

**ECON 1010 Principles of Macroeconomics
Solutions to Exam #3**

Section A: Multiple Choice Questions. (40 points; 2 pts each)

1. Domestic savings and foreign savings are:
 - a. sources of funds for investment spending.
 - b. equal to each other in terms of the composition of total savings.
 - c. used for investment spending only when there is unplanned investment spending.
 - d. not necessary for investment spending, since government funds this spending.

2. Mike is the CEO of a company. He has an opportunity to undertake the following project: pay \$1,000 today and receive \$1,200 a year from now. If the annual interest rate is 20%, the difference between the present value of the benefits and the cost of the project is:
 - a. \$440.
 - b. \$200.
 - c. \$166.
 - d. \$0.

3. The _____ the _____, the _____ the multiplier.
 - a. smaller; level of wealth; bigger
 - b. bigger; *MPS*; bigger
 - c. bigger; *MPC*; smaller
 - d. bigger; *MPC*; bigger

4. **Table: Individual and Aggregate Consumption Functions**

Current Disposable Income	Consumer Spending		
	Andy	Fred	Mark
\$0	\$150	\$100	\$200
1,000	950	800	1,100

According to the Table above, which represents the aggregate consumption function?

- a. $C = 450 + 0.7YD$.
- b. $C = 150 + 0.9YD$.
- c. $C = 250 + 0.8YD$.
- d. $C = 450 + 0.8YD$.

5. Scenario: Consumption Spending

Suppose that the consumption function is: $C = \$500 + 0.8 \times YD$, where YD is disposable income. If disposable income is \$1000, saving is:

- a. -\$500.
- b. \$1300.
- c. -\$300.
- d. \$300.

6. The Federal Reserve, the central bank of the United States, has been cutting the interest rate in order to stimulate the recessionary economy. Interest cuts by the Federal Reserve are supposed to:

- a. increase investment spending and thus increase GDP via the multiplier.
- b. increase cash holding by the general public thus lowering their dependence on credit.
- c. increase government spending on the economic infrastructure and thus increase GDP through the multiplier process.
- d. lower the savings rate in the economy and stop leakages.

7. The current unemployment rate in the U.S. is

- a. 5.5%.
- b. 2.5%.
- c. 10.5%.
- d. very close to zero.

8. Scenario: Income–Expenditure Equilibrium

GDP is \$8000, autonomous consumption is \$500, and planned investment spending is \$200. The marginal propensity to consume is 0.8. How much is planned aggregate spending?

- a. \$7100
- b. \$6400
- c. \$8000
- d. \$700

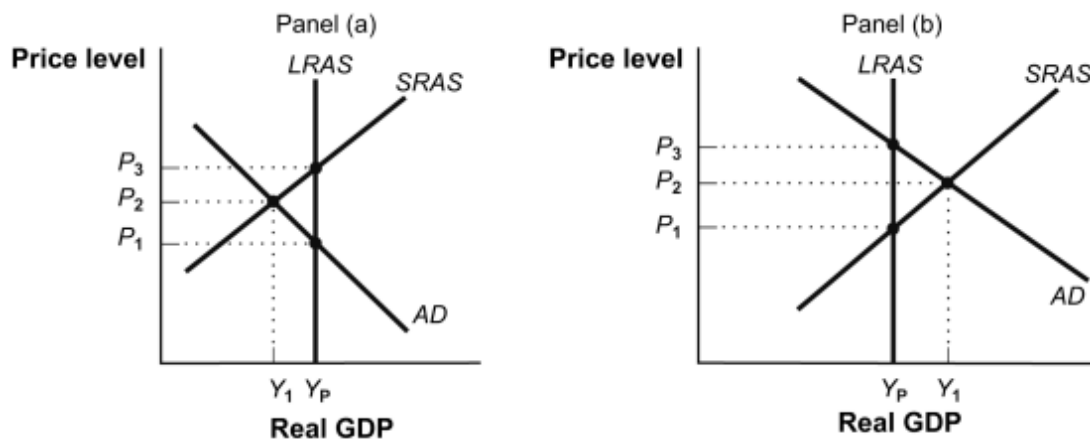
9. Scenario: Income–Expenditure Equilibrium

GDP is \$8000, autonomous consumption is \$500, and planned investment spending is \$200. The MPC is 0.8. Given this income–expenditure equilibrium, firms will tend to:

- a. raise prices.
- b. hire more people.
- c. increase output.
- d. decrease output.

10. The _____ curve shows the negative relationship between the aggregate price level and the quantity of aggregate output demanded in the economy.
- aggregate demand
 - short-run aggregate supply
 - long-run aggregate supply
 - investment demand
11. A decrease in the government spending shifts the aggregate:
- supply curve to the left.
 - supply curve to the right.
 - demand curve to the left.
 - demand curve to the right.
12. Suppose that the aggregate output level is lower than potential output. Which is NOT true?
- Workers are abundant.
 - Jobs are scarce.
 - Nominal wages will fall over time.
 - The short-run aggregate supply curve will gradually shift to the left.

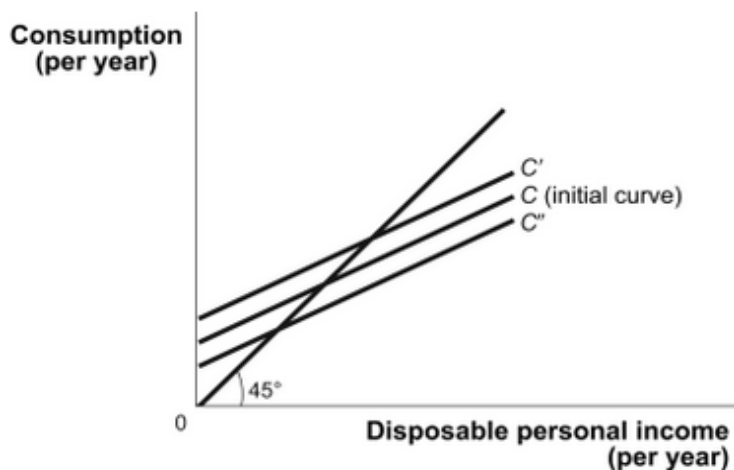
13. **Figure: Inflationary and Recessionary Gaps**



According to the figures above, the level of income associated with Y_1 in panel (b):

- is equal to potential output.
- reveals an inflationary gap compared with Y_p .
- is a long-run equilibrium.
- is caused by flexible wages and prices.

14. An economy is in the midst of a recession. An example of a government policy aimed at moving the economy back to potential GDP is a(n):
- increase in taxes.
 - increase in government spending on infrastructure improvements.
 - increase in the property tax.
 - decrease in unemployment benefits.
15. If the government's total revenues are greater than its total expenditures, then it has a budget:
- deficit.
 - surplus.
 - balance.
 - equality.
16. The slope of the consumption function is equal to the slope of the:
- 45-degree line.
 - aggregate expenditure line.
 - aggregate demand curve.
 - short-run aggregate supply curve.
17. **Figure: Consumption Functions**

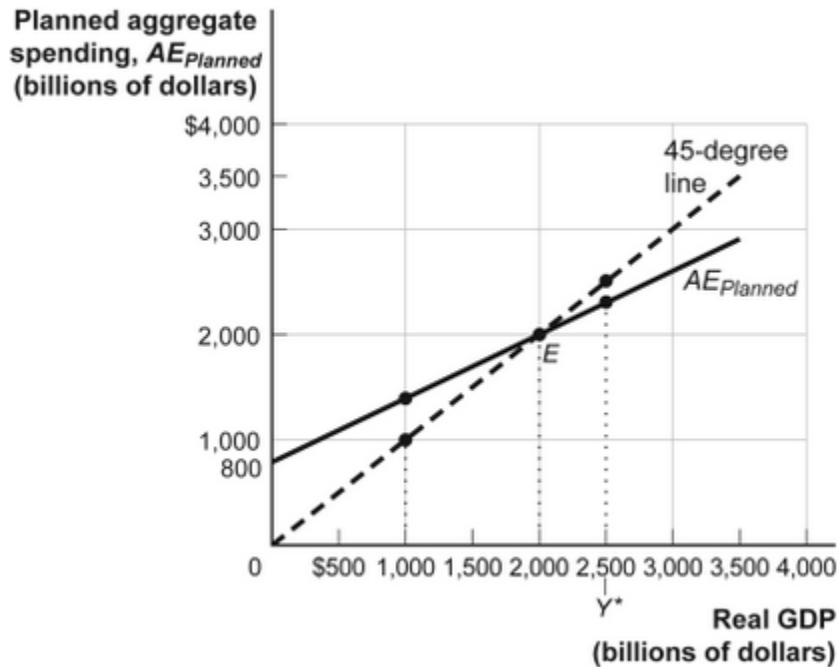


An economy's consumption function would shift from curve C to curve C'' when there is a(n):

- decrease in wealth.
- decrease in the price level.
- increase in expected future disposable income.
- increase in wealth.

18. In an economy with no international trade, no government expenditure, no transfers, and no taxes, planned aggregate spending is equal to:
- GDP minus disposable income plus planned investment spending.
 - consumption plus planned investment spending.
 - disposable income plus planned investment spending.
 - GDP minus consumption plus unplanned investment spending.

19. Figure: Income–Expenditure Equilibrium



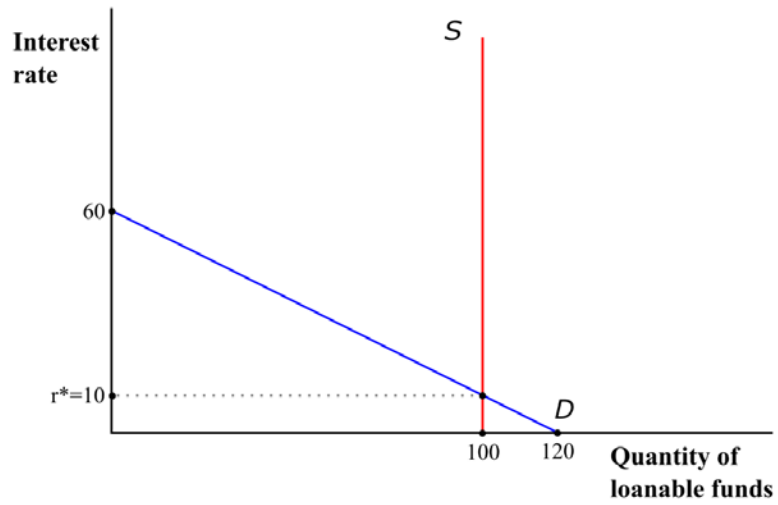
According to the figure above, if investment spending increases in this economy, then the:

- AE will shift up, increasing the income–expenditure equilibrium.
 - AE will shift down, decreasing the income–expenditure equilibrium.
 - economy will move upward along the AE , increasing the income–expenditure equilibrium.
 - economy will move downward along the AE , decreasing the income–expenditure equilibrium.
20. During the Great Depression, the U.S. economy slid to the:
- left along the aggregate supply curve.
 - right along the aggregate supply curve.
 - left along the aggregate demand curve.
 - right along the aggregate demand curve.

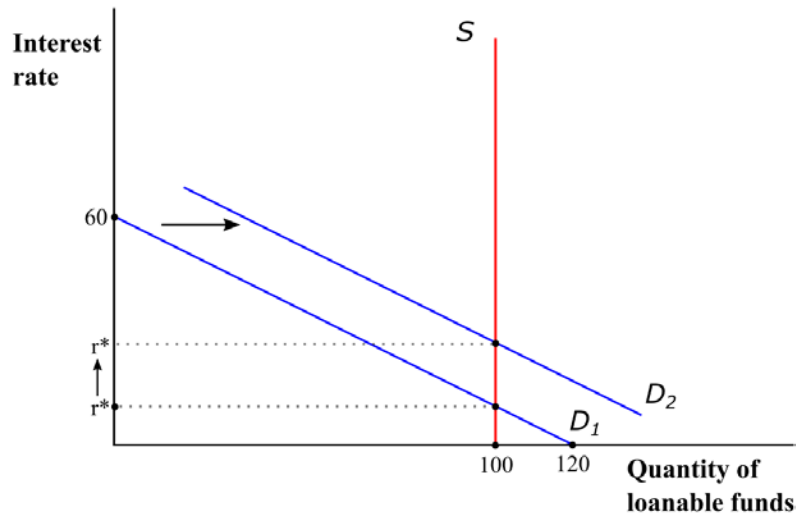
Section B: Short Answer Questions. (60 points)

1. (20 pts) Market for Loanable Funds and the Time Value of Money

- a) (10 pts) Assume the demand for loanable funds is $I = 120 - 2r$, where I is the quantity of loanable funds demanded for investment and r is the interest rate. Private savings is 50 and public saving is 50. Neither depends on the interest rate. The economy is closed. Draw the demand and supply curves for loanable funds and find the equilibrium real interest rate, r^* . Show how an increase in mortgages and automobile purchases will change the graph and the equilibrium.



- $r^* = 10$



b) (10 pts) Using the interest rate above, find the present value of an investment project that costs \$1 million today and will produce \$1.2 million two years from now. Is the investment project worthwhile? For the project to break-even, what direction must the interest rate move? Explain.

- **The present value of \$1.2 million two years from now when the interest rate is 10% is:**

$$\$V = \frac{\$1200000}{(1 + 0.1)^2} = \$991436$$

- **The present value of the project is lower than the cost. Therefore the investment is not worthwhile. The interest rate would need to fall for the project to break even.**

2. (20 pts) Income-Expenditure Model and the Multiplier

- a) (10 pts) Assume that planned investment is 100, government spending is 50, autonomous consumption is 50, and the MPC is 0.9. Taxes are zero. Find the equilibrium level of real GDP and show the equilibrium using the graphical version of the income-expenditure (Keynesian cross) model.

- The equilibrium level of real GDP is equal to the planned aggregate spending.

$$GDP = AE_{Planned} = C + I_{Planned} + G$$

where

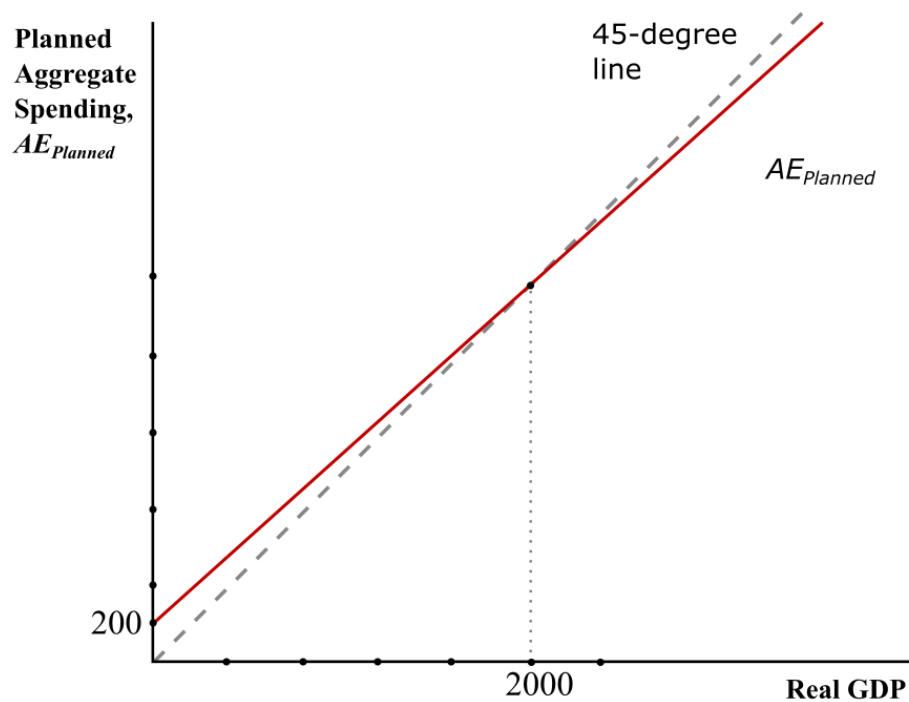
$$C = 50 + 0.9 \times DY$$

$$DY = GDP$$

- Plug in the numbers and solve for GDP

$$GDP = 50 + 0.9 \times GDP + 100 + 50$$

$$GDP = 2000$$

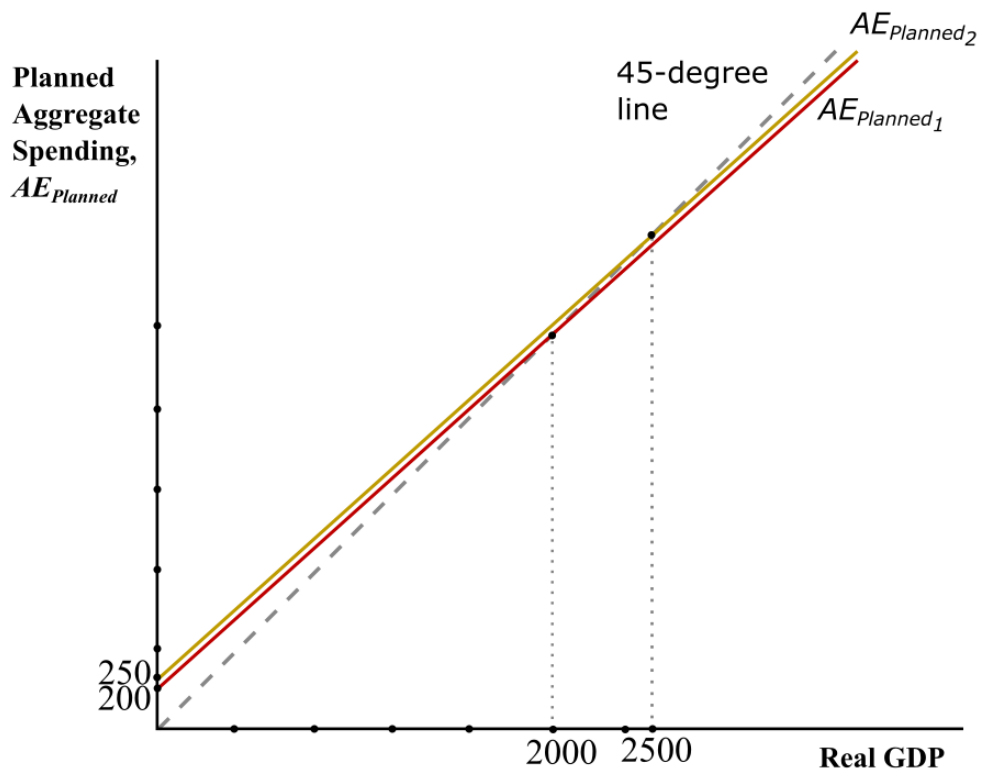


b) (10 pts) Assume foreigners develop a taste for U.S. products. The trade balance moves from zero to $NX = 50$, where exports are 50 and imports are zero. Find the new equilibrium and show this graphically.

- **Plug in the numbers and solve for the equilibrium level of real GDP**

$$GDP = 50 + 0.9 \times GDP + 100 + 50 + 50$$

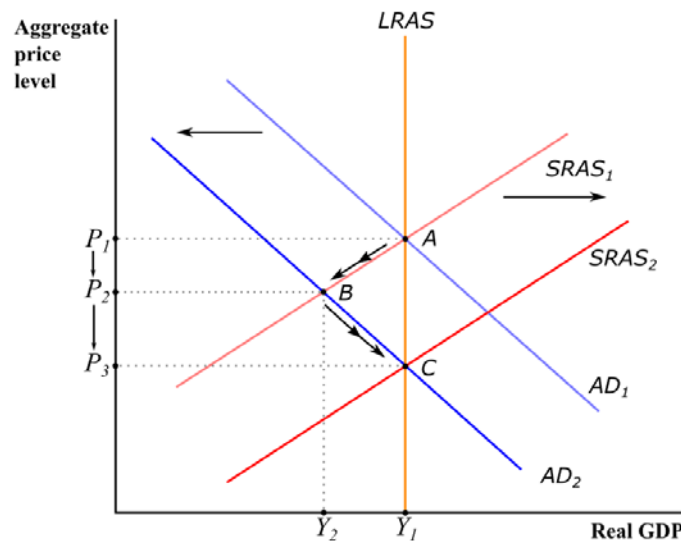
$$GDP = 2500$$



3. (20 pts) AD-SRAS-LRAS Model and Macroeconomic Shocks

Use the AD-SRAS-LRAS model to show graphically how legislation to balance the U.S. federal budget would impact the macroeconomy in the short and long run. Label your initial equilibrium “A”, short-run equilibrium “B”, and the long-run equilibrium “C”. Write a corresponding paragraph explaining the transition of the economy and how monetary policy could be used to stabilize the economy.

- Legislation to balance the U.S. federal budget would reduce aggregate spending (and/or increases taxes), causes a leftward shift of the aggregate demand curve. Graphically, the initial aggregate demand curve, AD_1 , shifts leftward and becomes AD_2 . The new intersect between AD_2 and $SRAS_1$ is the short-run macroeconomic equilibrium, shown as point B . This results in a lower equilibrium aggregate price level at P_2 and a lower equilibrium aggregate output level at Y_2 . The economy faces a recessionary gap. In the long-run, the recessionary gap causes nominal wages and other sticky prices to fall, leading producers to increase output. Graphically, the initial short-run aggregate supply curve, $SRAS_1$, shifts rightward until it intersects with AD_2 and $LRAS$. The economy is back in long-run macroeconomic equilibrium, at point C . The aggregate price level decreases from P_2 to P_3 .**



- Monetary policy can be used to stabilize the economy by increasing the money supply. This reduces interest rates and leads to more investment, shifting the AD curve to the right and counteracting the effects of the balanced-budget legislation.**