

EXAMINATION #4 VERSION A
"Short-Run Business Cycles"
November 25, 2013

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, 17 pts total]

- (1) Most economists believe that business cycles are caused mainly by fluctuations in
- a. aggregate supply (that is, potential GDP).
 - b. the labor force.
 - c. the capital stock.
 - d. aggregate demand.
 - e. the population.

- (5) According to Keynes, an increase in government purchases causes an increase in
- a. consumption.
 - b. investment.
 - c. net exports.
 - d. the money supply.
 - e. the inflation rate.

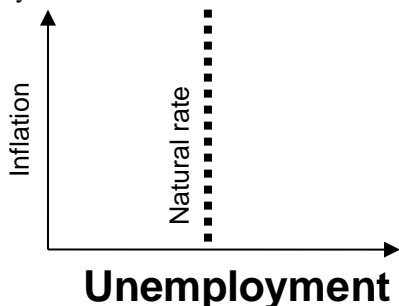
- (2) In the short run, _____ tends to remain constant (except if there is a price shock).
- a. investment spending.
 - b. net exports.
 - c. consumption spending.
 - d. the rate of unemployment.
 - e. the rate of inflation.
 - f. the money supply.

- (6) The "permanent income hypothesis" implies that a temporary tax cut is _____ a permanent tax cut for increasing consumption spending.
- a. more effective than.
 - b. less effective than.
 - c. just as effective as.
 - d. Cannot be determined from information given.

- (3) When the unemployment rate is greater than the natural rate of unemployment, GDP is usually
- a. less than potential GDP.
 - b. equal to potential GDP.
 - c. greater than potential GDP.
 - d. equal to the unemployment rate.

- (7) Suppose the interest rate in the U.S. increases but interest rates in the rest of the world remain unchanged. Then the exchange rate (the price of a dollar in terms of foreign currency) will
- a. decrease.
 - b. increase.
 - c. remain unchanged.
 - d. cannot be determined from information given.

- (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.



- (8) Most central banks follow policy rules whereby they raise interest rates if
- a. net exports rise.
 - b. net exports fall.
 - c. the inflation rate decreases.
 - d. the inflation rate increases.
 - e. investment spending decreases.
 - f. investment spending increases.

(9) If actual GDP exceeds potential GDP, the inflation rate will

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

(10) If a recession occurs, which of the following 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 fall in the money supply.
- b. a boom.
- c. a recession.
- d. a price shock.
- e. a trade deficit.

(12) Suppose the interest rate on one-year bonds now is 5% and the interest on one-year bonds next year is expected to be 3%. Then the interest rate on two-year bonds now will be about

- a. 2%.
- b. 3%.
- c. 4%.
- d. 5%.
- e. 6%.
- f. 8%.
- g. 15%.

(13) In the United States, monetary policy is set by the

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

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

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

(15) The interest rate that banks pay to borrow money from each other overnight (to meet their reserve requirements) is called the

- a. prime rate.
- b. discount rate.
- c. federal funds rate.
- d. reserve ratio.
- e. exchange rate.

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

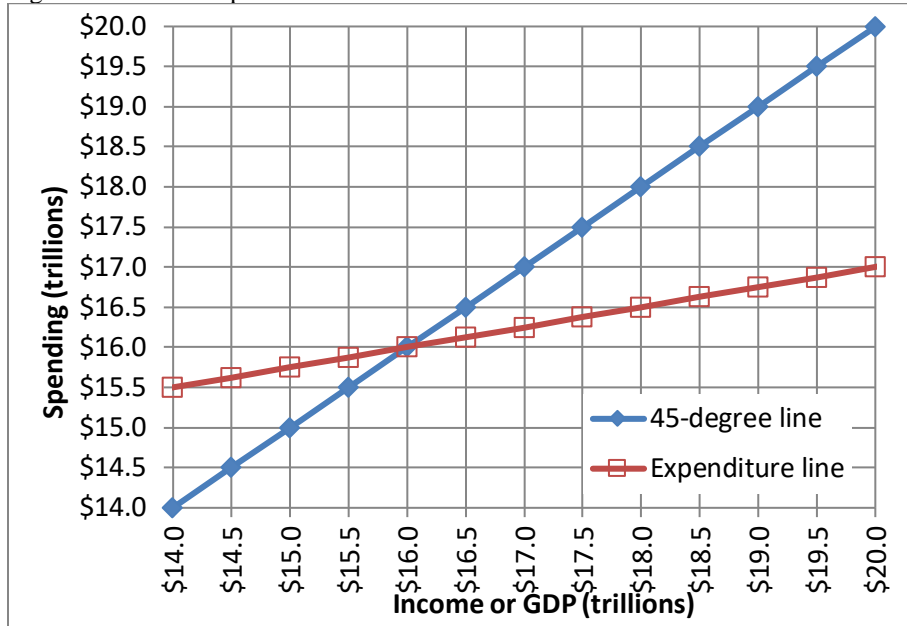
- a. under the direct control of elected officials and can be fired at any time.
- b. more independent of elected officials.
- c. directly elected by the people—who after all must live with the consequences of central bank policies.
- d. cannot be determined from information given.

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

- a. decrease 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.

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 \$ 1.5 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 0.7 and the marginal propensity to import is 0.1 . 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 \$ 300 billion?

\$	billion
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e. How much of an increase in government purchases is required to raise GDP by \$ 300 billion?

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

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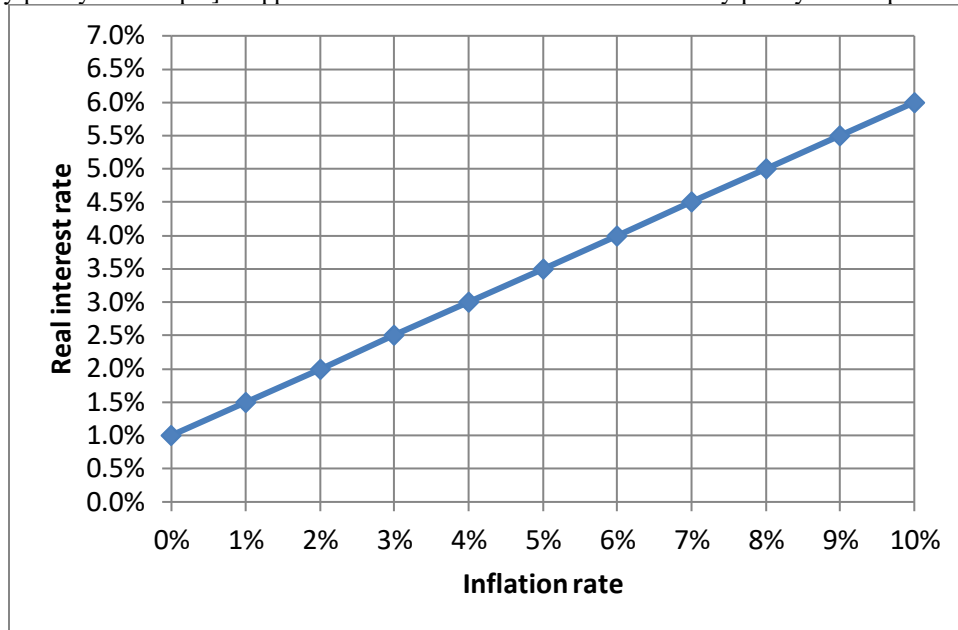
g. How much of a tax cut is required to raise GDP by \$ 300 billion?

\$	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 \$ 300 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 %**.

a. What level of the *real* interest rate will the central bank set?

_____%

b. What level of the *nominal* interest rate does this imply?

_____%

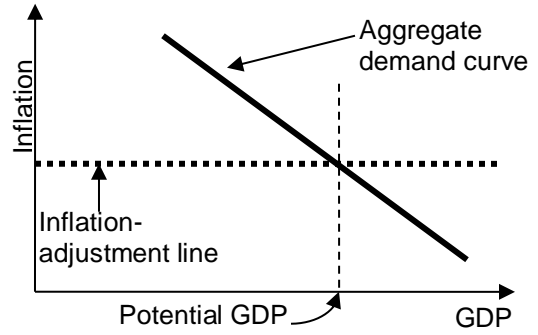
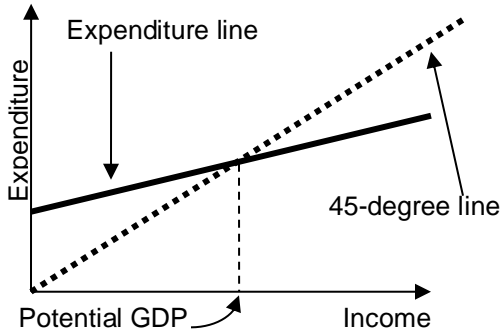
c. If monetary policy is “relaxed,” would the policy rule curve shift *up*, shift *down*, or remain *unchanged*?

d. Will the aggregate demand curve (not shown in this diagram) shift *right*, shift *left*, or remain *unchanged*?

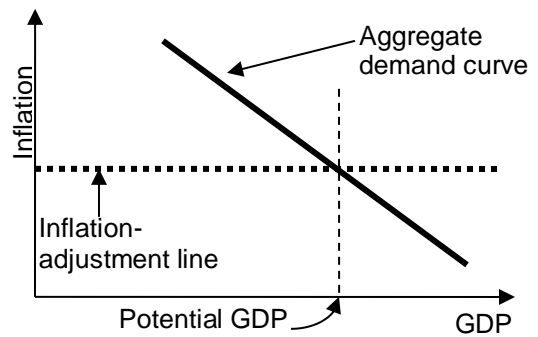
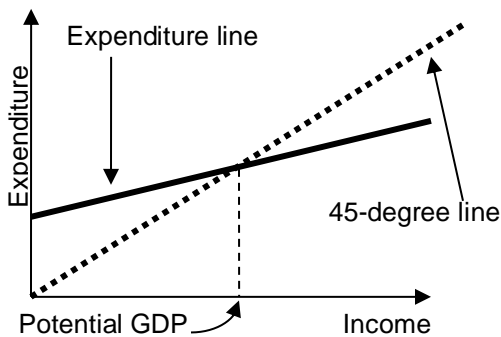
(4) [How business cycles begin: 20 pts] Assume GDP initially equals potential GDP and consider the *short-run* consequences of each scenario in the left column. Indicate whether and how the scenario shifts the expenditure line in the Keynesian cross diagram. Then indicate whether and how it shifts the “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</i> , <i>down</i> or <i>unchanged</i> ?	AD curve shifts <i>left</i> , <i>right</i> , or <i>unchanged</i> ?	Causes <i>recession</i> , <i>boom</i> , or <i>neither</i> ?
a. The government rapidly increases spending on highways and bridges.			
b. Taxes are decreased.			
c. Monetary policy is “tightened.”			
d. Due to problems in the mortgage market, there is a sudden drop in residential investment (spending on new houses).			

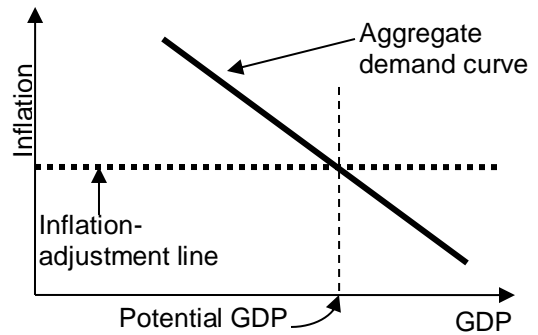
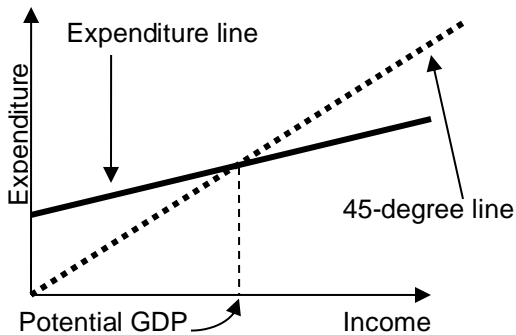
a. The government rapidly increases spending on highways and bridges.



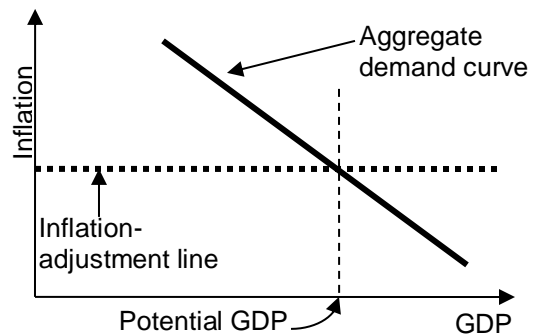
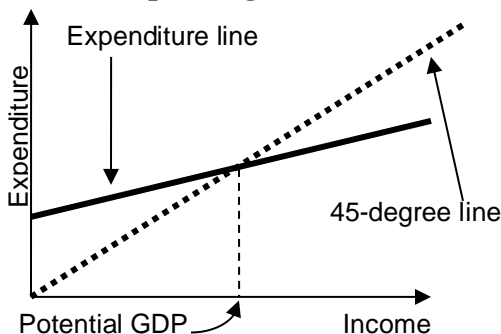
b. Taxes are decreased.



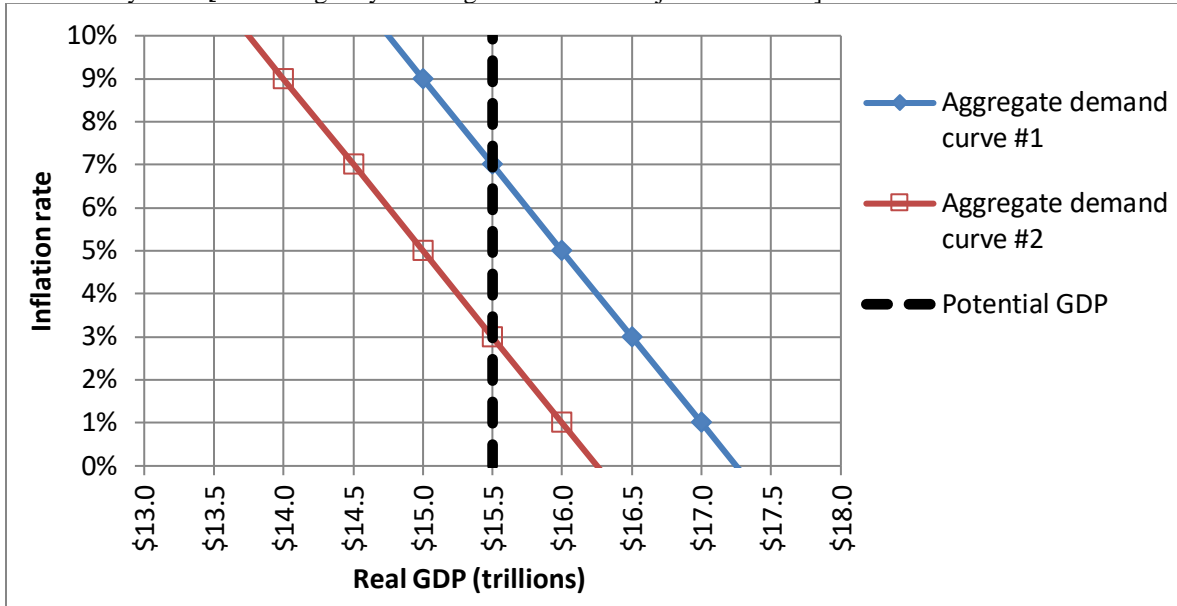
c. Monetary policy is "tightened."



d. Due to problems in the mortgage market, there is a sudden drop in residential investment (spending on new houses).



(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 7%. [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 reduction 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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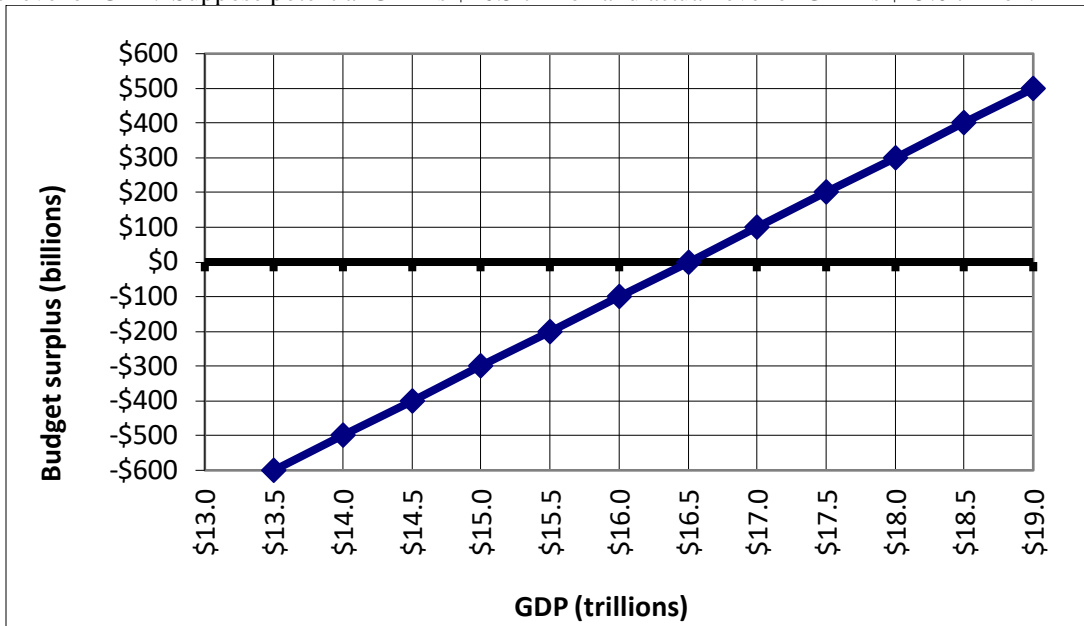
(6) [Fiscal policy, tax rates: 4 pts] Suppose a single person has income of \$50,000 and owes a total of \$6,000 in taxes.

a. Compute this person's *average tax rate*.

	%
\$	

b. Suppose this person's *marginal tax rate* is 25%. Compute the **total** amount this person would owe in taxes if this person's income were \$51,000.

(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 \$16.5 trillion and actual level of GDP is \$15.0 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: 6 pts] According to the *Wall Street Journal*, “one rule of thumb at the Fed is that long-term interest rates fall 0.03 percentage point ... for every \$100 billion of long-term bonds that the central bank purchases.”¹ Use this rule of thumb to answer the following questions.

First, suppose that the Fed **buys \$500 billion** of long-term bonds.

- Will the money supply *increase* or *decrease*?
- Will interest rates *increase* or *decrease*?
- By how much--that is, by how many percentage points?

percentage points

Alternatively, suppose that the Fed wants to **raise interest rates by 0.45 percentage points**.

- Will the Fed *buy* bonds or *sell* bonds?
- How much?
- Will the money supply *increase* or *decrease* as a result?

\$ billion

¹ *Wall Street Journal*, June 21, 2012, p. A14.

III. Critical thinking: Write a one-paragraph essay answering the question below. [4 pts]

- (1) The cartoon at right suggests an apparent contradiction. Is increased consumption good for the economy or bad for the economy? Explain your reasoning, *distinguishing between the short run and the long run*.



Write your answer below. Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling.

[end of exam]