EC 103–004

Problem Set 4

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Spring 2024

INSTRUCTIONS: Carefully read all problems.

Recall that group work is *strongly recommended.*

Have fun!

Problem 1

The following 10 statements are either **True** or **False**. If **False**, provide a brief explanation why.

(a) In an economy with government, the income that ultimately gets to households is known as *disposable* (after-tax) income.

(b) In an economy with government, aggregate (private) investment still needs to be fully financed by aggregate (private) savings.

(c) Whenever changing the level of government expenditures and the supply of money, the government is engaging in *fiscal* policy.

(d) The government expenditures multiplier produces the same effect as the spending multiplier in a closed economy without government.

(e) The tax multiplier is always greater than the government expenditures multiplier.

(f) In an economy with no change in aggregate investment, any new government expenditures fully financed by taxes on consumers will generate a growth in output proportional to the change in government spending.

(g) The *Inflation Reduction Act* of 2022 is an example of macroeconomic *monetary* policy.

(h) COVID-19 era stimulus checks are an example of recent *fiscal* policy.

(i) If an economy's marginal propensity to save (*MPS*) is 0.2, its government expenditures multiplier will be equal to 5.

(j) If government purchases and taxes are increased by $100 billion simultaneously, equilibrium output will also be increased by $100 billion.

Problem 2

Suppose you are given the following information regarding country YYZ:

- Aggregate consumption: $C = 350 + 0.6Y$
- Planned investment: $I = \$ 150$
- Aggregate expenditures definition: $AE \equiv C + I$
- In equilibrium, aggregate income (Y) must be equal to aggregate expenditures (AE).

Answer the following questions.

(a) What is YYZ's marginal propensity to consume?

(b) What is YYZ's marginal propensity to save?

(c) Show the expression (equation) for YYZ's aggregate expenditures function.

(d) What is the equilibrium level of income for YYZ?

(e) Now, suppose that the level of planned investment increases to $I' = \$ 200$ in the following year. What is the new equilibrium level of income for YYZ?

(f) Given your answers to parts (d) and (e), what is the size of YYZ's multiplier? To get full credit, you must show its value in *two* different ways.

Problem 3

Assume a closed economy with government, and you are given the following information:

- Households consume 75% of their disposable income (Y_d) on consumption, saving the rest;
- The amount of aggregate consumption that *does not* depend on the current level of disposable income is $160;
- Government expenditures: $G = \$200$;
- Net taxes on consumption: $T = \$200$;
- Planned Investment: $I = \$300$;
- Aggregate expenditures definition: $AE \equiv C + I + G$;
- In equilibrium, aggregate income (Y) must be equal to aggregate expenditures (AE).

Answer the following questions.

(a) Using the above information, write the expression for this economy's aggregate expenditures (AE), as a function of income (Y).

(b) At what aggregate income level do aggregate expenditures exactly meet what is being currently produced in the economy?

(c) Based on your answer to part (b), what is the level of aggregate savings (S) in this economy?

(d) From your previous answers, show that the amount of *leakages* is compensated by the amount of *injections* in this economy.

(e) Suppose you are this economy's policymaker, and need to stimulate the economy. In other words, the prime minister has given you the task of increasing aggregate output by $500. Show **3 ways** in which this goal can be achieved with fiscal policies. To get full credit, you need to give brief explanations and prove your story mathematically. *Obs*: Just using ready-made formulas is not enough to get full credit.