Basics of Economics

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1 Markets and Efficiency

How are goods allocated efficiently? How are goods allocated fairly? A **normative statement** is an expression of how things ought to be, and a **positive statement** is an expression of how things are.

1.1 Competitive Market

Trade occurs at the equilibrium price. Every buyer willing to pay that price or more gets to buy. Every seller willing to trade at that price or less gets to sell. A competitive market has no external control. Many individuals acting in their own self interest determines how resources are allocated.

1.2 Consumer Surplus

Consumer surplus is the excess of the benefit received from a good over the amount paid for it.

$$\text{consumer surplus} = \text{marginal benefit} - \text{the price paid}$$

1.2.1 Example

Suppose I am willing to pay \$5 for the first cheeseburger and \$4 for the second but I purchase 2 cheeseburgers at \$3 each. My marginal benefit for the first cheeseburger was \$5 and my marginal benefit for the second was \$4. The surplus for the first cheeseburger was \$2 and the surplus for the second cheeseburger was \$1. The consumer surplus obtained is \$3.

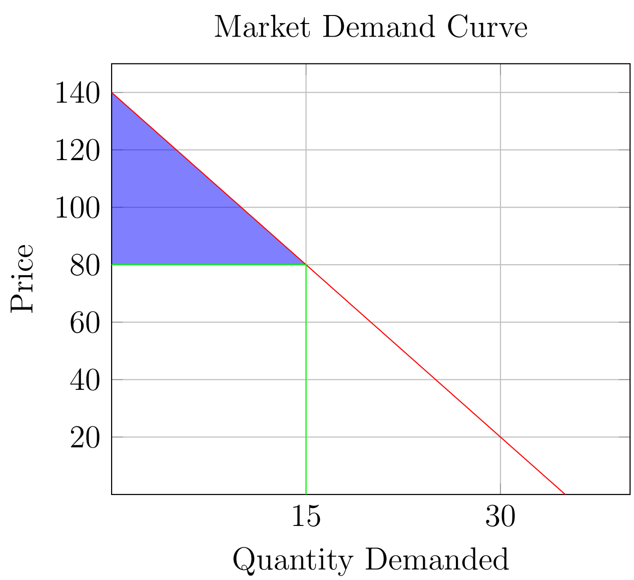
1.3 Benefit, Cost, and Surplus

The *marginal benefit* is the value to a person of one more good or service. We can measure this as the maximum price that a person is willing to pay for one more unit of a good. An individual's demand curve is their marginal benefit curve. **For any individual, the consumer surplus from consuming q units is the area below the individual's demand curve above the price, up to q**.

Individual Demand is the relationship between the price of a good and the quantity demanded by a particular individual.

Market Demand is the relationship between the price of a good and the quantity demanded by all the buyers in a market, derived by summing all the individual quantities demanded at each price.

1.3.1 Example



The consumer surplus when price is 80 is the area under the curve above 80.

$$A = \frac{1}{2}bh = \frac{1}{2} \times 15 \times 60 = 450$$

1.4 Producer Surplus

Producer surplus is the excess of the revenue received from a good over the amount paid to produce it.

$$\text{producer surplus} = \text{total revenue} - \text{total cost}$$

Given a price, a supplier will supply the quantity that makes profit (producer surplus) as large as possible. A producer maximimizes producer surplus (profit) by choosing the quantity that sets $P = MC$.

1.4.1 Market Supply

Market supply gives tne relationship between price and quantity supplied by the whole market. It is derived by summing all the *individual quantities supplied* at each price.

1.4.2 Market Producer Surplus

Market producer surplus is the sum of all the individual producer surpluses. It is calculuated as the area above the market supply function but below the market price. Given a price, a consumer will demand the quantity that makes her consumer surplus as large as possible.

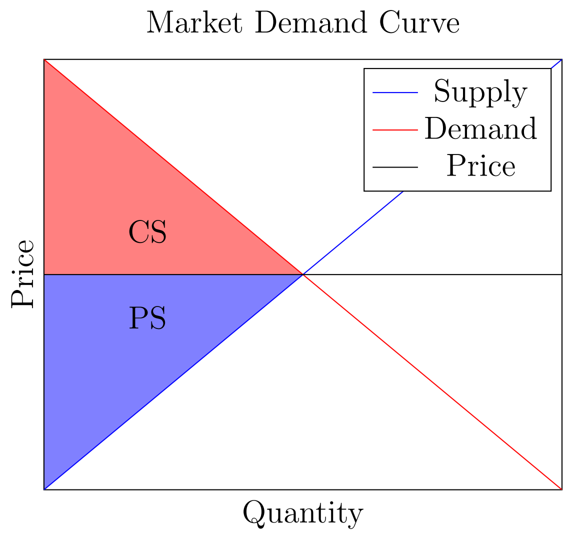
The quantity supplied is determined by each individual producer supplying the amount that maximizes her profits. The quantity demanded is determined by each individual consumer demanding the amount that maximizes his consumer surplus.

1.4.3 Total Surplus

The total surplus is the total benefit to society net of all costs.

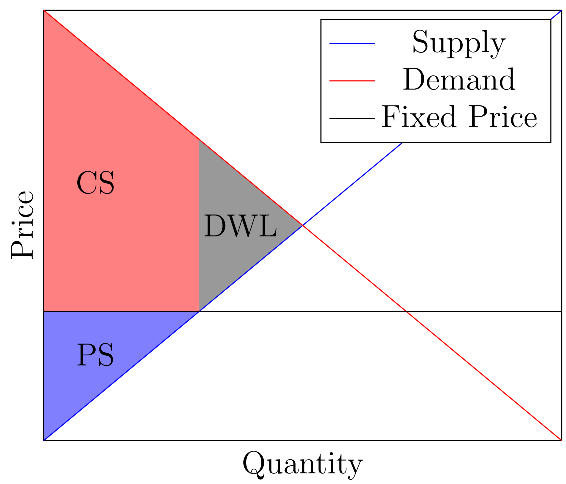
$$\text{total surplus} = \text{producer surplus } (PS) + \text{consumer surplus } (CS)$$

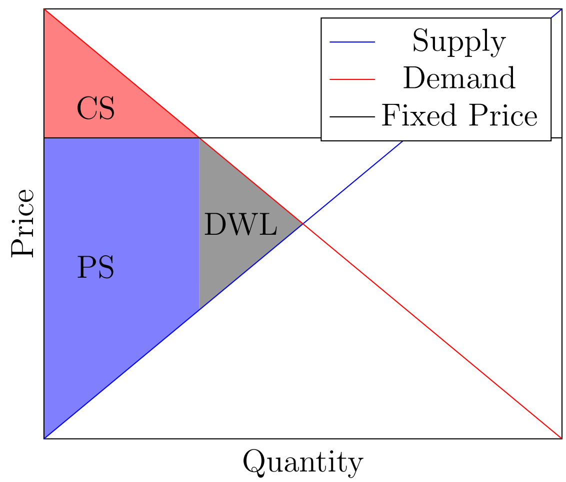
Total surplus is maximized in a competitive equilibrium.



1.5 Market Failure

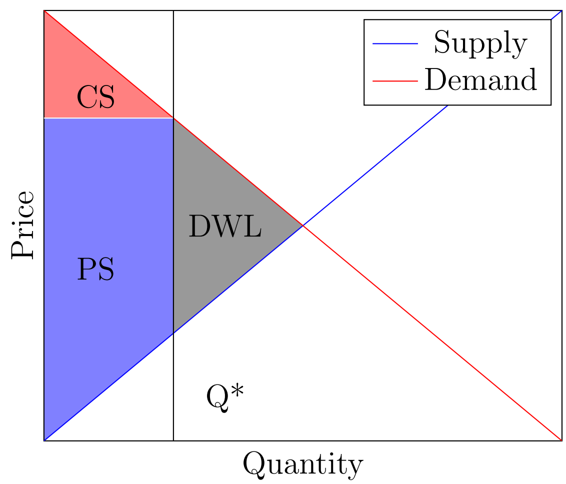
When there is a fixed price imposed on a good, there can be different effects on consumers and producers.





The triangle of surplus lost is called dead-weight loss (DWL). It represents the decrease in total surplus resulting from an inefficient level of production. This is a situation called market failure where a market fails to achieve an efficient outcome and happens because of overproduction or underproduction.

Amount of trade can also affect dead-weight loss. Let $TS*$ be the optimal total surplus at the competitive equilibrium quantity $Q*$. If the quantity traded is $\neq Q*$, then $TS < TS*$.



1.5.1 Sources of Market Failure

Price and Quantity Regulation: Price regulations such as rent control or minimum wage or quantity regulations such as quotas can cause market failure.

Taxes and Subsidies: Taxes and subsidies can incentivize or deincentivize production of a good.

Externalities: An externality is a cost or benefit to someone other than the seller or buyer. If the externality imposes a cost on an outside party, then there is overproduction relative to what is socially optimal. If the externality provides a benefit to an outside party, then there is underproduction relative to what is socially optimal.

Public Goods and Common Resources: A public good is a good with usage that cannot be regulated and that can be consumed by many persons simultaneously, such as national defense and clean air. Common resources are resources owned by no particular individual but available to everyone.

Monopoly: A monopoly is a firm that is the sole supplier of a good or service.

High Transaction Costs: Transaction costs are the costs required for the market to operate.

If any errors are found, please contact me at alvin.lin.dev@gmail.com