Economics 001
Principles of Microeconomics

Professor Arik Levinson

• Lecture 4
- Efficiency
- Pareto efficiency
- Consumer and producer surplus
- Deadweight loss

Definitions of Efficiency

- Engineering efficiency
  - output per unit of input
  - example: miles per gallon
- Production efficiency
  - cannot produce more of one good without
    - producing less of another good
    - using more inputs
  - points on the PPF

Definitions of Efficiency

- Economic efficiency (or Pareto efficiency)
  - cannot make any one person better off without making another person worse off
- Note that this is *not* the textbook definition.

The textbook definition

- An **efficient allocation** of resources occurs when we produce the goods and services that people value most highly.
- Resources are allocated efficiently when it is not possible to produce more of a good or service without giving up some other good or service that is valued more highly.
- Efficiency is based on value, and people's preferences determine value.

Efficiency: underlying concepts

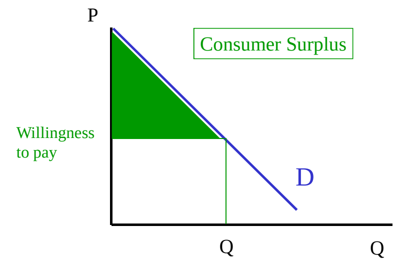
- Marginal benefit is the benefit that a person receives from consuming one more unit of a good or service
  - measured as the maximum amount that a person is willing to give up for one additional unit
- *Principle of (eventually) decreasing marginal benefit*
  - marginal benefit decreases as consumption increases

- Marginal cost is the opportunity cost of producing one more unit of a good or service.
  - measured as the value of the best alternative foregone
- *Principle of (eventually) increasing marginal cost*
  - marginal cost increases as the quantity produced increases

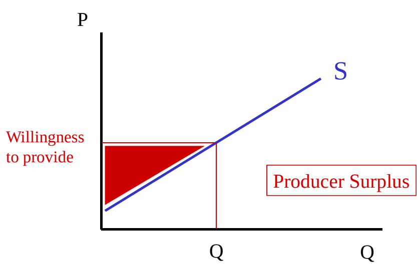
Efficiency and Inefficiency

- Efficiency depends upon a comparison of marginal cost and marginal benefit.
- Three possibilities
  - marginal benefit exceeds marginal cost
  - marginal cost exceeds marginal benefit
  - marginal benefit equals marginal cost

Another way of thinking about Demand

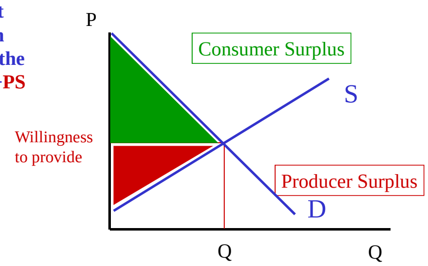


Another way of thinking about Supply



Another way of thinking about Market Equilibria

The market equilibrium maximizes the sum of CS+PS



The Efficient Quantity of Pizza

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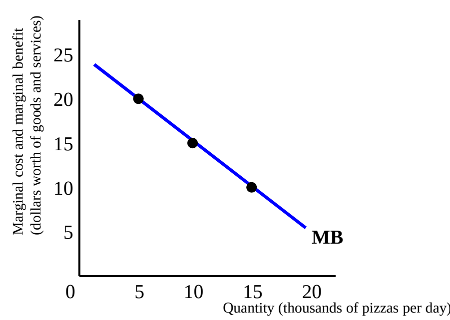
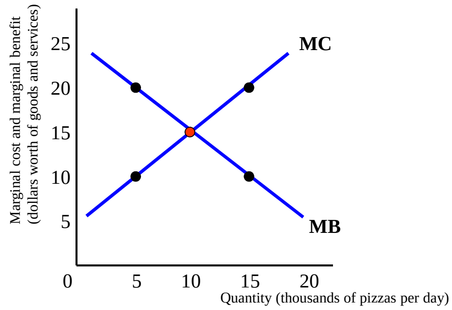
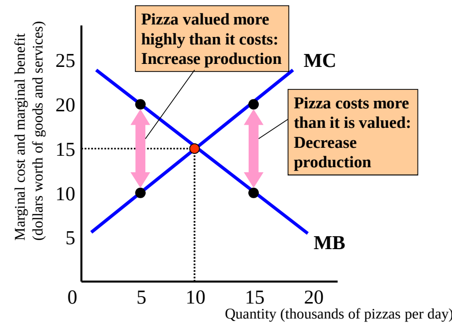


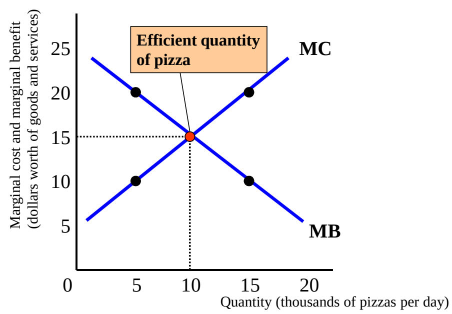
The Efficient Quantity of Pizza



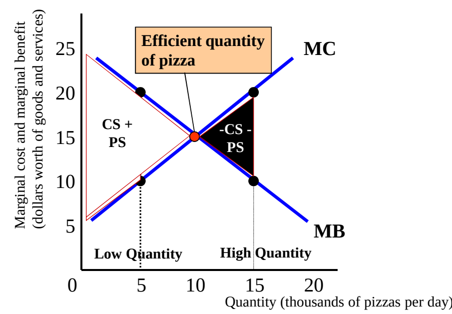
The Efficient Quantity of Pizza



The Efficient Quantity of Pizza



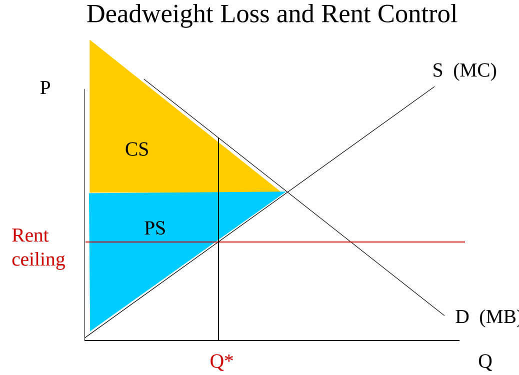
Another way of seeing the efficient quantity of pizza



At the market equilibrium

- $Q^S=Q^D$
- MC = MB
- Welfare (the sum of CS+PS) is maximized.

Deadweight Loss and Rent Control



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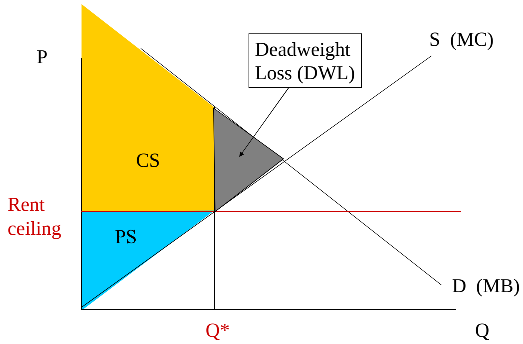

Deadweight Loss

DN: Deadweight Loss =
The decrease in consumer and producer surplus resulting from an inefficient level of production.