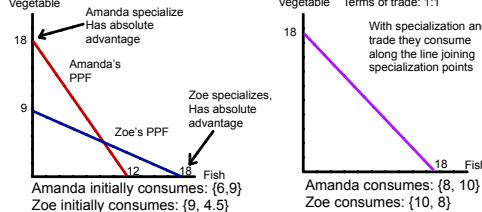


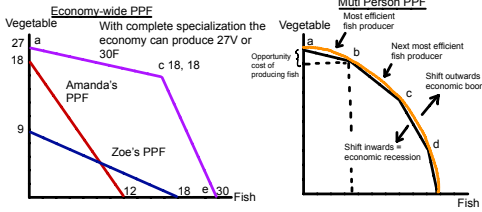
# 1 INTRODUCTION TO KEY IDEAS

**Macroeconomics:** studies the economy as a system in which feedbacks among sectors determine national output, employment and prices  
**Microeconomics:** the study of individual behaviour in the context of scarcity  
**Markets:** play a key role in coordinating the choices of individuals with the decisions of business  
 Improves efficiency, trading of skills and goods  
**Mixed economy:** goods and services are supplied both by private suppliers and government  
**Model:** formalization of theory that facilitates scientific enquiry  
**Theory:** logical view of how things work through observation  
 Transform theory into model to test the theory  
**Opportunity cost:** choice of what must be sacrificed when a choice is made

**Production Possibility Frontier (PPF):** the combination of goods that can be produced using all the resources available  
 For 36 hours:  
 Amanda = 3 fish/h + 2 vegetables/h    Zoe = 2 fish/h + 4 vegetables/h  
 12F or 18V = 3:2 opportunity cost    18F or 9V = 1:2 opportunity cost



**Economy-wide PPF:** set of good combinations that can be produced in the economy when all available productive resources are in use



**Productivity of Labour:** output per worker or per hour, depends on:  
 Skill, knowledge and experience of the labour force  
 Capital stock: buildings, machinery & equipment  
 Technological trends in labour force and capital stock  
**Economy output (Y):** Y = (# of workers) x (output/worker)  
**Full Employment Output (Yc):** Yc = (# of workers at full employment) x (output/worker)  
**Economic recession:** output falls below the economy's capacity output  
**Economic boom:** period of high growth that raises output above capacity output

# 2 THEORIES MODELS AND DATA

**Variables:** measures that can take on different values  
**Data:** recorded values of variables  
 Time series: measurements made at different points in time  
 High/Low frequency: series with short/long intervals between observations  
 Cross-section: values for different variables recorded at a point in time  
 Longitudinal: follow the same units of observation through time  
**Index number:** value of a variable or average of a set of variables with respect to the base value  
 Index =  $\frac{\text{absolute value of current}}{\text{absolute value of base}} \times 100$   
 Price index = (oil index x 0.6) + (natural gas index x 0.25) + (coal index x 0.15)

**Inflation rate:** annual % increase in consumer price index  
**Deflation rate:** annual % decrease in consumer price index  
**Consumer Price Index:** average level for consumer goods and services  
 CPI =  $\frac{\text{cost of basket in current year}}{\text{cost of basket in base year}} \times 100$

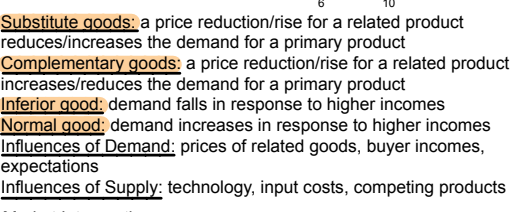
**Nominal earnings:** earnings measured in current dollars  
**Real earnings:** earnings measure in constant dollars to adjust for changes in the general price level  
**Nominal Price Index:** current dollar price of a good or service  
**Real Price Index:** nominal price index divided by the consumer price index  
 Real Index =  $\frac{\text{nominal index}}{\text{CPI}} \times 100$

**Econometrics:** examining and quantifying relationships between economic variables  
**Regression line:** average relationship between two variables in a scatter diagram  
**Intercept of a Line:** height of the line on one axis when the value of the variable on the other axis is zero  
**Slope of a Line:** ratio of the change in variables  
**Positive economics (facts):** objective explanation of economy  
**Normative economics (values):** offers recommendations  
**Economic Equity:** concerned with the distribution of well-being among members of the economy

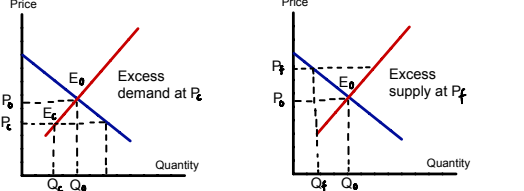
**Economics:** ideas and methods for betterment of society  
 Markets facilitate exchange and encourage efficiency  
 Incentives, humans are not purely mercenary  
 Importance of government policy, governments can best address abuses of monopolies. Provides a legal framework for a mixed economy. Support efficient market function through competition policy, education, international trade, taxes, welfare

# 3 CLASSICAL MARKETPLACE - DEMAND & SUPPLY

**Marketplace:** buyers and sellers come together to exchange  
**Demand:** quantity of a good or service that buyers wish to purchase at each possible price  
**Supply:** quantity of a good or service that sellers are willing to sell at each possible price  
**Quantity Demanded:** amount purchased at a particular price  
**Quantity Supplied:** amount supplied at a particular price  
 \* All other influences on supply and demand remain the same  
**Equilibrium Price:** price when quantity demanded equals quantity supplied  
**Excess supply:** when quantity supplied exceeds the quantity demanded at the going price  
**Excess demand:** when quantity demanded exceeds the quantity supplied at the going price



**Market Interventions**  
**Price controls:** government rules or laws that inhibit the formation of market-determined prices  
**Price ceilings:** suppliers cannot legally charge more than a specific price  
**Price floors:** sets price above the market clearing price



**Quotas:** physical restrictions on output. Reduces supply and increases price  
**Market demand:** horizontal sum of individual demands  
**Quota:** physical restrictions on output. Reduces supply and increases price  
**Market demand:** horizontal sum of individual demands

# 4 MEASURES OF RESPONSE: ELASTICITIES

Price elasticity of demand =  $\frac{\text{percentage change in quantity demanded}}{\text{percentage change in price}}$   

$$\epsilon_d = \frac{\% \Delta Q}{\% \Delta P} = \frac{\Delta Q/Q}{\Delta P/P} = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$$
 Use average for these

**Arc Elasticity of Demand:** consumer responsiveness over a segment or arc of the demand curve  
**Elasticity Variation with Linear Demand**  
 Elastic range:  $\epsilon < -1$   
 Midpoint of D (unit elastic):  $\epsilon = -1$   
 Inelastic range:  $\epsilon > -0.11$   
**Limiting Cases of Elasticity**  
 Zero elasticity:  $\frac{\Delta Q}{\Delta P} = 0$   
 Infinite elasticity:  $\frac{\Delta Q}{\Delta P} = \infty$   
 Large elasticity:  $\frac{\Delta Q}{\Delta P} > 1$

**Point Elasticity of Demand:** elasticity computed at a point on the demand curve  

$$\epsilon_d = \frac{P}{Q} \cdot \frac{\Delta Q}{\Delta P}$$
 Inverted slope of demand curve  
**Influences of Elasticity:** tastes, ease of substituting goods, one brand with substitutes = elastic, group of products = inelastic, products with no substitutes = inelastic  
**Total Expenditure = P x Q**  
 In elastic region reducing price increases total expenditure  
 In inelastic region reducing price decreases total expenditure

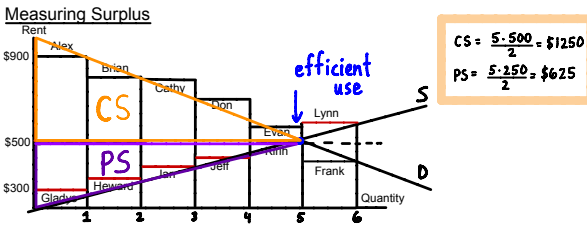
**Cross-price elasticity of demand:**  $\frac{\% \text{ change in quantity demanded}}{\% \text{ change in price of other product}} = \epsilon_{d(x,y)} = \frac{\% \Delta Q_x}{\% \Delta P_y}$   
 Substitutes if positive, complements if negative  
**Income elasticity of demand:**  $\eta_d = \frac{\% \Delta Q}{\% \Delta I}$   
 Normal good if positive, inferior good if negative (Luxury good) (Necessity)  
 \* all of this applies to elasticity of supply

# Elasticities and Tax Incidence

**Specific tax:** involves a fixed dollar levy per unit of good sold  
**Ad Valorem:** percentage tax  
**Tax Incidence with Elastic Supply**  
**Tax Incidence with Inelastic Supply**

# 5 WELFARE ECONOMICS AND EXTERNALITIES

**Welfare economics:** how well the economy allocates its scarce resources in accordance with the goals of efficiency and equity  
**Equity:** how society's goods and rewards are distributed among members  
**Efficiency:** how well the economy resources are used and allocated  
**Consumer surplus (demand):** excess of consumer willingness to pay over the market price  
**Producer surplus (supply):** excess of market price over the reservation price of the supplier  
**Measuring Surplus**  
 Demand:  $P = 1000 - 100Q$   
 Supply:  $P = 250 + 50Q$   
 Equilibrium:  $(1, 900)$ ,  $(2, 800)$   
 $P = \frac{1000 - 100Q}{2}$   
 $Q = 1000 - 100Q$   
 $Q = 1000 - 100Q$



**The efficiency cost of taxation**  
**Taxation and labour supply**  
 Depends on elasticity  
 Gov revenue tax  
 DWL  
 Wage

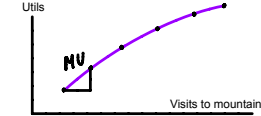
**Externality:** benefit or cost falling on people other than those involved in the activity's market. It can create a difference between private costs or values and the social costs or values  
**Negative Externalities and Inefficiency**  
**Positive Externalities**

**Fix: corrective tax:** direct the market towards a more efficient output  
**Other Market Failures:** profit seeking monopolies, public goods i.e. radio, national defence, health, international externalities  
**Environmental Policy and Climate Change**  
**Greenhouse Gases:** accumulate excessively in the earth's atmosphere prevent heat from escaping  
**Kyoto Protocol:** committed themselves to reducing GHG emissions relative to 1990 by 2012, Canada's target of 6% reduction in GHGs  
**Economic Policies for Climate Change**  
**Three ways to control polluters:** direct controls (warn big emitters), incentives (pollution taxes) or tradable "permits" to pollute  
**Marginal Damage Curve:** costs to society of an additional unit of pollution  
**Marginal abatement curve:** costs to society of reducing quantity of pollution by one unit

**Marginal abatement cost**  
**Marginal Damage**  
 A can ask for permits from B = 'cap and trade' system  
**In an ideal world permits could be traded internationally between developed and developing countries**  
**Corrective taxes are called Pigovian taxes = tax package reform, reduce taxes in other sectors of the economy to main revenue neutral impact**

# 6 INDIVIDUAL CHOICE

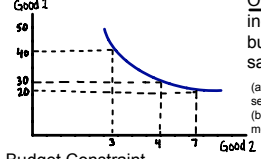
**Cardinal utility:** measurable concept of satisfaction  
**Total utility:** measure of the total satisfaction derived from consuming a given amount of goods and services  
 ↓ **increase at a diminishing rate** (each extra unit consumed yields less utility)



$$MU = \frac{\Delta TU}{\Delta X} \rightarrow \frac{MU}{P}$$

**Consumer Equilibrium:** fully spent budget in a manner that yields the greatest utility

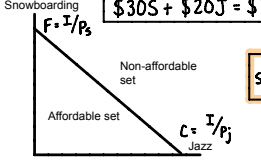
**Law of Demand:** other things being equal, more of a good is demanded at a lower price



**Ordinal utility:** assumes that individuals can rank commodity bundles with a level of satisfaction

(a) different combinations of goods and services yield equal satisfaction  
 (b) combinations of goods and services yield more satisfaction than other combinations

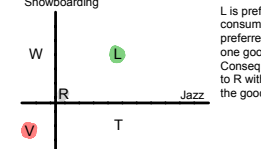
**Budget Constraint:** All bundles of goods that the consumer can afford at a budget  
 Ex: income: \$200, \$30 snowboard & \$20 jazz



$$30S + 20J = 200 \rightarrow P_S S + P_J J = I$$

slope =  $-\frac{P_x}{P_y}$  price per unit

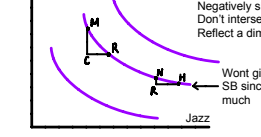
## Tastes & Indifference



L is preferred to R since more of each good is consumed at L, while points such as V are less preferred than R. Points W and T contain more of one good and less of the other than R. Consequently, we cannot say if they are preferred to R without knowing how the consumer trades the goods off

**Indifference curve:** combinations of goods and services that yield the same level of satisfaction to the consumer

**Indifference map:** set of indifference curves where curves further from origin denote a higher level of satisfaction

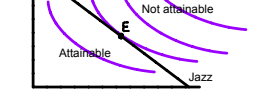


Further from origin = higher level of satisfaction  
 Negatively sloped: more of one good is less of the other  
 Don't intersect  
 Reflect a diminishing rate of substitution

Wont give up as much SB since don't have as much

**Marginal Rate of Substitution (MC/CR):** slope of indifference curve. Defines the amount of one good the consumer is willing to sacrifice to obtain a given increment of the other

**Optimization:** highest level of satisfaction possible



Consumer Optimum: where the budget constraint equals the MRS at one point

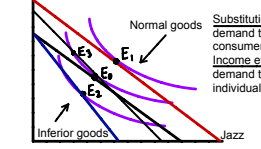
$$MRS = -\frac{P_x}{P_y}$$

$$MRS = -\frac{MU_x}{MU_y}$$

**Adjusting to income changes:** outward shift of budget constraint, can attain a higher level of satisfaction

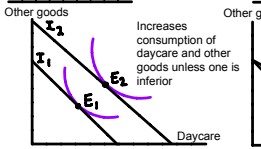
**Adjusting to price changes:** lower level of satisfaction because of less purchasing power

## Income and Price Adjustments

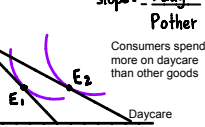


**Substitution effect:** price change is the response of demand to a relative price change that maintains the consumer on initial indifference curve (E0 to E2)  
**Income effect:** price change is the response of demand to the change in real income that moves the individual from the initial level to a new level of utility

## Subsidy Programs



## Price Subsidy



$$\text{slope} = -\frac{P_{\text{daycare}}}{P_{\text{other}}}$$

Consumers spend more on daycare than other goods

# 7 FIRMS, INVESTORS AND CAPITAL MARKETS

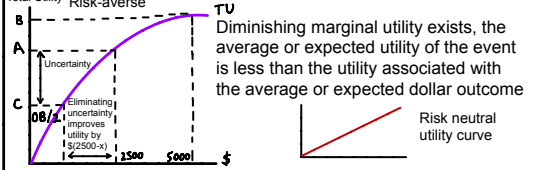
**Sole Proprietorship:** single owner of a business  
**Partnership:** business owned jointly by two or more individuals, who share in the profits and are jointly responsible for losses  
**Corporation/Company:** organization with a legal identity separate from its owner that produces and trades  
**Shareholders:** invest in corporations and therefore are owners. They have limited liability personally if the firm incurs losses  
**Dividends:** payments made from after-tax profits to company shareholders  
**Capital gains/losses:** an individual sells a share at a price higher/lower than when the share was purchased  
**Limited liability:** the liability of the company is limited to the value of the company's assets  
**Retained earnings:** profits retained by a company for reinvestment and not distributed as dividends  
**Principal or owner:** delegates decisions to an agent or manager  
**Agent:** a manager who works in a corporation and is directed to follow the corporation's interests  
**Principal-agent problem:** principal cannot easily monitor actions of the agent who therefore may not act in the best interests of the principal

**Stock option:** option to buy the stock of the company at a future date for a fixed, predetermined price  
**Fair gamble:** gain or loss will be zero if played a large number of times

**Risk:** associated with an investment can be the dispersion of possible outcomes. A greater dispersion in outcomes implies more risk  
**Risk-averse:** person will refuse a fair gamble, regardless of the dispersion in outcomes  
**Risk-neutral:** person is interested only in whether the odds yield a profit on average and ignores dispersion in possible outcomes

\* As economists, profit maximization accurately describes a firm's objective. They use capital, labor & human expertise to produce a good or supply a service.  
 \* People have diminishing marginal utility so losing \$1000 is a lot less utility than gained by winning \$1000  
**Risk Pooling:** means reducing risk and increasing utility by aggregating or pooling multiple independent risks  
**Risk Spreading:** insurers spread the potential cost among other insurers

**Bond:** results from borrowing. Suppose you lend \$100 with a return rate of 4%. 4% is the nominal rate of return, if the inflation rate is 1.5% then the real rate of return is 2.5%  
**Real return:** nominal return minus rate of inflation  
**Real return on corporate stock:** sum of dividend plus capital gain, adjusted for inflation



Diminishing marginal utility exists, the average or expected utility of the event is less than the utility associated with the average or expected dollar outcome

**Capital Market:** set of financial institutions that funnels financing from investors into bonds and stocks  
**Portfolio:** combination of assets that is designed to secure an income from investing and to reduce risk  
**Diversification:** reduces the total risk of portfolio by pooling risks across several different assets whose individual returns behave independently  
**Variance:** weighted sum of the deviations between all possible outcomes and the mean, squared  $\sum p_i(x_i - \mu)^2$   
 ↓ mutual funds decrease volatility (variance) of investments

# 8 PRODUCTION AND COST

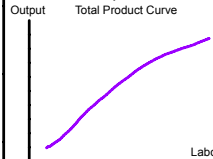
**Production function:** technological relationship that specifies how much output can be produced with specific amounts of inputs

**Technological efficiency:** maximum output is produced with a given set of inputs (no waste)  
**Economic efficiency:** production structures that produces output at least cost

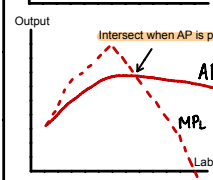
**Short run:** period during which at least one factor of production is fixed. If capital is fixed then more output is produced by using additional labour.

**Long run:** period of time that is sufficient to enable all factors of production to be adjusted

**Very long run:** period sufficiently long for new technology to develop  
**Total product Q = f(L):** relationship between total output (Q) produced and the number of workers (L) employed for a given amount of capital



**Law of diminishing returns:** increments of a variable factor (labor) are added to a fixed amount of another factor (capital), the marginal product of the variable factor must eventually decline



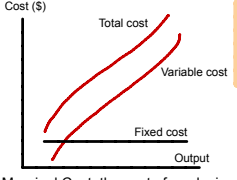
$$MPL = \frac{\Delta Q}{\Delta L}$$

$$APL = \frac{Q}{L}$$

If  $MP > AP$  then AP increases  
 If  $MP < AP$  then AP decreases

**Fixed costs:** costs that are independent of the level of outputs (capital)

**Variable costs:** related to output produced (labor & materials)  
**Total costs:** sum of fixed cost and variable cost  
**Average Fixed cost:** total fixed cost per unit output  
**Average Variable cost:** total variable cost per unit output  
**Average total cost:** sum of all costs per unit of output

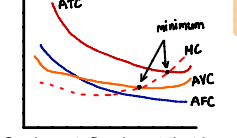


$$AFC = \frac{FC}{Q} \quad AVC = \frac{VC}{Q} \quad ATC = \frac{FC+VC}{Q} = \frac{TC}{Q}$$

$$AVC = \frac{wages}{Q} = \frac{(W \cdot L)}{Q} = W \cdot \frac{1}{APL}$$

productivity highest when costs are least  
 $MC \propto \frac{1}{MPL}$      $AVC = \frac{1}{APL}$

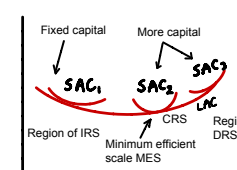
**Marginal Cost:** the cost of producing each additional unit of output



$$MC = \frac{\Delta TC}{\Delta Q} = \frac{\Delta VC}{\Delta Q} \quad MC = \frac{W \cdot \Delta L}{\Delta Q} = \frac{W}{MPL}$$

MC cuts AVC and ATC at the minimum  
 If  $MC < ATC$  then ATC decreases  
 If  $MC > ATC$  then ATC increases  
 \* same applies for AVC

**Sunk cost:** fixed cost that has already been incurred and cannot be recovered even by producing a zero output (R&D)  
 \* Production costs almost always decline when the scale of the operation initially increases = **economies of scale**

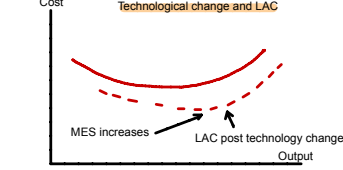
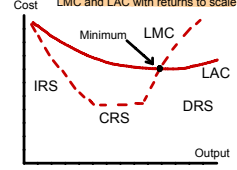


**Increasing returns to scale (IRS):** when all inputs are increased by a given proportion, output increases more than proportionately  
**Constant returns to scale (CRS):** output increases in direct proportion to an equal proportion increase in all inputs  
**Decreasing returns to scale (DRS):** equal proportionate increase in all inputs leads to a less than proportionate increase in output

**Long-run average total cost:** lower envelope of all short-run ATC curves (LTC = long run total costs)  
 $LAC = \frac{LTC}{Q}$

**Minimum efficient scale:** threshold size of operation such that scale economies are almost exhausted

**Long run marginal cost:** increment in cost associated with producing one more unit of output when all inputs are adjusted in a cost minimizing manner  
 $LMC = \frac{\Delta LTC}{\Delta Q}$



**Technological change:** innovation that can reduce the cost of production or bring new products on line  
**Globalization:** tendency for international markets to be ever more integrated  
**Cluster:** group of firms producing similar products or research  
**Learning by doing:** reduces costs  
**Economies of scope:** unit cost of producing particular products is less when combined with the production of other products than when produced alone

# 9 PERFECT COMPETITION

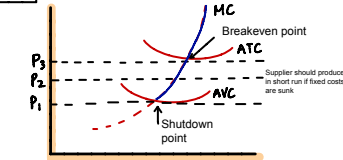
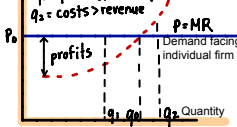
**Perfectly Competitive:** industry is one in which many suppliers producing an identical product face many buyers and no one can influence the market  
**Profit maximization:** goal of competitive suppliers, they seek to maximize the difference between revenues and costs

**Price taking behaviour:** no one firm can impact market price by altering its own price or output level

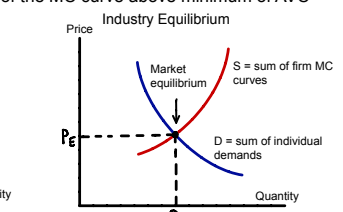
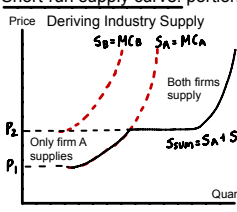
**Market characteristics:** must be many firms each small and powerless relative to the entire industry, product is standardized. Buyers have full information about product and price, free entry and exit of firms. Demand curve for each supplier is horizontal and downward sloping for whole industry

**Marginal revenue:** additional revenue to the firm resulting from the sale of one more unit of output  
 $MR = \frac{\Delta TR}{\Delta Q}$  ← total revenue

In perfect competition  $P = MC = MR$



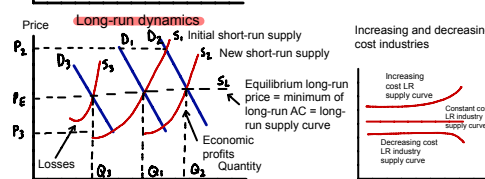
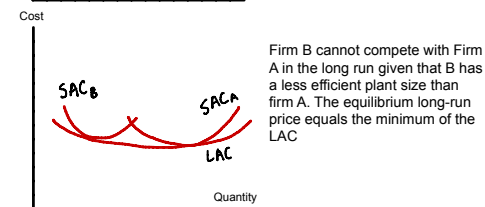
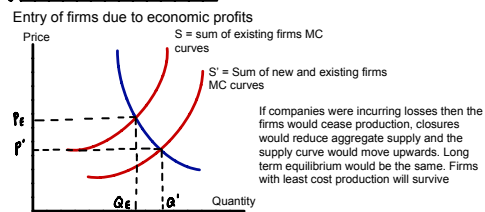
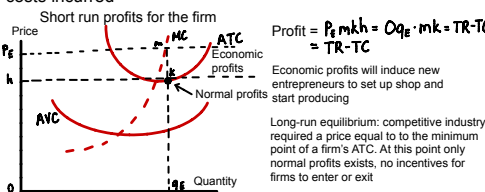
**Shut-down price:** minimum value of the AVC curve  
**Break-even price:** minimum of the ATC curve  
**Short-run supply curve:** portion of the MC curve above minimum of AVC



**Normal Profits:** required to induce suppliers to supply their goods and services. Reflects opportunity costs and can be considered as a type of cost component

**Economic (supernormal) Profits:** profits above normal profits that induce firms to enter an industry. Economic profits are based on opportunity cost of the resources used in production.

**Accounting Profits:** difference between revenues and actual costs incurred



**Increasing/decreasing cost:** industry where costs rise/fall for each firm because of the scale of industry operation

**Globalization and Technological Change**

The cost structure of many firms has been reduced to outsourcing to lower-wage economies, increases the minimum efficient scale for many industries, eliminated industries in the developing world

**Efficient Resource Allocation**

Where the demand and supply prices are equal. If demand is a measure of marginal benefit and supply is a measure of marginal cost then a perfectly competitive market insures that this condition will hold in equilibrium. Perfect competition results in resources between uses efficiently

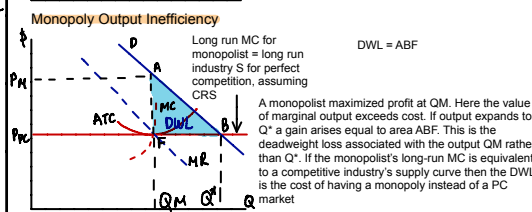
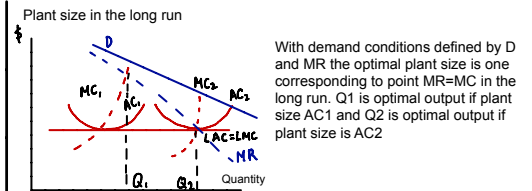
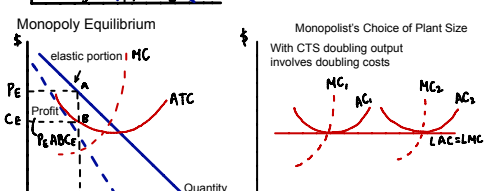
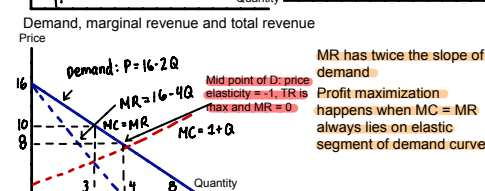
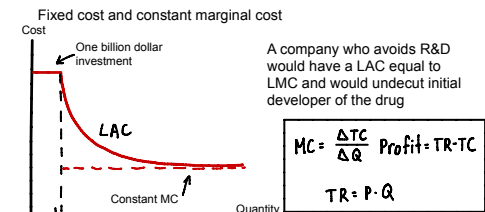
### 10 MONOPOLY

Scale economies define some industries production and cost structure up to very high output levels and the whole market might be supplied by a single firm.

**Natural monopoly:** one where ATC of producing any output declines with scale of operation

**Maintaining Barriers to Entry**

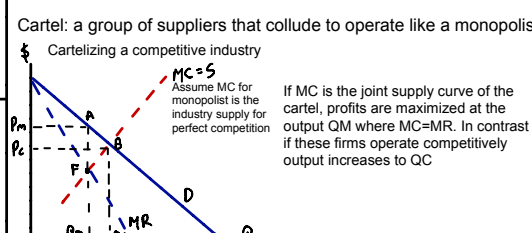
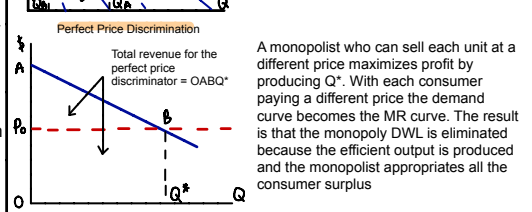
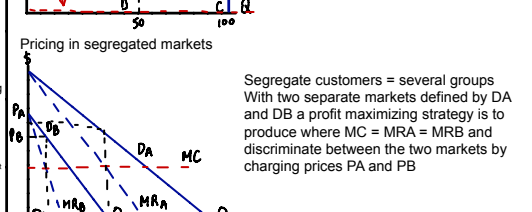
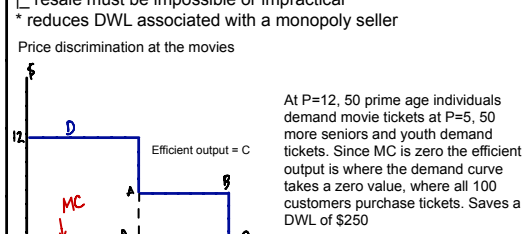
Patents and copyrights granted by government, predatory pricing (drive out potential competition), political lobbying (subsidies to prevent entry), critical networks, some products require large up-front investments



**Price discrimination:** charging different prices to different consumers in order to increase profit

- seller must segregate the market at a reasonable cost.
- resale must be impossible or impractical

\* reduces  $DWL$  associated with a monopoly seller



**Cartel Instability (ILLEGAL)**

Depends on the authority that the governing body of the cartel can exercise over its members and the degree of info it has on operation of members. Instability lies in the fact that each individual member of the cartel has an incentive to increase its output, it is difficult to restrict all members from doing so

**Rent Seeking:** activity that uses productive resources to redistribute rather than create output and value

- lobbying and bribing of politicians (loan guarantees maintain marketing board)
- most prevalent in monopolies when economic profit is greatest, additional cost borne by the producer and increases costs

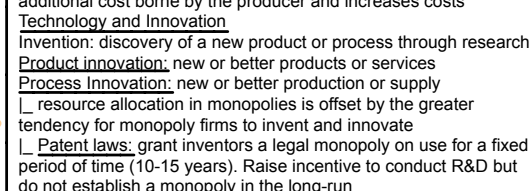
**Technology and Innovation**

Invention: discovery of a new product or process through research

Product innovation: new or better products or services

Process Innovation: new or better production or supply

- resource allocation in monopolies is offset by the greater tendency for monopoly firms to invent and innovate
- Patent laws: grant inventors a legal monopoly on use for a fixed period of time (10-15 years). Raise incentive to conduct R&D but do not establish a monopoly in the long-run



### 11 Imperfect Competition

**Imperfect Competition:** face a downward-sloping demand curve and their output price reflects the quantity sold

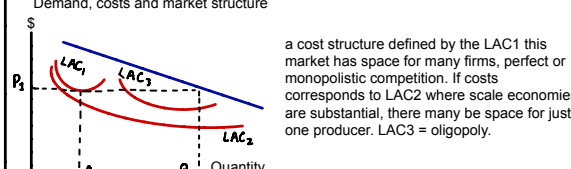
**Oligopoly:** an industry with a small number of suppliers

**Monopolistic competition:** market with many sellers of products that have similar characteristics. Monopolistically competitive firms can exert only a small influence on the whole market

**Duopoly:** market or sector with just two firms

Competition	Number of Firms	Ability to Affect Price	Entry Barriers
Perfect	Very many	None	None
Imperfect			
Monopolistic	Many	Small	Small
Oligopoly	Few	Bigger	Bigger
Monopoly	One	Very large	Very large

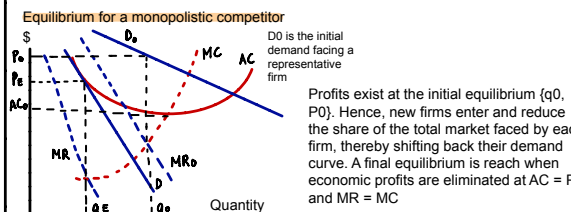
\* demand and cost interact to determine the number of market participants



**n-firm concentration ratio:** sales share of the largest N firms in the sector of the economy

**Monopolistic Competition**

**Differentiated product:** one that differs slightly from other products in the same market



**Monopolistic competitive equilibrium:** long run requires the firm's demand curve to be tangent to the ATC curve at the output where  $MR=MC$ ,  $P = ATC$

**Oligopoly and Games**

**Collusion:** explicit or implicit agreement to avoid competition with a view to increasing profit

- example: cooperating to form a cartel

**Conjecture:** belief that one firm forms about strategic reaction of another competing firm

**Game:** situation in which contestants plan strategically to maximize their profits taking account of rivals' behaviour

- the firms are the players and their payoffs are their profits

**Strategy:** game plan describing how a player acts or moves in each possible situation

**Nash equilibrium:** each player chooses the best strategy given the strategies chosen by the other player and there is no incentive for the other player to move

**Dominant strategy:** player's best strategy, whatever the strategies adopted by rivals

**Payoff Matrix:** rewards to each player resulting from particular choices

Will's Choice		Kate's choice	
		Contribute	Laze
Contribute	Contribute	5,5	2,6
	Laze	6,2	3,3

Nash equilibrium  $\rightarrow$  3,3

The dominant strategy is for Kate & Will to be lazy regardless of either of them do

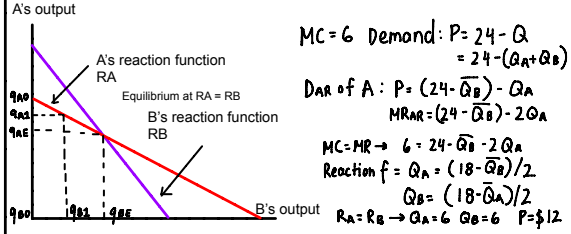
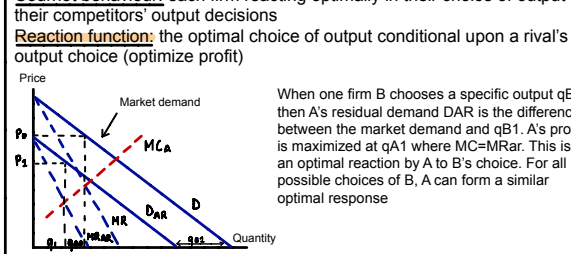
Will's Choice		Kate's choice	
		Contribute	Laze
Contribute	Contribute	5,5	0,4
	Laze	4,0	3,3

There is no dominant strategy, results in two equilibrium one at {5,5} and one at {3,3} Can make a binding commitment to agree to both contribute at {5,5}

**Duopoly and Cournot Games**

**Cournot behaviour:** each firm reacting optimally in their choice of output to their competitors' output decisions

**Reaction function:** the optimal choice of output conditional upon a rival's output choice (optimize profit)



**Monopolist:**  $MC = MR$ , **Perfect Competitor:**  $P = MC$ , **Duopolist:** in between

**Individual firm output = market output under competitive behaviour / (N+1)**

Ex: in a duopoly  $N=2$  and competitive output = 18, yields a firm output of 6

**Entry, Exit & Potential Competition**

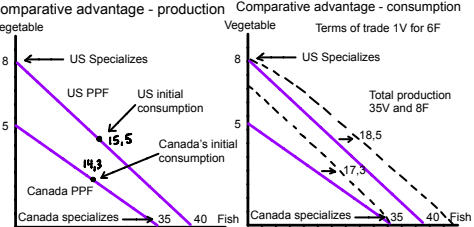
Firms who enter the industry do it if there are enough profit. If potential new firm has the same marginal and fixed costs by entering the market will now be split three ways. This may squeeze the profit margins of all three suppliers to such an extent that the operating margins are no longer sufficient to cover fixed costs

**Detering entry:** make costly investments to scare competitors, advertising to build brand loyalty

# 12 INTERNATIONAL TRADE

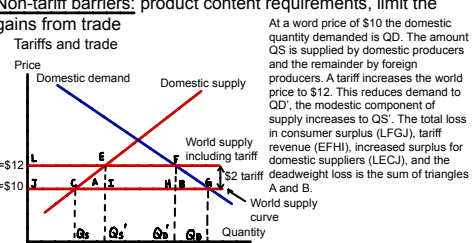
## Trade Issues

- Agricultural protections:** protects developed economy farmers, hurts farmers from Least Developed Countries (LDC)
- Globalization:** outsource manufacturing to LDCs
- Access to markets:** NAFTA & EU trade agreements
- Absolute advantage:** one economy uses fewer inputs than another economy to produce a good or service
- Principle of Comparative Advantage:** if one country has an absolute advantage in producing both goods, gains to specialization and trade still materialize, provided the opportunity cost of producing the goods differs between economies

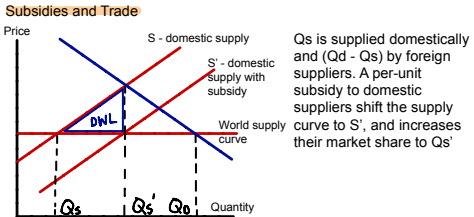


Comparative advantage shows gains to trade are to be reaped by an efficient economy, by trading with an economy that may be less efficient in producing each good

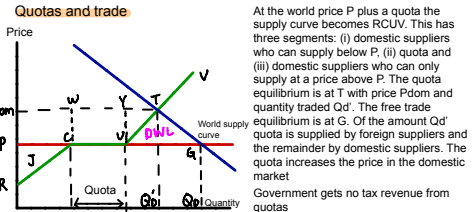
- Terms of trade:** the rate at which goods trade internationally
- Consumption possibility frontier:** what an economy can consume after production specialization and trade
- Trade Barriers:** tariffs, subsidies and quotas
- Tariff:** tax on an imported product that is designed to limit trade in addition to generating tax revenue.
- Quota:** quantitative limit on an imported product
- Trade subsidy:** domestic manufacturer reduces the domestic cost and limits imports
- Non-tariff barriers:** product content requirements, limit the gains from trade



At a world price of \$10 the domestic quantity demanded is QD. The amount QS is supplied by domestic producers and the remainder by foreign producers. A tariff increases the world price to \$12. This reduces demand to QD', the modest component of supply increases to QS'. The total loss in consumer surplus (LFGJ), tariff revenue (EFH), increased surplus for domestic suppliers (LECF), and the deadweight loss is the sum of triangles A and B.



Qs is supplied domestically and (Qd - Qs) by foreign suppliers. A per-unit subsidy to domestic suppliers shift the supply curve to S', and increases their market share to Qs'



At the world price P plus a quota the supply curve becomes RCUV. This has three segments: (i) domestic suppliers who can supply below P, (ii) quota and (iii) domestic suppliers who can only supply at a price above P. The quota equilibrium is at T with price Pdom and quantity traded Qd'. The free trade equilibrium is at G. Of the amount Qd' quota is supplied by foreign suppliers. The quota increases the price in the domestic market. Government gets no tax revenue from quotas