

Macroeconomics  
Instructor: Mark Tomass  
Review Questions H1  
What is Economics About?

1. Suppose an economic theory sets up a model that implies that, other things being equal, an increase in interest rates will reduce the growth of national production. How can you test the validity of the theory?
2. An economic model to explain sales of cars established a relationship between the price of cars and the quantity buyers are willing to purchase. A hypothesis developed from the model postulates that whenever the price of cars goes up, the quantity buyers will buy goes down. During the year consumer income increases as the price of cars goes up. The quantity of cars sold also increases. Does this invalidate the theory establishing the relationship between the price of cars and the quantity consumers are willing and able to purchase?
3. In what ways do economic theories and models abstract from reality? Why are unrealistic models useful?
4. Give an example of a behavioral assumption in an economic model. What is the purpose of using behavioral assumptions in economic models?
5. In what sense can an insane person or a criminal be regarded as engaging in rational behavior?
6. A person makes decisions by habit. This person considers neither the benefits nor the costs of his or her actions. Can the person be considered rational?
7. Suppose the marginal benefit to you of acquiring another suit this year is \$200. If the price of suits is \$250 and you are rational, will you buy one?
8. You currently choose to buy two compact discs per month with your income. The current price is \$14.99. Other things being equal, explain why a drop in the price of discs to \$12.99 next month is likely to increase the quantity you'll buy.

9. The following table shows how the marginal benefit of shoes of given quality varies with the number Jill purchases each year. As shown, the price of shoes is \$29.99 per pair.

Pairs purchased per year	Marginal benefit	Price
1	\$50	\$29.99
2	40	29.99
3	30	29.99
4	20	29.99
5	10	29.99

- a. Assuming that Jill is rational and the price of shoes accurately reflects the marginal cost to her, how many pairs of shoes will Jill buy per year?
  - b. Suppose the price of shoes increases to \$39.99 per year. Assuming that nothing else changes, how many pairs will Jill now buy?
10. Suppose that the marginal benefit of a pair of shoes for Joe is exactly double the marginal benefit indicated for Jill in the previous example. If the price of shoes for Joe is also \$29.99 and Joe is rational, how many pairs of shoes per year will Joe buy?

Macroeconomics  
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Review Questions H2  
Production Possibilities and Opportunity Cost

1. The United States is a rich and powerful nation with a skilled, productive labor force and a great deal of capital. Some less developed nations have few skilled workers and little capital. Why is scarcity an economic problem in rich and poor nations alike?
2. Make a list of the economic resources that are required to operate a restaurant. How is the number of meals per day that can be served limited by available economic resources and current technology for meal preparation and service?

3. The small nation whose annual production possibilities for food and clothing are illustrated in the table and graph in Box 1 receives a gift of new machines for use in clothing production and agriculture. The new machines allow the nation to produce twice as much food and clothing with the same number of workers and natural resources. Draw the new production possibilities curve for the nation, and show how the gift of capital expands its production possibilities.
4. Referring again to Box 1, suppose the nation receives a gift of new agricultural machinery that doubles the maximum quantity of food that can be produced for any given quantity of clothing produced. Draw the new production possibilities curve for the nation, and show why the gift expands the production possibilities of the nation to allow it to consume more food and clothing. Shade in the new combinations of food and clothing made possible by the gift.
5. A civil war erupts in the small nation whose production possibilities curve is shown in Box 1. The war results in the destruction of capital and natural resources and causes casualties that reduce the supply of labor available for production of food and clothing. Show the impact of the war on the nation's production possibilities curve for food and clothing.
6. Suppose the production possibilities curve for the production of trucks and cars in a two-production factory has a constant slope equal to - 2 when weekly car production is plotted on the horizontal axis. Draw the production possibilities curve, and explain why the law of increasing costs doesn't hold for the production of cars and trucks in the factory.
7. Suppose you own and run a small business. You spend 40 hours per week managing the operation. By managing the business, you forgo your next best alternative, which is working at a job for someone else that pays \$10 per hour. An accountant calculates all the money costs and revenues from the business and tells you you're making a \$300 profit per week. However, the accountant doesn't include the opportunity cost of your time as part of the money costs because you don't incur any cash outlay to pay for your time. Does it make sense for you to continue in business? Explain your answer.
8. Imagine you're the manager of a small textile factory that has two product lines: flannel fabric and corduroy fabric. Some workers and some machines are specialized in the production of only one of these goods. The maximum amount of flannel that can be produced when 1,000 yards of corduroy are also produced is 1,500 yards per month with 10,000 labor hours per month. You can't vary the

number of machines or amount of floor space in the factory. Suppose you are currently producing at an efficient level. If monthly orders drop to 1,000 yards of corduroy and 1,000 yards of flannel, what could you do to reduce costs during the month? Explain your answer using a production possibilities curve.

9. Your younger sister receives a weekly allowance of \$20, which she spends entirely on movie tickets and ice-cream cones. Movies cost \$4 per show and ice-cream cones are \$1. Draw your sister's budget line. What is the opportunity cost of a movie? Would the opportunity cost of a movie change if the prices of movies and ice-cream cones doubled? Show how the budget line will shift for each of the following changes. Calculate the opportunity cost of each item for each of the changes.
  - a. An increase in the weekly allowance to \$24
  - b. A decrease in the weekly allowance to \$12
  - c. A reduction in the price of movie admission to \$2
  - d. An increase in the price of ice-cream cones to \$2
10. Suppose that each 35-mm camera produced in the United States involves the sacrifice of 100 pounds of beef and that in Japan each 35-mm camera produced involves the sacrifice of 50 pounds of beef. Use production possibilities curves to demonstrate how both Japan and the United States can gain from specializing in the production of one of these goods and engaging in international trade to obtain the other.

Macroeconomics  
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Review Questions H3  
Supply and Demand Analysis

1. A new report by the surgeon general on the harmful effects of cholesterol decreases the demand for eggs. Suppose the resulting decrease in demand reduces by 50 percent the quantities buyers are willing to buy each week at each possible price for the demand schedule in Box 1. Graph the new demand schedule, and show the decrease in demand by drawing both the old and new demand curves.
2. An improvement in the technology of egg laying doubles the number of eggs each chicken can lay per week. Assuming that the improvement doubles the weekly quantity supplied at each price in the table in Box 4, graph the new supply schedule. Draw both the old and new supply curves to illustrate the change in supply.

3. Assuming that both the decrease in demand for eggs and the increase in supply of eggs described in Problems 1 and 2 occur simultaneously, use a graph to show the impact on the market equilibrium price of eggs and on the quantity sold per week.
4. Suppose the market for coffee is currently in equilibrium at a price of \$3 per pound. An early frost in coffee-growing nations decreases the supply of coffee. Use supply and demand analysis to forecast the impact of the freeze on the market equilibrium price and quantity of coffee.
5. Suppose the market rate of interest on car loans declines substantially. Use supply and demand analysis to predict the impact of the interest rate decline on the prices of cars and the quantity sold.
6. Suppose you want to buy a popular brand of compact disc player. Every store in town is out of stock. You are willing and able to pay the market price of \$300 for a player, but you can't find any available. Is the market for this compact disc player in equilibrium? Use supply and demand analysis to explain your answer.
7. The federal government announces that it will pay \$3 a loaf for all the bread that can't be sold in a competitive market at that price. At the end of each week, the government purchases 1 million loaves of bread. Use supply and demand analysis to show on a graph that the market equilibrium price is less than \$3 per loaf. Why doesn't the market price fall in this case?
8. Using your graph in Problem 7, show how a decrease in the supply of bread can raise its market equilibrium price above \$3 a loaf. How much bread would the government buy each week under these circumstances?
9. Assume the market price of Mustang convertibles is \$15,000. At that price the quantity demanded is 1 million per year, while the quantity supplied is only 500,000 per year. Is the market in equilibrium? Explain your answer.
10. A decrease in demand for personal computers results in a market surplus of PCs. Explain how market forces will act to eliminate the surplus.

<p style="text-align: center;">Macroeconomics Instructor: Mark Tomass Review Questions H4 Using Supply and Demand Analysis</p>
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1. A local music store advertises that it will give away Bruce Springsteen albums from 8 A.M. to 5 P.M. on Saturday. What is likely to happen? Why might you be better off waiting until Monday to buy your album at the market price?
2. Residents on an island in which coconuts are a non-scarce good discover that people in the rest of the world don't consider coconuts non-scarce and will pay high prices to obtain them. Explain what is likely to happen to the demand for coconuts as island residents discover that they can export the fruit to foreign markets.
3. The price of personal computers was well over \$5,000 when they were introduced in the early 1980s. Since then the price has fallen drastically. Use supply and demand analysis to explain the likely cause of this fall. What was the effect of decreasing prices on the quantity demanded of this good?
4. Rising enrollment in college accounting curricula causes a sharp increase in the supply of accountants four years later. Other things being equal, use supply and demand analysis to forecast the impact of the increase in the supply of accountants on annual salaries of accounting graduates.
5. A drop in profits for oil companies results in a sharp decrease in the demand for chemical engineers. Use supply and demand analysis to predict the effect on salaries paid to chemical engineers and on the quantity of their labor supplies.
6. Suppose the federal government finally balances the budget. The decrease in demand for loanable funds to cover the deficit is likely to have a significant effect on credit markets. Use supply and demand analysis to forecast, other things being equal, the impact of a decrease in government demand for loanable funds on interest rates and on borrowing by business firms and consumers.
7. The market equilibrium rent per room in a small city is \$50. A rent control law is passed that establishes a price ceiling of exactly \$50 per room. What will be the impact of the law on the market for rental housing? How will your answer change if immediately after the rent controls have been passed a major corporation announces

that it will build a new factory employing 10,000 workers? The new plant is expected to sharply increase the demand for housing.

8. A 50-cent-per-gallon price ceiling is established for gasoline. As a result of the ceiling, a weekly shortage of 10,000 gallons develops. How can the shortage be rationed?
9. Although minimum wages prevent labor markets from rationing unskilled labor services, they are widely praised by labor leaders and are regarded as good by most people. How can you explain the political support for minimum wages?
10. How could agricultural surpluses be eliminated in the United States? Use supply and demand analysis to show how agricultural price floors cause surpluses and how taxpayers pay the cost of the surpluses. Who would gain and who would lose if agricultural price support programs were phased out?

<p>Macroeconomics Instructor: Mark Tomass Review Questions H5 The Price System and the Mixed Economy</p>
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1. Suppose you start a new business distributing software for personal computers. the business proves to be extremely profitable. Explain how freedom of enterprise and economic rivalry are likely to come into play in a market economy in a way that will eventually reduce the profits of your business.
2. The marginal benefit of a good represents the sum of money a consumer is willing and able to pay for one more unit of the good. The marginal cost of a good represents the minimum sum of money a seller is willing to accept to make more of the good available. Suppose the marginal benefit of color televisions is \$200, while the marginal cost is only \$100. Assuming that the marginal benefit of color TVs declines and the marginal cost increases as more are made available, show that more color TVs must be sold to achieve all possible mutual gains from exchange.
3. Use supply and demand analysis to show how an increase in the demand for four-wheel-drive recreational vehicles accompanied by a decrease in the demand for standard full-size passenger cars will affect resource allocation in the automobile industry.

4. During the energy crisis of the early 1970s, the price of smaller cars actually increased above the price of gas guzzling full-size models. How did the American automobile industry react to the change in prices? What do you expect will happen to the kinds of cars made available if the supply of gas increases substantially in the 1990s to push the price down permanently to an average of 75 cents per gallon?
5. Use supply and demand analysis to trace out the impact of a sharp reduction in the price of electronic components on the price, use, and profitability of producing goods that use electronic components as inputs. What effect is the change in price likely to have on production techniques?
6. Your parents own 1,000 acres of land. The land is in the flight path to an airport, and planes regularly fly over it as they make their approach to the airport. Why can't your parents charge the airlines for using their airspace?
7. You plan to sell your bicycle at the end of the year when you graduate. You'd like to get \$100 for it. List the transaction costs you must incur to find a buyer. Under what circumstances might you be better off giving the bike away instead of trying to sell it?
8. A firm that manufactures paper products dumps its wastes into a stream and doesn't pay for the right to do so. The stream is used by fishermen and boaters as a source of recreational enjoyment. The waste products dumped into the stream make it less useful for recreation. Explain why an externality exists, and identify the groups involved in the externality. In what sense is there a failure of the price system in this case?
9. A flat-rate income tax of 20 percent is levied on all citizens, with no allowable tax preferences. Show that both the average and marginal tax rate equal 20 percent. How would you evaluate the equity of this tax?
10. Suppose the following tax schedule is used to collect and income tax:

Annual Income	Marginal tax rate
0-\$4,000	0%
\$4,000-\$29,000	15
\$29,000-\$70,000	25
Above \$70,000	35

Calculate the average tax rate for people with annual incomes of \$4,000, \$29,000, and \$70,000. Is this tax progressive, regressive, or proportional?

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Review Questions H6  
Gross Domestic Product and the Performance of the National Economy

1. During the year a small nation produces the following final products: 1 million automobiles, 5 million clothing outfits, 10 million pounds of food, rental of 2 million dwelling units, 1 million hours of attorneys' services to households, and 2 million hours of medical services to households. The current market prices for these products are:

\$10,000 per automobile  
\$100 per clothing outfit  
\$2 per pound of food  
\$4,000 per year per dwelling unit  
\$20 per hour of attorneys' services  
\$30 per hour of medical services

Calculate the nation's nominal gross domestic product.

2. Suppose nominal GDP in the U.S. economy increases from \$5,000 billion to \$5,500 billion. Can you conclude that aggregate production, income, and job opportunities have increases as well? Explain your answer.
3. Explain why GDP would be overestimated if the market values of both final products and intermediate products were included in it.
4. The market value of all sales in an economy, including those of intermediate products, is \$10,000 billion. If the market value of intermediate products is \$6,000 billion, what is the total value added in the nation? Why is the value added equal to gross domestic product?
5. GDP is currently equal to \$4,500 billion. Consumption is \$3,000 billion, and government purchases are \$1,000 billion. If net exports are zero, how much is gross

private domestic investment? What are the major components of gross private domestic investment? Under what circumstances would net private domestic investment be negative?

6. During 1985, total government expenditures in the United States amounted to \$1,400 billion. In the same year the government purchases component of GDP was only \$815 billion. Explain why the government purchases component of GDP falls short of actual government expenditures. List some of the important government expenditures that are not included in the government purchases component of GDP. What is the logic of excluding these expenditures?
7. GDP is \$5,000 billion in the current year. During the year employee compensation is \$3,000 billion, net interest earned is \$300 billion, and rental income is \$50 billion. Calculate the sum of corporate profits and proprietors' income, assuming that capital consumption allowances are \$400 billion and indirect business taxes are \$300 billion.
8. Suppose investment, government purchases, and exports are expected to decline this year. Can you conclude that real GDP will also decline? Why would you look at growth in disposable income to predict changes in consumer spending?
9. Suppose that gross private domestic investment in 1995 is \$900 billion. That year personal saving is \$250 billion, business saving is \$650 billion, and the government sector runs a \$200 billion budget deficit. Calculate national saving. What is the net inflow of foreign saving into the United States in 1995?
10. Suppose that gross domestic purchases, which are the sum of consumption, investment, and government purchases, are equal to \$6,000 billion. Gross domestic product is equal to \$5,500 billion in the same year. Calculate net exports. How can an increase in the government budget deficit contribute to a balance of trade deficit?

Macroeconomics  
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Review Questions H7  
Business Cycles, Unemployment, and Economic Growth

1. Following are seasonally adjusted data for real GDP for each of 10 quarters:

Period	Quarterly real GDP (billions of seasonally adjusted dollars)
1 <sup>st</sup> quarter, year 1	1,000
2 <sup>nd</sup> quarter, year 1	900
3 <sup>rd</sup> quarter, year 1	800
4 <sup>th</sup> quarter, year 1	700
1 <sup>st</sup> quarter, year 2	700
2 <sup>nd</sup> quarter, year 2	750
3 <sup>rd</sup> quarter, year 2	850
4 <sup>th</sup> quarter, year 2	1,100
1 <sup>st</sup> quarter, year 3	1,150
2 <sup>nd</sup> quarter, year 3	1,100

Calculate the real GDP at an annual rate for each quarter, and plot the points associated with each quarter. Trace a curve through the points to illustrate the phases of the business cycle. Was there a recession over the period covered by the data? How would you calculate the long-term trend in growth in real GDP over that period?

- Can real GDP decline even though there is no recession? What are the consequences for the economy of declines in real GDP?
- In January there are 60 million employed workers and 2 million unemployed workers in the economy. Calculate the January unemployment rate.
- Why can the official unemployment rate be criticized for underestimating actual unemployment in the economy?
- Explain why it is unreasonable to expect an economy's unemployment rate ever to fall to zero. Why can unemployment be decreased by an improvement in the job search process that decreases the time required for job finding?
- Suppose the natural rate of unemployment in 1995 is 6 percent and corresponds to 320 billion hours of labor for the year. When that unemployment rate has been achieved, output per labor hour is \$20 measured in base year prices. Calculate potential real GDP for 1995.
- The current unemployment rate is 7 percent. If the sum of structural and frictional unemployment is 6 percent, how much cyclical unemployment prevails?

- Explain how the pattern of quits and layoffs varies predictably with the business cycle.
- Why does a slowdown in the rate of economic growth imply that future living standards may deteriorate?
- Why is the rate of productivity growth in a nation likely to be tied to the rate of saving and investment in the nation?

<p>Macroeconomics Instructor: Mark Tomass Review Questions H8 The Price Level and Inflation</p>
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- Suppose the consumer price index is 200 in 1995. Assuming an average of prices for 1982-84 is the base, explain the implication of the CPI for prices and the cost of living in 1995 as compared to the 1982-84 average.
- Suppose nominal income for managers averaged \$30,000 per year in 1982-84 and \$50,000 per year in 1995. Using 1982-84 as the base period, calculate the real 1995 income of an average manager measured in base period dollars, assuming the CPI is 200 in 1995.
- Suppose the rate of inflation is 5 percent. Does this mean that all the goods you purchase will cost 5 percent more than they did the year before? How would you determine the rate of inflation for goods and services that are included in your personal budget? What can cause a decline in the relative price of a good?
- Suppose the consumer price index goes up from 300 to 310 during the year. At the beginning of the year, your nominal wage is \$10 per hour. At the beginning of the following year, you get a raise that increases your nominal wage to \$11 per hour. Calculate your real wage in each year, and indicate whether your real wage has gone up or down.
- How are real wages in the United States affected by inflation on average over a period of several years? What is the implication of a decline in real wages for both

workers and their employers? Under what circumstances does inflation redistribute income from workers to employers?

6. A borrower negotiates a \$20,000 loan at 3 percent interest in 1983, when the value of the consumer price index is 100. In 1990 the outstanding balance on the loan is \$10,000. If the CPI is 130 in 1990, how much is the outstanding balance of the loan in 1983 dollars? How has inflation since 1983 affected the borrower?
7. In what sense does inflation redistribute income from the holders of the federal debt to current taxpayers?
8. The nominal interest rate on bank deposits is 6 percent. During the year the inflation rate is 3 percent. What is the real interest rate earned on bank deposits that year? Suppose depositors and banks anticipated 4 percent inflation during the year. How did real interest rates differ from those anticipated, and how did the difference between actual and expected inflation affect the distribution of well-being between borrowers and lenders?
9. The nominal interest rate in a certain nation is not permitted to exceed 10 percent. During the year most lenders anticipate 14 percent inflation. Predict the impact of these expectations on decisions to lend funds.
10. Suppose you live in a nation where hyperinflation prevails. If you are given a choice between two jobs, both paying the same wage and having the same fringe benefits, explain why you would be more likely to choose the job that pays you every week instead of the one that pays you every month.

<p>Macroeconomics Instructor: Mark Tomass Review Questions H9 Aggregate Demand and Aggregate Supply</p>
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1. An increase in aggregate demand occurs during 1995. Under what circumstances would you expect the increase in aggregate demand to increase real GDP while having little or no effect on the price level of the economy?
2. Potential real GDP in the current quarter is \$5,000 billion. Equilibrium real GDP in the current quarter is also \$5,000 billion. There is a sharp increase in the demand for

U.S. exports during the year. Other things being equal, forecast the effect of that increase on unemployment and inflation in the economy.

3. Assume that an economy exists in which all assets held by the public are automatically adjusted for inflation or deflation whenever the price level changes, there is no international trade, and real interest rates do not change when the price level changes. What would the aggregate demand curve for such an economy look like?
4. The economy is currently operating at full employment. At the beginning of the year, all nuclear power plants are shut down because of protests about the risk of environmental contamination. As power companies shift to more expensive sources of electricity, the price of electricity triples. Predict the effect of the power plant closings on macroeconomic equilibrium.
5. Suppose that after a period of labor unrest the workers in a nation succeed in getting governing authorities to order a 25 percent increase in nominal hourly wages. Other things being equal, predict the impact of this settlement on macroeconomic equilibrium for the economy. Under what circumstances will the increase in the wage level reduce labor earnings?
6. The economy is in a deep recession. After extensive negotiations, labor unions and all other workers agree to a 25 percent cut in nominal wages at the beginning of the next year. Use a graph to show the impact of the wage cut on macroeconomic equilibrium.
7. Suppose the aggregate supply curve for an economy is a flat line. What would this imply about the relationship between real GDP and the price level? Show how a decrease in aggregate demand will affect the economy if the aggregate supply curve is a flat line.
8. The economy is currently in a deep recession. The Federal Reserve System, which influences the supply of credit, takes actions to lower real interest rates. As real interest rates fall, business firms increase their demand for investment goods. Use a graph to show how the increase in demand can pull the economy out of the recession with little or no resulting inflation.
9. Suppose there is a severe drought in a nation whose agricultural output accounts for a large percentage of real GDP. Show the impact of the drought on the nation's

aggregate supply curve and its macroeconomic equilibrium. Why is the drought likely to result in both inflation and a recession?

10. Typically, there are increases in both aggregate demand and aggregate supply for a growing economy. Use aggregate demand-aggregate supply analysis to show how aggregate demand can increase in an economy without causing inflation if the quantity and productivity of resources are also growing.

<p>Macroeconomics Instructor: Mark Tomass Review Questions H10 Aggregate Demand-Aggregate Supply Analysis of Economic Fluctuations and Growth</p>
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1. What is the underlying logic of the classical model of macroeconomic equilibrium? Explain why this model does not fit the facts for the U.S. economy very well when aggregate demand decreases.
2. Assume an economy in which all input and output prices instantaneously adjust whenever there are shortages or surpluses in markets. Draw the aggregate supply curve for such an economy.
3. Real GDP is currently \$4,500 billion, and potential GDP is \$4,600 billion. At the beginning of the year, new labor contracts are negotiated that increase the general level of wages in the economy by 10 percent. Other things being equal, show the impact of the new labor contracts on the aggregate supply curve. What effect will the shift in the aggregate supply curve have on macroeconomic equilibrium?
4. An improvement in technology increases labor productivity in the economy. Show the impact of the improvement on the economy's long-run aggregate supply curve. Why is the economy less likely to overheat in response to an increase in aggregate demand after the improvement in technology is adopted?
5. In the next 10 years the average age of the labor force will increase. Workers are expected to be more experienced and better educated. What effects are the improvements in the quality of the labor force likely to have on aggregate supply and macroeconomic equilibrium?

6. The economy is currently operating with a recessionary GDP gap of about \$500 billion. Under what circumstances can economic policies designed to eliminate the recessionary gap cause a wage-price spiral?
7. Potential real GDP is \$5,000 billion per year. A surge in aggregate demand causes the equilibrium level of real GDP to equal \$5,500 billion for the year. Show how the resulting inflationary gap is eliminated over time by a shift of the aggregate supply curve.
8. Suppose an international disturbance disrupts the shipment of petroleum products into the United States. As a consequence, the prices of energy resources increase sharply. Forecast the impact of the increase in energy prices on aggregate supply and macroeconomic equilibrium. Show how, if the price increases are severe enough, they can cause a recession coupled with very high inflation. Why does a nation like Japan have to be very concerned about supply-side shocks resulting from increases in the price of petroleum?
9. Suppose the price of the dollar soars next year. Trace out the possible effects of the higher dollar on the equilibrium level for real GDP and the rate of inflation for the year.
10. Explain why both aggregate demand and aggregate supply tend to increase yearly. Use aggregate demand and supply analysis to show how an increase in the rate of outward shift of the economy's aggregate supply curve prevailing each year helps keep inflation down while putting upward pressure on equilibrium real GDP and potential real GDP.

<p>Macroeconomics Instructor: Mark Tomass Review Questions H11 Keynesian Analysis of Aggregate Purchases</p>
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1. The consumption function for households in a certain nation can be expressed by the following equation:

$$C = (\$800 \text{ billion} + 0.7 DI)$$

where  $C$  is annual consumption and  $DI$  is annual disposable income. How much annual consumption is dependent on factors other than annual disposable income, such as aggregate wealth? What are the nation's marginal propensity to consume and its marginal propensity to save?

2. Suppose disposable income is \$3,000 billion for the year. Use the consumption function from Problem 1 to calculate annual consumption. Calculate annual consumer purchases for annual disposable income of \$4,000 billion, \$5,000 billion, and \$6,000 billion, and show how the percentages of income consumed and saved vary as disposable income varies.
3. Graph the consumption functions whose equation is given in Problem 1. Use your graph to show the level of annual disposable income at which household saving would be zero. How could consumers afford to purchase goods and services even if their annual disposable income were zero?
4. Suppose an increase in household wealth increases the amount of autonomous consumption each year from \$800 billion to \$1,000 billion. Assuming the marginal propensity to consume remains 0.7, write the equation of the new consumption function and show how the increase in wealth affects the consumption line you drew in answer to Problem 3.
5. Suppose the marginal propensity to consume increases from 0.7 to 0.8. Assuming the amount of annual consumption independent of annual income remains \$800 billion, show the impact of the increase in the marginal propensity to consume on the consumption line you drew in answer to Problem 3.
6. The current real rate of interest is 5 percent. Draw an investment demand curve, and show the equilibrium quantity of investment purchases. What is the real marginal return to investment in equilibrium?
7. Assuming no change in the real rate of interest during the year, what can cause investment purchases to increase? Use the graph you drew in answer to Problem 6 to show how an increase in investment purchases can come about. What can cause a decrease in investment purchases?
8. Suppose the real rate of interest income increases from 5 percent to 7 percent. Use the graph you drew in answer to Problem 6 to show the impact on investment purchases.

9. Suppose net exports are negative for the U.S. economy. Explain how a recession in the United States could result in positive net exports in the following year.
10. Draw an aggregate purchases line, and show how aggregate purchases fall short of the sum of consumer, investment, and government purchases when net exports are negative.

<p style="text-align: center;">Macroeconomics Instructor: Mark Tomass Review Questions H12 Keynesian Analysis of Macroeconomic Equilibrium</p>
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1. An increase in real interest rates is forecast to reduce investment purchases by \$300 billion next year. Assuming the forecast is correct, what do you predict will happen to real GDP, other things being equal?
2. Use the data in the table in Box 1 to show what will happen to real GDP, income, consumption, and aggregate purchases and employment if planned investment purchases double for the year.
3. Suppose autonomous consumption falls by \$400 billion. Use the data in Box 1 to show how this fall in autonomous consumption can cause a recession. What will be the new equilibrium real GDP, income, and employment, assuming that nothing else changes?
4. Explain why an increase in the amount of saving consumers want to set aside at each possible level of real GDP can cause an economic contraction.
5. Suppose the marginal propensity to consume represents the marginal responding rate of additional income. If the marginal propensity to consume is 0.9, what will happen to real GDP if planned investment increases by \$300 billion?
6. Why is the marginal propensity to consume likely to overstate the marginal responding rate in the economy when the impact of government and international trade on the economy is considered?
7. All indications are that consumers plan to devote higher proportions of their income to repayment of debt next year. Business firms have little optimism about the current

outlook, and planned investments for the year are down. What is your prognosis for the economy?

8. Why do you think the decline in the international value of the dollar against the yen could cause a recession in Japan? What effect will a recession in Japan have on U.S. exports to Japan, given the current international value of the dollar?
9. Explain how a decrease in the price level in the economy will affect the aggregate purchases line and equilibrium real GDP.
10. Under what circumstances will inflationary gap prevail for an economy? How will the economy's self-correcting mechanism eliminate the inflationary gap?

Macroeconomics  
Instructor: Mark Tomass  
Review Questions H13  
The Functions of Money

1. What is the difference between commodity money and fiat money? Explain why U.S. currency is fiat money.
2. Explain how currency and checkable deposits fulfill the functions of money for the U.S. economy. What are some advantages of currency and checkable deposits over gold and silver as a form of money? What are some disadvantages of currency and checkable deposits compared to commodity money?
3. Suppose you open an account with a mutual fund composed of corporate bonds. The company managing the mutual fund gives you a checkbook that allows you to write checks against the market value of the bonds in the account. Is the value of the assets held in the mutual fund part of M1?
4. Suppose inflation is expected to heat up in the future. How does inflation affect the function of money as a medium of exchange, standard of value, and store of purchasing power?
5. What can U.S. currency be redeemed for if it is presented to the U.S. Treasury or a Federal Reserve Bank?

6. The level of interest rates in the economy increases on average over the year from 6 percent to 8 percent. What effect will this change have on the quantity of money demanded?
7. Explain how a decrease in the level of interest rates affects the quantity of money demanded in the economy.
8. Nominal GDP is \$5,000 billion, and the average daily stock of money measured by M1 during the year is \$1,000 billion. What is likely to happen to the demand for money and interest rates if, as a result of an increase in government purchases, nominal GDP increases to \$5,500 billion and M1 is held fixed at \$1,000 billion?
9. Use a graph to show how a decrease in the demand for money will affect interest rates if the money stock is held fixed.
10. This year there is a 10 percent reduction in the stock of money measures as M1. Use a graph to show how the reduction in the stock of money will affect the quantity of money demanded and the equilibrium level of interest rates in credit markets. How could such a sharp reduction in the money supply precipitate a recession?

Macroeconomics  
Instructor: Mark Tomass  
Review Questions H14  
The Banking System

1. A banker operates under a 20 percent fractional reserve ratio. What amount of deposits can be supported by \$5 million of reserves? In what form does a bank hold its reserves? Explain why a bank is unlikely to ever have to pay out all of its deposits in a single day.
2. Suppose you deposit \$3,000 in cash from your mattress in your local bank. Show the impact of your deposit on the bank's balance sheet. Explain why the bank cannot increase the loans it makes after it receives your deposit by more than a certain percentage of \$3,000. If the required reserve ratio is 0.1, what is the maximum increase in checkable deposits that will result *in the entire banking system* as a result of your deposit?

3. Suppose you have accounts at two banks. During a particular week you write a check on one of your accounts for \$1,000 and deposit it in your account at the other bank. Will the money stock increase as a result of your transaction?
4. Suppose the Federal Reserve bank lends funds to the First National Bank of Toledo. It does so by crediting the Toledo bank's account at the Federal Reserve by \$2 million. Show the impact of the loan on the Toledo bank's balance sheet. What will happen to the Toledo bank's excess reserves as a result of the loan? If the required reserve ratio is 0.1, what is the maximum increase in the money stock that can result from the loan?
5. Suppose that during the holiday season households withdraw \$10 billion from their accounts in banks to hold as cash in their pockets to facilitate shopping. What will happen to bank excess reserves and the capacity of the banking system to make loans as a result?
6. The required reserve ratio is 0.1, and the current available bank reserves are \$40 billion. Explain why checkable deposits in the banking system are likely to be less than the maximum possible \$400 billion.
7. Following is the balance sheet of the First National Bank of Jonesville:

Assets	Liabilities and net worth
Reserves, \$100 million	Deposits, \$180 million
Securities, \$50 million	Net Worth, \$20 million
Loans, \$50 million	

If the required reserve ratio is 0.1, what is the amount of the bank's excess reserves? How many dollars' worth of additional loans or securities can the bank acquire as assets? How much of an increase in the money stock could the bank's excess reserves support if all banks in the banking system were to hold zero excess reserves?

8. Suppose the bank demand curve for excess reserves is a horizontal line. What will be the effect on the money stock of an increase in the amount of excess reserves available to the banking system?

9. Explain why bank demand for excess reserves tends to increase during recessions. Why does the fact that bank demand for excess reserves varies with general business conditions tend to destabilize the economy?
10. How do banks choose their portfolio of assets to balance considerations of profitability, liquidity, and risk?

<p>Macroeconomics  Instructor: Mark Tomass  Review Questions H15  The Federal Reserve System and Its Influence on Money and Credit</p>
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1. In what sense is the Federal Reserve System independent of Congress and the president of the United States? How can the president influence the Fed's policies despite the fact that the president has no direct control over the central bank?
2. The Fed increases its liabilities. Explain why this means that the monetary base will increase. How does the monetary base differ from the money stock?
3. Suppose the Fed wishes to increase the money stock by \$100 billion over the next three months. What technique can it use to accomplish its objective?
4. On a certain day the Fed buys \$30 billion worth of government securities and sells \$20 billion worth. Show the changes in the Fed's and the banking system's balance sheets. What effects will the Fed's operations have on securities prices and interest rates that day?
5. Suppose on another day the Fed sells \$80 billion worth of government securities and buys \$30 billion worth. Show the changes in their balance sheets and the impact on securities prices and interest rates that day.
6. When the economy moves into a recession, bank demand for excess reserves increases. How can the Fed use open market operations to increase the money supply under these circumstances? Use supply and demand analysis to show the impact of the Fed's policies, assuming the demand for money is given.

7. The Fed decreases the monetary base. Show the impact of the Fed's action on the supply of money in the economy and the likely impact of the action on the level of interest rates.
8. Under what circumstances will open market sales and purchases by the Fed have *no effect* on the level of interest rates in the economy?
9. Suppose the demand for money increases. How can the Fed act to prevent the market rate of interest from increasing?
10. Explain why Federal Reserve System open market operations can increase bank reserves but do not guarantee an increase in the money supply.

Macroeconomics  
Instructor: Mark Tomass  
Review Questions H16  
Stabilization of the Economy through Monetary Policy

1. The current level of interest rates in the economy is about 8 percent. The Fed believes aggregate demand will decline during the year. How can the Fed counteract the expected decline in aggregate demand in a way that will prevent a recession?
2. Inflation is currently 4 percent per year. The Fed believes an increase in aggregate demand will put upward pressure on the price level during the year. What actions should the Fed engage in to counteract the inflationary pressures in the economy?
3. Show how an expansionary monetary policy influences the money supply and the market rate of interest. How are the effects of an expansionary monetary policy transmitted to the economy at large in a way that affects real GDP and the price level? Use aggregate supply and demand analysis to predict the impact of an expansionary monetary policy.
4. Explain how a contractionary monetary policy will affect real interest rates and the quantity of investment goods demanded per year. Show how the contractionary monetary policy will affect macroeconomic equilibrium, assuming that the aggregate supply curve is stable.

5. Suppose banks held excess reserves made available through Federal Reserve System open market purchases. Under these circumstances, how effective will monetary policy be in stimulating the economy?
6. Suppose the demand curve for investment goods is a vertical line plotting investment purchases against the real rate of interest. Under these circumstances, how effective will monetary policy be in eliminating a recessionary GDP gap?
7. The economy is currently at full employment. During the year the money stock is increases by 25 percent. Assuming the income velocity of circulation of money is constant during the year, what will be the impact of the price level?
8. Suppose the Fed pursues a monetary policy that allows the money supply to grow at the same rate as the long-term growth rate of real GDP. During a five-year period for which this policy is pursued, the income velocity of circulation of money doubles from 2 to 4. What will happen to the price level over the five-year period?
9. Explain why the demand for money will increase as the economy begins to pull out a recession. Why will interest rates tend to rise as the economy moves into this expansionary phase of the business cycle? How can the Fed prevent the rise in interest rates from dampening the recovery from the recession? Why does keeping interest rates from rising mean the money supply must grow?
10. Why are the long-term effects of monetary policy likely to differ from the short-term effects? Why can a policy designed to keep interest rates from fluctuating cause inflation in the long run?

Macroeconomics  
Instructor: Mark Tomass  
Review Questions H17  
Stabilization of the Economy through Fiscal Policy

1. Real GDP has declined during the past quarter, and the forecast is for a continued decline in real GDP because of a gloomy business outlook. Business investment is expected to plummet next year. As chairman of the President's Council of Economic Advisors, what fiscal policy would you recommend for the coming year?

2. Estimates indicate that of each \$1 increase in national income, 60 cents is spent on domestic products, 20 cents is used to pay taxes, 10 cents is spent on imported goods, and 10 cents is saved. The economy is currently in a deep recession, with a \$1,000 billion recessionary GDP gap and 15 percent unemployment. How much of an increase in government purchases for the year will be sufficient to pull the economy out of the recession and achieve full employment?
3. If the marginal responding rate is 0.6, calculate the impact on real GDP of a \$1 billion reduction in net taxes. How much of a tax cut will get the economy out of the recession with the \$1,000 billion recessionary GDP discussed in Problem 2?
4. The economy is currently experiencing an \$800 billion recessionary GDP gap. A proposal is made to increase transfer payments in order to stimulate aggregate demand. If the marginal responding rate is 0.5, how much must transfers be increased to eliminate the recessionary GDP gap? Use a graph to show the impact on the economy, assuming that the economy operates in the flat portion of its aggregate supply curve up to full employment.
5. Suppose the aggregate supply curve for an economy experiencing a \$500 billion recessionary GDP gap is upward sloping. Use graphic analysis to show that if the marginal responding rate is 0.5, elimination of the GDP gap requires that government purchases increase by more than \$250 billion per year.
6. Suppose the price level is downwardly inflexible during the year. If the marginal responding rate is 0.5, calculate the tax increase or the decrease in government purchases necessary to eliminate a \$1,500 billion inflationary GDP gap.
7. The president's advisers propose a budget designed to result in a deficit of \$60 billion for the year. In their estimate the advisers assume that the unemployment rate for the year will average 7 percent. Explain why the estimate will fall short of the actual deficit if the unemployment rate each month during the year averages 9 percent instead of 7 percent.
8. A law is passes requiring that the federal budget be in balance every year. Why would this law prevent the automatic stabilizers from operating and thus be likely to destabilize the economy?
9. Suppose a law abolishes taxes on interest income accruing to saving in all forms. Use graphic analysis to show the possible effects of this law on the supply of

loanable funds in credit markets and on the equilibrium market rate of interest. Show the impact of the law on investment.

10. The Tax Reform Act of 1986 eliminated the investment tax credit and reduced the tax benefit of accelerated depreciation allowances. Forecast the impact of these changes on investment demand and market interest rates.

Macroeconomics  
Instructor: Mark Tomass  
Review Questions H18  
The Budget Deficit and the National Debt

1. Suppose a new law is passed that requires the federal government to run a surplus each year until the national debt has been paid off. Explain why such a policy would be likely to destabilize the economy and contribute to recessions when the private components of aggregate demand decrease.
2. Suppose the federal government runs a chronic deficit of \$200 billion per year and finances that deficit by selling new government securities directly to the Federal Reserve System. Show how, other things being equal, either currency in circulation or bank reserves will increase as a result of this means of financing the deficit. Why would the impact on the economy of this means of financing the deficit be the same as if the government merely printed money to pay its expenses? Why would the impact on the economy be inflationary in the long run?
3. Suppose the federal deficit is financed by borrowing funds from the general public. Track the impact of such borrowing on interest rates, private saving, and private investment. Under what circumstances will government borrowing reduce private investment?
4. Suppose taxpayers increase the supply of savings as a direct result of the government deficit. Show how, if the increase in the supply of savings is large enough, borrowing to finance the deficit will not affect interest rates and will not crowd out private investment.
5. Why is financing government expenditures by borrowing more expansionary than tax financing?

6. Suppose both the supply of savings and investment demand are completely unresponsive to changes in the market rate of interest. What will be the impact of a federal budget deficit on consumption, investment, and aggregate demand? What impact will the deficit have on the price level and real GDP if the economy is in a deep recession, so that the economy is operating in the flat portion of its aggregate supply curve?
7. How can a large deficit prolong a nation's international balance of trade deficit?
8. Suppose that over the years the portion of the net federal debt owned by foreigners increases from 5 percent to 30 percent of the amount outstanding. What is the implication of this change for the future burden of repaying the debt?
9. Suppose all of the net federal debt is internal debt. In what sense does repayment of such a debt involve a redistribution of income? Is there a burden of the debt on future generations in this case? In what ways can the burden of the debt on future generations be offset?
10. What is the impact of inflation on the burden of repaying the debt and on taxpayers?