ECON 0100 Introduction to Microeconomics
University of Pennsylvania
Anne Duchene

Fall 2023
Recitation 5

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Week 5 (9/25-10/1): Seller Choice (cont'd)

Recap of this week's most important concepts:

- Efficiency:
  - Definition of Pareto Efficiency
  - Efficient quantity such that $MB = MC$. Consequence: total surplus is maximized
  - If quantity is such that $MB \neq MC$: inefficiency (*consequence*: deadweight loss).
  - Identify deadweight loss on a graph and compute the area.
- Perfect Competition:
  - Firm is price taker, so it faces perfectly elastic firm demand: $MR = P$ (where P is the market price, taken as given by the firm)
  - Identify shut-down price ($\min AVC$) and break-even price ($\min ATC$)
  - Firm's short-run supply is MC above shut-down price
  - From firm's supply to market supply
  - Shifts of supply curve
  - Price elasticity of supply (formula, factors, shape of inelastic / elastic / unit-elastic supply curves)
  - Market Equilibrium:
    - Solve for equilibrium price and quantity (equation and on graph).
    - Identify new equilibrium (mathematically and graphically) if demand / supply changes
    - Excess demand or excess supply
  - Efficiency
  - Changes in market supply and market demand
  - From short-run (with positive or negative profits) to long-run equilibrium (with zero profits): in the long-run equilibrium price and individual quantity are at $\min ATC$; determine number of firms in the long-run equilibrium;
  - Changes in equilibrium: how change in demand or change in costs affect new short-run equilibrium and new long-run equilibrium

- Group blue: question 8 Midterm Fall 2021

  Jenna and Kate are contemplating starting a business together under three different business models: B1, B2, and B3. Jenna and Kate have different types of skills which are utilized to varying proportions under the three models. Each person will be compensated according to their contribution. The table below shows Janna's and Kate's compensations with each business model.

	Jenna	Kate
B1	4,000	2,900
B2	4,200	2,700
B3	3,000	3,000

  Which business model is not Pareto efficient?

  a. B1 is not Pareto efficient

  b. B2 is not Pareto efficient

  c. B3 is not Pareto efficient

  d. All business models are Pareto efficient

- Group yellow: Question 5 Midterm 2 Fall 2010

  Assume Corn & Company produces corn, and the market for corn is perfectly competitive. The price of corn is \$8. $TC = 2 + 2q^2$ and $MC = 4q$. Which of the following is true?

  a. They will produce two units of corn

  b. There will be entry into this industry in the long-run

  c. \$8 is greater than the minimum of the ATC curve

  d. All of the above are true

- Group purple: Question 5 Midterm 1 Fall 2017

  Ice cream and yoghurt are substitutes in consumption, and both are normal goods. Both ice cream and yoghurt are produced with cow milk. Which of the following will certainly NOT lead to an increase in the equilibrium quantity of ice cream?

  a. Increase in consumer income

  b. A baby boom in the cow population

  c. A technological improvement in the production of yoghurt

  d. Successful advertising campaign on the health benefits of ice cream cones

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(If times allows)

1. Jim is a florist who competes in a perfectly competitive flower market. The price of fertilizer, which represents a variable cost, increases. Which of the following is a result of this change?

   a. Jim's shut down price decreases
   b. Jim's short run supply increases
   c. Jim's total costs decrease
   d. None of the above

2. Suppose the market for apples is in a long run equilibrium. A new study shows that plums, a substitute for apples, can prevent cancer. How does the new long-run equilibrium compare with the initial one?

   I. The price is lower
   II. There are fewer firms in operation

   a. I. only
   b. II. only
   c. I. and II.
   d. Neither I. nor II.

The next questions are for your own practice.

3. The market for heaters is perfectly competitive, and the industry is currently in a long run equilibrium. Suppose the government imposes a new annual licensing fee on all firms in the industry. Let N be the number of firms, Q be the quantity supplied at the market level, and P the market price. In the new long run equilibrium:

   I. N is higher
   II. Q is higher
   III. P is higher

   a. I only
   b. III only
   c. I and II only

d. I and III only

e. II and III only

f. I, II and III

g. neither I, II nor III

4. Consider a perfectly competitive market. Currently the market is in the long-run equilibrium. All firms are identical. Which of the following is true?

I. Each firm is producing at a quantity q^* such that marginal cost equals average total cost.

II. Each firm is producing at a quantity q^* such that the lowest possible average total cost is achieved.

III. It is impossible that some firms now are earning strictly positive profits.

IV. It is impossible that some firms now are earning strictly positive producer surplus.

a. I and II

b. I, II and III

c. I, II, III and IV

d. II and III

5. Acme Inc. is a firm with normal shaped cost curves. They hire a consultant who tells them they should decrease production yet stay in business despite making a loss. Which of the following must be true about their original point of production?

I. $P > MC$

II. $MR < MC$

III. $P > \min AVC$

IV. $P > ATC$

a. I only

b. II only

c. III only

d. I and II

e. II and III

f. I, II, and III

g. They all must be true

6. Eric and Lisa live side by side and share a driveway. They are considering paving their shared driveway at a cost of $5,000. The benefit to Eric from paving is equal to $2,500 and the benefit to Lisa is $4,000. If each pays half of the cost of paving the driveway then the outcome will be:

   a. inefficient.

   b. efficient for Lisa but inefficient for Eric.

   c. efficient for Eric but inefficient for Lisa.

   d. efficient.

7. Suppose that the market for milk is perfectly competitive. Suppose that each producer's total cost is given by $TC(q) = 4+q+q^2$ and each producer's output(q^*) in the long-run equilibrium is 2. Find the long-run equilibrium price P^*.

   a. 1

   b. 2

   c. 3

   d. 4

   e. 5

8. A local market for bananas has demand $Q_D = 10 - P$ and supply $Q_S = P$. An unexpected fire reduces the quantity supplied at every price by 2 units. Which of the following is the producer surplus after the fire?

   a. 12.5

   b. 8

   c. 16

   d. 10

9. A perfectly competitive firm faces the following costs: $FC = 108$, $AVC = 40 + 3q$ and $MC = 40 + 6q$. What is the equilibrium quantity in the long run?

   a. 5

   b. 6

   c. 10

   d. 0