

## Assignment 2 (part 1)

Deadline: September 30, 2004

### Part A Multiple-Choice Questions [20 marks]

*Each question is worth 1 mark. There is no negative marking for wrong answers*

*To answer each question correctly, you have to choose the best answer from the given four choices.*

1. A
2. C
3. D
4. D
5. B
6. D
7. B
8. D
9. B
10. A
11. B
12. A
13. C
14. C
15. B
16. C
17. D
18. B
19. A
20. B

**Part B****True/False/Uncertain Questions [30 marks]**

*Each question is worth 10 marks.*

*Explain why the following statement is True, False, or Uncertain according to economic principles. Use diagrams and / or numerical examples where appropriate. Unsupported answers will receive no marks. It is the explanation that is important.*

B1. In an economy saving equals planned investment

**Uncertain.**

According to the aggregate expenditures model, in the equilibrium level of the GDP savings equal planned investment. However, if an economy is off the equilibrium, saving is not equal to planned investment. The actual investment (planned investment plus unplanned changes in inventories) and saving are always equal regardless of the level of GDP.

Saving is a leakage or withdrawal of spending from the income-expenditures stream. As a result of saving, consumption is insufficient to take all domestic output off shelves, setting the stage for a decline in output. However, firms do not intend to sell their entire output to consumers; some domestic output will consist of capital goods sold within the business sector. Investment can be therefore be thought of as an injection of spending into the income-expenditures stream. Investment is thus a potential replacement for the leakage of saving. So, if the leakage of saving equals the injection of planned investment, then the aggregate expenditures will equal to the real GDP with no unplanned changes in inventories and the economy will be at the state of the equilibrium.

If the leakage of saving at a certain level of real GDP exceeds the injection of investment, then  $C + I_g$  will fall short of real GDP and there will be unplanned inventory accumulation. Firms will cut back production and this will reduce real GDP. Any real GDP for which saving exceeds investment is an above-equilibrium GDP. Conversely, if the injection of investment exceeds the leakage of saving, then  $C + I_g$  will be greater than real GDP and there will be unplanned decline in inventory investment. This will encourage firms to expand production and drive real GDP upward. Any real GDP for which planned investment exceeds saving is a below-equilibrium GDP.

See Table 7-4 of the text for a numerical example.

B2. MPC is the fraction of the total income consumed.

**False.**

The APC (average propensity to consume) is the fraction (or percentage) of the total disposable income that households plan to spend for consumer goods and services. The MPC (marginal propensity to consume) is the ratio of a change in consumption to the change in the disposable income that caused the consumption change:

$$\text{MPC} = \text{change in consumption} \div \text{change in disposable income}$$

B3. In a private closed economy, an increase in real interest rate will lead to a higher level of equilibrium real GDP.

**False.**

An increase in real interest will lead to a decrease in autonomous investment expenditures. And the decrease in autonomous investment expenditures will shift the investment schedule downward in Figure 7-7 of the text. The decrease in the autonomous investment expenditure will also shift aggregate expenditures schedule downward. As a result, the equilibrium level of real GDP will fall. Fig 7-10 of the text shows that due to a decrease in autonomous investment expenditures, the aggregate expenditures schedule shifts downward and the equilibrium real GDP declines.

**Part C**

**Problem Solving Question**

**[50 marks]**

Answer all parts of the following three questions.

**C-1 [25 marks]**

Assume the consumption schedule for a private closed economy is such that  $C = 50 + 0.8Y$ . Assume further that planned investment is independent of the level of income and constant at  $I_g=30$ .

- a. Plot the consumption, investment and aggregate expenditure schedules. Show the equilibrium point and the equilibrium level of real GDP in the graph. [10]
- b. Calculate the equilibrium level of income for this economy. Check your work by expressing the consumption, investment schedules in tabular form and determining the equilibrium GDP. [10]
- c. What will happen to equilibrium  $Y$  if  $I_g$  changes to 10? [5]

(a) The consumption schedule will be similar to the Fig 7-2(A) or Fig 7-9 with a vertical intercept of 50 and slope of 0.8. The investment schedule will be similar to the Fig 7-7 (b) with a vertical intercept of 30. The aggregate expenditures schedule ( $C+I_g$ ) will be similar to Fig 7-9 with a vertical intercept of 80. The equilibrium point will be the place where the aggregate expenditures schedule intersects the 45-degree line. The equilibrium real GDP, the real GDP associated with the intersecting point, will be 400.

(b) At the equilibrium,  $Y = AE$ . That means,

$$Y = C + I_g = \$50 + 0.8Y + \$30 = 0.8Y + \$80$$

Therefore  $Y - 0.8Y = \$80$ , and  $0.2Y = \$80$ , so  $Y = \$400$  at equilibrium.

Real domestic output (GDP = YI)	C	$I_g$	Aggregate expenditures
\$ 0	\$ 50	\$30	\$80
50	90	30	130
100	130	30	160
150	170	30	200
200	210	30	240
250	250	30	280
300	290	30	320
350	330	30	360
<b>400</b>	<b>370</b>	<b>30</b>	<b>400</b>
450	410	30	440
500	450	30	480

(c) If  $I_g$  decreases from \$30 to \$10, we can find the new equilibrium GDP in the same way as in part (b).

$$Y = C + I_g = \$50 + 0.8Y + \$10 = 0.8Y + \$60$$

Therefore,  $Y - 0.8Y = \$60$ , and  $0.2Y = \$60$ , so  $Y = \$300$ .

**C-2 [ 25 marks]**

Complete the table below.

Level of output And income (GDP = DI)	Consumption	Saving	APC	APS	MPC	MPS
\$240	\$ _____	\$-4	_____	_____	_____	_____
260	\$ _____	0	_____	_____	_____	_____
280	\$ _____	4	_____	_____	_____	_____
300	\$ _____	8	_____	_____	_____	_____
320	\$ _____	12	_____	_____	_____	_____
340	\$ _____	16	_____	_____	_____	_____
360	\$ _____	20	_____	_____	_____	_____
380	\$ _____	24	_____	_____	_____	_____
400	\$ _____	28	_____	_____	_____	_____

- Show the consumption and saving schedules graphically. [10]
- Locate the break-even level of income. How is it possible for households to dissave at very low income levels? [5]
- If the proportion of total income consumed decreases and the proportion saved increases as income rises, explain both verbally and graphically how the MPC and MPS can be constant at various levels of income. [10]

Data for completing the table (top to bottom). Consumption: \$244; \$260; \$276; \$292; \$308; \$324; \$340; \$356; \$372. APC: 1.02; 1.00; .99; .97; .96; .95; .94; .94; .93. APS: -.02; .00; .01; .03; .04; .05; .06; .06; .07. MPC: 80 throughout. MPS: 20 throughout.

- See the graphs below.
- Break-even income = \$260. Households dissave borrowing or using past savings.
- Technically, the APC diminishes and the APS increases because the consumption and saving schedules have positive and negative vertical intercepts respectively. (Appendix to Chapter 1). MPC and MPS measure *changes* in consumption and saving as income changes; they are the *slopes* of the consumption and saving schedules. For straight-line consumption and saving schedules, these slopes do not change as the level of income changes; the slopes and thus the MPC and MPS remain constant.

