ECO101: Introduction to Microeconomics

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LECTURE 08

TOPIC: WELFARE AND EFFICIENCY

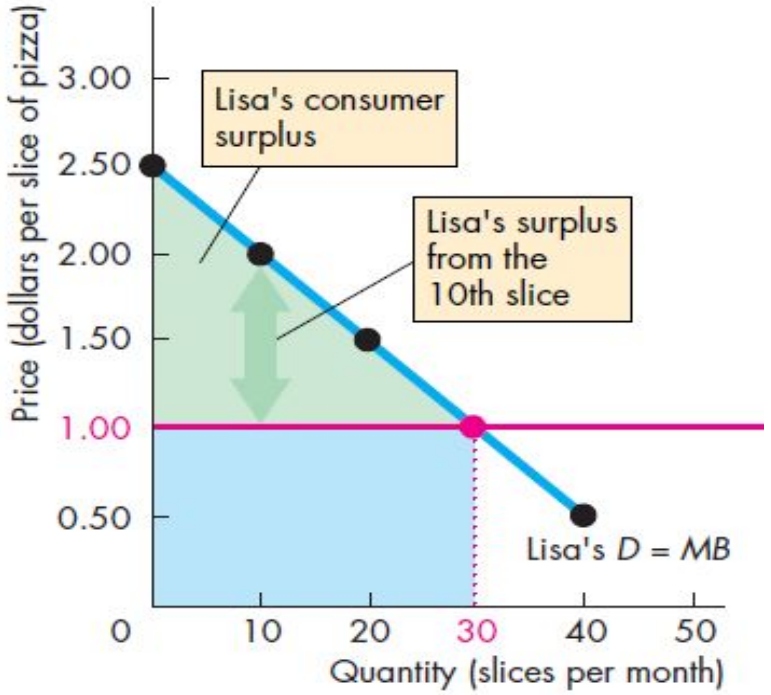
CONSUMER SURPLUS AND PRODUCER SURPLUS

Demand, Willingness to Pay, and Value

- We measure marginal benefit by the maximum price that is willingly paid for another unit of the good or service.
- Willingness to pay determines demand. *A demand curve is a marginal benefit curve*.
- The relationship between the price of a good and the quantity demanded by one person is called *individual demand*.
- The relationship between the price of a good and the quantity demanded by all buyers is called *market demand*.
- We call the marginal benefit to the entire society *marginal social benefit*. So the market demand curve is also the *marginal social benefit* (*MSB*) *curve*.

Consumer Surplus

- When people buy something for less than it is worth to them, they receive a consumer surplus.
- **Consumer surplus** is the excess of the benefit received from a good over the amount paid for it.
- We can calculate consumer surplus as the marginal benefit (or value) of a good minus its price, summed over the quantity bought.
- Lisa's consumer surplus is the sum of the surpluses on *all of the slices she buys*. This sum is the area of the green triangle—the area below the demand curve and above the market price line.
- All goods and services have decreasing marginal benefit, so people receive more benefit from their consumption than the amount they pay.



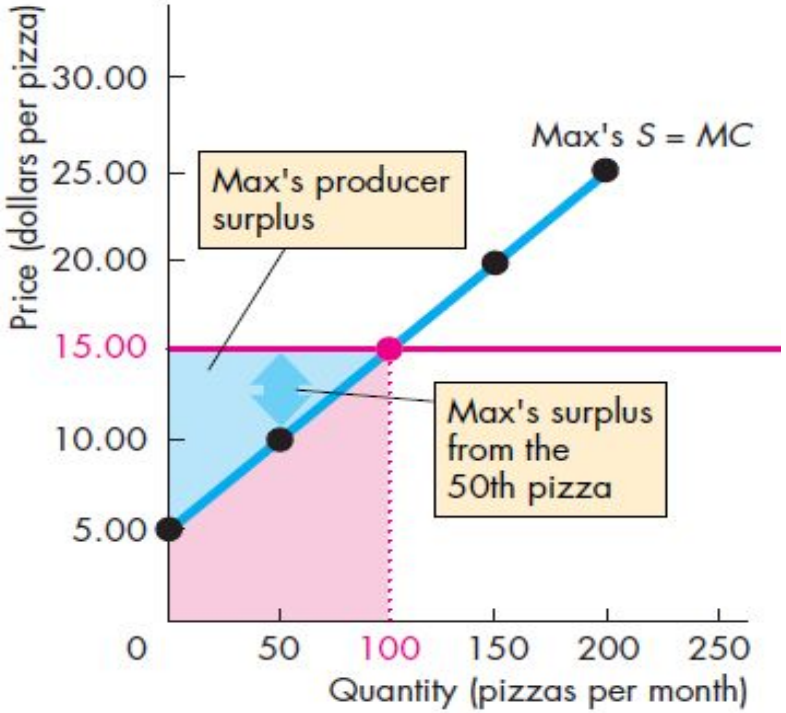
(a) Lisa's consumer surplus

Supply, Cost, and Minimum Supply-Price

- Firms make a profit when they receive more from the sale of a good or service than the cost of producing it.
- Cost is what a firm gives up when it produces a good or service and price is what a firm receives when it sells the good or service.
- The cost of producing one more unit of a good or service is its marginal cost.
- Marginal cost is the minimum price that producers must receive to induce them to offer one more unit of a good or service for sale. The minimum supply-price determines supply.
- *A supply curve is a marginal cost curve.*
- We call the society's marginal cost *marginal social cost*. So the market supply curve is also the *marginal social cost (MSC) curve*

Producer Surplus

- When price exceeds marginal cost, the firm receives a producer surplus.
- **Producer surplus** is the excess of the amount received from the sale of a good or service over the cost of producing it.
- It is calculated as the price received minus the marginal cost (or minimum supply-price), summed over the quantity sold.
- Max's producer surplus is the sum of the surpluses on the pizzas he sells. This sum is the area of the blue triangle—the area below the market price and above the supply curve.



(a) Max's producer surplus

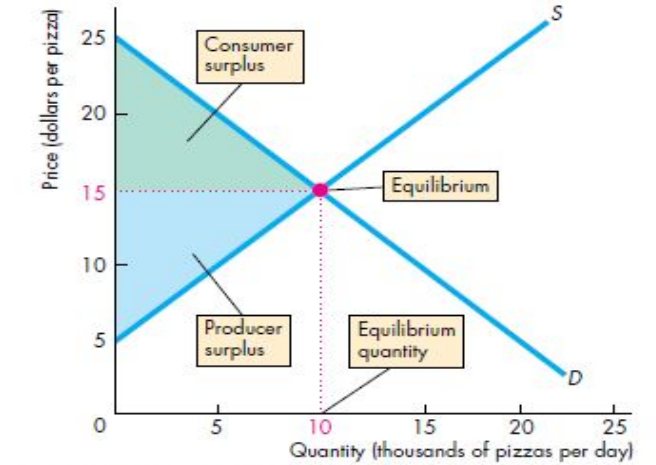
Efficiency of Competitive Equilibrium

- The market demand curve for a good or service tells us the marginal social benefit from it. The market supply curve of a good or service tells us the marginal social cost of producing it.
- Equilibrium in a competitive market occurs when the quantity demanded equals the quantity supplied at the intersection of the demand curve and the supply curve.
- At this intersection point, marginal social benefit on the demand curve equals marginal social cost on the supply curve.
- This equality is the condition for allocative efficiency. So in equilibrium, a competitive market achieves allocative efficiency.

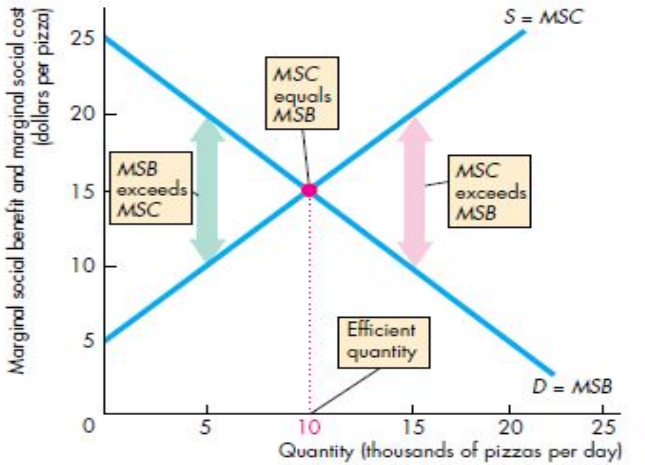
- If production is less than 10,000 pizzas a day, the marginal pizza is valued more highly than it costs to produce. If production exceeds 10,000 pizzas a day, the marginal pizza costs more to produce than the value that consumers place on it.
- Only when 10,000 pizzas a day are produced is the marginal pizza worth exactly what it costs.

- Figure 5.5(a) also shows the consumer surplus and producer surplus. The sum of consumer surplus and producer surplus is called **total surplus**.
- When the efficient quantity is produced, total surplus is maximized. Buyers and sellers acting in their self-interest end up promoting the social interest.

FIGURE 5.5 An Efficient Market for Pizza



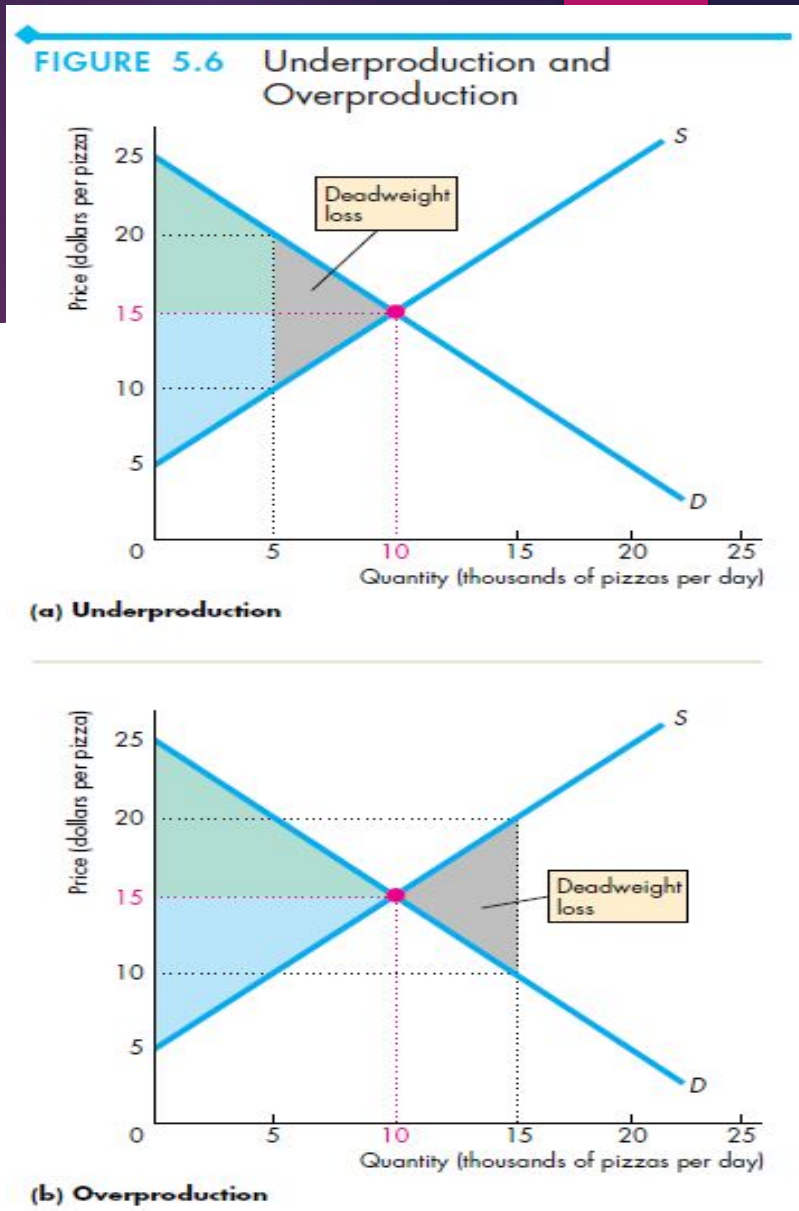
(a) Equilibrium and surpluses



(b) Efficiency

Market Failure

- We call a situation in which a market delivers an inefficient outcome one of **market failure**.
- Market failure can occur because too little of an item is produced (underproduction) or too much is produced (overproduction).
- We measure the scale of inefficiency by **deadweight loss**, which is the decrease in total surplus that results from an inefficient level of production.
- The gray triangle in Fig. 5.6 shows the deadweight loss.
- Inefficient production creates a deadweight loss that is borne by the entire society: It is a social loss.



Sources of Market Failure (Self-study)

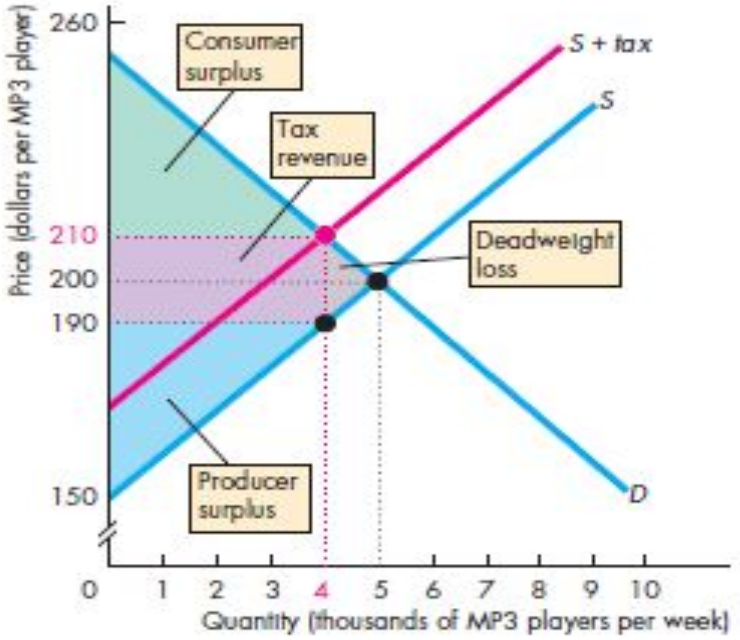
- Obstacles to efficiency that bring market failure and create deadweight losses are
  - Price and quantity regulations
  - Taxes and subsidies
  - Externalities
  - Public goods and common resources
  - Monopoly
  - High transactions costs

Read this in detail from the book and ask me if you have any questions. DO NOT SKIP.

Tax and Efficiency

- A tax drives a wedge between the buying price and the selling price and results in inefficient underproduction.
- A tax makes marginal social benefit exceed marginal social cost, shrinks the producer surplus and consumer surplus, and creates a deadweight loss.
- With a tax, the sellers' minimum supply-price rises by the amount of the tax and the supply curve shifts to *S* + *tax*.
- This supply curve does *not* show marginal social cost. The tax component isn't a *social* cost of production. It is a transfer of resources to the government.
- Part of each surplus goes to the government in tax revenue—the purple area; part becomes a deadweight loss—the gray area.

FIGURE 6.10 Taxes and Efficiency

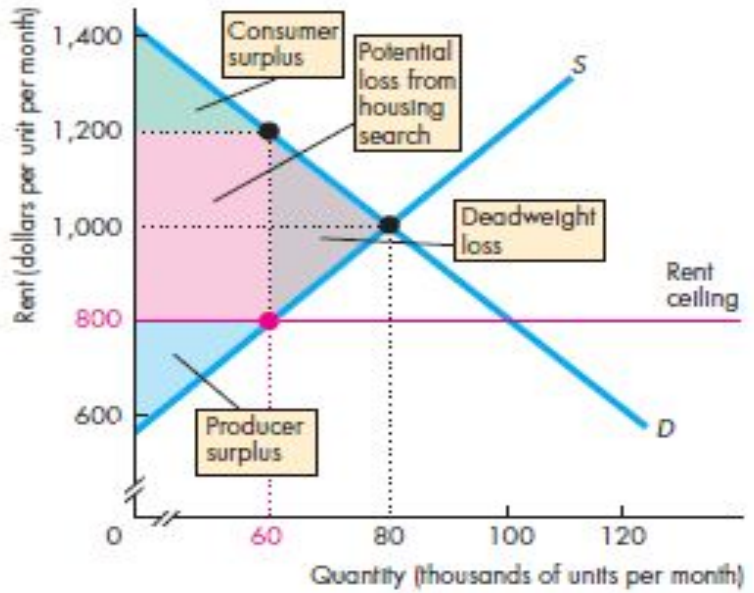


With no tax, 5,000 players a week are produced. With a $20 tax, the buyers' price rises to $210, the sellers' price falls to $190, and the quantity decreases to 4,000 players a week. Consumer surplus shrinks to the green area, and the producer surplus shrinks to the blue area. Part of the loss of consumer surplus and producer surplus goes to the government as tax revenue (the purple area) and part becomes a deadweight loss (the gray area).

Inefficiency of Rent Ceiling

- A rent ceiling set below the equilibrium rent results in an inefficient underproduction of housing services.
- The *marginal social benefit* of housing exceeds its *marginal social cost* and a deadweight loss shrinks the producer surplus and consumer surplus.
- Because the quantity of housing supplied (the quantity available) is less than the efficient quantity, there is a deadweight loss, shown by the gray triangle.
- Producer surplus shrinks to the blue triangle and consumer surplus shrinks to the green triangle. The red rectangle represents the potential loss from increased search activity. This loss is borne by consumers and the full loss from the rent ceiling is the sum of the deadweight loss and the increased cost of search.

FIGURE 6.2 The Inefficiency of a Rent Ceiling

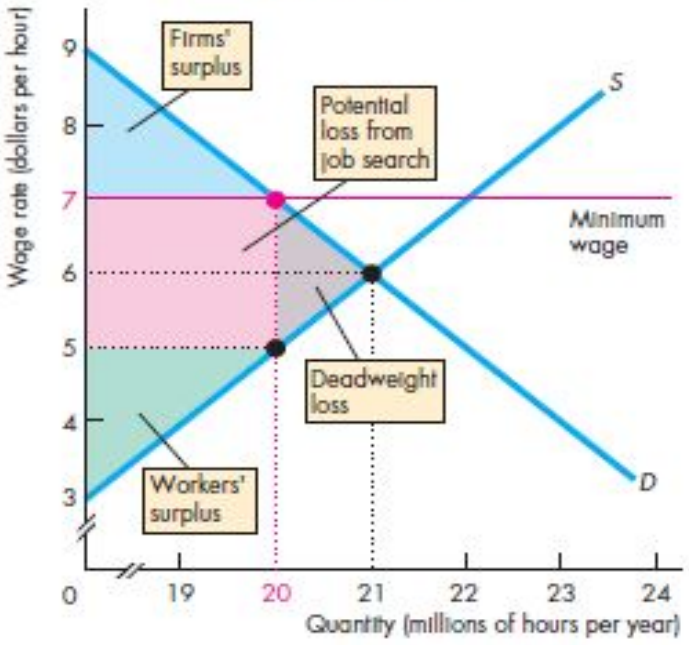


Without a rent ceiling, the market produces an efficient 80,000 units of housing at a rent of $1,000 a month. A rent ceiling of $800 a month decreases the quantity of housing supplied to 60,000 units. Producer surplus and consumer surplus shrink and a deadweight loss arises. The red rectangle represents the cost of resources used in increased search activity. The full loss from the rent ceiling equals the sum of the red rectangle and gray triangle.

A Labour Market with Minimum Wage

- A government imposed regulation that makes it illegal to charge a price lower than a specified level is called a **price floor**.
- When a price floor is applied to a labor market, it is called a **minimum wage**. A minimum wage imposed at a level that is above the equilibrium wage creates **unemployment.**
- Because the quantity of labor employed is less than the efficient quantity, there is a deadweight loss, shown by the gray triangle. The firms' surplus shrinks to the blue triangle and the workers' surplus shrinks to the green triangle. The red rectangle shows the potential loss from increased job search, which is borne by workers. The full loss from the minimum wage is the sum of the deadweight loss and the increased cost of job search.

FIGURE 6.4 The Inefficiency of a Minimum Wage



A minimum wage decreases employment. Firms' surplus (blue area) and workers' surplus (green area) shrink and a dead-weight loss (gray area) arises. Job search increases and the red area shows the loss from this activity.