

Economics 132.01
Principles of Macroeconomics
Fall 2011

Professor Peter Ireland

First Midterm Exam

This exam has 8 questions on 3 pages; before you begin, please check to make sure your copy has all 8 questions and all 3 pages. Each of the 8 questions will receive equal weight in determining your overall exam score. You can work on the questions in any order, but please be sure to keep your answers to all of the parts of a specific question together in your exam book.

1. Suppose that the market for ice cream cones starts out in an initial equilibrium in which the quantities of ice cream cones demanded and supplied both equal 6 and the price of an ice cream cone is \$1.50.
 - a. Suppose next that a hotter than normal summer causes more people to want to eat ice cream cones. In a standard microeconomic supply and demand diagram, will this event work to shift the demand curve or the supply curve?
 - b. Will the curve you mentioned above – demand or supply – shift to the left or to the right?
 - c. Suppose for a moment that the price of an ice cream cone remains unchanged at \$1.50 after the curve you mentioned above shifts. At this old price, will there be a shortage or a surplus of ice cream cones?
 - d. Now suppose instead that the price of an ice cream cone changes to bring the demand for and supply of ice cream cones back into balance after the curve shifts. Will this new equilibrium price be higher or lower than \$1.50?
 - e. In the new equilibrium with the new price, will the quantities of ice cream cones demanded and supplied be larger or smaller than 6?

2. Please indicate whether each statement is true or false (you don't need to explain why).
 - a. If firms in an economy produce luxury automobiles that sell for \$50,000 each and apples that sell for \$1 each, then each automobile contributes the same amount as 50,000 apples to nominal GDP.
 - b. It is possible for real GDP to rise more rapidly than nominal GDP; this happens if an economy is experiencing deflation.
 - c. It is possible for the CPI to fall over time; this happens if an economy is experiencing deflation.
 - d. US GDP includes the value of goods purchased by the federal government, but not by state and local governments.
 - e. If a US citizen works temporarily in Canada, the market value of the goods he or she produces while in Canada still count as part of US GDP.

3. Please indicate by how much, in dollar terms, each of the follow transactions or set of transactions contributes to US nominal GDP. If GDP does not change, just write down \$0. For simplicity, assume that all goods are sold during the same period in which they are produced.
- A farmer in the US sells a bag of oranges to a juice company for \$5; the juice company uses the oranges to make bottles of juice in the US that then get purchased by an individual consumer in the US for \$10.
 - The same farmer in the US sells a bag of oranges to an individual consumer in the US for \$5.
 - A retired person in the US cashes his or her social security check and spends \$50 on groceries, all of which were produced in the US.
 - A US consumer takes \$100 that he or she has saved and deposits it in the bank.
 - A small business in the US manufactures and sells \$1,000 worth of goods to a foreign customer; the business owner uses \$500 to pay his or her rent, \$250 to pay his or her workers, and keeps the remaining \$250 as profit.
4. In 1960, about 40 percent of all US women of ages 16 years and over had paying jobs outside their homes; by 2010 this number had risen to almost 60 percent.
- How has this increase in women’s “labor force participation” affected US GDP – specifically, is GDP today higher, lower, or the same as it would be if this trend towards higher labor force participation had not occurred? (Here, all you need to do is to say higher, lower, or the same as, you don’t need to explain why.)
 - Suppose that all of the women who joined the labor force between 1960 and 2010 report being happier working at their jobs than they would have been staying at home. Would the actual growth in GDP during this period overstate or understate the true increase in the quality of life that reflects the extra psychological benefits that women gain from working and earning income? (Again, all you need to say is overstate or understate, you don’t need to explain why.)
5. Consider a simple economy in which only two goods are produced and sold: pizza and beer. The prices and quantities produced of these two goods over a three-year period are shown in the table below.

Year	Price of Pizza	Quantity of Pizza	Price of Beer	Quantity of Beer
2009	\$2	1	\$1	2
2010	\$4	1	\$2	2
2011	\$4	2	\$2	4

- Calculate nominal GDP in 2009, 2010, and 2011.
- Next, using 2009 as your base year, calculate real GDP in 2009, 2010, and 2011.
- Finally, calculate the GDP deflator for 2009, 2010, and 2011.

6. Go back to the same example from question 5, just above. Consumers in the economy like two goods: pizza and beer. Prices and quantities consumed are the same as before:

Year	Price of Pizza	Quantity of Pizza	Price of Beer	Quantity of Beer
2009	\$2	1	\$1	2
2010	\$4	1	\$2	2
2011	\$4	2	\$2	4

As a first step in computing the consumer price index (CPI), the Bureau of Labor Statistics surveys consumers to determine the “basket of goods” purchased by a typical consumer. Suppose that the BLS chooses 2009 as its base year and, consistent with the data shown in the table, decides that the basket of goods in this economy should consist of one pizza and two beers.

- a. What is the cost of the basket in each year: 2009, 2010, and 2011?
 - b. Still using 2009 as the base year, what is the CPI in each year: 2009, 2010, and 2011?
 - c. What is the inflation rate in 2010 and 2011?
7. In the mid-1920s, the American author F. Scott Fitzgerald wrote a somewhat comical article for the *Saturday Evening Post* magazine titled, “How to Live on \$36,000 a Year,” in which he explained how he and his wife managed to spend their entire annual income of \$36,000 without saving anything.
- a. In the mid-1920s, the consumer price index was around 18; in 2010, the CPI was around 225. Using these figures, calculate how much Fitzgerald’s income would be worth in 2010’s dollars.
 - b. More recently, *Forbes* magazine published a list of the highest-paid authors, showing that J.K. Rowling, author of the *Harry Potter* books, earned \$10 million in 2010. After adjusting for the effects of inflation, who earned more: Fitzgerald or Rowling?
8. In each case, please indicate whether the statement is true or false (you don’t need to explain why).
- a. In an economy experiencing inflation, the nominal interest rate will be higher than the real interest rate.
 - b. When the price of imported oil rises, that affects the CPI but not the GDP deflator.
 - c. When the price of an aircraft carrier purchased by the US government rises, that affects the GDP deflator but not the CPI.
 - d. Because new goods sometimes get invented that help American consumers enjoy a higher living standard at a lower cost, increases in the CPI tend to understate increases in the true cost of living.
 - e. When calculating the CPI, analysts at the US Department of Labor try to account for the fact that the newest generation of iPods can do a lot more, and are therefore of a higher quality, than older models of iPods, even though the price of those iPods has remained about the same over the years.

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Solutions to First Midterm Exam

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1. Suppose that the market for ice cream cones starts out in an initial equilibrium in which the quantities of ice cream cones demanded and supplied both equal 6 and the price of an ice cream cone is \$1.50.
 - a. Suppose next that a hotter than normal summer causes more people to want to eat ice cream cones. In a standard microeconomic supply and demand diagram, will this event work to shift the demand curve or the supply curve?

The demand curve.

- b. Will the curve you mentioned above – demand or supply – shift to the left or to the right?

To the right.

- c. Suppose for a moment that the price of an ice cream cone remains unchanged at \$1.50 after the curve you mentioned above shifts. At this old price, will there be a shortage or a surplus of ice cream cones?

A shortage.

- d. Now suppose instead that the price of an ice cream cone changes to bring the demand for and supply of ice cream cones back into balance after the curve shifts. Will this new equilibrium price be higher or lower than \$1.50?

Higher.

- e. In the new equilibrium with the new price, will the quantities of ice cream cones demanded and supplied be larger or smaller than 6?

Larger.

2. Please indicate whether each statement is true or false (you don't need to explain why).

- a. If firms in an economy produce luxury automobiles that sell for \$50,000 each and apples that sell for \$1 each, then each automobile contributes the same amount as 50,000 apples to nominal GDP.

True.

- b. It is possible for real GDP to rise more rapidly than nominal GDP; this happens if an economy is experiencing deflation.

True.

- c. It is possible for the CPI to fall over time; this happens if an economy is experiencing deflation.

True.

- d. US GDP includes the value of goods purchased by the federal government, but not by state and local governments.

False.

- e. If a US citizen works temporarily in Canada, the market value of the goods he or she produces while in Canada still count as part of US GDP.

False.

3. Please indicate by how much, in dollar terms, each of the follow transactions or set of transactions contributes to US nominal GDP. If GDP does not change, just write down \$0. For simplicity, assume that all goods are sold during the same period in which they are produced.

- a. A farmer in the US sells a bag of oranges to a juice company for \$5; the juice company uses the oranges to make bottles of juice in the US that then get purchased by an individual consumer in the US for \$10.

\$10.

- b. The same farmer in the US sells a bag of oranges to an individual consumer in the US for \$5.

\$5.

- c. A retired person in the US cashes his or her social security check and spends \$50 on groceries, all of which were produced in the US.

\$50.

- d. A US consumer takes \$100 that he or she has saved and deposits it in the bank.

\$0.

- e. A small business in the US manufactures and sells \$1,000 worth of goods to a foreign customer; the business owner uses \$500 to pay his or her rent, \$250 to pay his or her workers, and keeps the remaining \$250 as profit.

\$1,000.

4. In 1960, about 40 percent of all US women of ages 16 years and over had paying jobs outside their homes; by 2010 this number had risen to almost 60 percent.
- a. How has this increase in women's "labor force participation" affected US GDP – specifically, is GDP today higher, lower, or the same as it would be if this trend towards higher labor force participation had not occurred? (Here, all you need to do is to say higher, lower, or the same as, you don't need to explain why).

Higher, because working at home may have value, but does not have market value and is therefore not included in GDP.

- b. Suppose that all of the women who joined the labor force between 1960 and 2010 report being happier working at their jobs than they would have been staying at home. Would the actual growth in GDP during this period overstate or understate the true increase in the quality of life that reflects the extra psychological benefits that women gain from working and earning income? (Again, all you need to say is overstate or understate, you don't need to explain why.)

Understate, because the psychological benefits do not have market value and are therefore not included in GDP.

5. Consider a simple economy in which only two goods are produced and sold: pizza and beer. The prices and quantities produced of these two goods over a three-year period are shown in the table below.

Year	Price of Pizza	Quantity of Pizza	Price of Beer	Quantity of Beer
2009	\$2	1	\$1	2
2010	\$4	1	\$2	2
2011	\$4	2	\$2	4

- a. Calculate nominal GDP in 2009, 2010, and 2011.

2009: (\$2 per pizza) x (1 pizza produced) + (\$1 per beer) x (2 beers produced) = \$2 + \$2 = \$4.

2010: (\$4 per pizza) x (1 pizza produced) + (\$2 per beer) x (2 beers produced) = \$4 + \$4 = \$8.

2011: (\$4 per pizza) x (2 pizzas produced) + (\$2 per beer) x (4 beers produced) = \$8 + \$8 = \$16.

b. Next, using 2009 as your base year, calculate real GDP in 2009, 2010, and 2011.

2009: (\$2 per pizza) x (1 pizza produced) + (\$1 per beer) x (2 beers produced) = \$2 + \$2 = \$4.

2010: (\$2 per pizza) x (1 pizza produced) + (\$1 per beer) x (2 beers produced) = \$2 + \$2 = \$4.

2011: (\$2 per pizza) x (2 pizzas produced) + (\$1 per beer) x (4 beers produced) = \$4 + \$4 = \$8.

c. Finally, calculate the GDP deflator for 2009, 2010, and 2011.

2009: (Nominal GDP in 2009)/(Real GDP in 2009) x 100 = (\$4/\$4) x 100 = 100.

2010: (Nominal GDP in 2010)/(Real GDP in 2010) x 100 = (\$8/\$4) x 100 = 200.

2011: (Nominal GDP in 2011)/(Real GDP in 2011) x 100 = (\$16/\$8) x 100 = 200.

6. Go back to the same example from question 5, just above. Consumers in the economy like two goods: pizza and beer. Prices and quantities consumed are the same as before:

Year	Price of Pizza	Quantity of Pizza	Price of Beer	Quantity of Beer
2009	\$2	1	\$1	2
2010	\$4	1	\$2	2
2011	\$4	2	\$2	4

As a first step in computing the consumer price index (CPI), the Bureau of Labor Statistics surveys consumers to determine the “basket of goods” purchased by a typical consumer. Suppose that the BLS chooses 2009 as its base year and, consistent with the data shown in the table, decides that the basket of goods in this economy should consist of one pizza and two beers.

a. What is the cost of the basket in each year: 2009, 2010, and 2011?

2009: (\$2 per pizza) x (1 pizza) + (\$1 per beer) x (2 beers) = \$2 + \$2 = \$4.

2010: (\$4 per pizza) x (1 pizza) + (\$2 per beer) x (2 beers) = \$4 + \$4 = \$8.

2011: (\$4 per pizza) x (1 pizza) + (\$2 per beer) x (2 beers) = \$4 + \$4 = \$8.

b. Still using 2009 as the base year, what is the CPI in each year: 2009, 2010, and 2011?

2009: (Cost of the basket in 2009)/(Cost of the basket in the base year) x 100 = (\$4/\$4) x 100 = 100.

2010: (Cost of the basket in 2010)/(Cost of the basket in the base year) x 100 = (\$8/\$4) x 100 = 200.

2011: (Cost of the basket in 2011)/(Cost of the basket in the base year) x 100 = (\$8/\$4) x 100 = 200.

c. What is the inflation rate in 2010 and 2011?

2010: (CPI in 2010 – CPI in 2009)/(CPI in 2009) x 100 = (200-100)/100 x 100 = 100%.

2011: (CPI in 2011 – CPI in 2010)/(CPI in 2010) x 100 = (200-200)/200 x 100 = 0%

7. In the mid-1920s, the American author F. Scott Fitzgerald wrote a somewhat comical article for the *Saturday Evening Post* magazine titled, "How to Live on \$36,000 a Year," in which he explained how he and his wife managed to spend their entire annual income of \$36,000 without saving anything.
- a. In the mid-1920s, the consumer price index was around 18; in 2010, the CPI was around 225. Using these figures, calculate how much Fitzgerald's income would be worth in 2010's dollars.

Value of his income in 2010 dollars = (CPI in 2010)/(CPI in the 1920s) x (\$36,000 in the 1920s) = (225/18) x \$36,000 = 225 x \$2,000 = \$450,000.

- b. More recently, *Forbes* magazine published a list of the highest-paid authors, showing that J.K. Rowling, author of the *Harry Potter* books, earned \$10 million in 2010. After adjusting for the effects of inflation, who earned more: Fitzgerald or Rowling?

Rowling.

8. In each case, please indicate whether the statement is true or false (you don't need to explain why).
- a. In an economy experiencing inflation, the nominal interest rate will be higher than the real interest rate.

True.

- b. When the price of imported oil rises, that affects the CPI but not the GDP deflator.

True.

- c. When the price of an aircraft carrier purchased by the US government rises, that affects the GDP deflator but not the CPI.

True.

- d. Because new goods sometimes get invented that help American consumers enjoy a higher living standard at a lower cost, increases in the CPI tend to understate increases in the true cost of living.

False: for this reason, increases in the CPI tend to overstate increases in the true cost of living.

- e. When calculating the CPI, analysts at the US Department of Labor try to account for the fact that the newest generation of iPods can do a lot more, and are therefore of a higher quality, than older models of iPods, even though the price of those iPods has remained about the same over the years.

True.

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1. Macroeconomists use the story of Robinson Crusoe to identify the determinants of productivity and living standards, both for Crusoe stranded alone on his deserted island and for all of us in the United States today.
 - a. When macroeconomists observe that how many fish Crusoe can catch depends partly on how good he is at inventing new techniques for fishing, what determinant of productivity in the US economy do they have in mind?
 - b. When macroeconomists observe that how many fish Crusoe can catch depends partly on how many fishing poles he has, what determinant of productivity in the US economy do they have in mind?

2. As an alternative to the story of Robinson Crusoe, macroeconomists use the “aggregate production function,” written as $Y = AF(L,K,H,N)$, to link economy-wide output Y to the number of workers L , the stock of physical capital K , the stock of human capital H , the stock of natural resources N , and stock of technological knowledge A . With reference to this aggregate production function, please indicate whether each of the following statements is true or false.
 - a. The aggregate production function exhibits “constant returns to scale” if doubling the four inputs – workers L , physical capital K , human capital H , and natural resources N – while holding the stock of technological knowledge A fixed leads to a doubling of output.
 - b. The aggregate production function exhibits “constant returns to scale” if tripling the four inputs – workers L , physical capital K , human capital H , and natural resources N – while holding the stock of technological knowledge A fixed leads to a tripling of output.
 - c. When the aggregate production function exhibits constant returns to scale, it implies that productivity Y/L is determined by the stock of physical capital per worker K/L , the stock of human capital per worker H/L , the stock of natural resources per worker N/L , and the stock of technological knowledge A .
 - d. The aggregate production function shows that productivity may still increase, even in the face of dwindling stocks of natural resources N , if the stock of technological knowledge A continues to grow.

3. Please indicate whether each of the following statements is true or false (you don't need to explain why).
 - a. Although economists believe that access to natural resources helps increase productivity, they also point out that some countries, most notably Japan, have achieved high levels of productivity and living standards without access to abundant natural resources.
 - b. Physical capital accumulation and the "catch-up effect" are particularly important in explaining why a number of Asian economies, especially South Korea's, grew very rapidly in the second half of the 20th century.
 - c. Real GDP per person in India in 2008 was lower than what real GDP per person was in the United Kingdom in 1870.
 - d. An example of "foreign portfolio investment" occurs when an American company opens up more than one factory in China and operates those factories itself in order to minimize risk.
 - e. Students in the United States who remain in school after they turn 16 years old show a willingness to accept what economists call an "intertemporal trade-off," because staying in school means earning less income today and perhaps consuming less today, in exchange for accumulating knowledge and skills that will help them earn a higher income and enjoy more consumption in the future.

4. Suppose that GDP Y equals 10, consumption C equals 6, government spending G equals 2, tax revenues T equal 3 and net exports NX equal 0. Use this information to answer the following questions.
 - a. What is the numerical value of investment?
 - b. What is the numerical value of national saving?
 - c. What is the numerical value of private saving?
 - d. What is the numerical value of public saving?

5. Please indicate whether each of the following statements is true or false (you don't need to explain why).
 - a. A country with net exports that are negative is saving more than it is investing.
 - b. A country with net exports that are negative is borrowing from the rest of the world.
 - c. A firm, IBM for instance, borrows funds when it initially sells a bond to a saver, but not when that saver resells the bond in the secondary market.
 - d. When a saver buys a bond issued by IBM, he or she is lending money to IBM; when by contrast that saver buys a share of stock issued by IBM, he or she is buying an ownership share in IBM.
 - e. When funds flow from savers to borrowers through a financial intermediary, like a bank or mutual fund, that is called "direct finance."

6. In the aftermath of the financial crisis of 2007 and 2008, many US policymakers have suggested that banks and other financial intermediaries should be subjected to tighter regulations.
 - a. Suppose that the main effect of these tighter regulations is to restore savers' confidence in the financial system and that, as a result, they work to increase the amount that savers are willing to save at any given interest rate. According to the loanable funds framework, what effect will this change in saving behavior have on the amounts of saving and investment taking place in the economy: will saving and investment rise or fall?
 - b. Still assuming that the main effect of these tighter regulations is to restore savers' confidence in the financial system and that, as a result, they work to increase the amount that savers are willing to save at any given interest rate, what does the loanable funds framework predict about the change in the interest rate: will it rise or fall?
 - c. Suppose instead that the main effect of these tighter regulations is to make it more difficult for firms to borrow and that, as a result, they work to decrease the amount of investment that firms are willing to undertake at any given interest rate. According to the loanable funds framework, what effect will this change in firm behavior have on the amounts of saving and investment taking place in the economy: will saving and investment rise or fall?
 - d. Still assuming that the main effect of these tighter regulations is to make it more difficult for firms to borrow and that, as a result, they work to decrease the amount of investment that firms are willing to undertake at any given interest rate, what does the loanable funds framework predict about the change in the interest rate: will it rise or fall?

7. Ann just graduated from college; she's looking for a job, but hasn't found one yet. Dan had been looking for a job; but after having no luck finding one for more than a year, he gives up and stops looking.
 - a. When Ann graduates and starts looking for a job, does the number of employed people go up, down, or stay the same?
 - b. When Ann graduates and starts looking for a job, does the number of unemployed people go up, down, or stay the same?
 - c. When Ann graduates and starts looking for a job, does the number of people in the labor force go up, down, or stay the same?
 - d. When Dan stops looking for a job, does the number of unemployed people go up, down, or stay the same?
 - e. When Dan stops looking for a job, does the number of people in the labor force go up, down, or stay the same?

8. According to a microeconomic model of labor supply and demand, when the government increases the minimum wage:
 - a. Does the number of employed people go up, down, or stay the same?
 - b. Does the number of unemployed people go up, down, or stay the same?
 - c. Does the number of people in the labor force go up, down, or stay the same?
 - d. Does the natural rate of unemployment go up, down, or stay the same?

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 - a. When macroeconomists observe that how many fish Crusoe can catch depends partly on how good he is at inventing new techniques for fishing, what determinant of productivity in the US economy do they have in mind?

Technological knowledge.

- b. When macroeconomists observe that how many fish Crusoe can catch depends partly on how many fishing poles he has, what determinant of productivity in the US economy do they have in mind?

Physical capital per worker.

2. As an alternative to the story of Robinson Crusoe, macroeconomists use the “aggregate production function,” written as $Y = AF(L,K,H,N)$, to link economy-wide output Y to the number of workers L , the stock of physical capital K , the stock of human capital H , the stock of natural resources N , and stock of technological knowledge A . With reference to this aggregate production function, please indicate whether each of the following statements is true or false.
 - a. The aggregate production function exhibits “constant returns to scale” if doubling the four inputs – workers L , physical capital K , human capital H , and natural resources N – while holding the stock of technological knowledge A fixed leads to a doubling of output.

True.

- b. The aggregate production function exhibits “constant returns to scale” if tripling the four inputs – workers L , physical capital K , human capital H , and natural resources N – while holding the stock of technological knowledge A fixed leads to a tripling of output.

True.

- c. When the aggregate production function exhibits constant returns to scale, it implies that productivity Y/L is determined by the stock of physical capital per worker K/L , the stock of human capital per worker H/L , the stock of natural resources per worker N/L , and the stock of technological knowledge A .

True.

- d. The aggregate production function shows that productivity may still increase, even in the face of dwindling stocks of natural resources N , if the stock of technological knowledge A continues to grow.

True.

3. Please indicate whether each of the following statements is true or false (you don’t need to explain why).

- a. Although economists believe that access to natural resources helps increase productivity, they also point out that some countries, most notably Japan, have achieved high levels of productivity and living standards without access to abundant natural resources.

True.

- b. Physical capital accumulation and the “catch-up effect” are particularly important in explaining why a number of Asian economies, especially South Korea’s, grew very rapidly in the second half of the 20th century.

True.

- c. Real GDP per person in India in 2008 was lower than what real GDP per person was in the United Kingdom in 1870.

True.

- d. An example of “foreign portfolio investment” occurs when an American company opens up more than one factory in China and operates those factories itself in order to minimize risk.

False.

- e. Students in the United States who remain in school after they turn 16 years old show a willingness to accept what economists call an “intertemporal trade-off,” because staying in school means earning less income today and perhaps consuming less today, in exchange for

accumulating knowledge and skills that will help them earn a higher income and enjoy more consumption in the future.

True.

4. Suppose that GDP Y equals 10, consumption C equals 6, government spending G equals 2, tax revenues T equal 3 and net exports NX equal 0. Use this information to answer the following questions.

- a. What is the numerical value of investment?

$$I = Y - C - G - NX = 10 - 6 - 2 - 0 = 2.$$

- b. What is the numerical value of national saving?

$$S = Y - C - G = 2.$$

- c. What is the numerical value of private saving?

$$\text{Private saving} = Y - C - T = 10 - 6 - 3 = 1.$$

- d. What is the numerical value of public saving?

$$\text{Public saving} = T - G = 3 - 2 = 1.$$

5. Please indicate whether each of the following statements is true or false (you don't need to explain why).

- a. A country with net exports that are negative is saving more than it is investing.

False.

- b. A country with net exports that are negative is borrowing from the rest of the world.

True.

- c. A firm, IBM for instance, borrows funds when it initially sells a bond to a saver, but not when that saver resells the bond in the secondary market.

True.

- d. When a saver buys a bond issued by IBM, he or she is lending money to IBM; when by contrast that saver buys a share of stock issued by IBM, he or she is buying an ownership share in IBM.

True.

- e. When funds flow from savers to borrowers through a financial intermediary, like a bank or mutual fund, that is called “direct finance.”

False.

6. In the aftermath of the financial crisis of 2007 and 2008, many US policymakers have suggested that banks and other financial intermediaries should be subjected to tighter regulations.
- a. Suppose that the main effect of these tighter regulations is to restore savers’ confidence in the financial system and that, as a result, they work to increase the amount that savers are willing to save at any given interest rate. According to the loanable funds framework, what effect will this change in saving behavior have on the amounts of saving and investment taking place in the economy: will saving and investment rise or fall?

Rise.

- b. Still assuming that the main effect of these tighter regulations is to restore savers’ confidence in the financial system and that, as a result, they work to increase the amount that savers are willing to save at any given interest rate, what does the loanable funds framework predict about the change in the interest rate: will it rise or fall?

Fall.

- c. Suppose instead that the main effect of these tighter regulations is to make it more difficult for firms to borrow and that, as a result, they work to decrease the amount of investment that firms are willing to undertake at any given interest rate. According to the loanable funds framework, what effect will this change in firm behavior have on the amounts of saving and investment taking place in the economy: will saving and investment rise or fall?

Fall.

- d. Still assuming that the main effect of these tighter regulations is to make it more difficult for firms to borrow and that, as a result, they work to decrease the amount of investment that takes firms are willing to undertake at any given interest rate, what does the loanable funds framework predict about the change in the interest rate: will it rise or fall?

Fall.

7. Ann just graduated from college; she’s looking for a job, but hasn’t found one yet. Dan had been looking for a job; but after having no luck finding one for more than a year, he gives up and stops looking.
- a. When Ann graduates and starts looking for a job, does the number of employed people go up, down, or stay the same?

Stays the same.

- b. When Ann graduates and starts looking for a job, does the number of unemployed people go up, down, or stay the same?

Up.

- c. When Ann graduates and starts looking for a job, does the number of people in the labor force go up, down, or stay the same?

Up.

- d. When Dan stops looking for a job, does the number of unemployed people go up, down, or stay the same?

Down.

- e. When Dan stops looking for a job, does the number of people in the labor force go up, down, or stay the same?

Down.

8. According to a microeconomic model of labor supply and demand, when the government increases the minimum wage:

- a. Does the number of employed people go up, down, or stay the same?

Down.

- b. Does the number of unemployed people go up, down, or stay the same?

Up.

- c. Does the number of people in the labor force go up, down, or stay the same?

Up.

- d. Does the natural rate of unemployment go up, down, or stay the same?

Up.

Economics 132.01
Principles of Macroeconomics
Fall 2011

Professor Peter Ireland

Final Exam

This exam has 8 questions on 4 pages; before you begin, please check to make sure your copy has all 8 questions and all 4 pages. Each of the 8 questions will receive equal weight in determining your overall exam score. Please record all of your answers on the answer sheet that is provided: tear off the answer sheet and be sure to write your name at the top before handing it in.

1. With reference to the Federal Reserve's M1 and M2 measures of the money supply, please indicate whether funds held in each of the forms listed below are included only in M1, only in M2, in both M1 and M2, or in neither M1 nor M2.
 - a. Money market mutual fund shares.
 - b. Bank reserves.
 - c. Demand deposits.
 - d. Small (under \$100,000) certificates of deposit.
 - e. Currency in circulation.

2. Suppose that the Federal Reserve conducts an open market operation in which it purchases \$100 in US Treasury bonds from a private saver.
 - a. In an economy without banks, by how much, in dollar terms, will the total money supply increase as a result of this open market operation?
 - b. In an economy with banks in which all members of the nonbank public immediately deposit all of the currency they receive, but in which all banks engage in 100 percent reserve banking, by how much will the total money supply increase as a result of this open market operation?
 - c. In an economy with banks, in which all banks choose a 10% reserve ratio and in which all members of the nonbank public immediately deposit all of the currency they receive, by how much will the total money supply increase as a result of this open market operation?
 - d. In an economy with banks, in which all banks choose a 10% reserve ratio, but in which all members of the nonbank public hold 50% of the funds they receive as currency and deposit the remaining 50%, will the change in the total money supply resulting from this open market operation be greater than or less than the amount you answered for part (c), above?

3. Please answer the following questions, regarding the Federal Reserve's federal funds rate targeting strategy.
- Suppose that the Federal Reserve wants to hold its federal funds rate target constant but banks' demand for reserves decreases at any given interest rate. When faced with this shift in demand, what does the Fed have to do to keep the federal funds rate near its target: does it have to conduct an open market operation in which it buys US Treasury bonds or an open market operation in which it sells US Treasury bonds?
 - Suppose instead that banks' demand for reserves at any given interest rate remains unchanged, but that the Federal Reserve wants to increase its target for the federal funds rate. What does the Fed have to do to make the equilibrium federal funds rate rise to match the new, higher target: does it have to conduct an open market operation in which it buys US Treasury bonds or an open market operation in which it sells US Treasury bonds?
4. Suppose that two banks – the First National Bank and the Second National Bank – have balance sheets as shown below. For both banks, as in our in-class discussions, "other assets" simply refers to the value of bank buildings, office equipment, ATM machines, and other physical assets that the bank owns and uses in the course of its day-to-day operations.

First National Bank	
Assets	Liabilities
Reserves \$10 Loans \$130 Other Assets \$10	Deposits \$100 Shareholders' Equity \$50

Second National Bank	
Assets	Liabilities
Reserves \$50 Loans \$50 Other Assets \$10	Deposits \$100 Shareholders' Equity \$10

- Suppose the First National Bank experiences a \$40 deposit outflow. Is the First National Bank illiquid, insolvent, or neither?
- Suppose the Second National Bank experiences a \$40 deposit outflow. Is the Second National Bank illiquid, insolvent, or neither?
- Now suppose instead that nothing happens to the First National Bank's deposits, but that some of the consumers and businesses who borrowed from the First National Bank default on their loans, so that the First National Bank's manager is forced to conclude that \$40 in loans will never be repaid. Is the First National Bank illiquid, insolvent, or neither?
- Likewise, suppose that nothing happens to the Second National Bank's deposits, but that some of the consumers and businesses who borrowed from the Second National Bank default on their loans, so that the Second National Bank's manager is forced to conclude that \$40 in loans will never be repaid. Is the Second National Bank illiquid, insolvent, or neither?

5. Consider a supply and demand diagram for money like the one we studied in class, with the quantity of money on the horizontal (x) axis and the “goods price of money” on the vertical (y) axis.
 - a. Suppose first that real GDP rises and that, as a result, the consumers who and firms that are buying more goods and services want to hold more money at any given level of prices. In the diagram, will this shift the demand curve for money to the left or to the right?
 - b. As a result of this shift in the money demand curve, what will happen to the economywide level of prices – that is, to the “dollar price of goods” – will it rise, fall, or stay the same?
 - c. Now, suppose instead that the demand curve for money remains unchanged, but that the Federal Reserve conducts an open market operation that works to increase the money supply. In the diagram, will this shift the supply curve for money to the left or to the right?
 - d. As a result of this shift in the money supply curve, what will happen to the economywide level of prices – that is, to the “dollar price of goods” – will it rise, fall, or stay the same?

6. Please indicate whether each of the events listed below explains: why the aggregate demand curve slopes down, why the aggregate demand curve might shift, why the short-run aggregate supply curve slopes up, or why the short-run aggregate supply curve might shift. (*Note*: in each case, only one of these four possibilities will be true).
 - a. Workers, expecting higher inflation in the future, succeed in negotiating for higher wages today.
 - b. The economywide level of prices falls, so that the real value of monetary wealth rises; hence, consumers are willing to buy more goods and services.
 - c. Business confidence improves, leading firms to invest more.
 - d. Consumer confidence improves, leading consumers to spend more.

7. Suppose that the Federal Reserve acts to increase the money supply.
 - a. In the aggregate demand/aggregate supply diagram, will this monetary policy action work initially to shift the aggregate demand curve, the short-run aggregate supply curve, or the long-run aggregate supply curve? (*Note*: focusing for now on just the short-run effects of the change in policy, only one of these curves will shift.)
 - b. In which direction will the curve you mentioned above shift: to the left or to the right?
 - c. When the curve you mentioned above shifts, what will the short-run effect on the economywide level of prices be: will it rise, fall, or stay the same?
 - d. When the curve you mentioned above shifts, what will the short-run effect on real GDP be: will it rise, fall, or stay the same?
 - e. When the curve you mentioned above shifts, what will the short-run effect on unemployment be: will it rise, fall, or stay the same?

8. This last question builds directly on the previous one. Suppose that after observing the short-run effects of the increase in the money supply, the Federal Reserve decides not to reverse that policy action and, instead, leaves the money supply at its new, higher level permanently.
 - a. Given that the Federal Reserve does not reverse its initial policy action, how will the economy move from the short-run equilibrium you described in question 7, above, to a new long-run equilibrium: through a shift in the aggregate demand curve, through a shift in the short-run aggregate supply curve, or through a shift in the long-run aggregate supply curve? (*Note*: focusing now just on the transition from the short run to the long run, only one of these curves will shift.)
 - b. In which direction will the curve you mentioned above shift: to the left or to the right?
 - c. Compared to its level in the initial long-run equilibrium, will the economywide level of prices in the new long-run equilibrium be higher, lower, or the same?
 - d. Compared to its level in the initial long-run equilibrium, will real GDP in the new long-run equilibrium be higher, lower, or the same?

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- a. Money market mutual fund shares.

In only M2.

- b. Bank reserves.

In neither M1 nor M2.

- c. Demand deposits.

In both M1 and M2.

- d. Small (under \$100,000) certificates of deposits.

In only M2.

- e. Currency in circulation.

In both M1 and M2.

2. Suppose that the Federal Reserve conducts an open market operation in which it purchases \$100 in US Treasury bonds from a private saver.
 - a. In an economy without banks, by how much, in dollar terms, will the total money supply increase as a result of this open market operation?

By \$100.

- b. In an economy with banks in which all members of the nonbank public immediately deposit all of the currency they receive, but in which all banks engage in 100 percent reserve banking, by how much will the total money supply increase as a result of this open market operation?

By \$100.

- c. In an economy with banks, in which all banks choose a 10% reserve ratio and in which all members of the nonbank public immediately deposit all of the currency they receive, by how much will the total money supply increase as a result of this open market operation?

By \$1000.

- d. In an economy with banks, in which all banks choose a 10% reserve ratio, but in which all members of the nonbank public hold 50% of the funds they receive as currency and deposit the remaining 50%, will the change in the total money supply resulting from this open market operation be greater than or less than the amount you answered for part (c), above?

By less than \$1000.

3. Please answer the following questions, regarding the Federal Reserve's federal funds rate targeting strategy.
- a. Suppose that the Federal Reserve wants to hold its federal funds rate target constant but banks' demand for reserves decreases at any given interest rate. When faced with this shift in demand, what does the Fed have to do to keep the federal funds rate near its target: does it have to conduct an open market operation in which it buys US Treasury bonds or an open market operation in which it sells US Treasury bonds?

Sells US Treasury bonds.

- b. Suppose instead that banks' demand for reserves at any given interest rate remains unchanged, but that the Federal Reserve wants to increase its target for the federal funds rate. What does the Fed have to do to make the equilibrium federal funds rate rise to match the new, higher target: does it have to conduct an open market operation in which it buys US Treasury bonds or an open market operation in which it sells US Treasury bonds?

Sells US Treasury bonds.

4. Suppose that two banks – the First National Bank and the Second National Bank – have balance sheets as shown below. For both banks, as in our in-class discussions, "other assets" simply refers to the value of bank buildings, office equipment, ATM machines, and other physical assets that the bank owns and uses in the course of its day-to-day operations.

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Second National Bank	
Assets	Liabilities
Reserves \$50 Loans \$50 Other Assets \$10	Deposits \$100 Shareholders' Equity \$10

- a. Suppose the First National Bank experiences a \$40 deposit outflow. Is the First National Bank illiquid, insolvent, or neither?

Illiquid.

- b. Suppose the Second National Bank experiences a \$40 deposit outflow. Is the Second National Bank illiquid, insolvent, or neither?

Neither.

- c. Now suppose instead that nothing happens to the First National Bank's deposits, but that some of the consumers and businesses who borrowed from the First National Bank default on their loans, so that the First National Bank's manager is forced to conclude that \$40 in loans will never be repaid. Is the First National Bank illiquid, insolvent, or neither?

Neither.

- d. Likewise, suppose that nothing happens to the Second National Bank's deposits, but that some of the consumers and businesses who borrowed from the Second National Bank default on their loans, so that the Second National Bank's manager is forced to conclude that \$40 in loans will never be repaid. Is the Second National Bank illiquid, insolvent, or neither?

Insolvent.

5. Consider a supply and demand diagram for money like the one we studied in class, with the quantity of money on the horizontal (x) axis and the "goods price of money" on the vertical (y) axis.
- a. Suppose first that real GDP rises and that, as a result, the consumers who and firms that are buying more goods and services want to hold more money at any given level of prices. In the diagram, will this shift the demand curve for money to the left or to the right?

To the right.

- b. As a result of this shift in the money demand curve, what will happen to the economywide level of prices – that is, to the “dollar price of goods” – will it rise, fall, or stay the same?

It will fall.

- c. Now, suppose instead that the demand curve for money remains unchanged, but that the Federal Reserve conducts an open market operation that works to increase the money supply. In the diagram, will this shift the supply curve for money to the left or to the right?

To the right.

- d. As a result of this shift in the money supply curve, what will happen to the economywide level of prices – that is, to the “dollar price of goods” – will it rise, fall, or stay the same?

It will rise.

- 6. Please indicate whether each of the events listed below explains: why the aggregate demand curve slopes down, why the aggregate demand curve might shift, why the short-run aggregate supply curve slopes up, or why the short-run aggregate supply curve might shift. (*Note*: in each case, only one of these four possibilities will be true).
 - a. Workers, expecting higher inflation in the future, succeed in negotiating for higher wages today.

Why the short-run aggregate supply curve might shift.

- b. The economywide level of prices falls, so that the real value of monetary wealth rises; hence, consumers are willing to buy more goods and services.

Why the aggregate demand curve slopes down.

- c. Business confidence improves, leading firms to invest more.

Why the aggregate demand curve might shift.

- d. Consumer confidence improves, leading consumers to spend more.

Why the aggregate demand curve might shift.

- 7. Suppose that the Federal Reserve acts to increase the money supply.
 - a. In the aggregate demand/aggregate supply diagram, will this monetary policy action work initially to shift the aggregate demand curve, the short-run aggregate supply curve, or the

long-run aggregate supply curve? (*Note: focusing for now on just the short-run effects of the change in policy, only one of these curves will shift.*)

It will shift the aggregate demand curve.

- b. In which direction will the curve you mentioned above shift: to the left or to the right?

It will shift the curve to the right.

- c. When the curve you mentioned above shifts, what will the short-run effect on the economywide level of prices be: will it rise, fall, or stay the same?

Economywide prices will rise.

- d. When the curve you mentioned above shifts, what will the short-run effect on real GDP be: will it rise, fall, or stay the same?

Real GDP will rise.

- e. When the curve you mentioned above shifts, what will the short-run effect on unemployment be: will it rise, fall, or stay the same?

Unemployment will fall.

8. This last question builds directly on the previous one. Suppose that after observing the short-run effects of the increase in the money supply, the Federal Reserve decides not to reverse that policy action and, instead, leaves the money supply at its new, higher level permanently.
- a. Given that the Federal Reserve does not reverse its initial policy action, how will the economy move from the short-run equilibrium you described in question 7, above, to a new long-run equilibrium: through a shift in the aggregate demand curve, through a shift in the short-run aggregate supply curve, or through a shift in the long-run aggregate supply curve? (*Note: focusing now just on the transition from the short run to the long run, only one of these curves will shift.*)

Through a shift in the short-run aggregate supply curve.

- b. In which direction will the curve you mentioned above shift: to the left or to the right?

It will shift to the left.

- c. Compared to its level in the initial long-run equilibrium, will the economywide level of prices in the new long-run equilibrium be higher, lower, or the same?

Economywide prices will be higher.

- d. Compared to its level in the initial long-run equilibrium, will real GDP in the new long-run equilibrium be higher, lower, or the same?

Real GDP will be the same.