,

Two weeks are given to complete this assignment. As mentioned, we will have four problem sets, each making up 5% of your total grade (20% in total). These will be challenging, and will demand you to revisit the topics that have been mentioned so far in class, as well as to read the mandatory readings.

Reminder on academic policy: I encourage you all to work together and exchange ideas out of class. However, I also encourage you all as university scholars to start independently critically approach a topic, a question, or a challenge that will be posed in this class, as well as the future ones.

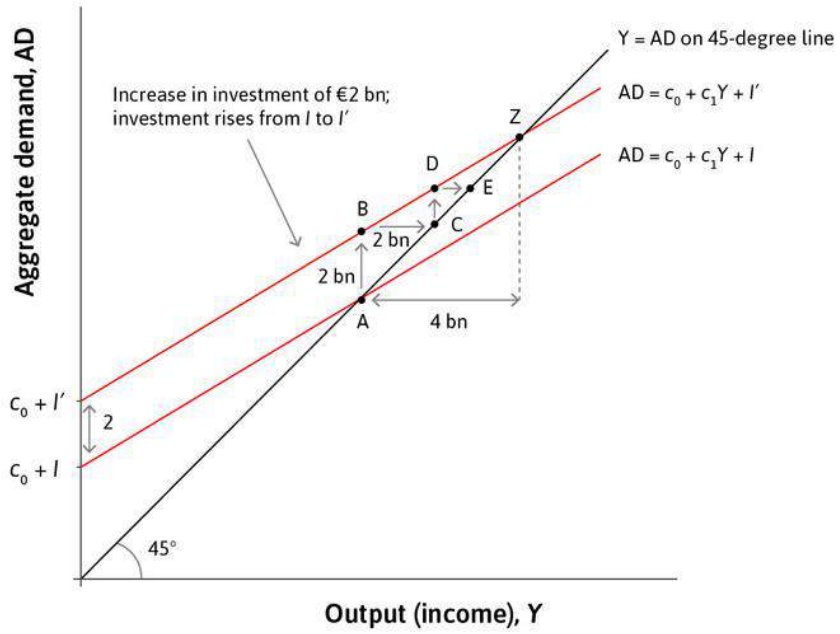
I expect your independent completion of the short essays, as it would be obvious if they are not your own ideas. Plagiarism and cheating will be treated with disciplinary actions. Thammasat University, our faculty, and I take academic integrity extremely seriously.

Problem I: Short answers (5 points)

1. "The Keynesian multiplier is always great than 1 if $T = 0$ and $G = 0$." True or false? Why?

2. "There is no private savings at the Keynesian equilibrium." True or false? Why?

3. Let's say there is no government spending and taxes, and no imports and exports. The consumption function is given by $C = c_0 + c_1 Y$, and I (investment) is given. The economy is graphically visualised as below:



There is a \$2 billion increase in investment. The marginal propensity to consume is 0.5. Which of the following statement is correct? (multiple correct answers may be possible)

(A) The new goods market equilibrium after the investment increase is E.

(B) Aggregate demand increases by a total of \$2 billion $\times$ 0.5 = \$1 billion due to the increase in investment.

(C) The multiplier is 2.

(D) The distance between C and D is three-quarters the distance between A and B (\$1.5 billion).

4. The Keynesian multiplier says that an increase in investment or government spending can lead to an even higher increase in total output. Explain how with intuition how it works, and how does it relate to the MPC.

5. The fiscal (government spendign) multiplier tends to be high during a recession, but they tend to be low (perhaps even lower than one) during an expansion. How could we explain this phenomenon?

1. "The Keynesian multiplier is always great than 1 if $T = 0$ and $G = 0$." True or false? Why?

Ans True because from equilibrium demand $Y = C + I + G + (X-M) \rightarrow Y = \frac{1}{1-c_1}[c_0 + c_1T + I + G + (X-M)]$

Keynesian multiplier $= \frac{1}{1-c_1}$, c_1 = MPC which MPC is value between 0 and 1.

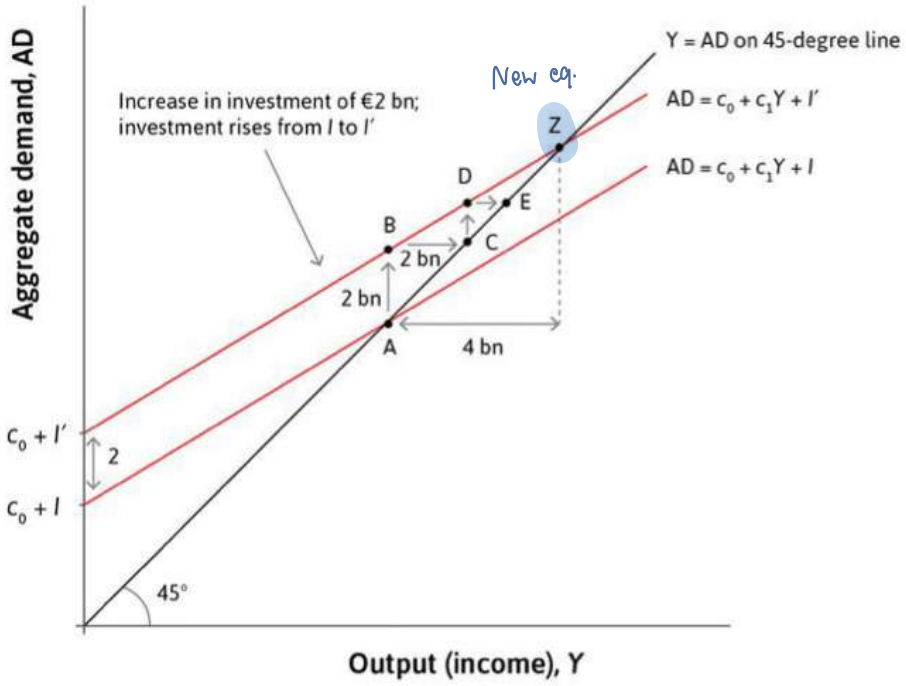
Then Keynesian multiplier is more than 1. So $T = 0$ or $G = 0$ is not involve Keynesian multiplier.

2. "There is no private savings at the Keynesian equilibrium." True or false? Why?

Ans False because private saving can be positive value, negative value or zero.

From $S_{private} = Y - T - C$ which S increase depends on how much of Y if Y increase S increase.

3. Let's say there is no government spending and taxes, and no imports and exports. The consumption function is given by $C = c_0 + c_1Y$, and I (investment) is given. The economy is graphically visualised as below:



MPC: Y↑ 1 unit C↑ ? unit

C.Mult: C↑ 1 unit Y↑ ? unit

There is a \$2 billion increase in investment. The marginal propensity to consume is 0.5. Which of the following statement is correct? (multiple correct answers may be possible)

✗ (A) The new goods market equilibrium after the investment increase is E.

✗ (B) Aggregate demand increases by a total of \$2 billion × 0.5 = \$1 billion due to the increase in investment.

✓ (C) The multiplier is 2.

✗ (D) The distance between C and D is three-quarters the distance between A and B (\$1.5 billion).

(A) New equilibrium = Z

(B) $AD_1 = c_0 + (0.5)Y + I$ —①

$AD_2 = c_0 + (0.5)Y + (I+2)$ —②

① - ②; $AD_1 - AD_2 = 2$

(C) increas in investment = 2 bn

$Y = \left[\frac{1}{1-c_1}\right][c_0 + c_1T + I + G + (X-M)]$

multiplier; autonomous spending

so autonomous spending increase 2 bn

Y = 4bn ; multiplier = 2

(D) I↑ 2 bn → Y↑ 2 bn → C↑ 0.5(Y) = 0.5(2) bn = 1 bn

Ans C

4. The Keynesian multiplier says that an increase in investment or government spending can lead to an even higher increase in total output. Explain how with intuition how it works, and how does it relate to the MPC.

Ans Both increasing in investment and government spending can lead to increasing output. For example increase in investment $Y = I + C + G$, $I \uparrow$ leads to $Y \uparrow$, also G.

Keynesian multiplier relates to MPC by if MPC have much value Keynesian multiplier is higher too.

5. The fiscal (government spendign) multiplier tends to be high during a recession, but they tend to be low (perhaps even lower than one) during an expansion. How could we explain this phenomenon?

Ans During recession government spending for increasing the amount of money in bnsiness cycle but during expansion government spend lower because in bnsiness cycle have too much money.

Problem II: The Keynesian Cross in a small closed and open economy (10 points)

Assume that, in a closed economy:

$$\begin{aligned} C &= 500 + 0.5Y_D \\ I &= 100 \\ T &= 80 \\ G &= 200 \end{aligned}$$

1. (0.5 point) Solve for (i) equilibrium consumption; (ii) "planned" aggregate expenditure (aggregate demand); (iii) disposible income. Characterise the equilibrium.
2. (0.5 point) Graph – with proper labels – the equilibrium output and expenditure
3. (1 point) Solve for the equilibrium private savings and public savings.
4. (1 point) Calculate the Keynesian multiplier, as well as the autonomous spending. What do they mean?
5. (1 point) It is election year, and the incumbent government increases their government spending from 200 to 300. Find the new equilibrium demand, output, consumption, and disposable income. How much does each increase? Graph these changes. Why would the government want to do this?

Now let's consider a small open economy where the exchange rate and interest rate are pegged on the US.

$$\begin{aligned} C &= c_0 + c_1(Y - T) \\ I &= d_0 + d_1 Y - d_2 r \\ M &= m_1 Y \\ X &= x_1 Y^W \end{aligned}$$

Let r be the exogenous interest rate, and Y^W the level of foreign outputs. G is exogenous.

6. (1 point) All coefficients (e.g. c_1, d_1, d_2) are positive. According to your understanding, what is d_1 and d_2? What are the reasons for the signs before them (plus or minus)?
7. (3 points) What is the effect of lower government spending ($G \downarrow$) on the budget balance, $G - T = G - tY$? Assuming that $\big(1 - c_1(1-t) - d_1 + m_1\big) < 1$, and the linear tax rate t is constant.
8. (2 points) Suppose that the government is budget balanced – given by $G = T = tY$. Find the equilibrium output in this economy. How does the equilibrium output change when foreign output increases?
   Tip: replace G and T by tY.

$$
\begin{aligned}
C &= 500 + 0.5Y_D \\
I &= 100 \\
T &= 80 \\
G &= 200
\end{aligned}
$$

1. (0.5 point) Solve for (i) equilibrium consumption; (ii) "planned" aggregate expenditure (aggregate demand); (iii) disposible income. Characterise the equilibrium.

(i) $Y = AE$

$Y = 500 + 0.5(Y-80) + 100 + 200$

$Y = 0.5Y + 760$

$Y = 1{,}520$

$C = 500 + 0.5(1{,}440)$

$C = 1{,}220$

(ii) $AE = C + I + G$

$= 500 + 0.5(1{,}440) + 100 + 200$

$= 1{,}520$

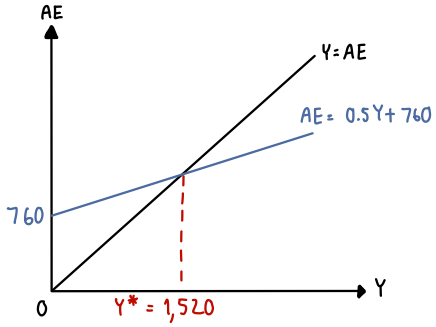
(iii) $Y_D = Y - T$

$= Y - 80$

$= 1{,}520 - 80$

$= 1{,}440$

2. (0.5 point) Graph – with proper labels – the equilibrium output and expenditure



3. (1 point) Solve for the equilibrium private savings and public savings.

Private Saving : $S_{private} = Y - T - C = Y_D - C = 1{,}440 - 1{,}220 = 220$

Public Saving : $S_{public} = T - G = 80 - 200 = -120$

Equilibrium : $I = S_{private} + S_{public} = 220 + (-120) = 100$

4. (1 point) Calculate the Keynesian multiplier, as well as the autonomous spending. What do they mean?

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

$Y = c_0 + c_1(Y-T) + I + G + (X-M)$

$(1-c_1)Y = c_0 - cT + I + G + (X-M)$

$Y = \left[\frac{1}{1-c_1}\right]\left[c_0 + c_1T + I + G + (X-M)\right]$

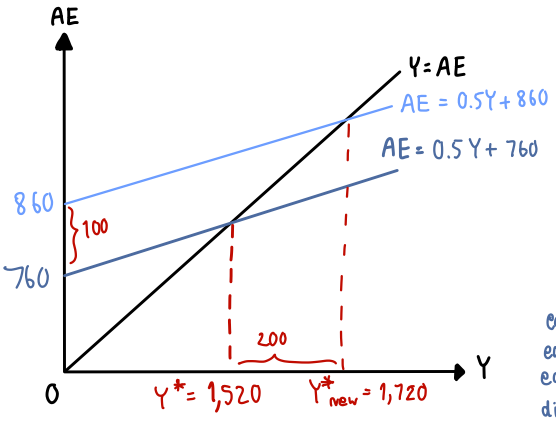
$\therefore$ Multiplier $= \frac{1}{1-c_1} = \frac{1}{1-0.5} = 2$ #

$\therefore$ Autonomous spending $= c_0 - c_1T + I + G + (X-M)$

$= 500 - 40 + 100 + 200 = 760$ #

Multiplier tell how much output change if consume more for given autonomous spending.

5. (1 point) It is election year, and the incumbent government increases their government spending from 200 to 300. Find the new equilibrium demand, output, consumption, and disposable income. How much does each increase? Graph these changes. Why would the government want to do this?



$Y = AE$

$Y = C + I + G$

$Y = 500 + 0.5(Y-80) + 100 + 300$

$Y = 0.5Y + 860$

$Y = AE = 1{,}720$ #

$C = 500 + 0.5(1720)$

$C = 1{,}360$ #

$Y_d = Y - T$

$Y_d = 1{,}720 - 80 = 1{,}640$ #

eq. demand increase = 100

eq. output increase = 200

eq. consumption increase = 140

dispossible income increase = 200

Because government need to gets more vote by increase government spending leads to higher income which give people an impression and vote for them.

Now let's consider a small open economy where the exchange rate and interest rate are pegged on the US.

$$\begin{aligned} C &= c_0 + c_1(Y - T) \\ I &= d_0 + d_1 Y - d_2 r \\ M &= m_1 Y \\ X &= x_1 Y^W \end{aligned}$$

Let r be the exogenous interest rate, and Y^W the level of foreign outputs. G is exogenous.

6. (1 point) All coefficients (e.g. c_1, d_1, d_2) are positive. According to your understanding, what is d_1 and d_2? What are the reasons for the signs before them (plus or minus)?

Ans d_1 is depends on Y and also Y depends on d_1 which increase in Y leads to increase in I, also increas in output.

d_2 is depends on r which r is interest rate. If more in interest rate leads to less in investment.

So plus $d_1 Y$ is to increase I and minus $d_2 r$ is to reduce in I because if more in interest rate firms would not like to invest.

7. (3 points) What is the effect of lower government spending ($G \downarrow$) on the budget balance, $G - T = G - tY$? Assuming that $(1 - c_1(1-t) - d_1 + m_1) < 1$, and the linear tax rate t is constant.

Ans

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

$$Y = c_0 + c_1 Y - c_1 t Y + d_0 + d_1 Y - d_2 r + G + x_1 Y^W - m_1 Y$$

$$(1 - c_1 + c_1 t - d_1 + m_1) Y = c_0 + d_0 - d_2 r + G + x_1 Y^W$$

$$(1 - c_1(1-t) - d_1 + m_1) Y = c_0 + d_0 - d_2 r + G + x_1 Y^W$$

$$Y = \frac{1}{(1 - c_1(1-t) - d_1 + m_1)} [c_0 + d_0 - d_2 r + G + x_1 Y^W]$$

$$\frac{\Delta Y}{\Delta G} = \frac{1}{(1 - c_1(1-t) - d_1 + m_1)}$$

if $(1 - c_1(1-t) - d_1 + m_1) < 1$

so $\Delta G < 1$

8. (2 points) Suppose that the government is budget balanced – given by $G = T = tY$. Find the equilibrium output in this economy. How does the equilibrium output change when foreign output increases?
Tip: replace G and T by tY.

Ans Equilibrium output

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

$$Y = c_0 + c_1 Y - c_1 t Y + d_0 + d_1 Y - d_2 r + t Y + x_1 Y^W - m_1 Y$$

$$(1 + m_1 - c_1 + c_1 t - d_1 - t) Y = c_0 + d_0 - d_2 r + x_1 Y^W$$

$$Y = \frac{1}{(1 + m_1 - c_1 + c_1 t - d_1 - t)} [c_0 + d_0 - d_2 r + x_1 Y^W]$$

Foreign output increase : Y^W increase → equilibrium output increase

Problem IV: *"you shall earn your bread in sweat"* (5 points)

Based on your mandatory reading written by Michal Kalecki in 1943, titled *Political Aspects of Full Employment*, consider the text below.

The referenced work asked a perplexing question. *"The entrepreneurs in the slump are longing for a boom; why do they not gladly accept the synthetic boom which the government is able to offer them?"* Summarise the main reasons given.

My question is this. Does the same phenomenon (existence of political obstacles from capitalists against full-employment economic policy) happens in Thailand? If not, explain; and if so, do the same reasons apply? Are there any other reasons you think are more accurate?

word count: 600 words (±20 words are allowed)

In 1943 Michal Kalecki posited that the entrepreneurs in the slump are longing for a boom; why do they not gladly accept the synthetic boom which the government is able to offer them? in his essay "Political Aspects of Full Employment." There are three reason for this question. First the entrepreneurs do not like interference in the problems of employment by government. Most of the government activity have been suspicious which less confidence of government would affect less in investment and less in employment in both direct and indirect way. As a result, good status of finance is to make employment rate depends on confidents of the government. Second the entrepreneurs do not like government spending which would be spending on public investment and subsidizing mass consumption. The economic principles of government intervention require public investment should not be compete with private business such as school and hospital. Third dislike the maintenance of full employment which can cause the social and political changes. Because of permanent full employment management will be affect less power of the business leader including wage increase and work condition improvement. In spite of reducing in profit for business, the entrepreneur is care about the profit less than political stability or rules in the factories so the full employment is the thing that the entrepreneur would like to avoided.

From my point of view in thailand there are political obstacles from capitalists against full employment economic policy. As I mentioned earlier capitalists have many suspicion and dislike for government action. Which capitalists want to control their business by their own direction. In capitalists system employment is depends on decision of the entrepreneur and those decision depend on profit of business, if their business earn less profit they could consider to not hire worker or fire worker. So far as we know when economic recession or the business did not develop happened in thailand there would be a news that the worker is hired to resign or put a pressure on them to resign by themself. The fact is the business did not grow well, it is not surprising that the entrepreneur will do their own way to reduce costs of production, in this case they reduce the labor, cause reduce in wage that they have use to hired, to reduce their expense. Reducing the labor can cause the less of production but to reduce the expense, it may be the best way to continues the business by reduce expenditure. Moreover to consider the labor for one position for the job if the choice have two worker, one worker have bachelor degree who can do a job for lower wage another than worker have master degree but for this one the entrepreneur would paid the wage for higher. This decision be made to the first one who lower wage.

Perhaps capitalists may not want to against full employment but the business status cause them to do so, maybe this is the way that they can continues their business. The situation that all available labor resources are being used can not be possible to happen because the business status is not stable and not easily to control. The entrepreneur or capitalist have to choose the best choice to gain most benefit as possible they can to continue their business. In some situation, the entrepreneur have to choose the best with high potential labor worth the wage that the entrepreneur pay or the labor that appropriate the situation of their business.