NANYANG TECHNOLOGICAL UNIVERSITY
SCHOOL OF SOCIAL SCIENCES
SEMESTER 1 AY25-26

HE1002 MACROECONOMICS I

PROBLEM SET 5

5-1

"People who earn more income tend to have higher levels of consumption spending, so the value of their marginal propensity to consume must be greater than that of lower income people." Do you think this is a true statement? Why or why not?

5-2

Do you think there is a predictable relationship between the business cycle and aggregate investment spending? Why or why not?

5-3

"During a recession more people qualify for unemployment insurance. This will increase the government spending category of GDP and help reduce the severity of the recession." Do you agree with this statement? Why or why not?

5-4

"When one country in the world falls into a recession, this tends to cause other countries to also fall into a recession." Do you agree with this statement? Why or why not?

5-5

For each of the following shocks, identify what component(s) of planned aggregate expenditure is/are directly affected and in which direction.

a. Tax rates increase.

b. China experiences an economic boom.

c. People become more optimistic regarding their future prospects.

d. Congress decides to increase funding for education.

e. German fashion designs become popular among celebrities

5-6

Draw a planned aggregate expenditure curve as described in the chapter. Then show what happens to the planned aggregate expenditure curve in each of the following scenarios.

a. Government spending increases.

b. Business taxes increase.

c. Aggregate income decreases.

5-7

Draw a planned aggregate expenditure curve for an economy where autonomous expenditure is $500 billion and the marginal propensity to consume is equal to 0.75.

5-8

Which of the following would be classified as an autonomous change to planned aggregate expenditure?

a. Interest rates in an economy decrease.

b. Current income in an economy increases.

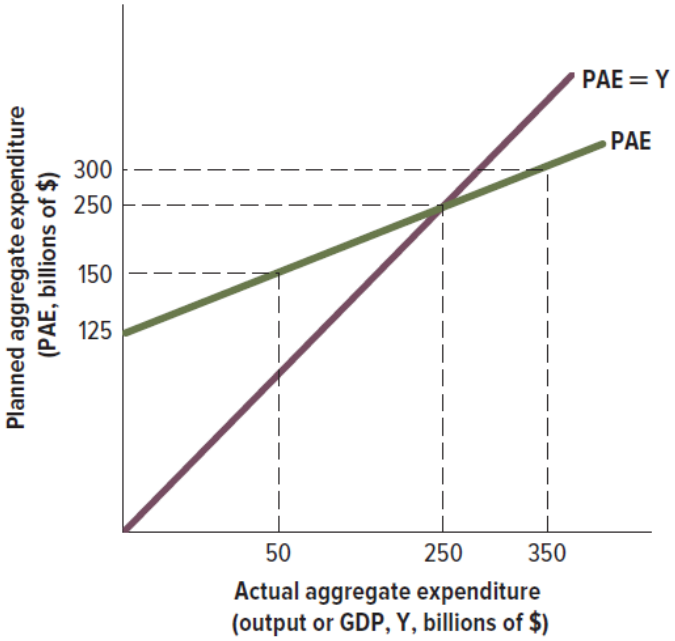
c. Domestic goods become more expensive relative to foreign goods.

d. Congress decides to undertake an infrastructure repair project.

5-9

Consider the planned expenditure curve in Figure 11P-1. What is the level of autonomous expenditure in this economy?

Figure 11P-1



5-10

Consider the data presented in Table 11P-1.

Table 11P-1

Actual aggregate expenditure or output (Y) (billions of $)	Consumption (C) (billions of $)	Planned investment (billions of $)	Government spending (G) (billions of $)	Net exports (NX) (billions of $)	Unplanned investment (inventory change) (billions of $)	Future output tendency
350	200	60	90	60		
400	220					
450	240					
500	260					
550	280					

a. What is the marginal propensity to consume for households in this economy?

b. Based on the assumptions of our aggregate expenditure model, fill in the columns for planned investment, government spending, and net exports. What is this type of expenditure called?

c. For each level of actual aggregate expenditure, calculate unplanned inventory investment.

d. What is the equilibrium level of aggregate expenditure in this economy? How do you know?

e. For each level of actual aggregate expenditure, label the future output tendency as “increase,” “decrease,” or “same” based on what you expect to happen to future output. What relationship does this categorization have to your answer in part d?

5-11

Suppose that an economy is at an aggregate expenditure equilibrium at an output level of $300 billion.

a. Show this point on a planned versus actual aggregate expenditure graph.

b. Label a point on the planned aggregate expenditure curve where the economy will decrease its output next year. (To do this, pick a specific level of output that makes sense.)

c. Label a point on the planned aggregate expenditure curve where the economy will increase its output next year. (To do this, pick a specific level of output that makes sense.)

5-12

Consider the data presented in Table 11P-2.

Table 11P-2

Actual aggregate expenditure or output (Y) (billions of $)	Consumption (C) (billions of $)	Planned investment (billions of $)	Government spending (G) (billions of $)	Net exports (NX) (billions of $)	Unplanned investment (inventory change) (billions of $)
500	300	150	100	50	
600	350				
700	400				
800	450				
900	500				

a. For each level of actual aggregate expenditure, calculate unplanned inventory investment.

b. What is the equilibrium level of aggregate expenditure in this economy? How do you know?

c. Suppose that planned investment increases by $50 billion. What is the new equilibrium level of aggregate expenditure in this economy?

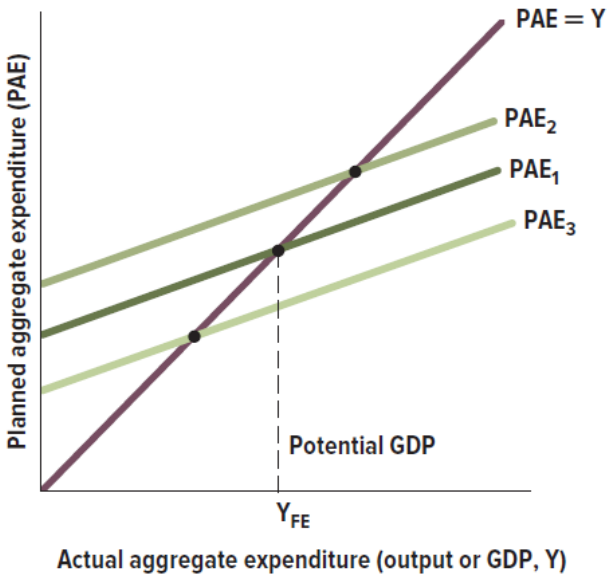
d. What is the marginal propensity to consume in this economy?

e. What is the expenditure multiplier in this economy?

5-13

Consider the graph in Figure 11P-2, where the full-employment level of output is given by Y_{FE} and is the equilibrium level of aggregate expenditure for curve PAE_1.

Figure 11P-2



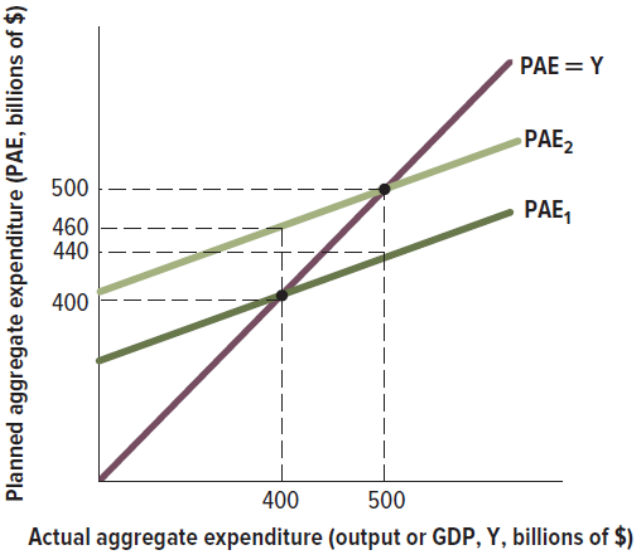
a. Which planned aggregate expenditure curve will result in a recessionary output gap? Label the size of the recessionary output gap on the graph.

b. Which planned aggregate expenditure curve will result in an inflationary output gap? Label the size of the inflationary output gap on the graph.

5-14

Consider the graph in Figure 11P-3.

Figure 11P-3



a. What is the expenditure multiplier in this economy?

b. What is the marginal propensity to consume in this economy?

5-15

In each of the following scenarios, describe and calculate the overall effect on aggregate expenditure.

a. A recent stock market boom has increased household wealth by $20 billion, which increases consumption by $10 billion, and the marginal propensity to consume in the economy is equal to 0.5.

b. Rising interest rates reduce domestic consumption by $3 billion and reduce investment by $4 billion, and the marginal propensity to consume in the economy is equal to 0.5.

5-16

Consider the following components of the aggregate expenditure equilibrium model:

$$C = 0.6(Y - 200) + 150$$

$$I_{planned} = 175$$

$$G = 200$$

$$NX = 50$$

Assume all model parameters are in billions of dollars.

a. What is the marginal propensity to consume in this economy?

b. What is the level of taxes in this economy? (You can assume that the functional forms above are consistent with those described earlier.)

c. What is the equilibrium level of aggregate expenditure in this economy?

Now suppose that planned investment decreases by $25 billion.

d. Find the overall change in equilibrium aggregate expenditure that results from this initial change by finding the new level of equilibrium aggregate expenditure and comparing this new level to the initial level.

e. Again, find the overall change in equilibrium aggregate expenditure that results from this initial change, but this time use the changes formulation of the equilibrium aggregate expenditure expression directly.