

ECON 1010 Principles of Macroeconomics

Solutions to Midterm Exam #3

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Section 1: Multiple Choice (50 pts). Circle the correct answer; each is worth 2.5 points.

1. Physical capital is purchased through investment spending, which in turn is mostly financed out of:

- A) taxes.
 - B) domestic and foreign savings.
 - C) import tariffs.
 - D) consumption expenditure.
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2. Annual GDP is \$12 trillion in a closed economy. Consumption is \$8 trillion and government spending is \$2 trillion. Taxes are \$0.5 trillion. How much is private saving?

- A) \$4 trillion
 - B) \$2.5 trillion
 - C) \$3.5 trillion
 - D) -\$0.5 trillion
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3. Higher rates of interest tend to _____ the quantity of loanable funds demanded, and lower rates of interest tend to _____ it.

- A) increase; reduce
 - B) reduce; reduce
 - C) increase; increase
 - D) reduce; increase
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4. Zoe wins a prize at her sorority and she is given the following two payoff options: Option 1 is to receive \$100 one year from today and \$100 two years from today. Option 2 is to receive \$180 today. If the annual interest rate is 5%, the present value of option 1 is:

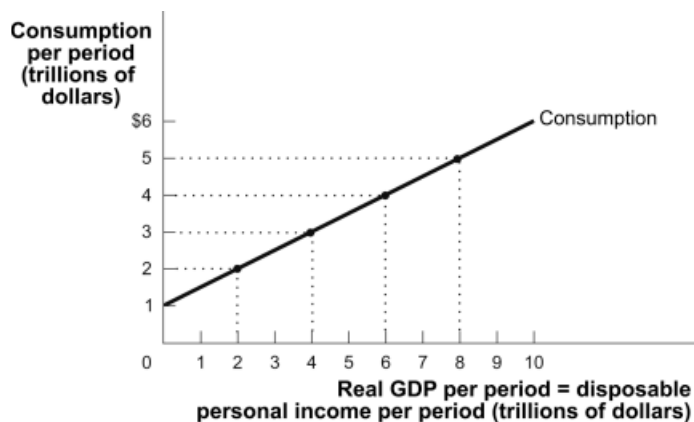
- A) \$176.56.
 - B) \$185.94.
 - C) \$190.48.
 - D) \$195.24.
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5. When you take out a loan from a bank, it is a(n):

- A) asset to you and a liability to the bank.
- B) asset to you and an asset to the bank.
- C) liability to you and a liability to the bank.
- D) liability to you and an asset to the bank.

6. The marginal propensity to consume (MPC) is:
- A) increasing if the marginal propensity to save is increasing.
 - B) the proportion of total disposable income that the average family consumes.
 - C) the change in consumer spending divided by the change in aggregate disposable income.
 - D) the change in consumer spending minus the change in aggregate disposable income.
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7. The marginal propensity to save (MPS) plus the MPC must equal:
- A) zero.
 - B) one.
 - C) income.
 - D) saving.
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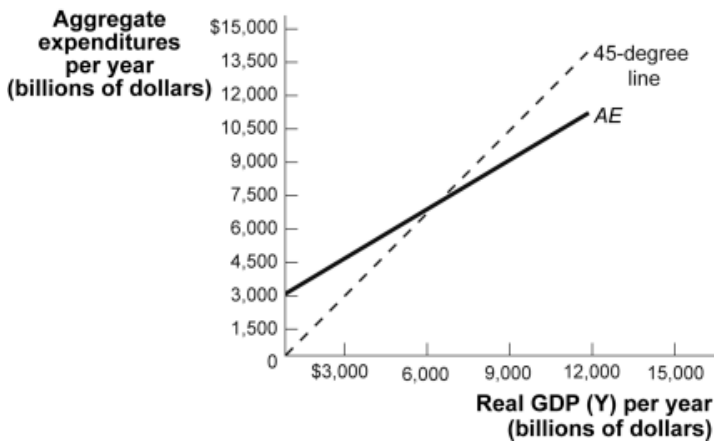


8. According to the figure above, the marginal propensity to consume in this example is:
- A) 0.0.
 - B) 0.5.
 - C) 1.0.
 - D) 2.0.
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9. In an economy with no international trade, no government expenditure, no transfers, and no taxes, planned aggregate spending is equal to:
- A) GDP minus disposable income plus planned investment spending.
 - B) consumption plus planned investment spending.
 - C) disposable income plus planned investment spending.
 - D) GDP minus consumption plus unplanned investment spending.

10. In an economy without government purchases, government transfers, or taxes, aggregate autonomous consumer spending is \$750 billion, planned investment spending is \$300 billion, and the marginal propensity to consume is 0.75. What is the expression for planned aggregate spending?

- A) $AE_{Planned} = \$1,050 + 0.75 \times YD.$
- B) $AE_{Planned} = \$300 + 0.25 \times YD.$
- C) $AE_{Planned} = \$750 + 0.75 \times YD.$
- D) $AE_{Planned} = \$500 + 0.25 \times YD.$



11. According to the figure above, at a real GDP of \$9,000 billion:

- A) **planned investment is less than investment.**
- B) planned investment equals investment.
- C) planned investment is greater than investment.
- D) there will be no unplanned investment.

12. The *SRAS* curve is upward sloping because a:

- A) higher aggregate price level leads to lower output as costs of production increase.
- B) **higher aggregate price level leads to higher output since most production costs are fixed in the short run.**
- C) lower aggregate price level leads to higher output since production costs tend to fall in the short run.
- D) lower aggregate price level leads to higher profit and higher productivity.

13. Nominal wages are “sticky” because:

- A) **wages are slow to rise in the short run when there are labor shortages and slow to fall even when there is significant level of unemployment.**
- B) wages remain fixed in the long run thereby increasing the profitability of the firms.
- C) wages are slow to fall in the short run when there are labor shortages and slow to rise even when there is significant level of unemployment.
- D) in the long run all wages become adjusted for inflation.

14. Suppose the equilibrium aggregate price level is rising and the equilibrium level of real GDP is falling. Which most likely caused these changes?

- A) increase in aggregate supply
 - B) increase in aggregate demand
 - C) decrease in aggregate supply
 - D) decrease in aggregate demand
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15. If the economy is currently in an inflationary gap, real GDP will be _____ potential output.

- A) below
 - B) the same as
 - C) above
 - D) in equilibrium with
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16. A recessionary gap is automatically closed by _____ wages that shift the _____.

- A) rising; SRAS curve rightward
 - B) falling; SRAS curve rightward
 - C) falling; SRAS curve leftward
 - D) rising; SRAS curve leftward
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17. The loanable funds market maximizes the:

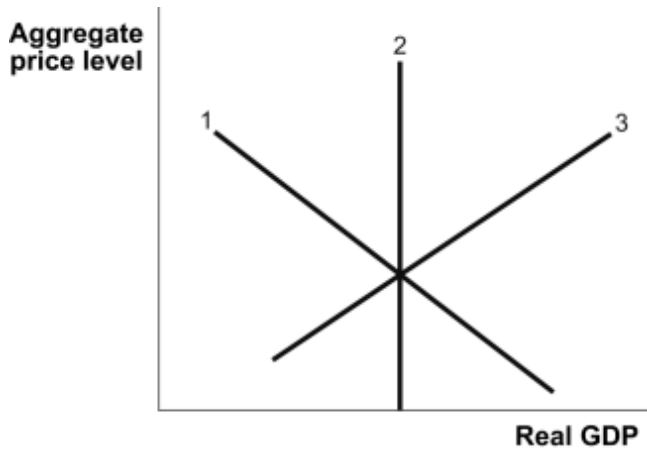
- A) interest rate to savers.
 - B) rate of return by borrowers.
 - C) gains from trade between lenders and borrowers.
 - D) amount of investment spending in the economy.
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18. Jake is given the choice of receiving \$100 today or \$115 one year from today. What annual interest rate will make him indifferent between these two choices?

- A) 5%
 - B) 10%
 - C) 15%
 - D) 20%
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19. Between 2000 and 2006, there was a housing bubble in the United States. A bubble is:

- A) a fluctuation in asset prices that leads to inherent instability.
- B) an increase in asset prices driven by unrealistic expectations about future prices.
- C) individuals reselling assets rapidly to make quick profit.
- D) speculation by unscrupulous investors.



20. Refer to the figure above with a macroeconomics equilibrium. Curve 1 refers to _____, curve 2 refers to _____, and curve 3 refers to _____.
- A) long-run aggregate supply; short-run aggregate supply; aggregate demand
 - B) aggregate demand; short-run aggregate supply; long-run aggregate supply
 - C) short-run aggregate supply; long-run aggregate supply; aggregate demand
 - D) aggregate demand; long-run aggregate supply; short-run aggregate supply

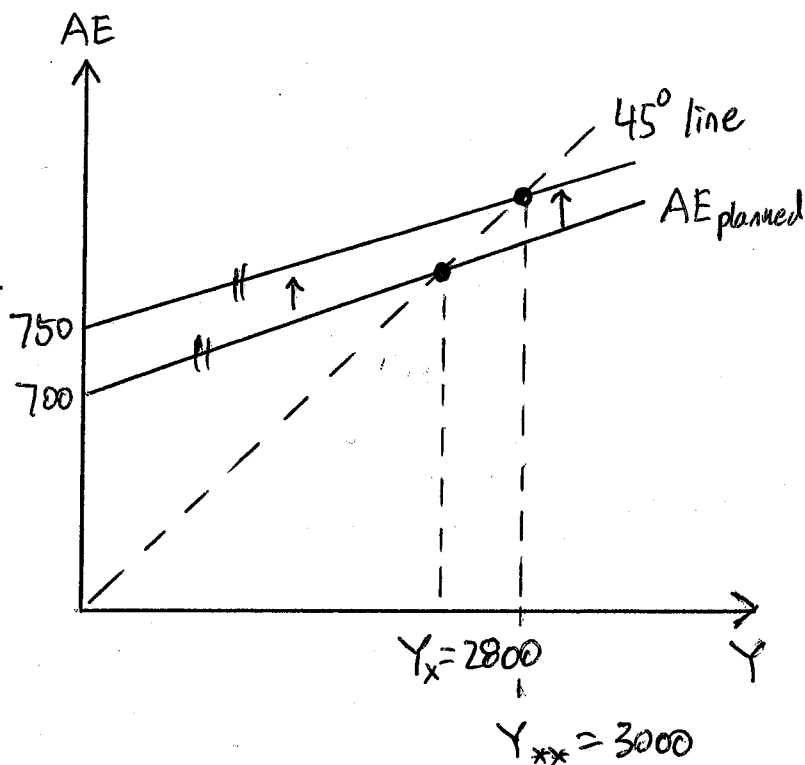
Section 2: Short Answer Questions (50 pts).

1. (30 pts) Income Expenditure Model and The Multiplier

a) (10 pts) Consider an economy where planned investment is 500, autonomous consumption is 200, and the MPC is 0.75. The economy is closed and there is no government. Find the equilibrium level of real GDP (Y) and show the equilibrium using the graphical version of the income-expenditure (Keynesian Cross) model.

SOLUTION:

- The equilibrium level of real GDP (Y) is given by the equation: $Y = AE_{planned} = C + I_{planned}$. After substitutions, the equilibrium condition is: $Y = (200 + 0.75Y) + 500$ or $Y_* = 2800$.
- The spending multiplier is $\frac{1}{1-MPC} = \frac{1}{1-0.75} = 4$.
- The Keynesian-Cross diagram at the right shows the equilibrium where the 45-degree line intersects the $AE_{planned}$ line. The $AE_{planned}$ line has an intercept of 700 and a slope equal to $MPC = 0.75$.



b) (10 pts) Consumers are bullish on the future of the economy and increase autonomous consumption to 250. Use the spending multiplier to find the new equilibrium and demonstrate the change on the graph in part (a).

SOLUTION:

After the increase in autonomous consumption, the $AE_{planned}$ line shifts up by 50 in a parallel fashion. The new equilibrium level of real GDP (Y) is given by

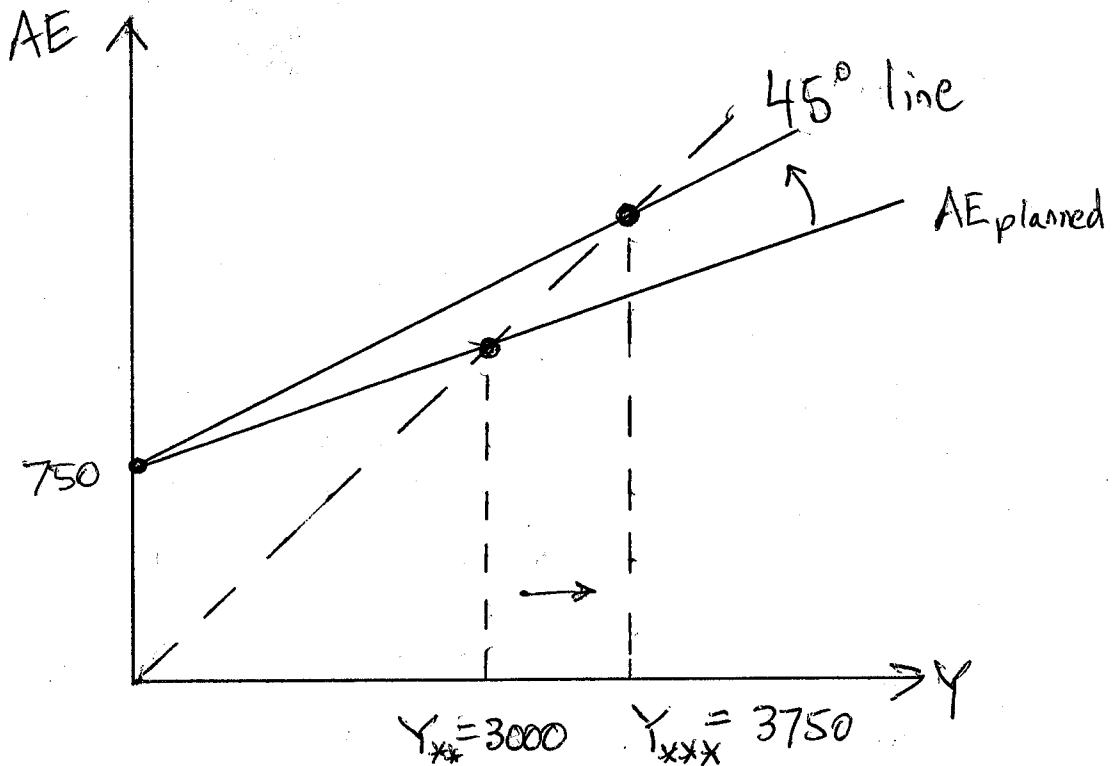
$$Y_{**} = Y_* + \Delta C \times multiplier = 2800 + (50 \times 4) = 2250 + 200 = 3000.$$

See the diagram in part (a).

c) (10 pts) The marginal propensity to save (MPS) is 0.25. Assume President Trump, in an effort to stimulate the economy, uses the bully pulpit to encourage consumers to reduce their MPS to 0.2. Using the numbers in part (b), find the new equilibrium level of GDP, the new multiplier, and show the equilibrium on a new graph. How much did the reduction in the MPS stimulate the economy?

SOLUTION:

- The new equilibrium level of real GDP is given by the equation: $Y = AE_{planned} = C + I_{planned}$. After substitutions, the new equilibrium condition is: $Y = (250 + 0.8Y) + 500$ or $Y_* = 3750$.
- The new spending multiplier is $\frac{1}{1-MPC} = \frac{1}{1-0.8} = 5$.
- The Keynesian-Cross diagram below shows the equilibrium where the 45-degree line intersects the new $AE_{planned}$ line. The new $AE_{planned}$ line has an intercept of 750 and a slope equal to $MPC = 0.80$.



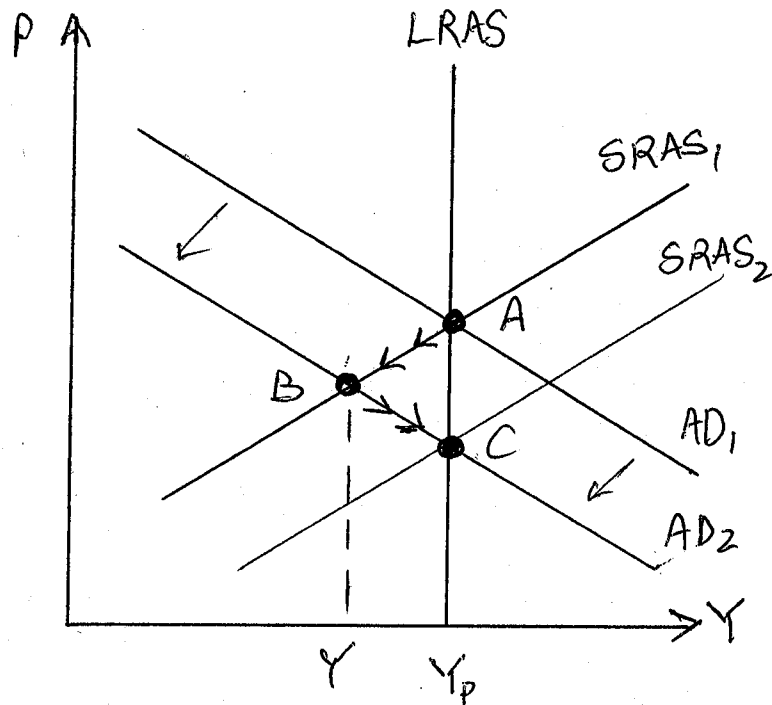
$\Delta Y = 750$

2. (20 pts) AD-SRAS-LRAS Model and Macroeconomic Shocks

a) (10 pts) After the 2018 midterm elections, Democrats now control the U.S. House of Representatives, while Republicans control the U.S. Senate and the White House. Given this change, consumers now expect deadlock in Washington D.C. and no new infrastructure programs meant to stimulate business and household spending. Using an AD-SRAS-LRAS model, show graphically the short-run and long-run transition of the economy to the contractionary shock. Label the initial equilibrium point A, the short-run equilibrium point B, and the long-run equilibrium point C. Explain the transition from points A to B to C in a short paragraph assuming that there is no government intervention.

SOLUTION:

The deadlock in Washington D.C. will shift the AD to the left. The economy transitions in the short run from point A to point B, such that GDP and the price level both decrease. The macro-economy is in a recession. The recession causes downward pressure on wages and salaries, lowering the production costs of firms. This eventually shifts the SRAS down and to the right until the economy ends up at point C, returning to its potential output. See the graph at the right.



b) (10 pts) Outline two possible policy responses from President Trump to the recessionary gap in part (a). Use the AD-SRAS-LRAS model above to guide your answer.

SOLUTION:

President Trump has multiple policy options. First, he could stimulate the economy by introducing new government spending programs. Second, he could lower taxes on households to encourage private spending. Both of these policy responses would shift the AD to the right and return the economy to its potential. The economy transitions in the short run from point A to point B due to the deadlock, but it would return to point A after the policy response. Third, the President could just let the market respond and not intervene. In this case, the recession would put downward pressure on wages and salaries, lowering the production costs of firms. This eventually shifts the SRAS down and to the right until the economy ends up at point C, returning to its potential output. See the graph at the right.

