Economics 11  Caltech Spring 2010

Problem Set 1

Homework Policy Goods for all

Study You can study the homework on your own or with a group of fellow students. You should feel free to consult notes, text books and so forth.

The quiz will be available Wednesday at 5pm. Following the Honor code, you should find 20 minutes and do the quiz, by yourself and without using any notes. Paper and pen should be all you need. Then turn it in by Thursday 5pm. (drop off in box in front of Baxter 133). It will include one question from each section

The answers to the whole homework will be available Friday at 2pm.

Definitions
Please explain each term in three lines or less!

- Opportunity cost
- Ceteris paribus
- Homo economicus
- Demand
- Supply
- Equilibrium
- Demand elasticity
- Supply elasticity

Word problems
Please explain each question in a few sentences. Answers may vary.

- Opportunity cost
  - What is the U.S. government’s opportunity cost of providing universal health care?
  - What is your opportunity cost of attending Ec 11 lectures?
  - What is the opportunity cost of getting a puppy?
- Complements & substitutes
  - What happens to the demand for 1% milk when the price of 2% milk increases?
  - What happens to the demand for hides when the price of beef decreases because consumers become more worried about cholesterol?
- What happens to the demand for hides when the price of beef decreases because a drought forces supplier to bring more animals to market?
- What happens to the supply of civilian aircraft in the U.S. when the U.S. declares war?
- Suppose corn and wheat can grow on the same type of land. What happens to the supply of wheat when the price of corn increases?
- **Supply & demand**
  - Why does marginal cost of the producer equal price?
  - Why does marginal value of consumer equal price?
- **Elasticity**
  - Explain why gas is inelastic on the short term and elastic on the long term.
  - Describe and explain the long term and short term elasticity of luxury goods (e.g. designer purses, clothing, cars)

**Technical problems**
- For the following questions, use a diagram with supply and demand curves to explain the effects of the given shock on the equilibrium price and quantity (i.e. draw any shifts of the demand or supply curve and equilibrium). Explain whether there is a shift in the demand curve, supply curve or neither.\(^1\)
  - What happens to demand curve of VHS when DVDs are introduced?
  - The Los Angeles Metro decides to increase the price of a metro pass from $1.25 to $2.00, and also increase the price of monthly metro passes. Show the effect on demand, supply and on the equilibrium price and quantity in the Los Angeles area for used cars. Are monthly metro passes and cars substitutes or complements?
  - The American South was the biggest producer of cotton. The civil war significantly reduced the quantity of cotton produced by the United States. Show the immediate effect on the world cotton market.
  - Suppose the popularity of a new fad diet causes consumers’ tastes to shift away from bread. Show the effect on the market for butter, which is used mainly when people eat toast.
- Suppose the burger industry has two firms A and B. The supply curves for firms A and B are both \( p(q) = q \). What is total supply curve for burgers?
- Suppose the supply curve for burgers is \( p(q) = 2q^2 \) and the demand curve for burgers is \( p(q) = 10 - q \). What is the equilibrium price and quantity of burgers? Draw the demand, supply curves and the equilibrium. Shade and label the consumer and producer surplus. Compute the supply elasticity and demand elasticity at \( q = 3 \).

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\(^1\) Cite as: William Wheaton, Chia-Hui Chen, Rongzhu Ke, Monica Martinez-Bravo, Marco Migueis, Peter Schnabi, and Hongliang Zhang, course materials for 14.01 Principles of Microeconomics, Fall 2007. MIT OpenCourseWare (http://ocw.mit.edu/), Massachusetts Institute of Technology. Downloaded on [02 04 2010].