

Economics 132.02
Principles of Macroeconomics
Spring 2013

Professor Peter Ireland

First Midterm Exam

This exam has ten questions on four pages; before you begin, please check to make sure your copy has all ten questions and all four pages. Each of the ten 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. Please identify each term that is defined below, the possibilities being: quantity demanded, demand curve, demand schedule, law of demand, quantity supplied, supply curve, supply schedule, law of supply.
 - a. The claim that, other things being equal, the quantity demanded of a good falls when the price of that good rises.
 - b. A table showing the relationship between the price of a good and the amount of it that sellers are willing and able to sell at a variety of prices.
 - c. The amount of a good that sellers are willing and able to sell at a given price.
 - d. A graph showing the relationship between the price of a good and the amount of it that sellers are willing and able to sell at a variety of prices.
 - e. The amount of a good that buyers are willing and able to purchase at a given price.

2. Suppose that an unusually snowy winter makes people willing to buy more snow blowers at any given price.
 - a. Would this unexpectedly bad weather shift the supply curve or the demand curve for snow blowers?
 - b. In a graph with the quantity of snow blowers increasing along the x (horizontal) axis and the price of snow blowers increasing along the y (vertical) axis, would this bad weather shift the curve you mentioned above to the left or to the right?
 - c. Assuming that in this same graph, as usual, the demand curve slopes down and the supply curve slopes up, what would happen to the equilibrium price of snow blowers as a result of this unexpectedly bad weather: would it rise or fall?
 - d. What would happen to the equilibrium quantity of snow blowers supplied and demanded: would it rise or fall?

3. Please indicate whether each of the following statements is true or false (circle one on the answer sheet):
- Gross Domestic Product (GDP) accounts for spending on physical goods, like apples, oranges, and big-screen televisions, but not on services, like haircuts, music concerts, and legal advice, that are produced within an economy during a given period of time.
 - GDP is a measure of both income and expenditure economy-wide.
 - GDP includes the value of both new and used cars purchased by consumers within an economy during a given period of time.
 - If an American citizen produces goods and earns income while working abroad in Japan, the value of those goods gets counted in Japan's GDP but not in US GDP.
4. The national income accounting identity breaks GDP (Y) down into four components – consumption (C), investment (I), government purchases (G), and net exports (NX) – according to

$$Y = C + I + G + NX.$$

To which of the four components, C , I , G , or NX would each of the following belong:

- A laptop computer, manufactured in the US and purchased by the Massachusetts State Government.
 - A laptop computer, manufactured in the US and purchased by an American consumer.
 - A laptop computer, manufactured in the US and purchased by an European consumer.
 - A laptop computer, manufactured in the US and purchased by an American business.
5. Consider a simple economy in which only two goods are produced and sold: hot dogs and hamburgers. The prices and quantities produced of these two goods over a three-year period are shown in the table below.

Year	Price of Hot Dogs	Quantity of Hot Dogs	Price of Hamburgers	Quantity of Hamburgers
2010	\$1	4	\$2	3
2011	\$2	5	\$4	4
2012	\$4	5	\$5	5

- Calculate nominal GDP in 2010, 2011, and 2012.
- Next, using 2010 as your base year, calculate real GDP in 2010, 2011, and 2012.
- Finally, calculate the GDP deflator for 2010, 2011, and 2012.

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

Year	Price of Hot Dogs	Quantity of Hot Dogs	Price of Hamburgers	Quantity of Hamburgers
2010	\$1	4	\$2	3
2011	\$2	5	\$4	4
2012	\$4	5	\$5	5

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 2010 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 four hot dogs and three hamburgers.

- a. What is the cost of the basket in each year: 2010, 2011, and 2012?
 - b. Still using 2010 as the base year, what is the CPI in each year: 2010, 2011, and 2012?
 - c. What is the inflation rate in 2011 and 2012?
7. In the example from questions 5 and 6, and in the actual US economy as well, the inflation rate as measured using the CPI sometimes differs both from the inflation rate measured by the rate of change in the GDP deflator and from the rate of change in the true cost of living. This discrepancy arises because the CPI holds the basket of goods being purchased fixed, whereas in both the example and in the actual US economy, consumers often adjust the amount of each good they purchase when the prices of different goods rise at different rates.
- a. What is the name that macroeconomists give to distortions in the CPI, as an imperfect measure of the true cost of living, that arises because consumers adjust their purchases in this way?
 - b. In general, does this distortion cause increases in the CPI to overstate or understate increases in the true cost of living?
8. In 1993, the Consumer Price Index in the United States was about 144; in 2012, the CPI was 230. Use the fact that $230/144 = 1.6$ (this is a close approximation that doesn't hold exactly, but please use the rounded off quotient of 1.6 to help simplify the calculations) to answer the following questions.
- a. Consider first a worker who earned a salary of \$100,000 in 1993. What is the value, in 2012 dollars, of that salary of \$100,000 earned in 1993?
 - b. Consider next a worker who earned a salary of \$200,000 in 2012. Who earned more, after adjusting for inflation: the worker who earned \$100,000 in 1993 or the worker who earned \$200,000 in 2012?

9. 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.
- 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?
 - 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?
 - When macroeconomists observe that how many fish Crusoe can catch depends partly on how plentiful fish are in the waters around his island, what determinant of productivity in the US economy do they have in mind?
 - When macroeconomists observe that how many fish Crusoe can catch depends partly on how much training in fishing he has, what determinant of productivity in the US economy do they have in mind?
10. Please indicate whether each of the following statements is true or false (circle one on the answer sheet):
- When macroeconomists speak of the “catch-up effect,” they are referring to the idea that if all economy-wide inputs to production are doubled, while holding the stock of technological knowledge fixed, then real GDP should double as well.
 - Foreign direct investment occurs in a country when foreigners lend money to businesses in that country, which the businesses then use to acquire physical capital.
 - Human capital accumulation requires workers in an economy to accept what economists call an “intertemporal trade-off,” in that they must be willing to accept lower wages or perhaps even no wages at all while they are enrolled in school or training programs in exchange for the expectation of higher wages later, after they acquire new knowledge and skills.
 - Government policies that support or encourage research and development can help increase an economy’s productivity by increasing the stock of technological knowledge.