ECONOMIC 1000

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12:05 AM

CH 1.
Economic 1000V is about:
- Money
- Study of how all society manage their resources
  - What goods to produce Efficiency
  - How to produce them? Equity (fairness)
  - Who gets them?
- Way of thinking about human interaction
  - Rational individual behaviour
  - Equilibrium (everything comes together to become 1 big equilibrium)
- What economists do.
  - 10 principles of Economics (10 ideas of how economist thinks)

1. People face trade off
   - production possibility frontier (boundary line)
     - Points outside of the boundary is not possible
     - Usually choose from points on the boundary
     - Inside the boundary when consumers are SATIATED (satisfied) / goods are NOT SCARCES
       - SCAR CITY -> society has limited resources therefore cannot produce all the goods people want
     - Efficient point: point where it would make consumers most happy with the use of their resource
2. **Opportunity** cost
   - The cost of something in order to produce something, the value worth of the product is the cost of the other. (in economic, money is not considered in this case)
   - If consumer wants a good, what other good does he have to give up?
   - The cost is the next best alternative.
     - EX. Ppl love apple and banana, but hates carrot, the worth of apple is the cost of banana, not carrot because no1 likes carrot.
   - The **Opportunity cost** is the **slope** in the PPF
3. Rational people think at the margin
   - Marginal changes-> A SMALL INCERMENTAL AJUSTMENT TO A PLAN F ACTION
     - Changes happen bit by bit, until the changes reached the optimal (The desired condition)
     - A rational decision maker takes an action if and only if the marginal benefit of the action exceeds the marginal cost
     - The Marginal = The opportunity cost
     - Exception of margin
       - Either the 1 or the other, nothing in between
4. People respond to incentives (incentives-> something that induces a person to act)
   - As price decreases, it motivates people for their actions
     - Ex. Demand curve slopes down
       - The cheaper the goods become, the more consumers will purchase
5. Trade can make every1 better off
   - People are specialize at 1 thing, and they use this thing to trade for other things that they need, that are specialized by other people
   - Comparative advantage
     - Some1 might be good at 2 things, he is relative better at 1 thing than another, relative better than another person

Individuals

6. Markets are **usually** a good way to organize economic activity
   - Every1 are specialized, we will need an organization where people can come together and trade
   - No central controller to control how the goods go out
     - Too complicated (ex. North Korea)
   - Prices of the goods controls everything and tells us about the economy
   - Creates unequal distribution (monopoly)
     - Rich & poor
7. Government can sometimes improve market
   - Government is need to define the needs, and enforce them such as property rights
8. A country's standard of living depends on its ability to produce goods & services (AKA productivity)
   - Income reflects the quality of life in different countries
9. Price rise when the government prints too much money (inflation)
   - Increase in the overall level of prices in the economy
     - value of money falls
   - Government use extreme ways trying to boost a nations economy (short-run boost) , such as wars and inflation -> **broken window fallacy**
10. Society face a short-run trade-off between inflation and unemployment
    - Increase amount of money=higher demand for goods and services=higher price in goods=more hiring=lower unemployment

Interaction between people

Economy as a whole

Resource constraint - equation of resource available
Technology-equation of the goods
Efficiency-society is getting maximum benefit from its scarce resources
Equality-these benefits are distributed uniformly among society's members
CPI-consumer price index
Competitive market-a market where there are so many buyer and seller that each have negligible impact on the price
Tariff-tax on imported / exported goods
Subsidy: an assistance paid to a firm or business by the government
Quota-a limit on the quantity of imports, or good produce
Feasible- possible to do easily or conveniently
Exemption- the circumstances of a taxpayer, where base on his age / dependent, allow him to deduct in taxable income
Luddite: people who opposes technological progress
Pigou tax: the tax that government impost to limit the production of a good due to negative externalities
**when doing questions, always solve the question by example, NEVER memorize
**if the change is on the axis, it changes alone the curve, if the change is no on the axis, it shifts the curve

Relation between inflation & CPI
- CPI = tells you the level of the price on average
- Inflation rate = tells you how quickly the average level of prices rises over time

CH 2.
Model made by economists are false
- Many details are left out
- Way too complicated to be correct (7billino ppl)
- Always simplify, then find out a theories which explain it roughly

Output market
- Market where goods/services exchange to money
Input market
- Market where money exchange to goods/services

Positive normative extinction:
Positive (claim about how the world is)
- Descriptive
- Reality
Normative (claim about how the world ought to be)
- Desirable
- prescriptive

CH 3. Trade
- **Comparative advantage**
  - Comparing the opportunity cost between 2 producer
  - Lower opportunity cost = comparative advantage
    - Video 3a, 50:00
    - when comparing 2 goods, the comparative advantage of 1 country is impossible in both good
- Autarky
  - Definition: no trade
  - equilibrium
- When a country is better at a good than another good, and most of their production goes in that good, the **world production** become equal after trade
  - The price of the good will lie between the price of the good in 2 countries
  - Video 3a, 1:04:00-01:19:00
  - The world production must be positive after a trade
- When trading between countries, such as US & CA
  - Buy the cheaper goods and sell the goods at a more expensive price
  - The worse economy will become more similar to the better economy (worse economy may have a higher advantage)
  - 3 scenarios may happen:
    - The price of the good between 2 countries will eventually be the same (no more profit), since buying increase the demand of the good & selling decrease the demand of the good
      - The price of the good must be in between the price of 2 countries (more or less)
      - 1 countries will then specialize in 1 of the good, and the other will be in specialized in another good

CH 4.
- Law of demand
  - The claim that, other things equal, the quantity demanded of a good falls when the price rises
- The market demand/supply curve is the sum of individual demands/supplies.
- Increase quantity demand at every price, shift the curve to the right
- decrease quantity demand at every price, shift the curve to the left
- **Normal good**=demand falls when income falls
- **Inferior good**=demand rise when income falls
- **Substitute**= goods that are used in place of each other
- **Compliments**=pair of goods that are used together
- Law of supply
  - The claim that, other things equal, the quantity supplied of good rises when the price of the good rises
- Law of supply and demand
  - The price of any good adjusts to bring the quantity supplied and quantity demand into balance

Demand curve VS supply curve
- Demand curve slopes down, as price increase, demand decrease
- Supply curve slopes up, as price increase, supply increase

CH 5.
- elasticity = measure of how much buyers and sellers responds to changes in marketing conditions
- Elastic -> when demand for good responds substantially when price changes
- Inelastic -> when demand for good remains as the price changes

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

**be careful, its %.

Mid point method (better method):
Price elasticity of demand = $\frac{(Q2-Q1)/[(Q2+Q1)/2]}{(P2-P1)/[(P2+P1)/2]}$
- Price elasticity of demand:
  - >1 = elastic
  - <1 = inelastic
  - =1 = unit elasticity (line begin from the origin, rectangular hyperbola for demand, line with slope for supply)
  - =0 = perfectly inelastic
  - =∞ =perfectly elastic
- Flatter the demand curve = greater the price elasticity of demand
- Steeper the demand curve = smaller the price elasticity of demand
- Total revenue
  - Amount paid by buyers and received by sellers
  - Total revenue = P X Q
  - When demand is inelastic, price and total revenue moves in same direction
  - When demand is elastic, price and total revenue moves in opposite direction
  - When demand is unit elastic, total revenue remain constant when price changes
- Income elasticity of demand
  - Measures how the quantity demanded changes as consumers income changes
  - Income elasticity of demand = $\frac{\%\ change\ in\ quantity\ demanded}{\%\ change\ in\ income}$
  - Income elasticity of demand = Positive --> normal good
  - Income elasticity of demand = negative --> inferior good
- Cross-price elasticity of demand
  - Measures how the quantity demanded of 1 good responds to price change of another good
  - Cross-price elasticity of demand = $\frac{\%\ change\ in\ quantity\ demand\ of\ good\ a}{\%\ change\ in\ price\ of\ good\ b}$
  - Cross-price elasticity of demand = positive --> substitutes
- Price elasticity of supply = $\frac{\%\ change\ in\ quantity\ supplied}{\%\ change\ in\ price}$
- Cross-price elasticity of demand = negative--> complements

CH 18.
- Factors of production

Inputs used to produce goods and services	Labor, land & capital

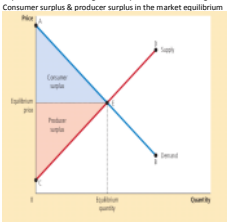
- Production function: the relationship between the quantity of inputs used to make a good and the quantity of output of that good
- Value of marginal product = Price X marginal product of labor
- Competitive, profit maximizing firm hires worker to the point where value of marginal product of labor equals wage


<-- labor demand curve

- Things that might cause the labor demand to shift:
  - Output price
    - Value of the marginal product changes, labor demand changes
  - Technological change
    - Labor -saving: reduce labor demand
    - Labor -augmenting: rise labor demand
  - Supply of other factors
    - Fall in supply of the goods need to produce product reduce labor demand

CH 6.
Price ceiling- a legal maximum on the price at which a good can be sold
Price floor- a legal minimum on the price at which a good can be sold
- When price hit the price ceiling
  - Increase, price can not go toward equilibrium
  - Shortage of goods occur
  - More elastic = more shortage
  - p. 113
- when price hit the price flooring
  - Decrease, Price can not go toward equilibrium
  - Surplus of good occur
  - More elastic = more surplus
  - p. 115
- Between supply and demand
  - Tax falls heavier on inelastic proportion
    - Ex. Inelastic is more vertical
      - The distance from inelastic point to the equilibrium is more than elastic point to the equilibrium vertically
    - p. 129 Figure 9

CH 7.
Welfare economic - the study of how the allocation (distribution) of resources affects economic well - being
Willingness to pay-the maximum amount that a buyer will pay for a good
Consumer surplus-the amount a buyer is willing to pay for the good minus the amount the buyer pay
Producer surplus-the amount a seller is paid minus the cost of production
**area between demand curve/supply curve & price measures the consumer/producer surplus
Total surplus= total value of the good to buyer - total cost of the good to seller
- Consumer surplus & producer surplus in the market equilibrium



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- Free market produce goods that maximize the consumer and producer surplus (equilibrium)

CH 8.
- Tax revenue = tax X quantity

- Tax creates a dead weight loss, where the loss of consumer and producer is greater than the tax gained by government (the cost where no1 gained from)
- Deadweight loss = the fall in total surplus that results form a market distortion, such as tax
- P 158
- Greater elasticity = greater deadweight loss

CH 9.
- Summary of international trade
- Figure explanation p. 174
  Exporting countries:
  - The domestic price before trade is below the world price
  - When a country becomes exporting country, producers are better off & consumers are worse off
  - Trade raises the economic well-being as a nation in a sense that win of winner exceed the loss of the loser

  Importing countries:
  - The domestic price before trade is above the world price
  - When a country becomes importing country, consumers are better off & producers are worse off
  - Trade raises the economic well-being as a nation in a sense that win of winner exceed the loss of the loser
- Other benefits of international trades:
  - Increased variety of good
  - Lower costs through economic of scale (cheaper to produce in great amount)
  - Increase competition (avoiding a company to gain market power which is a market failure)
  - Enhanced flow of idea
- Argument against trades
  - The job argument
  - The National-security argument
  - The Infant-Industry argument
  - The Unfair-Competition argument
  - The Protection-as-a-Bargaining-Chip argument
    - A bargain/threat with another country, if you remove a tariff on something, I will remove mine as well

CH 10.
- Externality (spillovers)
  - The compensated impact of 1 persons actions on the well-being of a bystander
  - Negative externality when the impact on the bystander is adverse
    - Ex: pollution from factories
  - Positive externality when the impact is beneficial
    - Ex: tree planting
- Government try to align private incentives with social cost and benefits using tax system for negative externalities
- Government try to give subsidies to promote incentives of positive externalities
- Internalizing the externality
  - Taxing the goods which are negative externality to decrease the incentives of buyer and seller, thus lower its equilibrium

  Public policies toward externalities
  - Command-and-control policies: regulation
    - Government makes certain behaviour either required or forbidden
  - Market-based policy 1: corrective taxes and subsidies
    - Corrective taxes- taxes enacted to deal with effects of negative externalities (* does not create dead weight loss & opposite from normal taxes)
    - Subsidies- giving benefits to company with positive externalities
  - Market-based policies: tradable pollution permits
    - Government auction out an amount of pollution permits, base on the willingness of the good, pollution can be controlled
    - This method is usually better than corrective tax due to:
      - Quantity of pollution is not required to be determined before auctioning out the permits unlike the corrective tax
      - Permit creates a set quantity of pollution where corrective tax can only reduce the pollution
- Private solutions to externalities
  - Moral codes & social sanctions
  - Charities
  - Combing different types of producer in a firm, which they are related to each other and have a positive externalities between them
- The Coase Theorem (does not always work)
  - If private parties can bargain over the allocation of resources at no cost, then the private market will always solve the problem of externalities and allocate resources efficiently
  - Agreement might be difficult to enforce
  - Transaction cost: the cost that parties incur in the process of agreeing to and following through on a bargain
  - Bargain is time consuming, externalities might still be taking place while working out a bargain
- Technology spillovers
  - Positive externality
  - Impact of 1 firm's research increase the efforts of other firms' access to technological advance
- Industrial policy
  - Government intervention in the economy that aims to promote technology-enhancing industries
  - Really difficult to measure the size of spillover from different markets
- **Marginal social benefit on a curve does not count as the new equilibrium! (social optimum is not an equilibrium of the market unless government take action)
  - If reach the marginal social optimum, there will be dead weight loss

CH 16.
- Oligopoly: a market with a few seller, each offering a product that is similar or identical
- Perfectly competitive: firms sell identical products

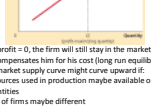
CH 11.
- goods are grouped to 2 characteristics:
  - Excludable: can people be prevented from using the good?
  - Rival in consumption: does one person's use of the good reduce another person's ability to use it?
- Goods are divided into 4 categories:
  - Private goods
    - Both excludable & rival in consumption
    - Ex: ice-cream cone
  - Public goods
    - Neither excludable nor rival in consumption
    - Ex: siren, alarm, road, highways
    - Prevents free-rider problem
      - People who receives the benefits but avoids paying for it, assume a private market, if people knows that they can get the goods for free, no 1 would be paying for it.
    - 3 most important public goods:
      - National defense
      - Basic research
      - Fighting poverty
  - Common resources
    - Rival in consumption
    - Ex: fish in the ocean, grazing lands
    - Tragedy of the commons
      - People over use the common resources results in the extinction of the resources
    - Important common resources:
      - Clean air & water, congested roads, wildlife
  - Club goods (natural monopoly)
    - Excludable
    - Ex: fire protection
- Human life is worth around 10 million

CH 12
- Budget deficit: an excess of government spending over government receipts
- Budget surplus: an excess of government receipts over government spending
- Goal of government:
  - Define and protect property right
  - taxes public goods & club goods
  - Redistribution
- Us federal government is in a budget deficit because:
  - Elderly population are increasing
  - Newborn population are decreasing
  - Government is spending too much on medicare
- Most important tax for state and local government:
  - Sale taxes & property taxes
- Objective of policy maker on tax system:
  - Efficiency & equity
- 2 types of tax rate:
  - Average tax rate
    - Total taxes paid divided by total income
  - Marginal tax rate
    - Extra taxes paid on an additional dollar of income (slope %)
- Lump-sum taxes(rare)
  - A tax of the same amount that everyone have to pay, regardless of earning
  - No equity
  - Most efficient tax system
- Principles to define a tax system:
  - Benefits principle
    - The idea that people should pay taxes based on the benefits they receive from government services
    - Ex: gasoline tax
      - The revenues form gasoline tax often use to build roads
  - The ability-to-pay principle
    - The idea that taxes should be levied on a person according to how well that person can shoulder the burden
    - Using 2 corollary notions of equity:
      - Vertical equity: taxpayer with a greater ability to pay tax should contribute a larger amount
      - Horizontal equity: taxpayers with similar abilities to pay should contribute the same amount
  - Proportional tax system:
    - All taxpayer pay the same fraction of income
  - Regressive tax system:
    - Higher-income taxpayer pay smaller fraction of their income (larger amount)
  - Progressive tax system:
    - Higher-income taxpayer pay a larger fraction of their income
  - Tax incidence: the study of who bears the burden of taxes

CH 13
Industrial organization: the study how firms' decisions about prices and quantity depend on the market conditions they face
- Profit = total revenue - total cost
  - Cost (opportunity cost):
    - Explicit cost: input cost that require an outlay or money by the firm
    - implicit cost: input cost that do not require an outlay of money by the firm
    - Cost = explicit cost + implicit cost
- Economic profit = revenue - all cost (explicit & implicit)
- Accounting profit = revenue - explicit cost
- Marginal product: the increase in output that arises from an additional unit of input
- Diminishing marginal product: the property whereby the marginal product of an input declines as the quantity of the input increases
- Fixed cost: cost that do not vary with quantity of output produced
- Variable cost: cost that vary with quantity of output produced
- Average total cost = average fixed cost + average variable cost
- Marginal cost: Increase in total cost that arises from an extra unit of production
  - Marginal cost = change in total cost / change in quantity
- Efficient scale: the quantity of output that minimizes average total cost
- Marginal cost < average total cost: average total cost is falling
- Marginal cost > average total cost: average total cost is raising
- Marginal cost = average total cost: average total cost is at its minimum
- Economies of scale: a firm's long-run average total cost declines as output increases
- Diseconomies of scale: a firm's long-run average total cost rises as output increases
  - Arise because of coordination problems
    - The more goods a firm produces, the more stretched the management team becomes & the less effective the managers become at keeping the costs down
- Constant returns to scale: average total cost does not vary with level of output

CH 14.
- Characteristic of competitive market:
  - Many buyers and sellers in the market
  - Goods offered by the various sellers are largely the same
  - Firms can freely enter or exit the market
  - Actions of any singer buyer or seller in the market have a negligible impact on the market price
  - Both buyers and sellers are price takers
- Marginal revenue: the change in total revenue from an additional unit sold
- Sellers: average revenue = marginal revenue = price of the good
- If:
  - Marginal revenue > marginal cost: increase output
  - Marginal revenue < marginal cost: decrease output
  - Marginal revenue = marginal cost: maximum profit
- Firm SHUT DOWN(still have to pay the fixed cost) if:
  - total revenue < variable cost of production
  - price < average variable cost
- Firm EXIT (no cost) if:
  - Total revenue < total cost
- A competitive firm's maximum profit is at the interception of MC and P

- The MC always cut across the minimum point of ATC and AVC
- A competitive firm's profit / loss is the area between the price an the average total cost



- If a firm's profit = 0, the firm will still stay in the market because its revenue compensates him for his cost (long run equilibrium)
- Long-run market supply curve might curve upward if:
  - Resources used in production maybe available only in limited quantities
  - Cost of firms maybe different

CH 15.
- Monopoly: a firm that is the sole seller of a product without close substitutes (market power)
  - Cause: barriers to entry
    - Monopoly resources
      - A firm owns a key resource
    - Government regulation
      - Copy rights
    - Production process
      - Natural monopoly: a monopoly that arises because a single firm can supply a good or service to an entire market at a smaller cost than could 2 or more firms
        - Average total cost at lowest if a single firm serves the entire market
        - As the market expands, natural monopoly might evolve into a competitive market
- A competitive firm's demand curve is horizontal because they are price takers

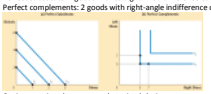
- Output price
  - Value of the marginal product changes, labor demand changes
- Technological change
  - Labor -saving: reduce labor demand
  - Labor -augmenting: rise labor demand
- Supply of other factors
  - Fall in supply of the goods need to produce product reduce labor demand

- Labor-supply curve: trade-off between labor and leisure
  - Shifts due to:
    - Changes in tastes / attitudes toward work
    - Changes in alternative opportunities (other similar jobs might pay higher)
    - Immigration
- Equilibrium in the labor market:
  - Wage adjusts to balance the supply and demand for labor
  - Wage equals the value of the marginal product of labor
- Productivity and wage are equal.
  - Rise in productivity rises wage
- Monopsony: a firm with market power which can affect wage easily
  - A buyer of labor similar to monopoly (seller of product)
- Capital income: a income which households receive from firms
  Ex: stocks for stockholders
- The rental price of any factor of product = value of that factor's marginal product

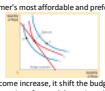
CH 21.

- Budget constraint: the limit on the consumption bundles that a consumer can afford
- Slope of budget constraint= relative price of 2 goods
- Marginal rate of substitution=rate at which a consumer is willing to trade one good for another
  - The slope of any point on an indifference curve
- Indifference curves = a curve that shows consumption bundles that give the consumer the same level of satisfaction
  - 4 properties to describe it:
    - Higher indifference curve are preferred to lower ones
      - Higher indifference means more of the both good available at a lower price
    - Indifference curve are downward sloping
      - The quantity of one good decrease, the quantity of other good must increase to make consumer equally happy
    - Indifference curve do not cross
      - Or else it is not indifference
    - Indifference curve are bowed inward
      - Consumer are willing to trade goods that have in abundance, such as if consumer have a lot of pizza, they are willing to trade 1 pizza for 1 Pepsi.
      - Shape & differences of 2 points is the consumer's willingness to trade

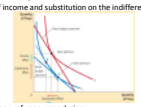
- Perfect substitute: 2 goods with straight-line indifference curve
- Perfect complements: 2 goods with right-angle indifference curve



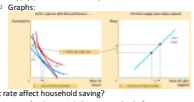
- Optimum point: the consumer's optimal choice:
  - The highest indifference curve that just barely touches his budget constraint
  - The consumer's most affordable and preferable point



- As consumers income increase, it shift the budget constraint outward
- Income effect: the price of a good drops, it makes consumers as if their richer than before
- Substitution effect: the price of a good drops it makes the other good relative more expensive, reduces its demand
- Effect of income and substitution on the indifference curve:



- Basic theory of consumer choice:
  - Do all demand curve slopes downward?
    - Demand curve are usually curve downward unless:
    - If the good is a Giffen good (a good which an increase in price rises its quantity demanded), the demand curve will curve upward instead.
  - How do wages affect labor supply?
    - When wage rises, budget constraint gets more steep, consumers respond in 2 ways:
      - Work more and enjoy less leisure, increase labor supply (income effect)
      - Work less and enjoy more leisure, decrease labor supply (substitution effect)
      - Graphs:



- How do interest rate affect household saving?
  - One might respond to increase in interest saving in 2 ways:
    - Income effect: save more and consume less
    - Substitution effect: save less and consume more

- Really difficult to measure the size of spillover from different markets
- **Marginal social benefit on a curve does not count as the new equilibrium! (social optimum is not an equilibrium of the market unless government take action)
  - If reach the marginal social optimum, there will be dead weight loss

CH 16.

- Oligopoly: a market with a few seller, each offering a product that is similar or identical
- Perfectly competitive: firms sell identical products
- Monopolistic competitive: neither monopoly nor competitive
  - Ex: Market for novel
  - Monopolistic competition: a market with sellers, each selling similar product but not identical
    - Many firm competing for the same group of customers
    - Each firm produces a product similar to others
    - Each firm faces a downward-sloping demand curve (similar to monopoly in short run)
    - firms can enter or exit market without restriction
    - Almost competitive but the product are not the same
    - Have dead weight loss similar to monopolist
    - Advertisement
- Imperfect competition: some what price taker but also have some market power

- If price excess ATC, firm makes profit, if price below ATC, firm trying to minimize loss

- Profit and loss will eventually become 0, as firms enter and exit the market
- Efficient scale: a firm produce at its minimal average total cost
- Monopolistically competitive firm can not produce at minimal cost because it will create excess quantity (not efficient)
  - If the firm produce more, and sell at lower price, it could gain more profit

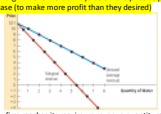
- Perfectly competitor does not care about consumer because they gain no profit
- Entry of a new monopolistic competitive:
  - The product-variety externality: consumer get some consumer surplus from the introduction of new product, entry conveys a positive externality on consumers
  - The business-stealing externality: other firms lose customers and profit, entry imposes a negative externality
- Advertisement:
  - Convey a subconscious to the consumers
  - Impedes competition
  - Provide some information of the product
  - Allow new firms to enter easier
  - When a firm is willing to spend so much money on advertisement, its quality cant be too bad
- Brand name:
  - Provide consumers with information about quality when quality cannot be easily judged
  - Give firms an incentive to maintain high quality

CH 17.

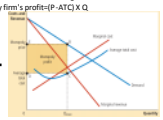
Oligopoly:

- A market structure in which only a few sellers offer similar or identical products
- The action of any seller in the market can have a large impact on the profit of all other sellers
- Game theory is used in such market: the study of hot people behave in strategic situations
  - While choose a strategy, keep in mind how others respond to it
- Duopoly: a market with only 2 sellers
  - During duopoly:
    - Collusion: an agreement among firms over production and price
    - Cartel: group of firms acting in unison
- Antitrust Law: prohibit explicit agreement among oligopolists as a matter of public policy
- Nash equilibrium : a situation in which economic actors interacting with one another each choosing their best strategy, given the strategies the others have chosen
- Oligopolists would be better off cooperating and reaching the monopoly outcome, yet because they pursue their own self-interest, they do not end up reaching the monopoly outcome
  - Oligopolists will have to find the balance between output effect and price effect
- As the number of seller increase, oligopoly look more and more like a competitive market
- The prisoner's dilemma :
  - 2 prisoners, each go for what is best for them, in term, both of them did not get what they wanted
  - Dominant strategies: a strategy that is best for a player in a game regardless of the strategies chosen by the other player
    - A less preferred outcome for both players
  - Relating to oligopolist:
    - Each oligopolist wants a bigger share of the profit, in the end, they foul on the agreement and each one of them is worse off
- Tit-for-tat: a way to make cooperate between oligopolist possible
  - Start out friendly, penalizes unfriendly players, and forgives them if warranted
- Controversies over Antitrust policy (within grey scale)
  - Resale price maintenance: the production firm require the retail store to sell at a higher price than them
  - Predatory pricing: a firm with market power lower its price to drive the other firms out and then rises it price again
  - Tying: to sell 2 goods together at a single price, 2 people each want 1 of the good at cheaper price will now have to buy both of the goods at a higher price
    - Copy rights
- Production process
  - Natural monopoly: a monopoly that arises because a single firm can supply a good or service to an entire market at a smaller cost than could 2 or more firms
    - Average total cost at lowest if a single firm serves the entire market
    - As the market expands, natural monopoly might evolve into a competitive market

- A competitive firm's demand curve is horizontal because they are price takers
- A monopoly's firm's demand curve is the market's demand curve because they are price makers
- A monopoly's firm do not have a supply curve, because they choose the quantity to supply
- When a monopoly increase the amount it sells:
  - Output effect: more output is sold, higher total revenue
  - Price effect: price falls, lower total revenue (no price effect for competitive)
- Monopoly's marginal -revenue curve lies below its demand curve
  - As marginal revenue is negative, the firm is at negative profit
  - The marginal revenue is always below the price as production of the good increase (to make more profit than they desired)



- A monopoly firm reaches its maximum revenue quantity at the interception of marginal revenue curve & marginal cost curve
- Monopoly firm's profit=(P -ATC) X Q



- As a firm discover new good, government might put a patent on it
  - The firm is a monopoly
  - As the patent expires, new firms comes in
  - The monopoly firm then will have to lower its price to compete with the other firms
- Monopoly is inefficiency
  - They output below the efficient quantity, and produce at the maximum profit for themselves.
  - Create dead weight loss

- Price discrimination: the business practice of selling the same good at different price to different customers
  - When different group of people are willing to buy a good at different price, in which the 2 groups are not related, the monopoly firm can choose to sell the good to both at different price
  - Rational strategy for profit-maximizing monopolist
  - Price discrimination can rise economic welfare
    - If everything is sold at the same price, only 1 group of people would buy it
    - Not as high dead weight loss
  - Rise monopolist's profit
- Perfect price discrimination: a situation in which the monopolist knows exactly each customer's willingness to pay and charge each customer at that price
- Examples of price discrimination:
  - Movie tickets (senior & child tickets)
  - Airline prices (business traveller vs leisure traveller)
  - Quantity discounts
- When monopolies produce less than socially desirable quantity, government try to:
  - Make monopolized industries more competitive
  - Regulate the behaviour of the monopolies
  - Turn some private monopolies into public enterprises
    - Government run the company itself, such as postal service
  - Doing nothing at all
    - There are political problem if government take over , sometime leave the firm be is the best way to go

	Competition	Monopoly
Similarities		
Goal of firms	Maximize profits	Maximize profits
Rule for maximizing	$MR = MC$	$MR = MC$
Can earn economic profits in the short run?	Yes	Yes
Differences		
Number of firms	Many	One
Marginal revenue	$MR = P$	$MR < P$
Price	$P = MC$	$P > MC$
Produces welfare-maximizing level of output?	Yes	No
Entry in long run?	Yes	No
Can earn economic profits in long run?	No	Yes
Price discrimination possible?	No	Yes