

**EXAMINATION #4 VERSION A**  
**"Short-Run Business Cycles"**  
**December 6, 2012**

INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators or calculators with alphabetical keyboards are NOT permitted. Cell phones or other wireless devices are NOT permitted. Point values for each question are noted in brackets. Points will be subtracted for illegible writing or incorrect rounding. Maximum total points are 100.

**I. Multiple choice:** Circle the one best answer to each question. [1 pt each, 16 pts total]

(1) Most economists believe that business cycles are caused mainly by fluctuations in

- a. the labor force.
- b. the capital stock.
- c. aggregate demand.
- d. the population.
- e. aggregate supply (that is, potential GDP).

(2) If GDP is greater than potential GDP, then the unemployment rate is usually

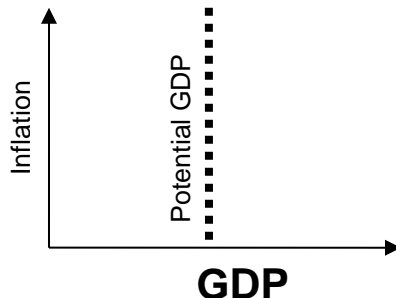
- a. greater than the natural rate of unemployment.
- b. less than the natural rate of unemployment.
- c. equal to the natural rate of unemployment.
- d. zero.

(3) Which is said to have "momentum" in the short run?

- a. GDP.
- b. the rate of unemployment.
- c. the rate of inflation.
- d. the money supply.
- e. the interest rate.

(4) On a graph like that below, most economic fluctuations cause the economy to

- a. move horizontally left and right.
- b. move vertically up and down.
- c. cycle in a clockwise direction.
- d. cycle in a counterclockwise direction.



(5) Keynes claimed that any increase in government purchases causes an even larger increase in total GDP because of a subsequent increase in

- a. the interest rate.
- b. consumption spending.
- c. investment spending.
- d. the money supply.
- e. net exports.
- f. the inflation rate.

(6) According to the "permanent-income hypothesis," which is likely to cause the largest increase in consumption spending *this year*?

- a. A 10 percent tax increase for this year only.
- b. A 10 percent tax cut for this year only.
- c. A 10 percent tax increase lasting ten years.
- d. A 10 percent tax cut lasting ten years.

(7) Suppose the interest rate in the U.S. increases but interest rates in the rest of the world remain unchanged. Then the U.S. dollar will

- a. appreciate.
- b. depreciate.
- c. remain unchanged.
- d. cannot be determined from information given.

(8) Under a monetary policy rule typical of most countries, if inflation rises, the central bank will try to

- a. increase the real interest rate.
- b. increase the money supply.
- c. raise taxes.
- d. reduce the rate at which the government spends money.

(9) If actual GDP is greater than potential GDP, the inflation rate will

- a. remain constant.
- b. rise eventually.
- c. fall eventually.
- d. rise immediately.
- e. fall immediately.

(10) If a recession occurs, which will automatically increase without action by Congress or the President?

- a. military spending.
- b. income tax payments to the government.
- c. spending on unemployment insurance benefits.
- d. highway construction spending.
- e. all of the above.
- f. none of the above.

(11) Reducing the deficit by increasing taxes or decreasing spending may, in the short run, cause

- a. a boom.
- b. a recession.
- c. a price shock.
- d. a fall in the money supply.

(12) Who sets monetary policy in the United States?

- a. The Secretary of the Treasury.
- b. The Federal Deposit Insurance Corporation.
- c. The President.
- d. The Senate Banking Committee.
- e. The Federal Reserve Board of Governors.
- f. The Federal Reserve District Banks.
- g. The Federal Open Market Committee.

(13) When the Federal Reserve engages in "open market operations," it

- a. sets regulations for when banks must be open.
- b. makes all of its meetings open to the public.
- c. buys and sells Treasury bonds.
- d. tries to increase the number of traders in financial markets.

(14) The federal funds rate is the

- a. average market interest rate on all bonds issued by the federal government.
- b. rate of increase of federal government spending.
- c. interest rate that banks charge each other for overnight loans of reserves.
- d. interest rate the Federal Reserve charges banks.

(15) Countries tend to have lower inflation rates in the long run if the heads of their central banks are

- a. more independent of elected officials.
- b. directly elected by the people—who after all must live with the consequences of central bank policies.
- c. under the direct control of elected officials and can be fired at any time.
- d. cannot be determined from information given.

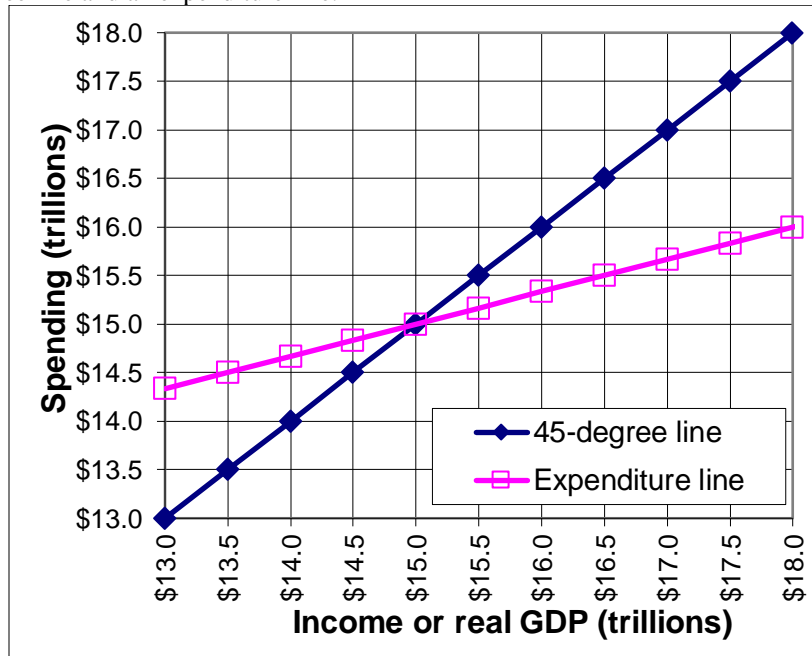
(16) Suppose a central bank follows a policy rule of watching both inflation and real GDP. Then if GDP seems to be *greater than* potential GDP, that central bank will preemptively

- a. increase the money supply.
- b. increase the real interest rate.
- c. decrease the real interest rate.
- d. keep the real interest rate constant to keep the economy on track.

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**II. Problems:** Insert your answer to each question in the box provided. Use graphs and margins for scratch work. Only the answers in the boxes will be graded. Work carefully: partial credit is not normally given for questions in this section.

(1) [Keynesian cross, Keynesian multipliers: 12 pts] The following diagram shows a Keynesian cross diagram, including a 45-degree line and an expenditure line.



a. What is the current level of real GDP—that is, the point of "spending balance"?

\$	trillion
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Suppose government purchases *increase* by \$ 1.0 trillion.

b. Does the expenditure line shift *up or down* in the short run?

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c. By how much (measured vertically)?

\$	trillion
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d. Does GDP *increase or decrease* in the short run?

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e. By how much?

\$	trillion
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f. Compute the government-purchases multiplier from your previous answers to this problem.

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(2) [Consumption function, Keynesian cross, Keynesian multipliers: 8 pts] Suppose the marginal propensity to consume is 0.40 and the marginal propensity to import is 0.025 . Assume no other spending components of GDP are affected by aggregate income.

a. Compute the slope of the consumption function.

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b. Compute the slope of the expenditure line in the Keynesian cross diagram.

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c. Compute the government-purchases multiplier.

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d. By how much does GDP increase in the short run if government purchases (G) increase by \$ 120 billion?

\$	billion
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e. How much of an increase in government purchases is required to raise GDP by \$ 120 billion?

\$	billion
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f. Compute the tax-cut multiplier.

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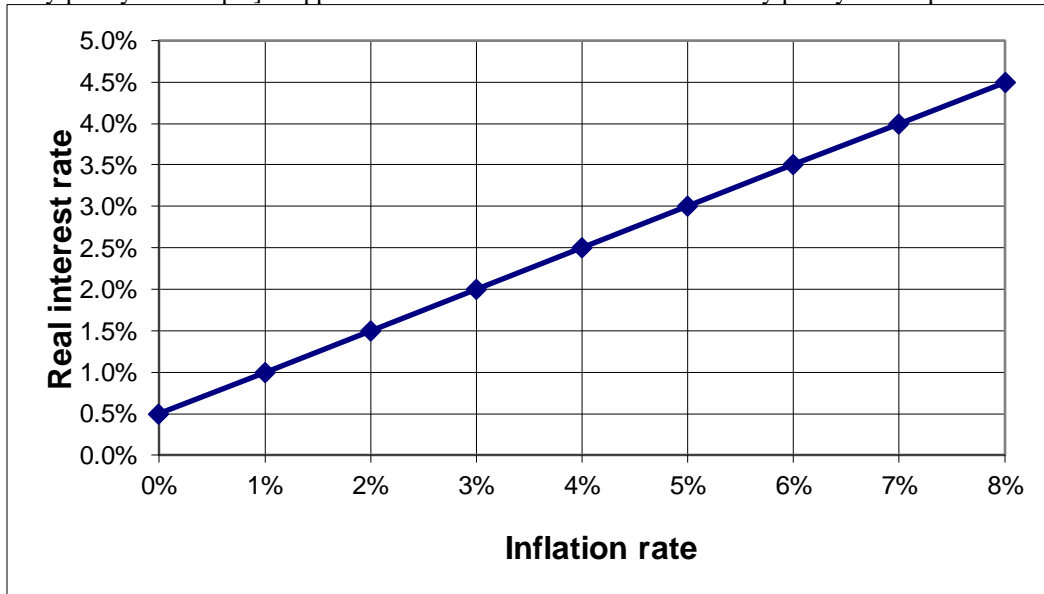
g. How much of a tax cut is required to raise GDP by \$ 120 billion?

\$	billion
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h. Suppose taxes and government purchases are to be increased simultaneously by exactly the same amount. What amount is required to raise GDP by \$ 120 billion?

\$	billion
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(3) [Monetary policy rule: 8 pts] Suppose the central bank follows the monetary policy rule depicted below.



Suppose the inflation rate is now **3 percent**.

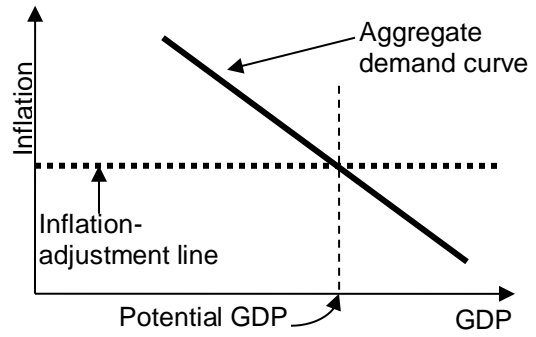
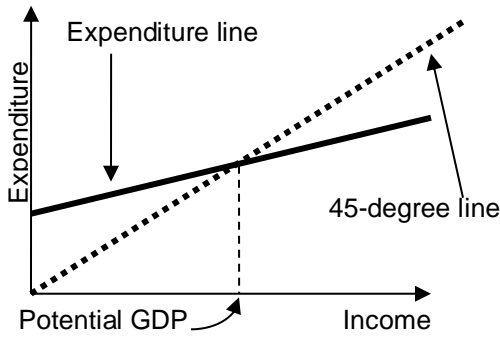
- a. What level of the *real* interest rate will the central bank set?
- b. What level of the *nominal* interest rate does this imply?
- c. If monetary policy is “tightened,” would the policy rule curve shift *up*, shift *down*, or remain *unchanged*?
- d. Will the aggregate demand curve (not shown in this diagram) shift *right*, shift *left*, or remain *unchanged*?

	%
	%

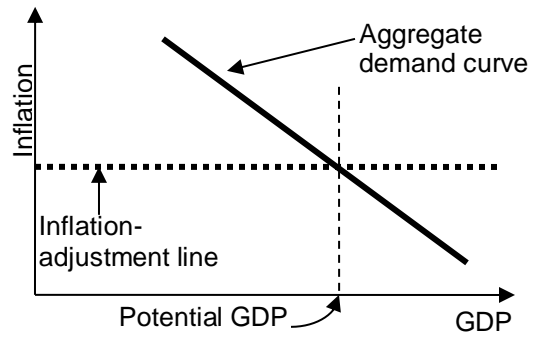
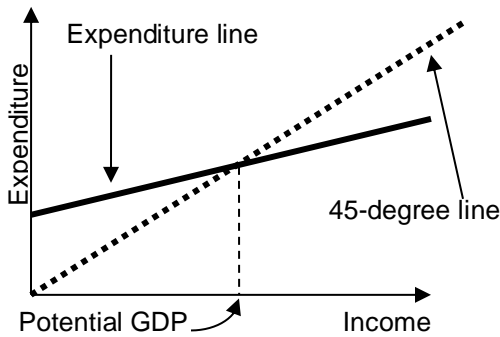
(4) [How business cycles begin: 20 pts] Assume GDP initially equals potential GDP and consider the *short-run* consequences of each scenario in the left column. Indicate whether and how the scenario shifts the expenditure line in the Keynesian cross diagram. Then indicate whether and how it shifts the “aggregate demand” (AD) curve in the diagram used in Taylor’s textbook in the *short run*. Indicate whether the scenario is likely to cause a recession, a boom or neither (assuming GDP was initially equal to potential GDP). **On the next page, on the graphs for each scenario, show the shifts in curves.**

	Expenditure line shifts <i>up, down or unchanged?</i>	AD curve shifts <i>left, right, or unchanged?</i>	Causes <i>recession, boom, or neither?</i>
a. Taxes are increased.			
b. Government purchases are increased.			
c. Monetary policy is “relaxed.”			
d. A sharp drop in the price of houses makes consumers feel poorer.			

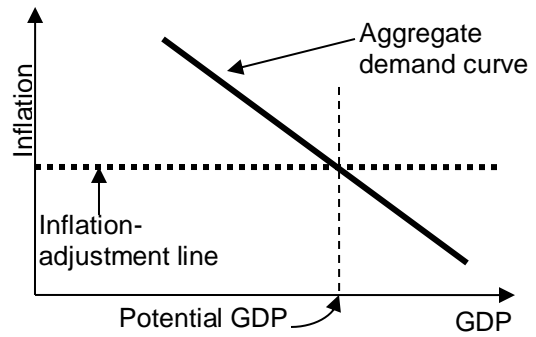
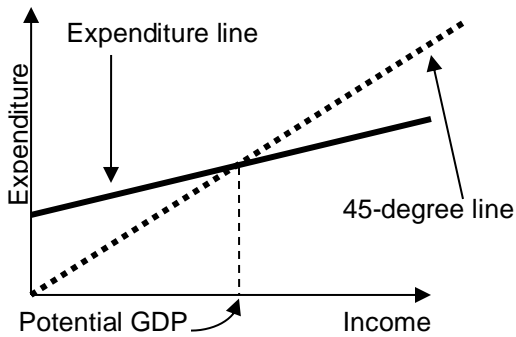
**a. Taxes are increased.**



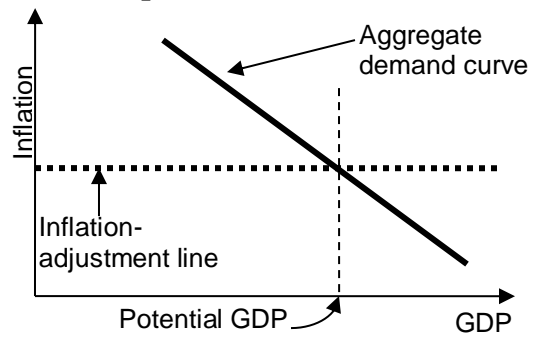
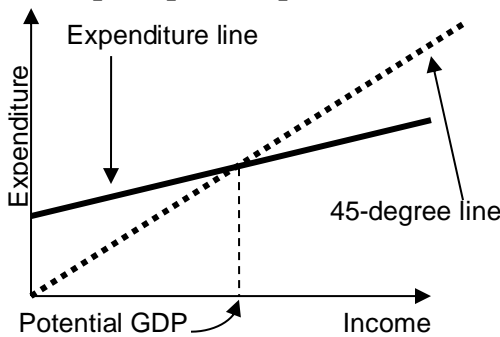
**b. Government purchases are increased.**



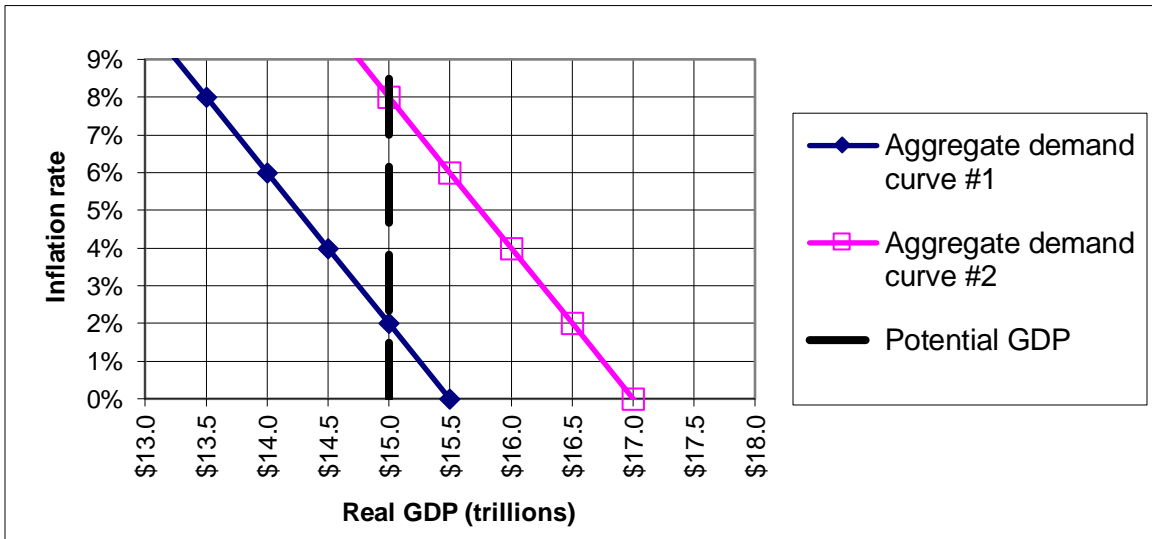
**c. Monetary policy is "relaxed."**



**d. A sharp drop in the price of houses makes consumers feel poorer.**



(5) [Inflation adjustment: 16 pts] Consider the following graph of the macroeconomy, similar to those in Taylor's textbook. Suppose that the aggregate demand curve is currently at "aggregate demand curve #1" and the inflation rate is currently 2%. [Hint: Begin by drawing the "inflation adjustment" line.]



a. What is the current level of real GDP?

\$	trillion

b. Is the unemployment rate currently *greater* than the natural rate, *less* than the natural rate, or *equal* to the natural rate of unemployment?

Now suppose the government passes a large spending increase and the aggregate demand curve shifts to "aggregate demand curve #2."

c. What is the level of real GDP in the short run?

\$	trillion
	%

d. What is the inflation rate in the short run?

e. Is the unemployment rate *greater* than the natural rate, *less* than the natural rate, or *equal* to the natural rate of unemployment in the short run?

f. What will be the level of real GDP in the long run?

\$	trillion
	%

g. What will be the inflation rate in the long run?

h. Is the unemployment rate *greater* than the natural rate, *less* than the natural rate, or *equal* to the natural rate of unemployment in the long run?

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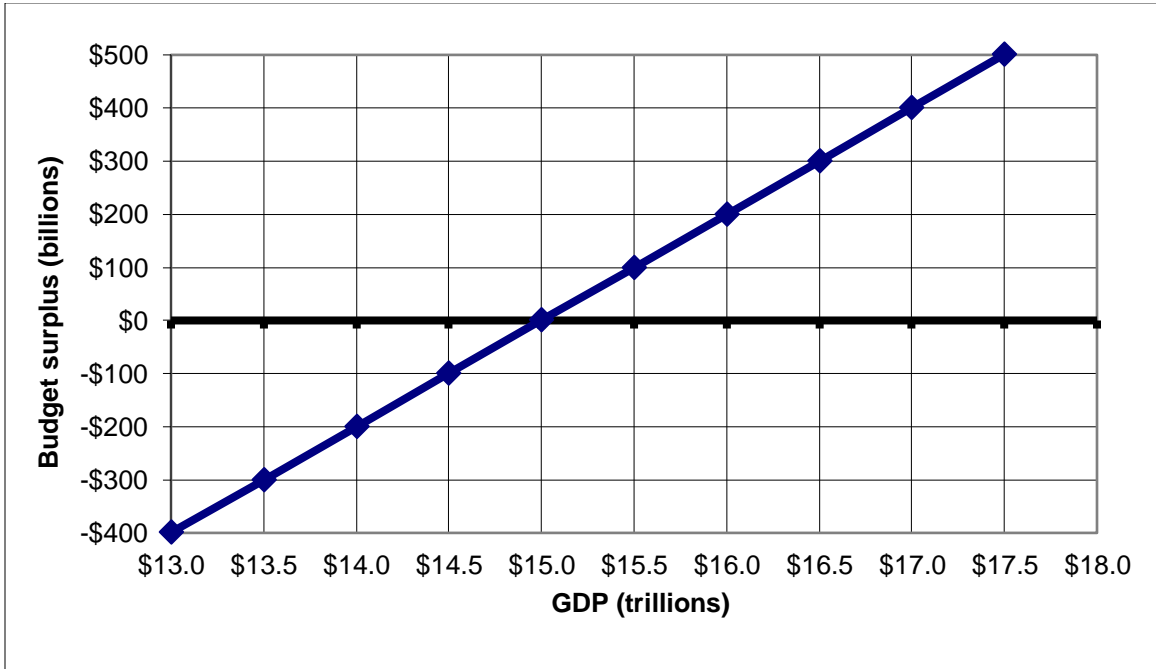
(6) [Fiscal policy, tax rates: 4 pts] Suppose a single person who has \$15,000 in income owes \$553 in taxes. If the same person had \$16,000 in income, then the person would owe \$653 in taxes.

a. Compute this person's *average tax rate* to the nearest tenth of a percentage point.

	%
	%

b. Compute this person's *marginal tax rate* to the nearest tenth of a percentage point.

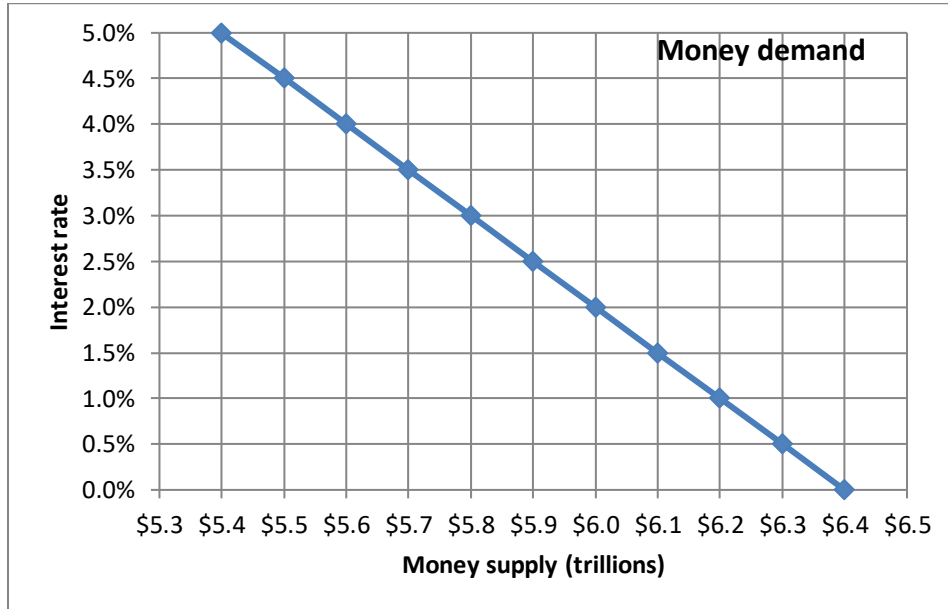
(7) [Fiscal policy: 5 pts] The graph below shows the relationship between the federal budget surplus (or deficit) and the level of GDP. Suppose potential GDP is \$15.0 trillion and actual level of GDP is \$16.0 trillion.



- Is the economy in a *boom*, a *recession*, or *neither*?
- Is there an actual budget *surplus*, an actual budget *deficit*, or an actual *balanced budget*?
- How much?
- Is there a structural budget *surplus*, a structural budget *deficit*, or a structural *balanced budget*?
- How much?

\$	billion
\$	billion

(8) [Monetary policy: 8 pts] Suppose the money-demand curve is given by the following graph.



First, suppose the Federal Reserve *increases* the money supply by **\$ 0.3 trillion** dollars.

- a. Will the interest rate *increase or decrease* in the short run?
- b. By how much--that is, by how many percentage points?

percentage points

Alternatively, suppose that the Federal Reserve wants to *lower* the interest rate by **one** percentage point.

- c. Must the Federal Reserve *increase or decrease* the money supply?
- d. By how much?

\$                      trillion



**III. Critical thinking:** Write a one-paragraph essay answering one question below (your choice). [3 pts]

- (1) Suppose there is a recession in the United States and U.S. GDP decreases. Will this cause GDP in *Mexico* to increase, decrease, or remain constant?
- (2) Consider the following statement. “The federal budget deficit contributes to inflation, because whatever federal spending is not paid for by taxes must be made up by printing money.” Do you agree or disagree? Why?

Please circle the question you are answering and write your answer below. Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling.

[end of exam]