Unit 01: Basic Concepts (Macro/Micro)

Scarcity

The Economic Problem:
Unlimited wants, limited economic resources

Factors of Production:
-Land
-Labor
-Capital
-Entrepreneurship

Big 3 Questions:
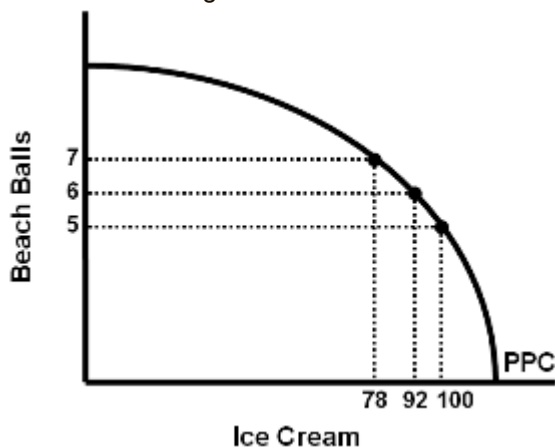-What to produce?
-How to produce?
-For whom to produce?
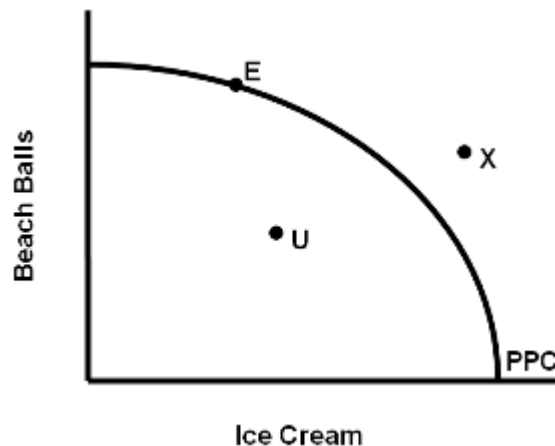
Opportunity Cost:
Best forgone alternative

Production Possibilities Curve:
Shows the opportunity costs of producing two goods

Law of Increasing Costs

To produce more beach balls, you must give up ever increasing quantities of ice cream cones.
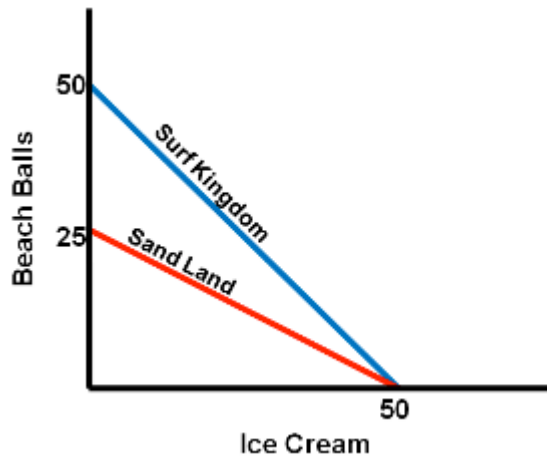
Point E = Full employment & productive efficiency
Point U = Unemployed resources
Point X = Unattainable in the present

Absolute Advantage:
Who can produce more?

Surf Kingdom has the absolute advantage in beach ball production.

	Beach Balls	Ice Cream Cones
Surf Kingdom	50	50
Sand Land	25	50

Comparative Advantage:
Who can produce at the lowest opportunity cost?

	Beach Balls	Cost of 1 Beach Ball	Ice Cream Cones	Cost of 1 Ice Cream Cone
Surf Kingdom	50	1 Ice Cream Cone	50	1 Beach Ball
Sand Land	25	2 Ice Cream Cones	50	½ Beach Ball

Surf Kingdom has the comparative advantage in beach balls and **Sand Land** has the comparative advantage in ice cream.

Specialization & Trade:
Whichever country has the comparative advantage will specialize in the production of that good.

Surf Kingdom will produce beach balls and import ice cream cones.

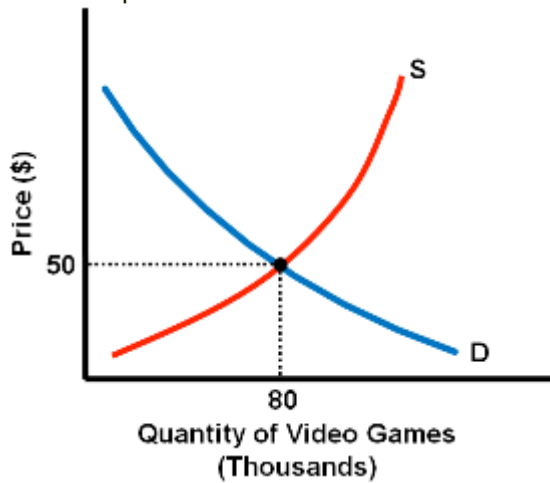|	Beach Balls	Cost of 1 Beach Ball	Ice Cream Cones	Cost of 1 Ice Cream Cone
Surf Kingdom	50	1 Ice Cream Cone	50	1 Beach Ball
Trade: Must receive more than 1 ice cream cone for each beach ball (or export less than 1 beach ball for each ice cream cone they import).				

Sand Land will specialize in ice cream and import beach balls.

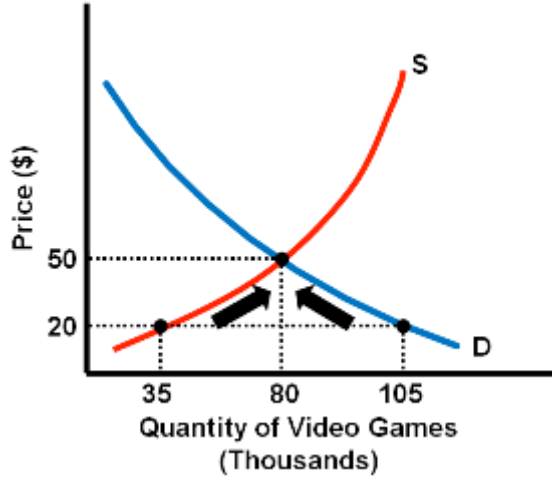|	Beach Balls	Cost of 1 Beach Ball	Ice Cream Cones	Cost of 1 Ice Cream Cone
Sand Land	25	2 Ice Cream Cones	50	½ Beach Ball
Trade: Must receive more than ½ beach ball for each ice cream cone (or export fewer than 2 ice cream cones for each beach ball they import).				

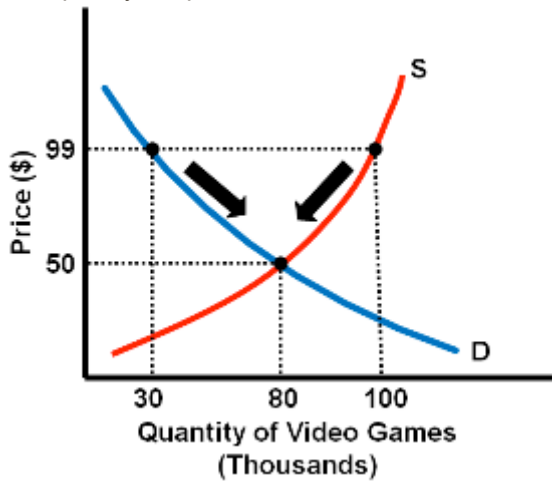**Acceptable terms of trade:** 1 beach ball for 1.5 ice cream cones.

Supply & Demand

Market Equilibrium

Temporary Shortage

Price ($)

S

50

20

D

35   80   105

Quantity of Video Games
(Thousands)

Temporary Surplus

Price ($)

S

99

50

D

30   80   100

Quantity of Video Games
(Thousands)
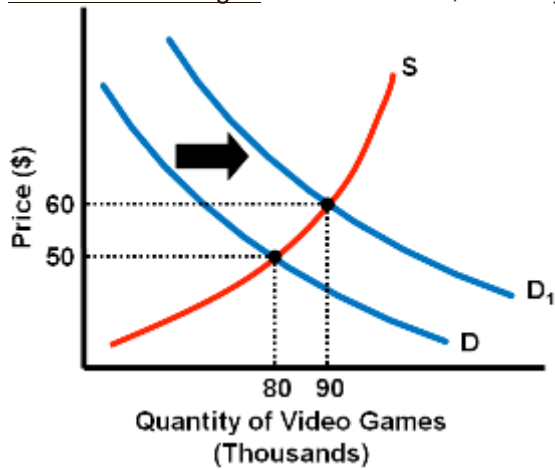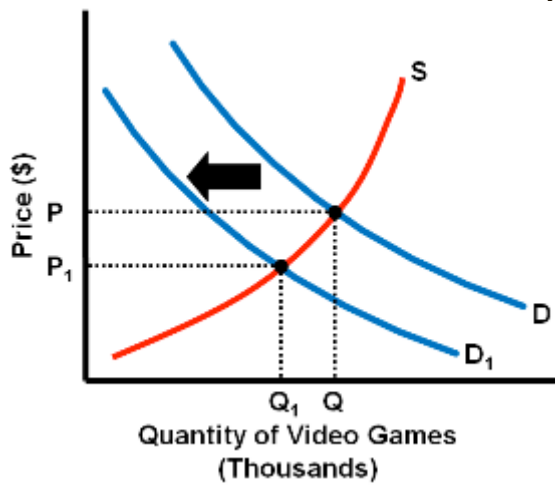
Demand Shifters:
-Tastes
-Income (Normal/Inferior Goods)
-Number of Buyers
-Future Price Expectations
-Prices of Substitutes
-Prices of Complements

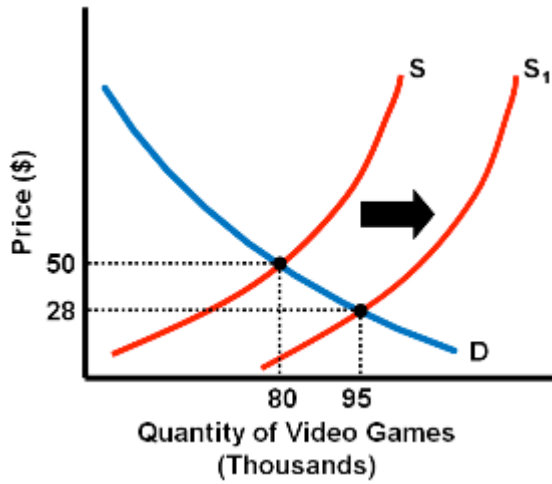Demand Shifts Right: Price Increases, Quantity Increases
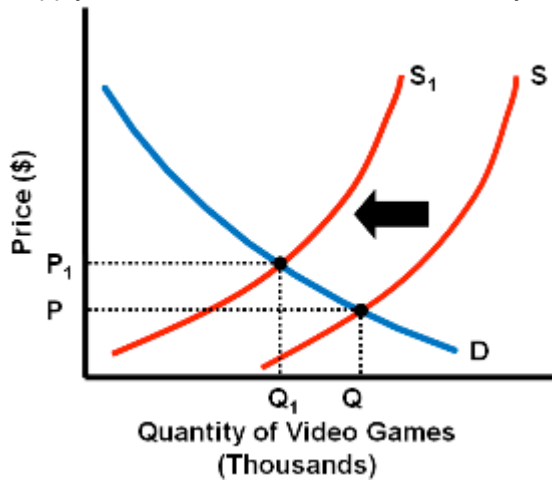

Demand Shifts Left: Price Decreases, Quantity Decreases

Supply Shifters:
-Resource Costs
-Actions of the Government (Taxes/Subsidies)
-Number of Sellers
-Productivity
-Future Price Expectations
-Prices of Goods that Use Same Resources

Supply Shifts Right: Price Decreases, Quantity Increases

Price ($)

S   S₁

50 ········•
28 ········•········•

D

80   95

**Quantity of Video Games
(Thousands)**

Supply Shifts Left: Price Increases, Quantity Decreases

Price ($)

S₁   S

P₁ ·······•
P ·······•·······•

D

Q₁   Q

**Quantity of Video Games
(Thousands)**

Dual Shifts: Demand & Supply Increase: Price Indeterminate, Quantity Increases

Price ($)

S   S₁

P ······•······•
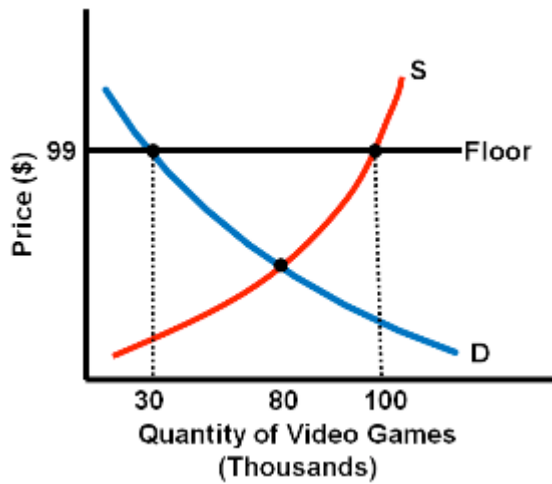
D₁

D

Q   Q₁

**Quantity of Video Games
(Thousands)**
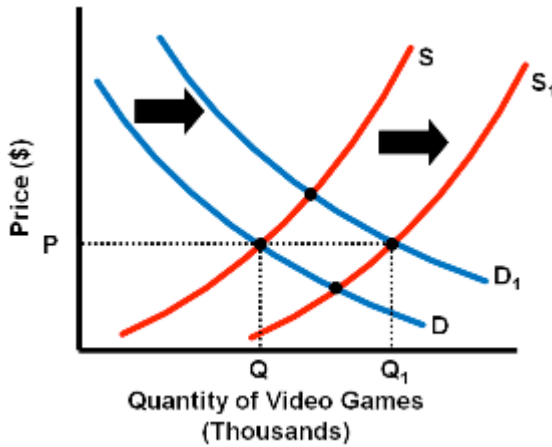
Price Ceiling:
Maximum legal price below equilibrium that leads to shortages
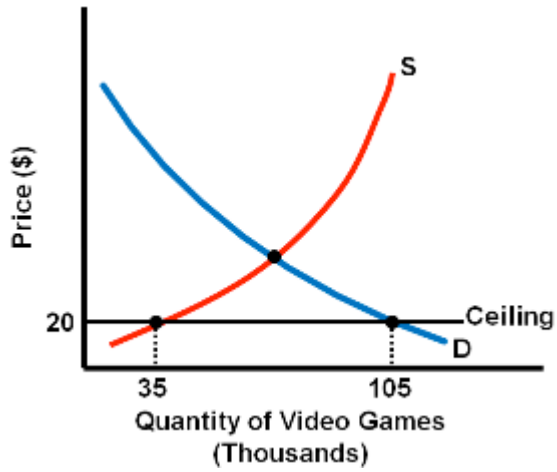
Price Floor:
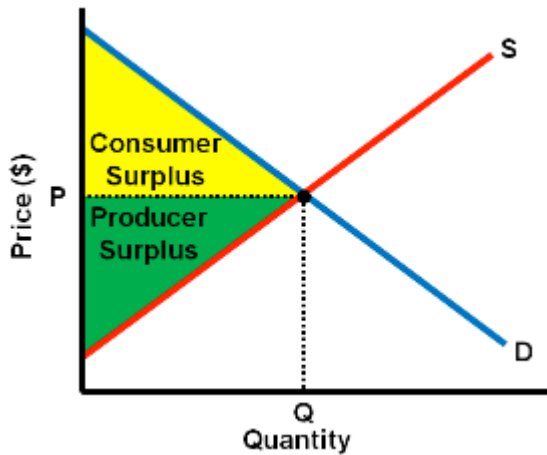Minimum legal price above equilibrium that leads to surpluses

N
ote: Units 2-6 of this guide are for students preparing for the AP Macroeconomics exam.

Unit 07: Utility & Types of Elasticity (Micro)

Demand & Marginal Utility

Consumer Surplus: Occurs when a consumer buys a good for a price that is less than what he or she is willing to pay

Producer Surplus: Occurs when a producer sells a good for a price that is greater than what he or she is willing to accept

Diminishing Marginal Utility:

Quantity	Total Utility	Marginal Utility
0	0	---
1	15	15
2	25	10
3	32	7
4	37	5
5	38	1

-MU initially increases, then decreases
-DMU occurs when total utility
increases at a decreasing rate
-Total utility is maximized when marginal utility equals 0

Consumer Equilibrium: Purchase the utility maximizing combination of goods within one's income.

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

Price Elasticity
To measure how responsive consumers or producers are to changes in price.

Price Elasticity of Demand:
-Elastic greater than 1 (Substitutes, Luxury)
-Inelastic less than 1 (Necessity, Inexpensive)
-Unit elastic equals 1
-Perfectly elastic equals infinity (horizontal)
-Perfectly inelastic equals 0 (vertical)

$$E_d = \frac{\%\ \text{Change in } Q_d}{\%\ \text{Change in P}}$$

Total Revenue Test:

$$\text{Total Revenue} = P \times Q$$

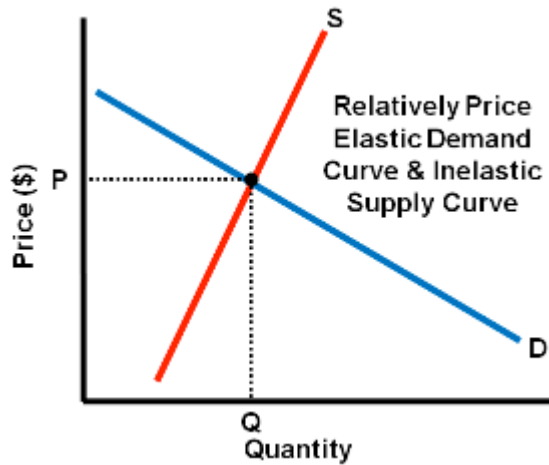*If price increases and total revenue (P x Q) falls then **demand is price elastic.**

*If price increases and total revenue (P x Q) rises then **demand is price inelastic.**

*If price increases and total revenue (P x Q) does not change then **demand is unit elastic.**

Price Elasticity of Supply:
-The longer the period of time (short run vs long run), the more elastic the supply

$$E_s = \frac{\%\ \text{Change in } Q_s}{\%\ \text{Change in P}}$$

S

Relatively Price Elastic Demand Curve & Inelastic Supply Curve

Price ($)

P

Q
Quantity

D

Income Elasticity of Demand:
-How responsive consumers are to changes in income
-Normal goods are positive, inferior goods are negative, luxury goods are greater than 1, and necessities are less than 1

$$\text{Income } E_d = \frac{\% \text{ Change in } Q_d}{\% \text{ Change in Income}}$$

Cross Elasticity of Demand:
-Substitute goods are positive, complementary goods are negative, and unrelated goods are close to 0

$$\text{Cross } E_d = \frac{\% \text{ Change in } Q_d \text{ of X}}{\% \text{ Change in Price of Y}}$$

Unit 08: Costs of Production (Micro)

Costs of Production

Economic costs include explicit (paid to resource suppliers) and implicit costs (opportunity costs of self-owned resources).

Economic Profit = Total Revenue - Total Economic Costs

Accounting Profit = Total Revenue - Explicit Costs

Short Run:
-Plant capacity is fixed
-Small increases or decreases in output

Long Run:
-Long enough period of time to change the quantities of all resources
-Firms can enter or exit the market

Law of Diminishing Marginal Returns:

Labor	Total Product	Marginal Product	Average Product
0	0	---	---
1	22	22	22
2	46	24	23
3	65	19	21.67
4	81	16	20.25

-As additional units of a variable resource (labor) are added to fixed resources (capital), the additional output produced will initially rise then fall
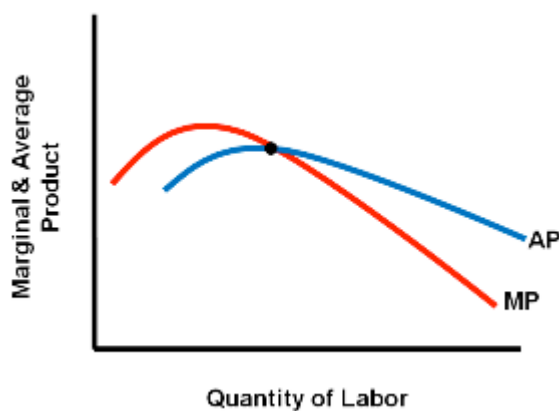
Short-Run Total Costs:
-Fixed (Rent, Contractual Salary)
-Variable (Fuel, Hourly Wages)

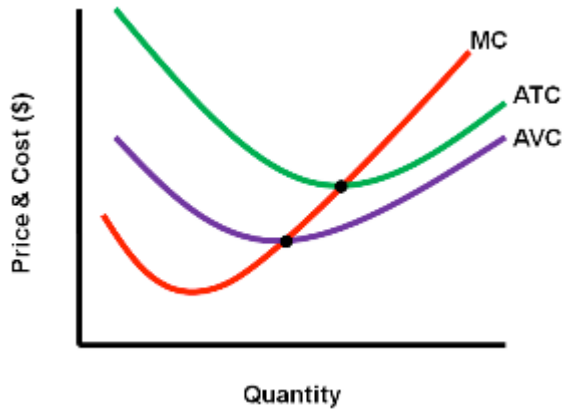**Total Cost = Fixed Cost + Variable Cost**

Marginal Cost:
-Additional cost of producing one more unit of output
-Reflects Law of Diminishing Marginal Returns

$$\text{Marginal Cost} = \frac{\text{Change in TC}}{\text{Change in Q}}$$

Per-Unit Costs:
-Average cost curves intersect MC at their maximums
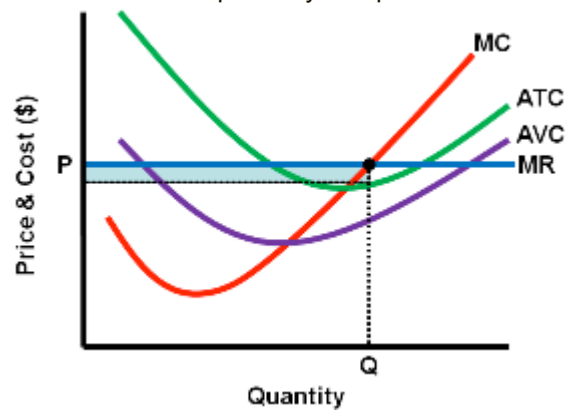
$$ATC = \frac{TC}{Q} \quad AFC = \frac{FC}{Q} \quad AVC = \frac{VC}{Q}$$

Marginal Revenue:
-Additional revenue from producing one more unit of output
-MR = MC represents profit maximizing level of output

$$MR = \frac{\text{Change in Total Revenue}}{\text{Change in Output}}$$

Cost curves for a perfectly competitive firm:

Long-Run Average Total Cost Curve:
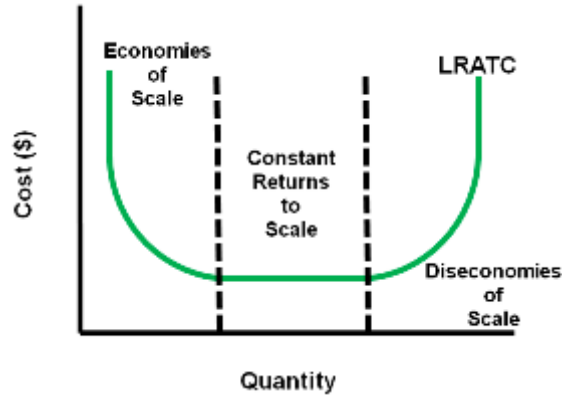
Unit 09: Product Markets (Micro)

Perfect Competition

Hundreds of firms selling identical products at a price determined by the market. The firm is a "price taker" that maximizes profit where **MR = MC.**
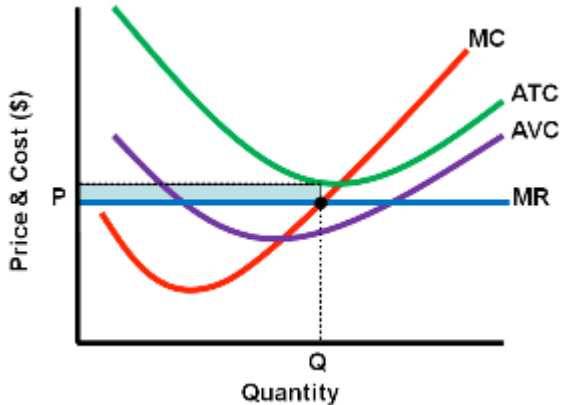
Short-Run Economic Profit: P is above ATC
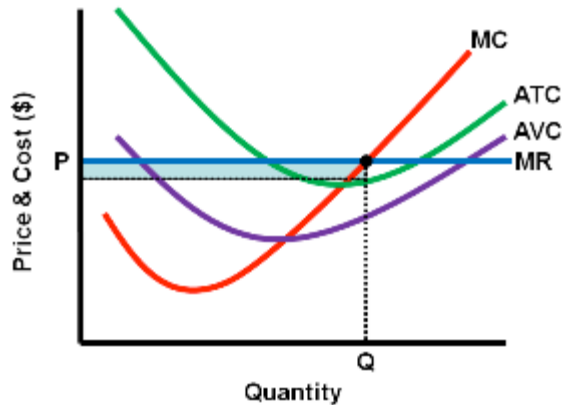
The MR curve represents the price, the firm's demand curve, and the average revenue.
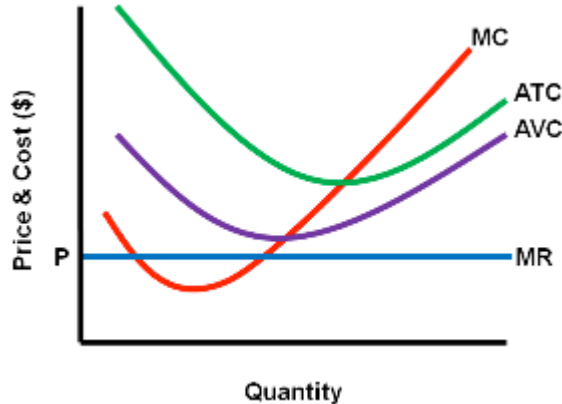
In the long run, firms will enter the market.

Short-Run Economic Loss: P is below ATC
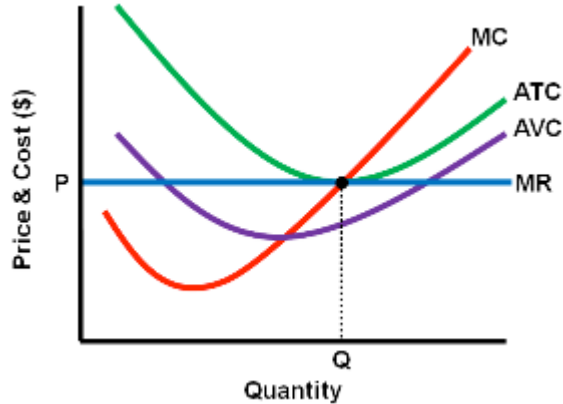

In the long run, firms will exit the market.

Short-Run Shutdown Case: P is below AVC

The firm still pays fixed costs.

The MC curve above minimum AVC makes up the firm's **short-run supply curve.**

Long-Run Equilibrium: P = MR = MC equals ATC

AKA Zero Economic Profit, Normal Profit, and Break-Even Point. Accounting profits are positive.

Productive efficiency (P = Minimum ATC) and **allocative efficiency** (P = MC) achieved in the long run.
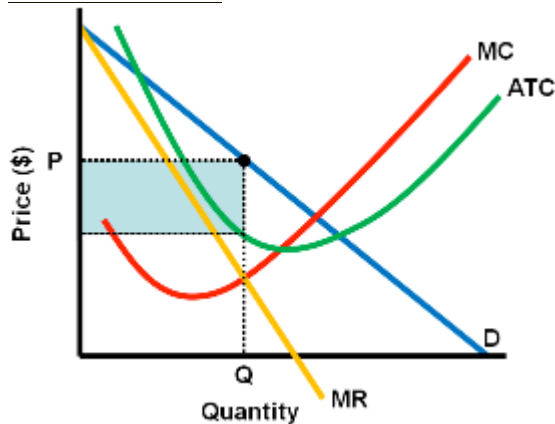
Side-By-Side Graphing: Be comfortable drawing the market and firm side-by-side in all scenarios.
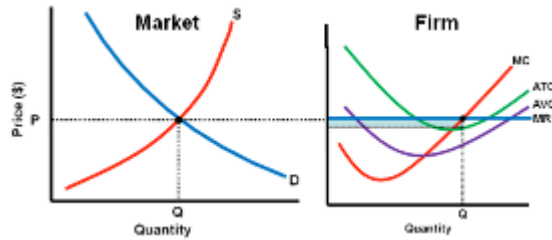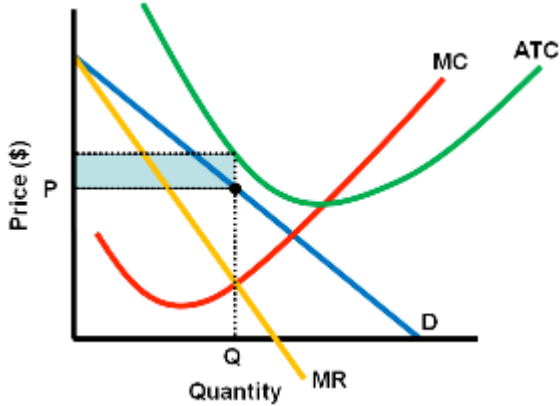

Monopoly

One firm selling a unique product. The monopolist is a "price maker" that produces where **MR = MC.**

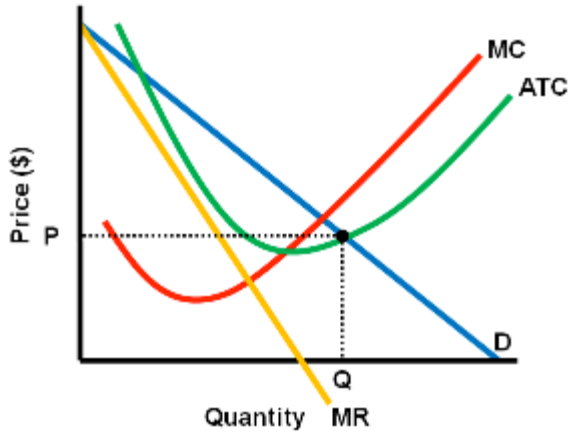**Economic Profit:** P is above ATC

The monopolist sells fewer units at a higher price than a perfectly competitive firm.
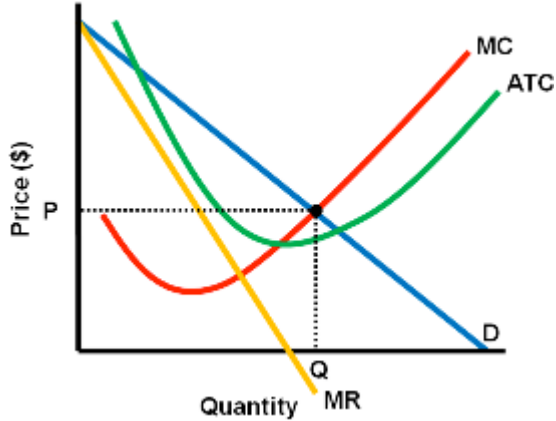
Economic Loss: P is below ATC

Demand is elastic when MR is positive and inelastic when MR is negative.
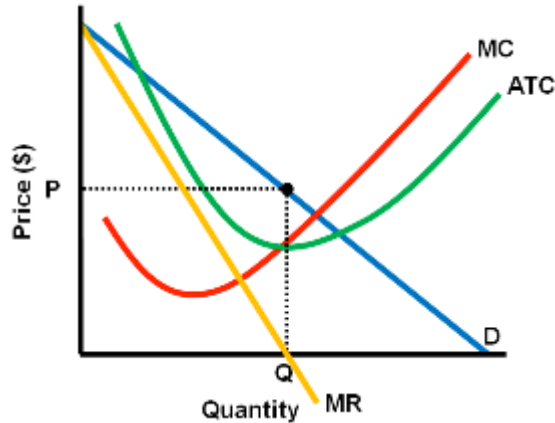
Regulated: Fair Return Price: P equals ATC

The monopolist earns a normal profit. Accounting profits are positive.

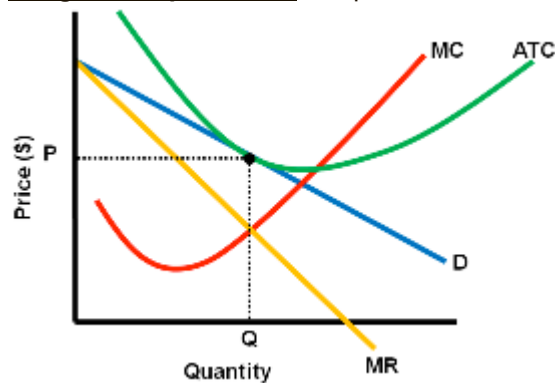**Regulated: Socially Optimal:** P equals MC

Maximizes Total Revenue: MR = 0

When MR = 0, demand is unit elastic.

Monopolistic Competition

Many firms producing similar products. The monopolistic competitor maximizes profit where **MR = MC.**

Long-Run Equilibrium: P equals ATC

Oligopoly

Two to four firms producing similar or identical products. A firm maximizes profit where **MR = MC.**

Game Theory:
-Dominant Strategy: Strategy with the best outcome for a firm no matter what the other firm plays
-Nash Equilibrium: Occurs when both firms play their dominant strategies

Example 1: Dominant Strategies

		Awesome LLC.	
		Strategy A	Strategy B
Totally Inc.	Strategy A	$2,305, $2,305	$2,350, $2,272
	Strategy B	$2,272, $2,350	$2,325, $2,325

Totally Inc.: Compare Strategy A and Strategy B
$2,305 > $2,272 and $2,350 > $2,325

Example 2: No Dominant Strategies

		Duper Co	
		Strategy A	Strategy B
Super Co	Strategy A	$2,450, 1,950	$5,950, $4,950
	Strategy B	$3,950, $4,450	$1,850, $2,750

Super Co: Compare Strategy A and Strategy B
$2,450 < $3,950 but $5,950 > $1,850

Duper Co: Compare Strategy A and Strategy B
$1,950 < $4,950 but $4,450 > $2,750

Unit 10: Resource Markets (Micro)

Factor Markets

Households supply economic resources and firms demand economic resources.

Marginal Revenue Product:
-Additional revenue from employing one more unit of a resource
-MRP = Demand; MRP = MP X MR
-Shifts factors include product demand ("derived demand"), technology, productivity, and price of another resource

$$MRP = \frac{\text{Change in Total Revenue}}{\text{Change in Quantity of Resources}}$$

Marginal Factor Cost:
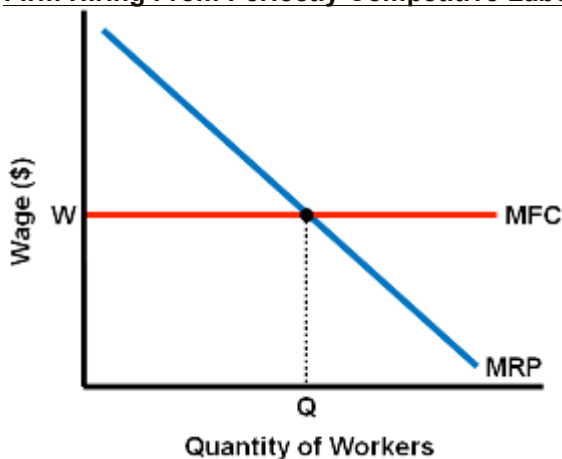-Additional cost of employing one more resource
-MFC = Supply = Wage for a perfectly competitive labor market

Perfectly Competitive Labor Market:
-Firm is the **"wage taker"**
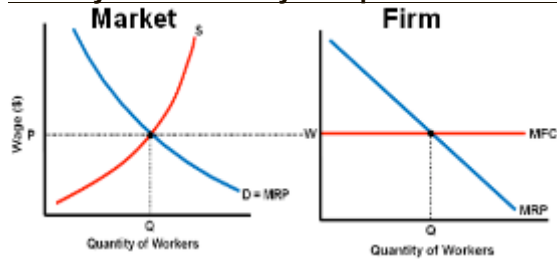-Firm hires up to the point where **MRP = MFC**

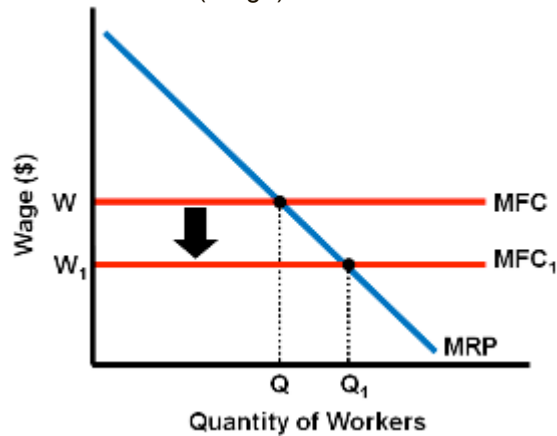### Firm Hiring From Perfectly Competitive Labor Market: MRP = MFC

Firm Hiring From Perfectly Competitive Labor Market: MRP Shifts Right

Side-By-Side Perfectly Competitive Labor Market and Firm:

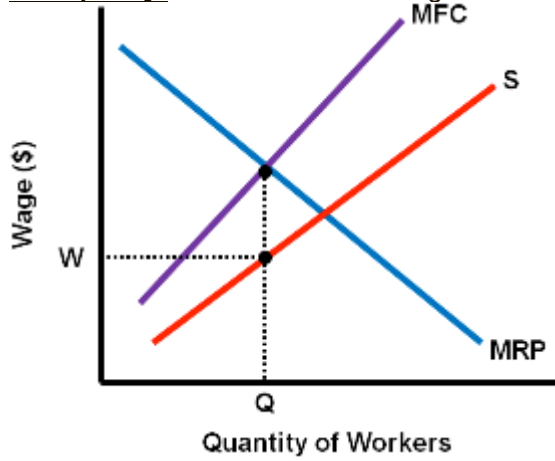
Firm Hiring From Perfectly Competitive Labor Market: Market Supply of Labor Shifts Right so the Firm's MFC (Wage) Shifts Down

Monopsony:
-Only one firm hires labor:**"Wage Maker"**
-MFC curve lies above supply curve
-Pays a lower wage and hires fewer workers than perfectly competitive labor market

Monopsony: Q = MRP = MFC: Wage on the Supply Curve

Combination of Economic Resources:

Least-Cost Rule

$$\frac{MP_L}{P_L} = \frac{MP_C}{P_C}$$

Profit-Maximizing Rule

$$\frac{MRP_L}{P_L} = \frac{MRP_C}{P_C} = 1$$
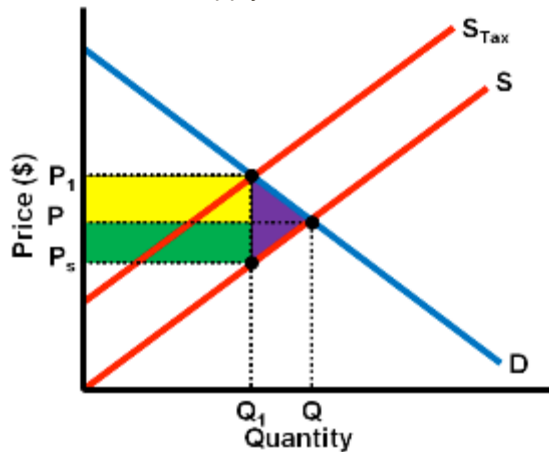
Unit 11: Role of Government (Micro)

The Government

Public Goods:
-Nonexclusion
-Shared consumption

Taxes:
-**Progressive Tax:** Proportion of income paid increases as income increases (Income Tax)
-**Regressive Tax:** Proportion of income paid increases as income decreases (Sales Tax)
-**Proportional Tax:** Proportion of income paid stays the same

Per-Unit Tax: Supply Shifts Left

Consumer's Portion *(Yellow Rectangle/Top)*, **Seller's Portion** *(Green Rectangle/Bottom)*, and **Deadweight Loss** *(Purple Triangle)*.

Market price increases by an amount that is less than the tax imposed

Tax Incidence:
-Elastic (Flatter) Demand, Inelastic (Steeper) Supply: Seller pays greater share of tax
-Inelastic (Steeper) Demand, Elastic (Flatter) Supply: Buyer pays greater share of tax

Correct Negative Externalities (Overallocation of Resources):
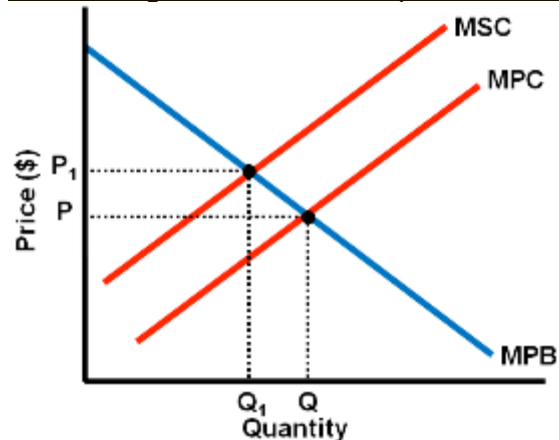
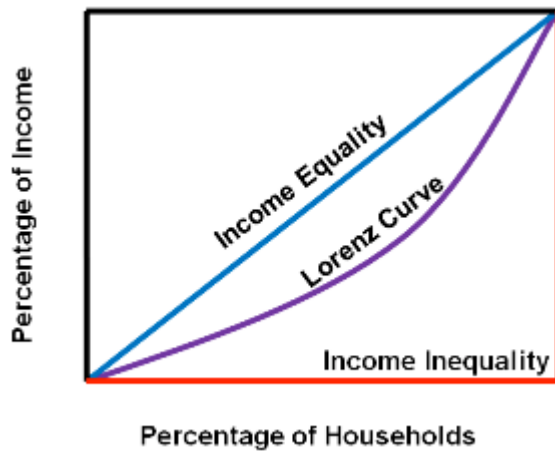Correct by taxing production to shift supply left

Correct Positive Externalities (Underallocation of Resources):
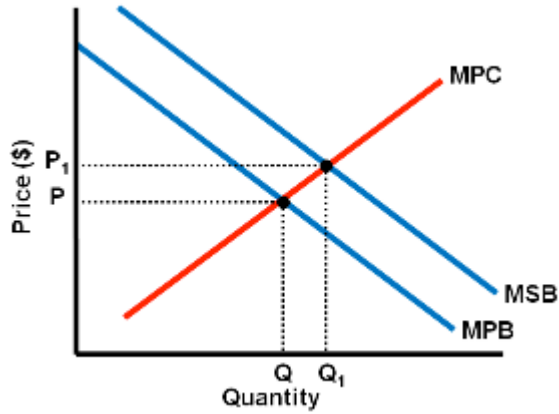
Correct by subsidizing the producer (shift supply right) or the consumer (shift demand right)

Redistribute Income:
Taxes and transfer payments to shift the Lorenz Curve inward

Good luck, keep up the studying, and don't forget to practice drawing all of the graphs on your own.