Introductory Microeconomics

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Supply and Demand

- Forces that make market economies function
- Determines the quantity of each good produced
- Demand and Supply in a competitive Markets: some assumptions

What determines demand?

- Price (law of demand P ↑ Q_D ↓)
  - This is a movement along the demand curve.
- Income: wages, interest, rent or wealth (accumulation of what household owns)
  - Depends on type of good
    - Normal goods: Income ↑ Q_D ↑ (shifts demand right)
    - Inferior goods: Income ↑ Q_D ↓ (shifts demand left)
- Tastes, preferences
  - Examples: fad diets, trends,
- Expectations
  - Examples: future prices

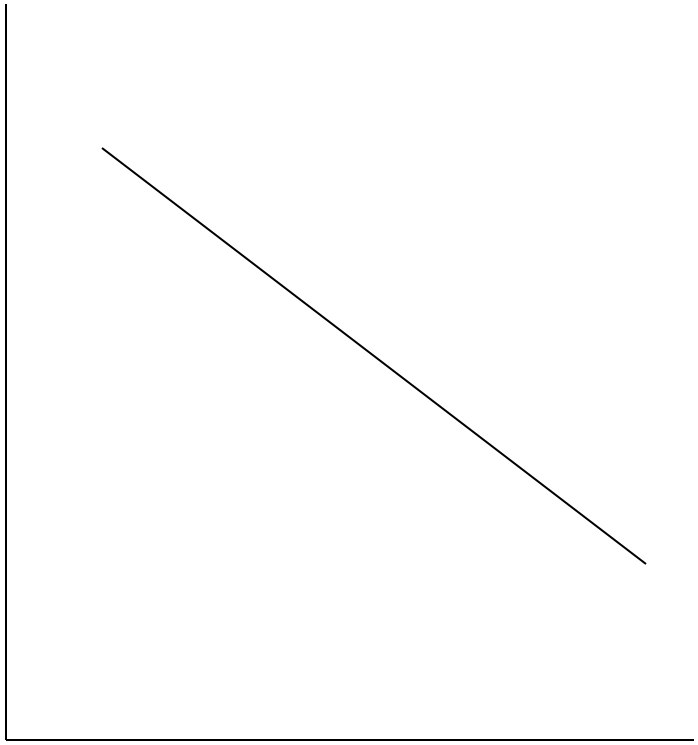
- Prices of Related Goods
  - Substitutes: goods that can be used to replace one another.
    - If A and B are substitutes:
      - $P^A \uparrow \quad Q_D$ of good B ↑ (shifts demand right)
      - Examples: Pepsi and Coke, Butter and Margarine, DVD and videos
  - Complements: goods that are used together.
    - If A and B are substitutes
      - $P^A \uparrow \quad Q_D$ of good B ↓ (shifts demand left)
      - Examples: Cereal and Milk, Bagels and Cream Cheese, Chips and Salsa

Demand Curve

- Negative relationship between price of the good and quantity demanded, all other variables are held constant (ceterus paribus)
- Quantity demanded: amount of product that household would buy at a given price (willingness to pay)
- Changes in price will affect Quantity Demand. Changes in other factors will affect Demand.
- Based on Law of Demand: as prices falls, quantity demanded increases and vice versa

- Demand schedule: table showing how much a given product household will buy at different prices
- Demand curve: illustration of schedule
- Example: See next slide

P	Q
5	1
4	3
3	7
2	9
1	12



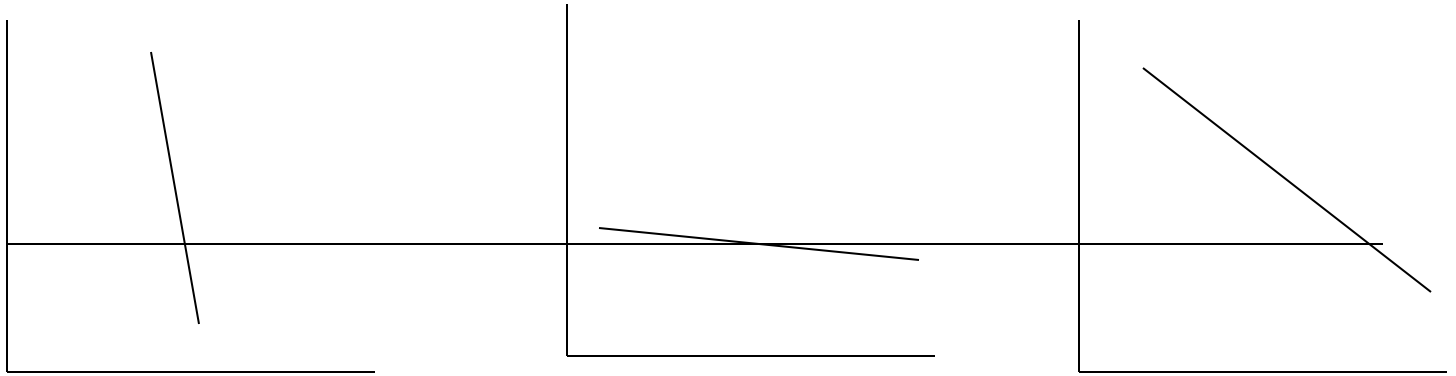
Quantity Demanded & Demand

- Changes in Quantity Demanded
- Movement ALONG the demand curve due to a price change

- Changes in Demand
- Shift of the entire demand curve due to a change other than price

Market Demand

- Horizontal summation of all quantities of good or services demanded per period by all households in the market



Shifts in Demand

- Examples: Market for Bottled Water (normal good)
  - Increase in income- demand increase, shifts demand right
  - Decrease in the price of Sports Drinks (substitute) – demand falls, shifts demand left
  - Drinking water clears acne – demand increases, shifts demand right

What determines Supply?

- Prices: (law of supply P ↑ Q_s ↑)
  - This is a movement along the supply curve.
  - Firms are profit motivated.
  - Profit = Total Revenue – Total Cost
  - Firms want to maximize revenue and minimize costs (see next slide)
  - Total Revenue (TR) = P * Q so as price increases, TR increases , profit increases

Other factors

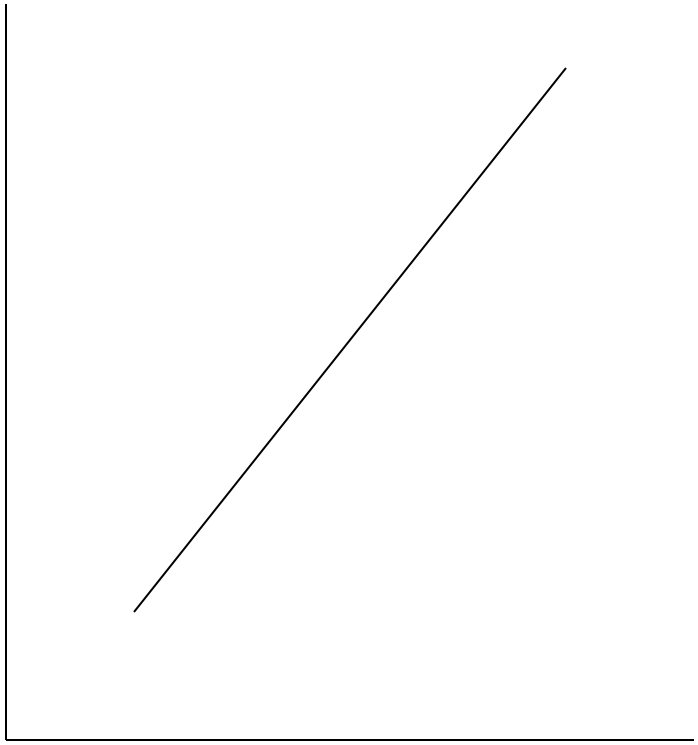
- Costs of production
  - Kinds of inputs: capital or labor
  - Amount of Inputs
  - Prices of Inputs
- Prices of Related Goods
  - Beef and Leather. If price of beef increases, firms will supply more beef; consequently produce more leather.
- Technology
  - Improves productivity of resources so will reduce firm's cost
- Expectations about the future

Supply Curve

- Law of Supply: Positive relationship between price of the good and quantity supplied, all other variables are held constant (ceterus paribus)
  - as prices rises, quantity supplied increases and vice versa
- Quantity supplied: amount of product that firm is willingness to sell at a particular price (ceterus paribus)
- Changes in price will affect Quantity Supplied. Changes in other factors will affect Supply.

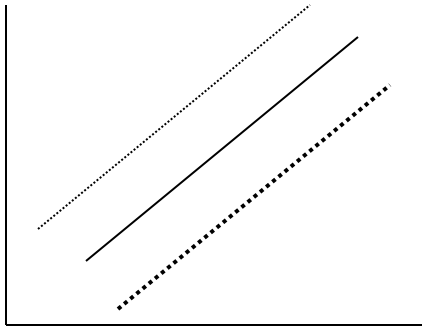
- Supply curve: illustration of schedule of how much a product a firm will supply at different prices
- Example: See next slide

P	Q
5	13
4	10
3	7
2	4
1	2



Supply and Quantity Supplied

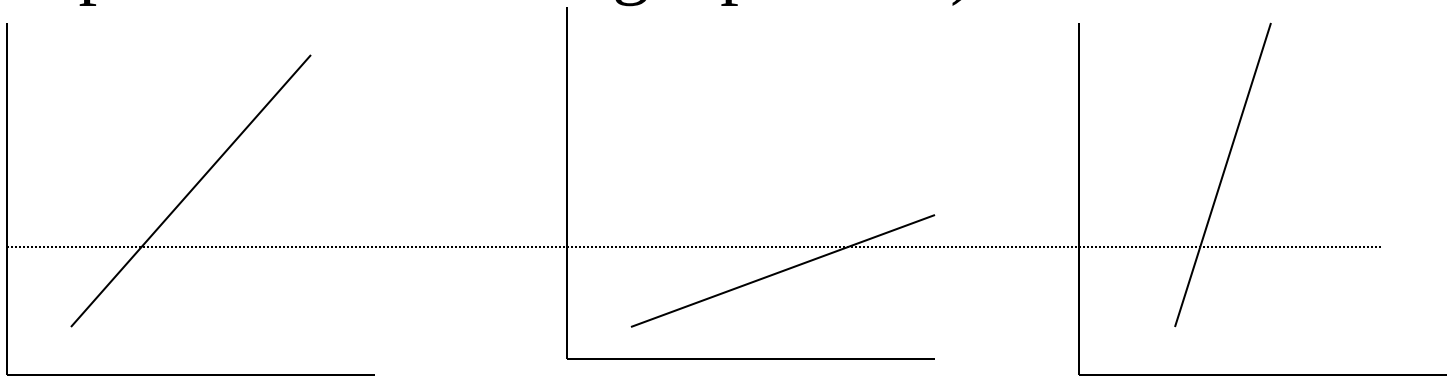
- Changes in Quantity Supplies
- Movement ALONG the Supply curve due to a price change



- Changes in Supply
- Shift of the entire demand curve due to a change other than price
- Show increase and decrease (increase is a shift right)

Market Supply

- Horizontal summation of all quantities of good or services supplied per period by all firms in the market (sum of all that is supplied each period by all producers of a single product)



Shifts in Supply

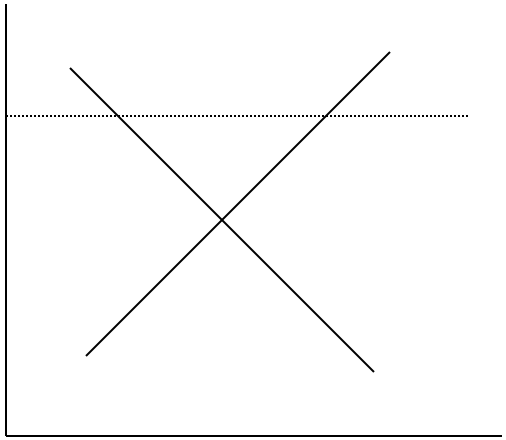
- Examples: Market for Bottled Water
  - Increase in technology- supply increases, shifts supply right
  - Increase in wages of bottle factory workers- supply decreases, shifts supply left

Market Equilibrium

- Bring Supply and Demand together
- Market equilibrium: the point at which supply and demand curves intersect (e.g. P = 3, Q =7)
- $Q^S = Q^D$ ⇨ no tendency for price to change
- Quantity of the good that buyers are willing and able to buy balances the quantity that sellers are willing and able to sellsum of all that is supplied each period by all producers of a single product

What if market is not in equilibrium?

- Excess Supply (surplus): prices fall
  - $Q^S > Q^D$



- Excess Demand (shortage): prices rise
  - $Q^S < Q^D$

Changes in Equilibrium

- Market for Beef
  - McDonalds introduces new salad menu (substitute)- demand falls so demand shifts left-price falls, quantity falls
  - New growth hormone is introduced-supply increases-price falls, quantity increase
  - Price of ground turkey falls (substitute) and Mad Cow Disease-demand falls, supply falls-price is indeterminate (depends on size of shift) but quantity falls

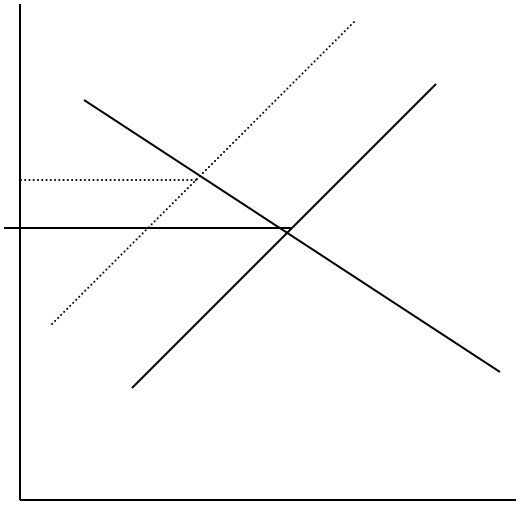
Price System

- Automatic mechanism for distributing scarce goods and services
  - Price rationing
- Determines allocation of resources among producers and final output

Market Mechanism

- Total supply is rational to those willing and able to pay a higher price
- Example:
  - Shortage of Lobsters
  - Price will rise until $Q^S = Q^D$

- Lobster Market

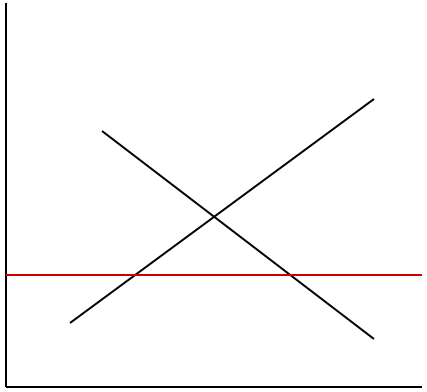


Price Rationing

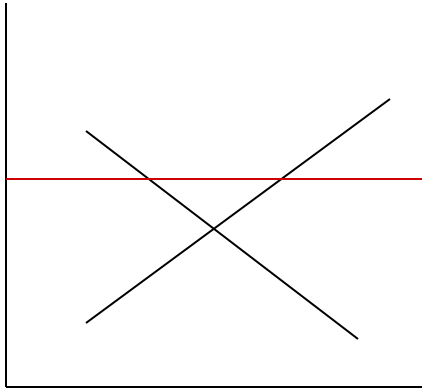
- Allocated goods and services to consumers when $Q^S < Q^D$
- Price adjustment: can be a price control
- Price Control: price imposed by government

Price Controls-governement imposes legal minimum or maximum prices

- Price ceiling: maximum price a seller may charge (creates $Q^S < Q^D$) ⇨ shortage
- Set below equilibrium
- e.g Rent Market



- Price Floor: minimum price a seller may charge (creates $Q^S > Q^D$) ⇨ surplus
- Set above equilibrium
- e.g. Minimum wage



Other forms of Rationing

- Queing: non-price mechanism
- Favored customers: those receiving special treatment (bribery)
- Ration Coupons: tickets, permits which entitle purchase of certain amounts
- Import fees
- Black market: illegal trading

Elasticity

- What determines shape of demand curve?
- Why are some deamnd curves steep or some flat?
- Gasoline example-how many of you stop driving when gas prices rise? The quantity demanded of gasoline falls less than the corresponding increase in price (e.g. gas prices may rise 50%, but only 10% of consumers will buy less gas)
- Since demand curve shows the relationship between price and quantity demanded, we will examine how quantity demanded changes when the price of a good changes

Elasticity

- Elasticity: measure of responsiveness of quantity demanded (or quantity supplies) when another variable (price, income, prices of other goods) changes
- Depends on types of goods
  - Necessities vs. luxuries
  - Whether close substitutes exist
  - Time horizon-the longer the time period, consumers will start to find substitutes for high priced goods so the goods become less inelastic

Price Elasticity of Demand

- How much the quantity demanded responds to a change in price

$$e = \frac{\%\Delta \text{ in } Q_D}{\%\Delta \text{ in Price}}$$

Elasticity will be negative (recall law of demand), we can take the absolute value

Elasticity

- Elastic: e > 1
- Inelastic: e < 1
- Perfectly Elastic: e = infinity
- Perfectly Inelastic: e = 0
- Unit Elastic e = 1

Elasticity of Demand Example

e.g: Price increases from \$2 to \$2.20 and $\underline{Q_D}$

falls from 10 units to 8 units

$P_0 = 2$ $P_1 = 2.20$

$Q_0 = 10$ $Q_1 = 8$

$\%\Delta$ in Q_D ⇨ $\frac{10 - 8}{10} * 100 = 20\%$

$\%\Delta$ in P ⇨ $\frac{2 - 2.20}{2} * 100 = 10\%$

$\frac{\%\Delta \text{ in } Q_D}{\%\Delta \text{ in Price}}$ ⇨ $\frac{20}{10} = 2$

Elasticity Changes along the Demand Curve

Other types of Elasticity

- Elasticity of Supply

$$\text{Price elasticity of supply} = \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in price}}$$

Cross Price Elasticity of demand

$$\text{Cross-price elasticity of demand} = \frac{\%\text{change in quantity demanded of good 1}}{\%\text{change in price of good 2}}$$

Cross Price Elasticity of demand

- A measure of how much the quantity demanded of one good responds to a change in the price of another good, computed as the percentage change in quantity demanded of the first good divided by the percentage change in the price of the second good
- Substitutes-cross price elasticity is positive
- Complements-cross price elasticity is negative

Income Elasticity of Demand

$$\text{Income elasticity of demand} = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in income}}$$

Income Elasticity of Demand

- Income Elasticity
  - Types of Goods
    - Normal Goods –income elasticity is positive
    - Inferior Goods-income elasticity is negative
  - Higher income raises the quantity demanded for normal goods but lowers the quantity demanded for inferior goods.