

Lecture 10: Competition, Producer Surplus and Economic Efficiency

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Clicker Question

A consumer's WTP *curve* is the same *curve* as ...

Price Setters and Price Takers

- A seller is called a **price taker** if she accepts a price set by others (usually the market price).
- A seller is called a **price setter** if she sets her own price, choosing from a range of reasonable prices.

- In a perfectly competitive equilibrium, every firm is a price-taker.
 - Even though a firm can set any price it wants to,
 - each firm will voluntarily charge the market price,...
 - and no firm will decide to set a different price. **Why not?**

- Why doesn't a competitive firm set its price **higher** than the market price?
 - Buyers know that other firms are offering the same product at the market price,...
 - so if one firm asks buyers to pay a higher price, they will buy elsewhere.

- Why doesn't a competitive firm set its price **lower** than the market price?
 - A firm can sell as much as it wants to at the market equilibrium price,...
 - (there's no excess supply),...
 - so why should it sell for less?

Competition and Supply Curves

- Supply curves answer the question, “How much would you want to sell at each of the possible prices.”
- Individual supply curves exist only for firms that are price takers,...
- ...including all firms in perfectly competitive markets.
- After we explain producer surplus, we will see where supply curves come from.

Production Cost and Producer Surplus

- Isabel makes t-shirts.
- Suppose that Isabel can produce a t-shirt at a cost of **\$10** (the total opportunity cost, including the cost of her time).
- Then she finds out that the same kind of t-shirt can be sold at a price of **\$22**.
- She says “Great! It costs me only **\$10**, but I can sell it for **\$22**, so I will produce it.”

- An economist would say:
 - The market price is \$22,
 - the opportunity cost of producing the shirt is \$10,
 - so Isabel will receive a **producer surplus** of $\$22 - \$10 = \$12$ for the shirt.
 - The producer surplus from a unit of production is the profit *originating from that unit*.
- A positive producer surplus,...
- ...creates an incentive to produce and sell the product.

How Many Units Should a Competitive Firm Produce?

- To make a rational decision about how much to produce (and supply),...
- ...the owner or manager of a competitive firm must “think at the margin.”
- The competitive firm is a price-taker, so the **price** received for every unit will be the same.
- But even when units are identical, the **opportunity cost** of producing each unit might be different.

Marginal Cost

- Suppose a firm is producing many units.
- The **marginal cost (MC)** of unit Q is the *opportunity cost* of unit Q , with the production of the preceding $Q-1$ units taken into account.
 - We can think of **MC** as the additional cost required to produce Q units instead of $Q-1$ units.
 - So as Q changes, **MC** may change as well, even when all units are identical to one another.

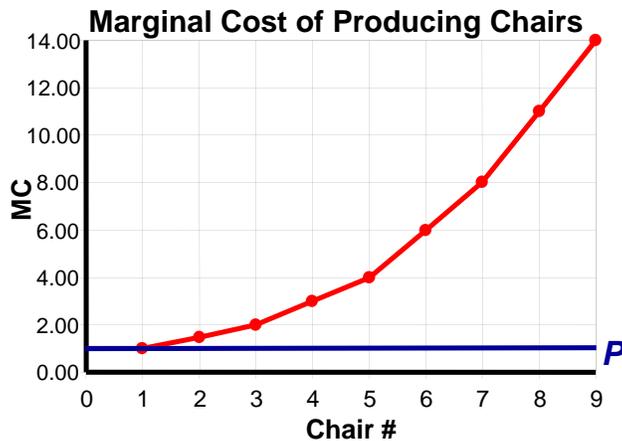
- As more units are produced, the **MC**
 - will sometimes fall at first,...
 - ...but **eventually** will start to increase,...
 - ...because when a large enough quantity is being produced,...
 - ...it becomes more difficult and costly to increase production further.
 - **Example: Farmer Jones** has to kiss his cows to get more out of them.
 - **Example: Factories** have to pay workers higher wages (overtime) for hours worked above the standard 40-hour week.

Marginal Cost and Producer Surplus

- The producer surplus that would be earned by producing **Unit Q** is given by **$P - MC$** .
 - This is the profit earned by producing **Unit Q**.
- A profitable firm has an incentive to produce all units that create a positive producer surplus,...
- ...but the firm will not produce past the level where all additional units bring negative surplus.

- In the case of increasing marginal costs (**MC**), a firm will have the incentive to produce **Unit Q** if **$MC < P$** , in order to get surplus **$P - MC$** .
- The firm would continue to increase output as long as **$MC < P$** ,
- ...until it reaches the last point at which **$MC \leq P$** .
- But the firm will **not** produce units with **$MC > P$** .

Marginal Cost and Supply!



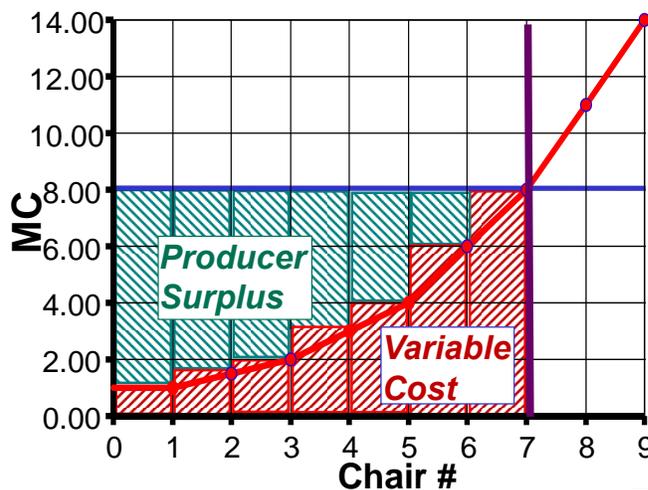
■ Suppose P is the market price of chairs.

■ How many chairs would you produce when...

- $P = \$1$?
- $P = \$4$?
- $P = \$8$?
- $P = \$11$?
- $P = \$5$???

- Notice that the MC curve provides the answers to supply-curve questions.
- In this case, the MC curve is the same curve as the $supply$ curve.
- But the axes are different. (The functions are inverses.)
- If you know one, you can derive the other.

Marginal Cost and Producer Surplus

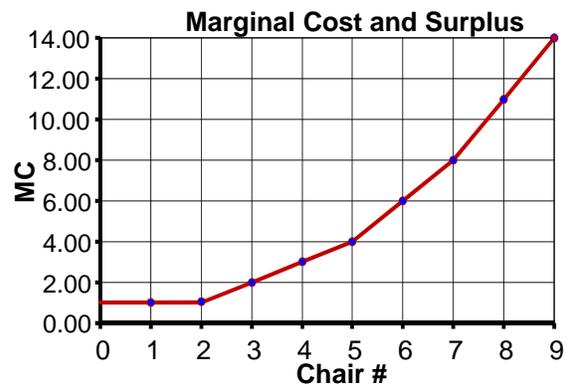


- Suppose $P = \$8$.
- How much does it cost to produce the 1st chair?
- How much surplus do you get when you sell it?
- 2nd chair?
- 3rd chair?
- 7th chair?
- You will produce 7 chairs.

- The area underneath the MC Curve is the **variable cost**.
- The area between the MC Curve and the price is **producer surplus**.
- **Producer surplus** is the sum of profits created as units are produced.
- Costs that enable production to begin ("fixed costs") are not subtracted from producer surplus.

Clicker Question

How much producer surplus will the firm obtain ...



Economic Efficiency

Economic Efficiency

- **Economic activity** has *the potential* to create value (utility, satisfaction, surplus, etc.) for the members of society.
- **Economic efficiency** measures how well economic activity *fulfills* its value-creating potential.
- We say that economic activity is **efficient** when no value-creating opportunity is wasted.
- The level of efficiency does **NOT** depend on how the created value is distributed.

Concepts of Efficiency

- Economists apply two different concepts of economic efficiency:
 - **Pareto efficiency**
 - **social surplus.**
- The two concepts are related, but they are not equivalent.
- We will explain both, but we will emphasize social surplus.

A double blind-date story...

- On a hot Friday night...
 - **Pete** has a blind date with **Paula**.
 - And his friend **David** has a blind date with **Deirdre**.

- Economists call this outcome a **Pareto improvement**.

Pareto Efficiency

- A changed situation is a ***Pareto improvement*** if some people are better off after the change, but no one is worse off.
- In our blind date example,
 - some of the people were better off (in this case everyone 😊),...
 - and no one was worse off.
 - So the change was a Pareto improvement.

- A situation is called ***Pareto efficient*** when no Pareto improvements are possible.
 - This might happen because all possible Pareto improvements have already occurred,...
 - or because there never were any possible Pareto improvements.
- Pareto improvements are socially desirable,...
- because, by definition, some people are better off and no one is worse off.

- But a Pareto-efficient situation may not be socially desirable.

Clicker Question

Suppose I like apples and you like oranges.
Which of the following situations is NOT
Pareto efficient?

Economic Surplus

- Economic **surplus** measures the benefits of economic activity in monetary units.
- **Consumer surplus** is the benefit obtained by consumers.
- **Producer surplus** is the benefit obtained by producers.
- **Social Surplus =
Consumer Surplus + Producer Surplus**
- The amount of surplus created is a measure of economic efficiency...
- ...that is easier to apply than **Pareto efficiency**.

Total Surplus in the Market

- A buyer's consumer surplus is the area between the price and the demand curve.
- A seller's producer surplus is the area between the supply curve and the price.
- The same rules apply to the market as a whole:
 - Consumer surplus for the entire market is the area between the price and the market demand curve.
 - Producer surplus for the entire market is the area between the price and the market supply curve.
 - This is because each unit on the horizontal axis is being bought by a buyer and sold by a seller.

Social Surplus at the Competitive Equilibrium

■ The market:

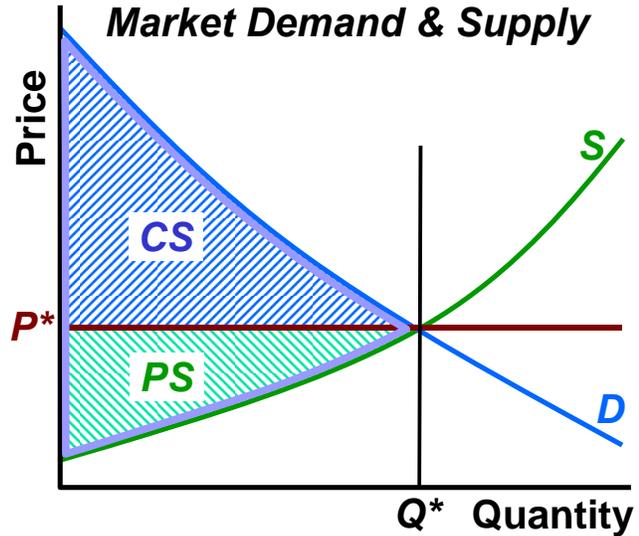
- demand
- supply
- equilibrium price
- equilibrium quantity

■ Consumer surplus (CS)

■ Producer surplus (PS)

■ Social surplus (SS)

$$SS = CS + PS$$



Surplus and Competition

■ Surplus is maximized in competitive equilibrium.

■ All units that generate positive CS and PS (to the left of Q^*) are produced and sold.

■ So there are no unexploited gains of trade.

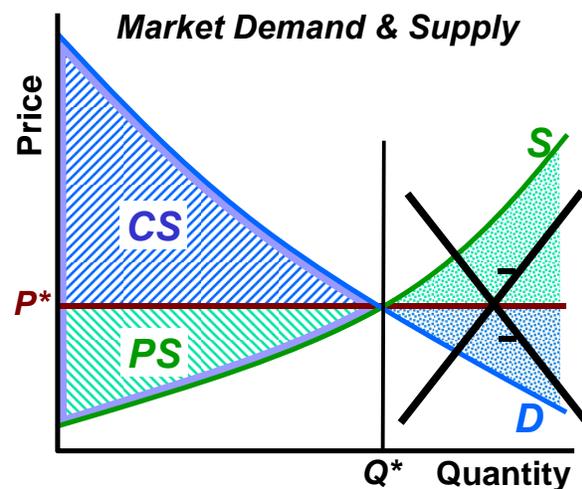
■ Additional units that would create

- negative CS ...
- and negative PS

are not produced or sold.

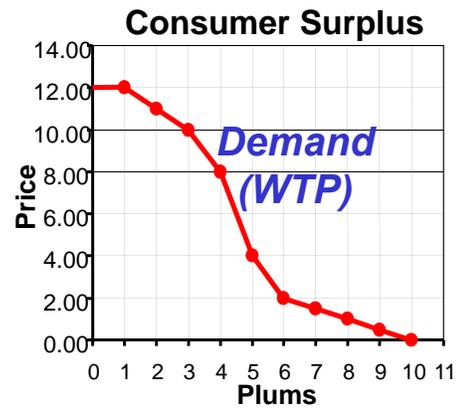
■ Policies that interfere with competitive equilibrium, tend to reduce surplus.

■ But is that always bad? *To be discussed in Lecture 13.*



Clicker Question

If the price in this market were _____, the consumer surplus would be approximately _____.



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