Introduction to Microeconomics

Chapter 1

- *Economics*
  - Study of how people manage resources
  - Decisions about how to allocate resources can be made by individuals, but also by groups of people in families, firms, governments and other organizations
- *Ressources*
  - Not just physical things like cash, land and gold mines
  - Also intangible things, such as time, ideas, technology, job experience and even personal relationship
- *Two broad fields*
  - *Microeconomics*
    - Study of how individuals and firms manage resources
  - *Macroeconomics*
    - Study of the economy on a regional, national or international scale
- Highly related and interdependent
- Compare the choices available to them
- Behave in a way that will best achieve their goals
- *Rational Behaviour*
  - When people make choices to achieve their goals in the most effective way possible
- Economists tend to break down problems by asking
  - What are the wants and constraints of those involved
  - What are the trade-offs
  - How will others respond
  - Why isn't everyone already doing it
- *Scarcity*
  - Condition of wanting more than we can get with available resources
- Weighing the trade-off between costs and benefits
- The *costs* of a decision are not always clear
- *Opportunity cost*
  - True cost of your choice which is equal to the value of what you have to give up in order to get something
  - Value of your next-best alternative
- Examining opportunity costs help us think better about trade-offs
- Economists often express opportunity cost as a dollar value

- *Marginal decision making*
    - Rational people make decisions at the margin
    - Idea that rational people compare the additional benefits of a choice against the additional costs, without considering related benefits and costs of past choices
- *Sunk costs*
    - Have been incurred and cannot be recovered
    - Should not have any bearing on your marginal decision about what to do next
- *Incentive*
    - Something that causes people to behave in a certain way by changing the trade-off they face
        - *Positive incentive (incentive)*
            - Makes people more likely to do something
        - *Negative incentive (Disincentive)*
            - Makes less likely to do something
    - Trade-offs is that nothing happens in a vacuum
        - Can't change just one thing in the world without having a response from others
- *Efficiency*
    - Final assumption
    - Resources are used
    - Most productive way possible to produce the goods and services that have the greatest total economic value to society

Why isn't a product in the market

- Innovation
- Market failure
- Intervention
- Goals other than profit

Economic analysis requires us to combine theory with observations and to subject both to scrutiny before drawing conclusions

- *Correlation*
    - When we observe a consistent relationship between 2 events or variables
- *Causation*
    - Differs from correlation
    - One event brings about the other
- Correlation and causation can be confused in three major ways
    - Causation
    - Omitted variables
    - Reverse causation

Two events are correlated occur together because both are caused by the same underlying factor
Each has a casual relationship with a third factor rather with each other
Underlying factor → Omitted variable

- *Model*
    - Simplified reps of a complicated situations
    - Make decisions about managing resources and how their decisions interact
- *Circular flow model*
    - Basic model of the economy

- Households → vital in two ways
    - Supply land and labour to firms and invest capital in firms
        - *Factors of production*
            - Land, labour and capital
- Firms → opposite of households
    - Buy or rent the land, labour and capital supplied by households, produce and sell goods and services
        - Firms and households are tightly connected through both production and consumption

- Market for goods and services is exactly what it sounds
- Market for the factors of production
    - Households supply land, labour, capital and firms hire and purchase or rent these inputs
- One is a loop of inputs and outputs as they travel throughout the economy
    - Inputs
        - Land, labour and capital firms use to produce goods
    - Outputs
        - Goods and services that firms produce using the factors of production

What makes a good economic model?
- Good model can leave out details
- Model should have
    - *A good model predicts cause and effects*
        - Not only to describe economic connections but also to predict how things will happen in the future
    - *A good model makes clear assumption*
    - *A good model describes the real world accurately*

- *Positive statement*
    - Factual declaration about how the world actually works
- *Normative statement*
    - Claim about how the world should be

Chapter 2

- *Invisible hand*
    - You don't know the history of a product
- *The resulting gains from trade*
    - Improvement in outcomes that occurs when specialized producers exchange goods and services
- *Production possibility frontier*
    - International trade

Canada can produce the max number of product A or max amount of B by devoting all its resources to one good or the other
By allocating some resources to the production of each good, Canada can also produce many different combos of product A and B
Canada wouldn't just want products A or just products B

- *Production possibilities frontier (PPF)*
    - Line or curve that shows all the possible combinations of outputs that can be produced using all available resources

Points on or below the production possibilities frontier represent combination of goods that Canada can produce with available resources. Points outside the frontier are unattainable because there aren't enough resources

- Each worker can make either one shirt or two bushels of wheat per day
    - Opportunity cost
        - Reps. graphically by the slope of the production possibilities frontier
        - Moving up the frontier means more A at the cost of fewer B.
        - Moving down the frontier means less A and more B
- *Efficient*
    - Squeeze the most output possible from all available resources *(lies on)*
        - *Inside*
            - Inefficient because they do not use all available resources
- Economies aren't always efficient a variety of problems can cause some workers to be unemployed and other resources to be left idle

- There are more workers
    - More people to produce A and B (Shifts)
- Incredible technological advances
    - Rotated outwards and expands when there is an increase in productivity

Big firms work with specialized suppliers

- Wealthy, productive countries like Canada trades with much poorer, less protective countries

If a producer can generate more output than others with a given amount of resources, that producer has an *Absolute advantage*

- More of both products than China can per worker
    - (Pr A/Pr B = Opportunity cost)
- Canada has to give up more to make a shirt than China does

When a producer can make a good at a lower opportunity cost than other producers, we say it has a *Comparative advantage* at producing goods

- (Pr B/Pr A = Opportunity cost (fraction))

A Country can have a comparative advantage without having an absolute advantage
Opportunity cost of growing wheat is the inverse of the opportunity cost of producing shirts

- IMPOSSIBLE FOR ONE COUNTRY TO HAVE A COMPARATIVE ADVANTAGE AT PRODUCING BOTH GOODS

- China's productivity per worker is lower, it has more workers and so is able to produce a larger total quantity of goods
    - *Specializations*
        - When each country focuses on producing the goods for which it has a comparative advantage, total production increases
            - The practice of spending all of your resources producing a particular good
                - Each producer ends up with only one good *(Problem)*
                    - They must trade
                        - If a country does not specialize and trade, its production and consumption are both limited to points along its production possibilities frontier

- A specialized country (Product A) cannot charge a price greater than another country's opportunity cost

- That same specialized country must receive a price that covers its opportunity costs for making (Product A) or it will not trade
    - Wants → make people exchange
        - Everyone gets more of things they want than they would if they were self-sufficient

Is self-sufficiency a virtue? (Some people believe)

- **National heritage**
    - Line was crossed when a country loses its family farms
- **Security**
    - Weakens a country id it goes to war with a country it depends on
- **Quality control and ethics**
    - Production standards are harder to control than if the goods were made at home
        - Non safe environmental regulations
        - Labour conditions
            - Unethical or illegal
- Combination of new technology (which led to higher productivity) and cheap labour (which led to lower production cost)
- This meant the opportunity cost of making clothes increased and the comparative advantage in clothing production shifted to countries where the workers lacked skills in better-playing industries and so were willing to work in textile factories for lower wages
- Wasn't a sign of failure when countries lost their comparative advantage in clothing production--it was a sign of success
    - Didn't look like success at the time, especially for workers in textile factories who saw their jobs disappearing overseas

Chapter 3

Markets

- *Invisible hand*
    - Coordinates complex economic interactions
    - Private individuals, rather than a centralized planning authority make decisions → market economy
- *Market*
    - Refers to the buyers and sellers who trade a particular good or service, not to a physical location

A competitive market

- *A competitive market*
    - Fully informed, price-taking buyers and sellers easily trade a standardized good or service
    - Full information about the price and features the good is being bought and sold
- *Standardized good*
    - In a competitive market, a good or service being bought and sold is standardized
        - Any two units, no matter where they are purchased, have the same features and are interchangeable
- *No transactions costs*
    - You don't have to pay anything for the privilege of buying or selling in the market
- *Price taker*
    - In economic terminology → buyer or seller who cannot affect the market place
        - The price is the price, wither you take it or leave it
        - In competitive markets → both buyers and sellers are price takers

- Few markets are perfectly competitive → characteristics of a perfect comp. market
    - Standardized goods
    - Full information
    - No transactions costs
    - Participants are price takers

Demand

- How much of something people are willing and able to buy under certain circumstances
- We get overall *market demand*

- *Quantity demanded*
    - The amount of a particular good that muyer in a market will purchase at a given price during a specified period
    - For almost all goods, the lower the price, the higher the quantity demanded
- *Law of demand*
    - Inverse relationship between price and quantity demanded
    - When all else held equal, quantity demanded rises as price falls
    - <u>Assuming that nothing other than the prices change!!!</u>

- Benefit you get from purchasing it remains the same
- Opportunity cost has fallen → when price goes down, you don’t have to give up as many other purchases in order to get the item

- Benefits stay the same and opportunity cost goes down
- When trade-off between costs and benefit tips toward benefits, more people will want to buy the good
- Incomes, expectations and tastes all play a role → *non-price determinants* of demand

The demand curve

- *Demand schedule*
    - Shows the quantities of a particular good or service that consumers are willing to purchase at various prices
- *Demand curve*
    - Price-quantity combination from the demand schedule as point on a graph
    - Also reps the consumer's willingness to buy
        - The highest amount consumers will pay for any given quantity
    - Quantity goes on the x-axis (horizontal) and price on the y-axis (vertical)
        - Result → downward-sloping line → inverse relationship between price and quantity

Determinants of demand

- Divided into five major categories
    - Prices of related goods
    - Incomes
    - Expectations of future prices
    - Number of buyers in the market
    - Consumer preference

Prices of related goods

- Two kinds of goods
    - Substitutes
    - Complements
- *Substitutes*
    - Serve similar-enough purposes that a consumer might purchase one in place of the other
- *Compliments*
    - Goods that are consumed together
        - Purchasing one will make a consumer more likely to purchase the other
    - If one of the 2 good increases → demand for the other will likely decrease

Incomes

- The amount of income people earn affects their demand for G&S
    - *Normal goods*
        - Increase in income causes an increase in demand
            - Decrease in income causes a decrease in demand

- *Inferior goods*
    - Opposite relationship holds: as income increases, demand decreases

Expectations

- Future prices → affect demand
    - Consumers expect prices to fall → postpone until a later date
        - Current demand to decrease
    - Consumers expect prices to rise → purchase a good immediately
        - Demand increases
            - Stock market, housing market

Number of buyers

- Reps the demand of a particular number of potential buyers
- Increase in the number of potential buyers in a market → increase demand
    - Decrease in the number of buyers → decrease it

Shifts in demand curve

- One of the five non-price determinants of demand changes → entire demand curve shifts → left or right
- Shift → horizontal, and affect the non-price determinants quant demanded at each price
- Quant demanded to be higher at every possible price
    - Economy falls into a recession → quant demanded will decrease at every price and the curve will shift to the left
- The shifts in demand → move the entire curve
- Movements along a given demand curve
- Quantity that consumers will want to purchase at this new price → move along the existing demand curve from old price to the new one
- Price change does not shift the curve → curve already describes what consumers will do at any price
- *Shift in demand* as a result of a change in the non-price determinants shows a mvnt along the demand curve as a result of a change in price
- Change in one of the non-price determinants of demand → increase/decrease in demand
    - Shift of the entire demand curve
- Change in price causes an increase in quantity demanded or decrease in the quantity demanded
- **Change in demand** (non-price factors) is different from a **change in the quantity demanded** (change in price)
- Changes in external factors → demand curve to shift
    - Line higher in graph → increase in demand
    - Line lower in graph → decrease in demand
- Price change → movement along the demand curve (but the curve remains constant)

Supply

- *Supply*
    - How much of a G/S producers will offer a sale under given circumstances
- *Quantity supplied*
    - Amount of a particular G/S that producers will offer for sale at a given price during a specific period
- *Law of supply*
    - Producers will have a different price at which it decides it's worthwhile to supply cell phones
        - All else held equal, quantity supplied increases as price increases

- Supply varies with price → benefit the producer will receive from selling the good and the OP cost of the time and resources that go into producing it
- The benefit of production increases relative to the opportunity cost → trade-off involved in production makes it more favourable to produce more

The supply curve

- Supply can be presented as either a table or graph
- *A supply schedule*
    - Table that shows the quantities of a particular good or service that producers will supply at various prices
- *A supply curve*
    - Graph of the info in the supply schedule
    - Producers' willingness to sell: shows the minimum price producers must receive to supply any given quantity

Determinant of supply

- Quantity that producers are willing to supply changes as price changes
- When a non-price determinant of supply changes → the entire supply curve will shift
    - Reflect a change in the quantity of goods supplied at every price
- Divided into 5 major categories
    - Price of related goods
    - Technology
    - Prices of inputs
    - Expectations
    - Number of sellers

- As prices decrease → suppliers want to produce fewer goods
- Supply curve → shows the quant of goods that suppliers will produce at various prices

Prices of related goods
- Determines supply because it affects the opportunity cost of production

Technology
- Enable firms to produce more efficiently, using fewer resources to make a given product
    - Lowers production cost, increasing quantity producers are willing to supply at each price
    - Producers are now willing to supply more at a lower price

Prices of inputs
- Prices of inputs used to produce a good are an important part of its costs
- Prices of inputs increase, production cost rise and the quantity of the product that producers are willing to supply at any given price decreases

Expectations
- Also affect quantity supplied

Number of sellers
- The market supply curve represents the quantities of a product that a particular number of producers will supply at various prices in a given market
- Number of sellers in the market is considered to be one of the fixed parts of the supply curve
- Sellers in the market will decide to supply more if the price of a good is higher
- Does not mean that the number of sellers will change based on price in the ST

Shifts in the supply curve
- Change in the non-price determinant increases or decreases supply
- Change in price increases or decreases the quantity supplied
- Increase in supply → shift to the right
- Decrease in supply → shifts to the left

Market equilibrium
- Prices & quantities of the goods exchanged in the real world → interaction w/ S&D
- When markets work well, the quant supplied = the quantity demanded
- The convergence of S&D → where the demand curve intersects the supply curve
    - A point called the market *equilibrium*
        - Where quantity supplied = quantity demanded
    - *Equilibrium price (aka market clearing price)*

        - Price at that point
    - *Equilibrium quantity*
        - Quantity at that point

- At higher prices → sellers want to sell more than buyers want to buy
- At lower prices → buyers want to buy more than sellers are willing to sell
- Not always smooth → reaching equilibrium in well-functioning markets
    - Hold some inventory for future sale
    - Shop around for specific items

- *Surplus or excess quantity supplied*
    - When quantities supplied is higher than the quantity demanded
    - Incentive to lowering $$ until quant demanded increases to reach quant supplied
- *Shortage or excess quantity demanded*
    - When quantity demanded is higher than quant supplied
    - Long lines of ppl
    - Incentive to increase the $$ until quant demanded decreases to = quant supplied

Changes in equilibrium

- Determined by the interaction of S&D
    - Shift in curve will also change the market equilibrium
- Some changes will cause the demand curve to shift → others only the supply curve
- Supply or demand increases or decreases → shift in the entire curve, not a mvnt along it, which is a change in quantity demanded
- Reducing the cost of production → increase supply
- S&D shift together → predict either the direction of the change in quant OR direction of the change in price without knowing how much the curves shifts
- Supply and demand move in the same direction
    - Predict the direction of the change in quantity but not the direction of the change in price
- Supply and demand move in opposite directions
    - Change in price is predictable but the change in quantity is not
- When both supply and demand increase
    - Buyers and sellers agree that at any given price, the quant they are willing to exchange is higher
- Reverse is true when both S&D decrease: buyers and sellers agree that a given price, the quantity they are willing to exchange is lower

- One way to say it is that consumers are willing to buy a higher quant at the same price
- Consumers are willing to pay a higher price to buy the same quantity

- Demand incr. and supply dec. buyers are willing to pay more for the same quant
- Sellers are willing to sell the same quant only if they receive a higher price
    - Predict that the equilibrium price will incr

- Opposite is true when demand dec and supply inc
- Buyers → buy the same quant as before only if the price is lower
- Sellers → willing to supply the same quant at lower price
- Predict that the price will dec

Chapter 4

- *Elasticity*
    - Measure of how much consumers and producers will respond to a change in market condition
    - Concept can be applied to supply or demand and it can be used to measure responses to a change in the price of a good, a change in the price of a related good or a change in income
    - Allows economic decisions makers to anticipate how others will respond to changes in market decision

- Measured → price elasticity of demand and price elasticity of supply
- How much the quantity demanded and the quantity supplied changes when the price of a good changes
- Cross-price elasticity of demand → quantity demanded of one good when the price of another good changes
- Income elasticity of demand → quantity demanded reacts to changes in consumers incomes

Price elasticity of demand

- Describes the size of the change in the quantity demanded of a good or service when its price changes
- Measure of consumers' sensitivity to price change
- Consumers' buying decisions are highly influenced by price → demand curve is more elastic → small change in price causes a large change in the quantity demanded
- Not sensitive to price change → demand curve is less elastic → buy the same demand

- Price elasticity is the % of change in quantity of a good that is demanded in response to a given % change in price

Price elasticity of demand = % change in Q demanded/ % change in P

- **Percentage change in quantity = [(Q2-Q1)/Q1] x 100**
- **Percentage change in price = [(P2-P1)/P1] x 100**

- Price elasticity of demand will ALWAYS be a NEGATIVE number
  - Price and quantity demanded move in opp directions
    - Positive change in price → negative change in the quant demanded
    - Negative change in price → positive change in the quant demanded
- Often drop the negative sign and express the price elasticity of demand as +
  - It is always negative (even if it's not printed) → like an absolute value

- Midpoint method → measures % change relative to a point midway between the 2 points
  - Find the % change in quantity → dividing the change in Q by the average of Q1 and Q2

% change in Q = change in Q / average of Q

Midpoint of Q = (Q1+Q2) / 2

Midpoint of P = (P1 +P2) / 2

Price elasticity of demand = (Q2 -Q1) / [(Q1+Q2) / 2] / (P2-P1) / [(P1 +P2) / 2]

- Consumers → sensitive to price changes for some goods and services than for others
- Price changes → availability of substitutes → relative need and cost and the time needed to adjust to price changes all affect price elasticity of demand

- **Availability of substitutes**
  - Substitutes = goods that are distinguishable from one another but have similar uses
  - Price of a good with a substitutes increases, consumers will buy the substitute
    - Demand for that substitutes will be more elastic
- **Degree of necessity**
  - When a good is a basic necessity, people will buy it even if price rise → inelastic
  - Demand for luxuries is much more elastic
- **Cost relative to income**
  - Spend a small share of their incomes on a good → demand will be less elastic
  - Good cost a very large proportion of a person's income → demand more elastic

- **Adjustment time**
    - Goods are much more elastic in demand in the LT then ST
- **Scope of the market**
    - Price elasticity of demand for bananas could be high
    - Price elasticity of demand for fruit could still be low (more substitutes)
    - Water → low price elasticity of demand
        - Demand for bottled water could be very elastic

Using Price elasticity of demand

- When we make decisions in the real world, we often don't know the exact price elasticity of demand
- Something general about the shape of the demand curve
- Demand can be perfectly elastic or perfectly inelastic → QD is the same no matter the P
    - *Perfectly elastic*
        - Demand curve is horizontal
    - *Perfectly inelastic*
        - Demand curve is vertical

- Elasticity divided into three categories (can be used to describe any sort of elasticity)
    - *Elastic*
        - Absolute value of the price elasticity of demand is greater than 1
        - Given % change in the price → even larger % in QD
    - *Inelastic*
        - Absolute value of the price elasticity of demand is less than 1
        - Given % change in price → smaller % change in QD
    - *Unit-elastic*
        - Absolute value of price elasticity is exactly 1
        - % change in price causes the same % change in QD

- Knowing demand for a good is elastic or inelastic → extremely useful in business
- Allows a manager → a price increase will cause *total revenue* to rise or fall
    - Amount that a firm receives from the sale of goods and services, calculated as the quantity sold multiplied by price paid for each unit
    - Tells us how much money sellers receive when they sell something

- Increase in price affects total revenue in two ways
    - Quantity effect → decrease in revenue → selling fewer units of the good
    - Price effect → increase in revenue → receiving a higher price for each unit sold

- Demand is elastic → price increase → total revenue to fall
    - Quantity effect outweighs the price effect → price increase → drop in revenue
    - Price effects outweighs the quantity effect → price increase → raise total revenue

- Demand is inelastic → % change in price is larger than the % change in QD
    - Price effect outweighs the quantity effect → total revenue increases
        - Consumers will purchase less of a good when prices rise, but the change in the QD will be proportionally less than the change in the price
- For most goods → elasticity varies along the curve
- Demand tends to be
    - More elastic when price is high
    - Inelastic when price is low

- Price elasticity of demand varies along the demand curve
    - Above a certain price → demand is elastic
    - Below a certain price → demand is inelastic

- *Price elasticity of supply*
    - Size of the change in quantity supplied of a G&S when its price changes
    - Price elasticity of supply measures producers' responsiveness to a change in price
    - Price rises → producers supply larger quantities of a good
    - Price falls → supply smaller quantities

Price elasticity of supply → measured the same way as demand (see equation)

- Elasticity of demand is calculated by dividing a positive number by a negative number or by dividing a negative number by a positive number → is always positive
- Elasticity of supply → Calculated by dividing either a positive number by another positive number, or negative by negative → answer is always positive
    - Elastic → absolute value greater than 1
    - Inelastic → absolute value less than 1
    - Unit-elastic → absolute value of exactly 1

- Supply as being perfectly elastic → quantity supplied could be anything at a given price and is zero at any other price
- Perfectly inelastic → quantity supplied is the same regardless of the price

Determinants of price elasticity of supply

- Factors affect a supplier's ability to expand production
    - Availability of inputs

- The flexibility of the production process
- Time needed to adjust to changes in prices

Availability of inputs

- Production of some goods → expands easily by adding extra inputs
- Elasticity of supply depends on the elasticity of the supply of inputs
- Producing more of a good will cost a lot more than the initial quantity did
    - Extra inputs → harder to find
    - Producer will be reluctant to increase the quantity supplied
    - Higher and higher prices will be needed to convince the producer to go to the extra trouble

Flexibility of the production process

- Easiest way for products to adjust the quant supplied of a particular good is to draw production capacity away from other goods when prices rise, reason capacity to other goods when prices fall

Adjustment time

- Demand → supply is more elastic over long periods than over short periods
- Producers can make more adjustments in the long run than in the short run
- Production capacity can also increase or decrease over time as new firms start up or old ones shut down

Other elasticities

- Quant of a good that is demanded is sensitive to more than just the price of a good
- Substitutability of goods affects price elasticity
    - *Cross-price elasticities*
        - Describes how the quant demanded of one good changes when the price of a different good changes

Cross price elasticity of demand between A and B =
% change in quantity of A demanded / % change in price B

- When two goods are substitutes → cross-price elasticity of demand +
    - Increase in one price → will cause an increase in quantity demanded of the other
    - How elastic → depends on how close the two substitutes are
        - Close → change in price of one → large change in quantity demanded
            - Cross-price elasticity will be high
        - Not close → cross-price elasticity will be low

- The sign of cross-price elasticity tells us about the relationship between two goods
    - Substitutes → +
    - Complements → -

- Two goods are linked in this way → cross-price elasticity will be -
- Increase in the price of one good will decrease the quant demanded of both goods
- Relative size of the elasticity tells us how strongly the two goods are linked
- Strong compliments → larger negative number
- Loosely linked → negative but not far betwlow from 0

Income elasticity of demand

- How much the quantity demanded changes in response to a change in consumers incomes
- Ratio of the % change in the quant demanded to the % in income

Income elasticity of demand = % change in quantity demanded/ % change in income

- Increases in income → raises the demand for normal goods & lowers the demand for inferior goods
- Income elasticity → how much the demand for these goods changes
- For normal goods → income elasticity is +
    - Quant demanded increases as income rises
- Good is a necessity → income elasticity of demand will be + but less than 1
- Good is a luxury →income elasticity will be positive but more than 1
- Cross price elasticity of demand → income elasticity of demand can be - & +
- Demand is negative for inferior goods → quant demanded decreases as incomes increase

Measure	Negative	Positive	More elastic	Less elastic
Price elasticity of demand	Always	Never	Over time Substitutes and luxury	Short run, Unique and necessary items
Price elasticity of supply	Never	Always	Over time Flexible production	Short run Production constraints
Cross-price elasticity	Complements	Sunstites	Near-perfect substitutes and string complements	Loosely related goods
Income elasticity	Inferior goods	Normal goods	Luxury with close substitutes	Unique and necessary goods

Chapter 5: Efficiency

Willingness to pay and sell

- *Willingness to pay*
  - Point above which the buyer does not want to buy it anymore
- *Willingness to sell*
  - Minimum price that a seller is willing to accept in exchange for a G or S
  - A seller always wants to sell for a price that is as high as possible above a certain minimum
- Buyers want to buy low → sellers want to sell high
- **Willingness to pay and the demand curve**
  - Step-like shape rather than a smooth line → there are a limited number of buyers whose prices are expressed in round dollar amounts
  - Disappear into a smooth curve → when they get smaller and smaller

- **Willingness to sell and the supply curve**
  - Sellers with a lower willingness to sell will sell
  - Rough supply curve would look smooth if there were many sellers, each with a diff willingness to sell

Measuring surplus

- *Surplus*
  - Way of measuring who benefits from transactions and how much
  - If you get something for less than what you would have been willing to pay or sell it more that the min you would have accepted, that's a good thing
  - Difference between the price at which a buyer or seller would be willing to trade and the actual price
- *Consumer surplus*
  - The net benefit that a consumer receives from purchasing a G/S, measured by the difference between willingness to pay and the actual price
  - Add up each individual's consumer surplus to get total consumer surplus
  - Represented by the area under the demand curve and the equilibrium price
  - Decrease in price makes it better
  - Increase in price makes it worse
  - Will choose not to but at all when prices rise → surplus becomes
  - Tells us how much better or worse off buyers are when the price changes
  - The more that a buyer would have been willing to pay → greater the surplus at a lower price
  - Price falls → surplus increases

- *Producer surplus*
    - Net benefit that a producer receives from the sale of a good or service, measured by the difference between willingness to sell and the actual price
    - Better off when the market price is higher than their minimum willingness to sell
    - Price falls → surplus decreases
    - Add up each individual's producer surplus to get total producer surplus
    - Change in a market price affects sellers in the opposite way it affects buyers
    - Sellers → price to be higher
    - Some will choose not to sell at all when price fall → surplus becomes 0
    - Those who do sell → smaller individual surplus than the higher price
    - Market price rises → makes sellers better off
    - Producer surplus is represented graphically by the area underneath the horizontal line of EQ price and above the supply curve
    - Higher the price → bigger the area and the greater the producer surplus

- *Total surplus*
    - Consumer surplus + producer surplus
    - Combined benefits that everyone receives from participating in an exchange of goods or services
    - Value created by the existence of the market
    - Calculated by adding up the benefits that every individual participant receives
    - Only as a result of their participation in exchanges in the market
    - *Zero-Sum game*
        - Situation in which whenever one person gains, another loses an equal amount → net value of a transaction is 0

Using surplus to compare alternatives

- Concept of surplus → it is not only the point at which buyers are perfectly matched to sellers → also the point at which total surplus is maximized → EQ makes the total well-being of all participants in the market as high as possible
- Price rises above the market EQ → fewer transactions take place → reduce total surplus
- Prices below market EQ → reduce total surplus
- Higher or lower pice causes fewer trades to take place
- Some people are no longer willing to buy or sell
- Value that would have been gained from these voluntary trades no longer exist
    - Equilibrium in a perfectly competitive, well-functioning market maximizes total surplus
- Market is EFFICIENT at equilibrium

- No exchange that can make anyone better off without something becoming worse off
- Most powerful features is efficiency
- More remarkable is that it is achieved without centralized coordination

Changing the distribution of total surplus

- Reassignment of surplus from consumers to producers
- Price was raised, sellers gained some well-being at the expense of buyers
- Lowered → buyers gained some well-being at the expense of sellers
- Artificially high price is imposed on a market → bad news for consumer surplus
    - Reduced number of transactions and the higher price buyers have to pay on the remaining transaction
- Producers → more complex
    - Lose some surplus from the higher price on the transactions that do still take place
    - Will compete with one another
    - Whichever effect "wins" → producer surplus increases or decreases overall
- Opposite situation occurs when prices are lower than the market EQ
- Fewer transactions take place and so both P and C lose some surplus from missed transactions
- For transactions that still take place
    - Consumers pay less and gain surplus at the expense of producers who get paid less and lose surplus
    - Price below EQ
        - Reduce producer surplus
        - Might increase/decrease consumer surplus
        - Outcome depends on how much surplus is gained by those who buy at a lower price cionparded to wgar is lost to those who can no longer buy at all

Deadweight loss

- Intervention that moves a market away from EQ might benefit either P or C but it always comes with a decrease in total surplus
- *Deadweight loss*
    - Loss of total surplus that results when the quantity of a good that is bought and sold below market EQ quantity.
    - Fewer exchanges take place → fewer opportunities for the generation of surplus
- Reps the surplus that is lost to both producers and consumers as a result of fewer transactions taking place when the price moves away from EQ
- *Calculate it*

- Subtracting total surplus after a market intervention from total surplus at the market EQ before the intervention
- Determining the area of the triangle on a graph

Missing markets

- Price change is the indirect cause of deadweight loss
- Market is missing → no place for potential buyers and sellers to a particular G or S
- Total surplus is lower than it could be if a well-functioning market existed
- Missing cause:
  - Public policy
  - Lack of accurate info or communication between B and S
  - Lack of technology that would make the exchanges possible
- Idea that we can increase total surplus by creating new markets and improving existing ones has important implications for public policy
- Increase well-being

Chapter 6: Government intervention

- *Price controls*
  - Illegal to sell a good for more or less than a certain price
- *Tax and subsidies*
  - Discourage or encourage the production of particular goods

Why intervene?

- Markets gravitate towards equilibrium
- Markets work well, prices adjust until the quantity of a good that consumers demand equals the quantity that suppliers want to produce
- Gov. has to intervene sometimes → every single gov. in the world intervenes in markets in some fashion
- Three reasons
  - Correcting market failures
  - Changing the distribution of surplus
  - Encouraging or discouraging consumption of a certain good

<u>Correcting market failures</u>

- Situations in which the assumption of efficient competitive markets fails to hold are called *market failures*
  - When there is a market failure, intervening can actually increase total surplus

Changing the distribution of surplus

- Efficient markets maximize total surplus
- Efficient outcome may still be seen as unfair → to change the distribution of surplus
- Job market is efficient, wages can still drop so low that some workers fall below the poverty line while their employers make healthy profits
- Intervening in the labour markets to impose a minimum wage (gov. interevens)
- Change the distribution of surplus, reducing employers' profits and lifting workers' incomes
- Argue about whether a policy that benefits a certain group is justified or not
- Accurately describes the benefits and costs of such policies
- Econ can help us predict whose well-being will increase, decrease and may be affected in unpredictable ways

Encouraging or discouraging consumption

- Judge certain products to be good/bad based on culture, health, religion or other values
- Bad products → Banned altogether, gov uses taxes to discourage people from consuming bad products without banning them → tax them heavily
- Subsidies → encourage ppl to consume good products; fund schools

Price controls

- Low-income consumers or high-income consumers
- Action to ensure that everyone gets enough to eat
- *Price controls*
    - A regulation that sets max or min legal price for a particular good
    - Hold the price of a good up or down when the market shifts
    - Preventing the market from reaching a new equilibriums
        - Price ceilings and price floors

Price ceilings

- Maximum legal price at which a good can be sold (LINE IS LOW)
    - Staple foods, gasoline, electricity
- Policy makers try to ensure everyone can afford basic necessities
- Below the equilibrium point
    - Consumers buy more than producers want to supply → shortage of the good
    - High quant demanded, lower quant supplied
- Price ceiling will cause producer surplus to fall
- Sellers are selling fewer goods at lower price
- Total surplus will fall → markets have moved away from equilibrium
- Trades that would have happened at the EQ price do not happen → surplus is lost

- *Deadweight loss*
    - Loss of total surplus that occurs because the quantity of a good that is bought and sold is below the market equilibrium quantity
- Total quantity of goods traded to fall
- Price ceiling → surplus to be transferred from producers to consumers
    - Consumers win because they pay a lower price
    - Producers lose because they sell at a lower price
- Direct transfer of surplus from producers to consumers
- One area is larger than the other (proportion of deadweight loss that would have gone to consumers at eq) reps the goal the price ceiling was intended to achieve → net increase in well-being of consumers
- Consumers gaines surplus, surplus lost by producers was greater than that gained by consumers meaning that total surplus decreased
- Price worth paying → disagree
    - Price ceiling causes shortage
        - Good must be rationed → coupons
    - Allocate goods on a first-come, first-served basis
        - Forces people to waste time standing in lines
        - Bribes, family connections → more deadweight loss
            - Rent-seeking behaviour
- Intended to keep prices below EQ level
- Changes in the market can reduce the equilibrium price to a level below the price ceiling
- Price ceiling no longer creates a shortage, because the quantity supplied equals the quantity demanded
- Does not always affect the market outcome
- Ceiling is set above EQ price in a market → non-binding
- EQ price and quantity will prevail
- Biding when they are first implemented
- Shifts in the market over time can render the ceiling non-binding

<u>Price floors</u>

- Min. legal price at which a good can be sold (LINE IS HIGH) (ex: agricultural goods)
- Price floor raises the price of a good above EQ point
- Consumers want to buy less than suppliers want to produce → surplus
- Moving up along the supply curve → increase production
- Moving up along the demand curve → decrease consumption
- Price floor creates an excess quantity supplied of a good is equal to the difference between quant supplied and quant demanded
- Producers who can sell their goods will be happy → selling more goods at a higher price

- Producers who cannot sell all their goods because demand no longer meets supply will be unhappy
- Consumers will be unhappy because they are getting less goods at a higher price
- Total quantity of goods falls → deadweight loss
- Price floor → causes surplus to be transferred from consumers to producers
- Producers win → sell at higher price
- Consumers lose → pay at higher price
- Change in total surplus → distributed between consumers and producers
- Change the distribution of surplus but in this case producers win at the expense of consumers
- Extra surplus is distributed among producers
    - Producers → sell their product → will be happy
    - Producers → do not sell their product → holding an excess quantity supplied
- May be worse off than before the imposition of the price floor
- Excess quantity supplied, customers may choose to buy from firms they like based on familiarity, political preference, or any other decision making process they choses
- Supply decreases and shifts to the left
- New equilibrium → price is above price floor
    - Usually set as to raise prices above equilibrium
- Price floors are not always binding
    - Become binding in response to changes in the market
    - Effect of the increased demand for ethanol on the market for milk
    - Decrease in supply could render a price floor non-binding

Taxes

- Tax on sellers or consumers

<u>Tax on sellers</u>

- Price paid by buyers is different from the amount received by sellers after the tax is paid
- Supply decreases, Demand stays the same
- Equilibrium quantity decreases and the equilibrium price increases
- Sellers do not receive the full price that consumers bay, because it creates a tax wedge between the consumers and producers
- *Tax wedge*
    - Diff between price paid by buyers and the price received by sellers, equals the amount of tax
        - TAX WEDGE = P buyers - P sellers = tax

WE ADD A SECOND CURVE **DO <u>NOT</u> SHIFT THE FIRST ONE**

- Amount of the tax multiplied by the number of units sold at the post-tax equilibrium point
- Directly corresponds to the surplus lost to consumers and producers
- Trades that no longer happen under the tax reps deadweight loss
- Government tax revenue = Tax x Q post tax
- Tax causes deadweight loss and redistributes surplus
- Both producer & consumers lose surplus → does not disappear → becomes gov revenue

Tax on buyers

- Outcome is exactly the same
- Does not affect supply, demand decreases
- Equilibrium price and quant both fall

Burden of a tax

- Supply & demand have the same elasticity → buyers & sellers share the tax burden equally
- Demand is more elastic than supply → sellers have more tax burden then buyers
- Supply is more elastic than demand → buyers have more tax burden then sellers
    - Falls on whoever is elastic
- *Tax incidence*
    - Relative tax burden borne by buyers and sellers

- Relative elasticity of the supply and demand curves determine the incidence of a tax
- Price elasticity → how much the quantity supplied or demanded changes in response to a change in price
- Tax effectively changes the price of a good to both buyers and sellers
- Relative responsiveness of supply and demand will determine the tax burden
- Side of the market that is more price elastic → adjust to the price changes and will not shoulder the tax burden
- Demand is elastic: consumers will buy even at higher price → buyers pay a higher share of the tax
- Outcome of the tax (New EQ) is the same regardless of whether a tax is imposed on buyers or sellers
- Tax burden → same → no matter which side of the market is taxed
- Buyers bear the greater part of that burden, even though the tax is imposed on sellers

Subsidies

- Reverse of a tax
- Requirement that the gov pays an extra amount to producers or consumers of a good
- Subsidies to encourage the production and consumption of a particular good or service

- Alternative to price controls without generating a shortage or excess quantity supplied
- Respond in the opposite that they respond to a tax
    - Quantity supplied and demanded decreases
    - Government collects revenue
    - Subsidy → quant supplied and demanded increases and the gov. Spends money

- Subsidy affects the supply curve → it increases
- Does not affect demand → consumers are not directly affected
- EQ price decreases and EQ quantity increases → increases as consumers move down along the demand curve to the new EQ point
- Subsidy benefits both buyers and sellers → increasing total surplus within the market
- As with taxes → who gets the shade of benefit from the subsidy does not depend on who receives the sunsity
- Buyers paid less and sellers receive more for each unit sold. Forms a wedge between buyers and sellers prices
- EQ quant increases → goal of encouraging production and consumption of the subsidized good
- Gov has to pay subsidy → cost of which → amount of subsidy x new EQ quantity

Gov interventions

- Price controls have opposing impacts on the quantities supplied and demanded → shortage or excess quantity supplied
- Tax and subsidies move the quant supplied and demanded in the same direction → market reaches equilibrium at the point where the quant supplied equals the quant demanded
- Taxes discourage people from buying and selling a particular good, raise the gov revenue and impose a cost on both buyers and sellers
- Subsidies encourage ppl to buy and sell a particular good, cost the gov money and provide benefits to both buyers and sellers

Intervention	Reason for using	Effect on price	Effect on quant	Winners and losers?
Price ceiling	Protect producers income	Cannot go below the minimum	Quant demanded decreases and quant supplied increases → surplus (excess quantity supplied)	SEE BOOK
Price floor	Keep consumer cost low	Cannot go above the maximum	Quant demanded increases and quant supplied decreasing → shortage	SEE BOOK

Tax	Discourage an activity	Increases	EQ quant decreases	SEE BOOK
Subsidy	Encourage an activity	Decreases	EQ quant increases	SEE BOOK

- Supply and demand are price-inelastic → EQ quant does not decrease a lot because of tax
- Supply inelastic and demand elastic → EQ quant decreases more in response to tax
- Supply elastic and demand inelastic → EQ quant decreases more in response to tax
- Supply and demand are price-elastic → EQ quant the biggest decrease in response to tax

Long run vs short runs

- Price controls cause shortages or excess quantity supplied
- Buyers and sellers take time to respond to a change in price
- Becomes clear only in the long run
- Short run → demand and supply are not very elastic
    - Price floor → only in a small excess quantity supplied
- Long run → supply and demand more elastic
    - Price floor → much greater than the short-run

Depends how you see it and for what project

Chapter 7: Consumer Behaviour

Utility and decision making

- *Utility*
    - Measure of the amount of satisfaction a person derives from something
    - Get it from the goods and services they consume and experience
    - Max utility
    - Hard to measure
        - We need to observe what people actually do
    - *Revealed preference*
        - What maximizes other people's utility by observing their behaviour

Utility functions

- *Utility function*
    - Formula for calculating the total utility that a particular person derives from consuming a combo of goods and services
- *Bundle*

    - Each unique combination of goods and services that a person could choose to consume
- Utility measurements that go into a utility function are relative not absolute
    - Total utility = (Enjoyment x quant) + (Enjoyment x quant) + (Enjoyment x quant)

Marginal utility

- *Marginal utility*
    - The change in total utility that comes from consuming one additional unit of a good or service
- *Diminishing marginal utility*
    - Additional utility gained from consuming successive units of a G/S tends to be smaller than the utility gained from the previous unit
    - Adda nothing to your total utility → zero marginal utility
    - Reduce/negative

To get in a graph → derive (0 at the slope or at the abscise)

- *Budget constraints*
    - Line of all the possible combinations of a good and service a consumer can buy with their income
    - Each bundle on the line costs exactly the amount of money there is on the budget
    - Reps the combinations of goods that are available

Income increases → shift
Price change → rotates

Utility and society

- Utility maximization assumes people are inward looking, consumption machines

Utility and status

- Not always about out direct benefit alone
- Utility comes from two sources
    - Direct effect
    - Other people's reactions
- Overall utility → mix of outside perception and inner preference → contribute to decision making

Utility and altruism

- *Altruism*

- A motive for action in where a person's utility increases simply because someone else's utility increases

Utility and reciprocity

- *Reciprocity*
  - Responding to another action with a similar action
  - Doing good things for people who did good things for us
  - Respond in kind to a bad treatment (negative reciprocity is the opposite)

Chapter 12: The cost of production

- Bottom line = Profit
- Profit
  - Revenue and cost
- *Total revenue*
  - Amount that a firm receives from the sale of goods and services
    - Quantity of each product X price
- *Total cost*
  - Amount paid for all of the inputs that go into producing goods and services
    - One-time expenses (machine)
    - Ongoing expenses (Salaries, raw material and etc.)
      - Fixed + Variable costs
- *Profit*
  - Difference between total revenue and total cost
    - Profit = Total revenue - Total cost
      - Revenue = Quantity X Price
- Cost is a tricky factor
  - Fixed and variable
    - *Fixed costs*
      - Don't depend on the quantity of output produced
        - Lease
    - *Variable costs*
      - Depend on the quantity of output produced
        - Raw materials, labor cost
  - If a firm produces nothing (if it stops production) variable cost = 0
    - Stuck with fixed costs

Explicit and implicit costs

- True cost = Opportunity cost
  - Fixed and variable costs → *explicit costs*

        - Requires a firm to spend money
            - Rent, labour, materials….
    - Forgone opportunities → *implicit costs*
        - Opportunities that could have generated revenue if the firm had invested its resources in another way
        - Whatever you're giving up by leaving the money in your savings account
- Properly calculate total cost → think about opportunity cost of using each of these inputs
    - Explicit & implicit costs → huge impact on how we calculate a company's profits
- Company reports its profits → *accounting profit*
    - Accounting profit = Total revenue - explicit costs
- Thinking about explicit costs → mislead us about how well a business is really doing → *economic profit* (minus opportunity costs)
    - Economic profit = total revenue - explicit costs - implicit costs
- Investors wants economic profit

Production function

- *Production function*
    - Relationship between the quantity of inputs and the quality of outputs
- *Marginal utility*
    - Any input into the production process is the increase in output that is generated by an additional unit of input
- *Diminishing marginal utility*
    - Marginal product of an input decreases at the quantity of the input increases
        - Number on x-axis
        - Quantity on y-axis
    - Rep → slope of the total production curve
        - Low levels of output → curve becomes steeper as workers are added
        - Marginal product initially increases → principle of diminishing marginal product kicks in → slope of the curve gradually flattens out
- Average product
    - Dividing total production by numbers of workers

Cost curves

- Production side of a firm → make decisions on the margin about how many of which inputs to use
    - Determine the quantity of outputs the firm can produce
- Flip side of production → Costs
    - Firm increases its outputs → costs associated with that decision

Total, average and marginal costs

Total costs = fixed costs + variable costs

Average Fixed Costs (AFC) = fixed cost / quantity

Average variable costs (AVC) = variable costs / quantity

Average Total Cost (ATC) = total cost / quantity

Increasing slope if the total curve → diminishing marginal product

- Fixed costs → stay the same regardless of how many pizzas are produced
- Total cost → sum of variable and fixed costs

Average cost curves

- AFC → curve trends downwards
- Fixed costs → remain the same as quantity produced increases
- Fixed cost/unit of production decreases
- AVC → curve is U-Shaped
- Initially slopes downward as the first few employees have an increasing marginal, product
- Principle of diminishing marginal product kicks in → trends upward

Marginal costs

- Additional cost if they produce one more unit of output
    - Marginal cost = change in total cost / change in quantity
- Initially decreases (as marginal product increases) and then increases (as marginal product decreases)
    - Inverse shape of the marginal product curve
    - Every additional unit of input costs the same regardless of the contribution it makes to production
    - MC curve intersects the lowest point of the ATC curve
        - MC of increasing production by one until is less than your current average total cost → producing that extra unit will decrease your average cost
        - MC of increasing prod. by one unit is more than your current average total cost → producing that extra until will increase your average cost

COST	DESCRIPTION	CALCULATIONS
Total cost (TC)	Amount that a firm pays for all of the inputs (fixed	TC = FC + VC

	and variable) that go into producing goods and services	
Fixed cost (FC)	Costs that don't depend on the quantity of output produced	-
Variable cost (VC)	Costs that depend on the quantity of output produced	-
Explicit cost	Costs that require a firm to spend money	-
Implicit cost	Costs that represent a foregone opportunities	-
Average fixed costs (AFC)	Fixed costs divided by the quantity of outputs	AFC = FC/Q
Average variable costs (AVC)	Variable costs divided by the quantity of output	AVC = VC/Q
Average total costs (ATC)	Total costs divided by the quantity of output	ATC = TC/Q
Marginal costs (MC)	Additional cost incurred by a firm when it produces one additional unit of output	MC = Change in TC/ Change in Q

Production in the short and long run

Costs in the long run

- Fixed depends on what timescale you're thinking
- Cost of the lease is fixed in the short run but not fixed in the long run
- Costs that are fixed when the firm plans for a month ahead will become variable when the firm plans for a year ahead
- May not be true for firms which need to make operational decisions over-time spans of 5 or 10 years

Return to scale

- When firms plan for the long run → consider the scale at which they want to operate
- Small firm → operating on a larger scale enables it to lower its average cost
    - *Economies of scale*
- Bigger isn't always better → higher average costs
    - *Diseconomies of scale*
        - Increasing a firm's scale starts to raise its average cost
- In between these extremes → various scales at which a firm can operate without experiencing higher or lower average costs
    - *Constant returns to scale*
- Diseconomies of scale on a long-term ATC curve

- Long-run ATC curve slopes down → ATC decreases as output increases
- Scale by expanding → Curve slopes up → ATC increases as output increases
- Long-run ATC is often shown with a flat portion in the middle
    - Reps the various different levels of output at which the firm achieves constant returns to scale
- Face diseconomies of scale by expanding → curve slopes up → rising ATC as output increases
    - Cost per unit goes down as output increases → economies of scale
    - Cost stays constant as output increases → constant returns to scale
    - Cost per unit increases as output increases → diseconomies of scale

- Long-run ATC curve → greater range of output than its short-run ATC curve
- Short run → stuck on a smaller cost curve
- Constrained by the limited capacity of their fixed inputs
- Long Run costs curve can be thought of as consisting of points on various short-run ATCs faced by firms of various sizes → operating at different scales
- Increasing/decreasing its scale → firm can move the long-run ATC curve from one short-run ATC curve to another

- *Efficient scale*
    - Cannot lower average cost by either increasing or decreasing its scale
    - Producing the quantity of output at which average total is minimized
    - Some characteristics of that industry gives an advantage to larger firms

Chapter 13: Perfect competition

- Firms want to maximize their profits
    - Participation in a competitive market → place some constraints on their ability to achieve this goal
- *Competitive market*
    - Buyers and sellers are fully informed *price takers*
        - Can't affect prices
    - Goods are standardized
    - Buyers and sellers have so much competition → no ability at all to sell at their own price
        - Individual participants are so small relative to the total size of the market that they can't affect market prices
            - Buyers and sellers have to accept the going rate
                - Price takers who must accept the prevailing price as they find it

- Opposite of being a price taker → *Market power* or ability to affect market prices

Goods and services are standardized

- Goods and services being traded are standardized
    - They are interchangeable
        - Buyers have no reason to prefer those sold by one producer over those sold by another
        - Producers have to sell at the market price
            - Lose all of their business if they charged more → no incentive to charge less
- Goods are differentiated by quality
- Standardized goods (oil, gold, etc.) → Commodities
- So much competition in perfectly competitive. markets B&S cannot affect the market price
    - Turn to the next seller if the price is too high
- No information asymmetries in a perfectly competitive market → everyone knows just what they are trading

Firms can freely enter and exit

- Price-taking buyers and sellers trading standardized goods is sufficient to define a perfectly comp market
- Com. markets is important to understand the way they function in the LT
    - Firms are able to freely enter and exit the market
- New firms can be created and begin producing goods and services and existing firms can decide to shut down
    - Firms can freely enter and exit explains some differences among markets
- Free entry into market keeps existing firms on their toes
    - Drive innovation, cost-cutting, quality improvements
- Free entry and exit → not an essential condition for a competitive market → threat of collusion means that markets tend not to stay competitive when this condition is not present
- Few markets meet all the assumption of perfect competition
    - Provides a base for describing interactions between buyers and sellers and plays a significant role in most markets

Revenues in a perfectly competitive market

- Producers are able to sell as much as they want without affecting the market price

- Definition of being a price taker and the fact that consumers are indifferent between standardized goods sold by different producers
- When firms make decisions about the quantity they will produce → don't have to worry about whether their actions will cause the market price to rise/fall or whether they will find buyers
- Assume that firms in a competitive market will be able to sell any quantity of output at MP

*** Firms will not want to produce an infinite quantity

- "Cost of production"
    - Firms produce more, their costs tend to go up
        - Every firm at which it doesn't want to produce any more
- Perfectly competitive market
    - Each individual firm is so small relative to the size and the whole market that an increase in its output causes a negligibly small increase in the total quantity supplied
    - Quantity to produce has a tiny effect on the total quant supplied to the market that the change in price is essentially 0
- *Average revenue*
    - Total revenue divided by the quantity sold
        - P X Q = Total revenue
        - Average revenue = P X Q/Q = P
    - Average revenue → price of the good
- *Marginal revenue*
    - Revenue generated by selling an additional unit of a good
        - Market price = price of the good
    - Producing an additional unit of a good → affect the market price

Deciding how much to produce

- Price taker in a competitive market → cannot affect the price
- Market for its production inputs → perfectly competitive too
- Any given quantity → firm's revenue and cost → determined by factors outside of its control
- Company can take to affect its profits is to decide the quantity to produce
- Maximize its revenues
    - Profits depend not just on revenues but also on cost
        - Firm looks at the total revenue, total cost, profit → how it can maximize profit

- Marginal revenue stays the same in a perfectly competitive market

- A firm should keep producing for as long as marginal cost is less than marginal revenue → stop producing as soon as the two are equal
- Profit maximizing quantity → marginal revenue of the last unit was exactly equal to the marginal cost
    - Marginal cost increases with quantity
    - Horizontal line at the price level represents marginal revenue
- Point at which the marginal curve intersects cost curve shows the profitity to produce
    - Curve intersects the marginal cost curve shows the profit-maximizing quantity to produce
- Profit-maximizing quantity is the one at which the marginal revenue of the last unit was exactly equal to its marginal cost
- Marginal revenue remains larger than marginal cost
- Firm increases its total profits by producing another unit
- Marginal cost exceeds marginal revenue → change in profits from producing another unit is negative
- Change in price could change a firm's decision about how much to produce
- Imagine that something happens to cause the market price to drop
- The firm finds that marginal revenue equals marginal cost at the production quantity
- Drop in price means that the firm is now losing money than making a profit

Deciding when to operate

- The horizontal MR line falls lower on the graph, intersecting the MC curve at lower quantities
- Price decreases lowers the profit-maximizing quantity
- MC curve intersects both AVC and ATC at the lowest points
- Difference between a firm's variable and total costs is its fixed costs
- Pay those costs regardless of how much it produces, even if it produces nothing at all
- Perfectly competitive market, the market price is the same thing as the firm's average revenue
    - Market price
    - Remains above average total cost
    - Total revenue will be higher than total cost
    - Firm will be making profits
- If market price falls below the bottom of the firm ATC curve → there is no level of output at which the firm can make a profit
    - Bound to make a loss
- Short run or long run
    - Shuts down production → avoids incurring variable costs → quantity produced is zero

    - Short run → stuck with its fixed costs → do not decrease when quantity falls to zero
        - A cost that has already been incurred and cannot be refunded or recovered is a sunk cost
        - Fixed costs like land or large machinery are usually sunk costs in the short run
    - Be paid for regardless of how much firm produces or whether it produces anything at all
    - Fixed costs are therefore irrelevant in deciding whether to shut down production in the short run
- Depends entirely on the variable costs of production
- Price is lower than ATC but higher than AVC
    - Firm should still continue to produce in the short run
    - Yields more revenue than variable cost
        - Firm should produce at the level at which the market price intersects the MC curve
- Profit maximizing → loss-minimizing level
    - Losing money at that point, but it will lose less money than if it did not produce at all
- If the market drops below the below the bottom of AVC curve → makes sense for the firm to stop production in the short run
    - Having to pay its fixed costs → firms will be losing additional money for every unit it produces
        - Loss-minimizing of production is 0
            - Losses due to fixed costs are unavoidable
            - Firm won't lose even more money

Shut down if
$P < \min(AVC)$

- Firm's short-run supply curve is the same as its MC curve
    - Firm will supply the profit-maximizing quantity
        - One at which marginal cost equals marginal revenue
            - Marginal revenue is the same as the price in a perfectly competitive market → reading the quantity corresponding to each price along the MC curve
            - Below the shutdown price → firm will not produce at all

**P > AVC → firm will produce along the point where P = MC (short-run supply curve → revenue exceeds variable cost)
**Price is below the minimum of AVC, the firm will not produce because doing so would generate a negative profit

- Long run decisions
    - All costs become variable
        - Whether to exit in the LR, the firm should consider whether average revenue is greater than average total cost
    - Market price is less than the lowest point on the ATC curve → exit

Exit if
P < min (ATC)

- Firm will produce at the point where price intersects marginal cost
- Firm will choose to produce nothing and will exit the market
- Firm will consider whether the market price is likely to remain low in the long run
- Market price has fallen only in the short run and will increase again in the long run → not make sense to exit the market permanently
    - Halt production temporarily in the short run when price dips below AVC → not make the long-run decision to exit the market permanent
        - Stop it's variable cost → keep open the possibility of restating production by retaining its machinery and premises → price goes back up again

Behind the supply curve

- How an individual firm's costs determine its decisions about how much it is willing to supply at a given price
    - Time to connect the two
    - Supply curve for the market reflects the sum of the choices of many individual suppliers → each willing to produce a certain quantity of a good at each price
- Firms think differently about their production decisions in the short run and the long run
    - Individual choice → generates between market supply curves in the short run and the long run
- Number of firms in the market is fixed
    - Total quantity of a good that is supplied at a given price is therefore the sum of the quantities that each individual producer is willing to supply
- Willing to supply at higher quantity as price increases
    - Price equals MR and the optimal quantity at any price is where MR=MC

        - Optimal quantity-price pair adds a point on the supply curve
- Total quantity supplied os the sum of the quantity that each firm supplies

Long-run supply

- Key difference between supply in the short run and supply in the long run
    - Assumes firms are able to enter and exit the market in the long run
- Number of firms is not fixed, changes in response to changing circumstances
- What makes a firm decide to exit the market → price falling below the lowest point on the ATC curve
    - Firm would be operating at a loss
    - Would want to enter a market → sees it could produce at level of ATC that is below the market price
    - More firms will enter a market if the existing firms are making a profit
- Accounting and economic profit
    - Economic → revenues are higher than their total cost
        - Include opportunity cost such as the money they could have made is they invested their resources in other business opportunities
- Economic profits → money to be made
    - Enter the market to take advantage of the profit-making opportunity
- Total quantity offered for sale at any given price increases
    - Number of firms in the market is one of the non-price determinants of supply
    - More firms means an increase in supply
    - Whole supply curve shifts to the right
    - Supply increases → demand stays constant → market EQ moves to a lower price and higher quantity
    - New equilibrium
        - EQ market price falls, revenues fall and so do profits
    - Econ profits are positive
        - More firms still have an incentive to enter the market to take advantage of them
            - Processes continues
                - Firms entering the market and driving quantity up and price down
                    - Price will be low enough that econ profits are reduced to zero
                        - P = ATC
    - ATC → includes opportunity cost
        - Why firms decide to make the opposite decision - to exit a market
        - Price falls below ATC, firm may still be making accounting profits

        - The firm is making negative economic profits
            - Making more money by pursuing other opportunities
                - Incentive to exit the market to invest its resources elsewhere
    - When some firms exit the market
        - Quant supplied at any given price decreases → supply curve shifts to the left
        - New market equilibrium is at a lower quantity and higher price
            - Price increases, profits increase
        - Process continues until economic profits are zero → no more firms exit the market; indifferent

- In the long run in a perfectly competitive market
    - Firms can earn zero econ profit
    - Firms operate at an efficient scale
    - Supply is perfectly elastic

Firms earn zero economic profit

- Long run in a perfectly competitive market→ zero econ profit
- Does not mean that a business is not earbong accounting profit
- Means that the firm could not earn greater accounting profit by choosing to operate in a diff market

Firms operate at an efficient scale

- Long run → operate at an efficient scale
- Firm's efficient scale is the quantity that minimizes average total cost
- Bring together three pieces of information discussed earlier
    - Optimal production is the point at which price (marginal revenue) equals marginal cost
    - Marginal cost curve intersects the average total cost curve at its lowest point
- In the long run → econ profits are zero → price is equal to average total cost

$$P = MR = MC$$

$$MC = ATC \text{ at the minimum of ATC}$$

    - Producing the quant that minimizes average total cost in the LT (efficient)

$$P = ATC$$

$$P = MC = ATC$$

- All three lines intersect at only one point

Supply is perfectly elastic

- Economic profits are zero
- Price must be equal to the minimum of ATC
- Causes the market equilibrium to move away from this price → positive or negative profits will cause firms to enter or exit the market
- Such entry or exit will increase or decrease the quantity supplied → price returns to the level that yields zero economic profits
- LT → price is the same at any quantity
    - Supply curve to be horizontal
        - Perfectly elastic
            - Producers will supply any quantities at the market price
                - Competitive market → price of a good should never change in the LT
- Anything causes the market to move away from the minimum of ATC price
    - Positive or negative profits will cause firms to enter and exit the market
    - Increasing or decreasing the quantity supplied until it returns to the EQ price
    - Price is the same at any quantity and the supply curve is horizontal

Why the long-run market supply curve shouldn't slope upwards, but does

- Removes assumption that all firms have the same cost structure
- Newer firms with higher costs will enter only markets with higher prices
- Long-run supply curve will slope upwards → price has to rise to entice new firms to enter and increase the total quantity supplied
- Price is equal to the minimum of ATC → least-efficient firms in the market not for every firm currently in the market
- Simplifying assumption that every firm's costs are the same also overturns the surprising conclusion → came to in the last section
    - Perfectly competitive market can earn zero economic profit
        - Last firm to enter the market earns zero econ profit → ATC = price
            - Efficient firms with lower ATC are able to earn positive econ profit
- Average total cost itself may change
    - Produce goods at lower cost
        - Reduce the variable cost
            - Lowering the MC and the ATC curves
                - Increase profits
                    - Incentivise new firms to enter the market
                        - Increase the quantity supplied → drive down the price

- Technology and production improve, ATC can decrease
    - Price must be equal to the minimum of ATC in the long run → price will fall as production costs fall

Responding to shifts in demand

- Long-run supply curve will not be perfectly elastic in practice
- Rarely see perfect competition in the real world → helpful to understand what happens in theory in this simplified model
- This will shift the demand curve to the right
- Shows both the short-run supply curve, which slopes upward
- Long-run supply curve, which is horizontal in a perfectly competitive market
- Equilibrium point slides up, the short run supply curve, a higher quantity is traded higher price
- Short-run supply curve shifts to the right as more firms enter the market
    - Market equilibrium prices slides down the new demand curve until it reaches the long-run supply curve
- Long run → end result of the demand curve shifting to the right is to increase the quantity traded but without any change in the price, which remains at the minimum level of average total cost.

Chapter 14: Monopoly

- Firm faces no competition → have total control over how much it charges for its products
    - *Monopoly*
        - Single seller
        - Firm that is the only producer of a good or service that has no close substitutes
        - Perfect monopoly → 100% of the market in a product
        - Monopoly power → Control slightly less than 100% of the market
        - Lack of a close substitute for a product

Barriers to entry

- Forces of competition are usually stacked against any one from gaining that much market power
- Charges high prices in a competitive market
- Other firms come with charging a lower price
- Key characteristics
    - Barriers that prevent firms other than the monopolish from entering the market
    - Set prices and quantities without fear of being undercut by competitors

    - Barriers to entry contradict the free entry and exit feature that characterizes perfectly competitive markets
- Four main forms
    - Scarce resources
    - Economies of scale
    - Government intervention
    - Aggressive business tactics on the part of a market-leading firms

Scarce resources

- Most straightforward
- Sometimes a single country controls scarce resources with no close substitutes

Economies of scale

- Economies of scale
    - Firm produces more output
    - Average cost goes down
- Powerful → competition between 2 or more firms simply doesn't make much sense
    - Required infrastructure is too costly to replicate
- Firm can achieve a lower cost/unit than a firm with the same fixed costs but lower input
- One firm can have a large cost advantage in providing all of the electricity for a given region

- *Natural monopoly*
    - Market where a firm can produce at a lower cost than multiple firms, the entire quantity demanded
    - Electricity supply, drinking water, natural gas, public transport
    - Can be the natural outcome of competitive forces
    - High fixed costs create an effective barrier to entry
    - Governments often get involved in natural monopolies to try to protect the public from abuse of monopolistic power

Government intervention

- Create or sustain monopolies where they would not otherwise exist
- Monopoly power for state-owned firms
- Legal prohibition against other firms entering the market, or subsidizing a state-owned enterprise so heavily that private companies effectively cannot compete
- Create or support private monopolies through regulation of intellectual property rights
    - Patents
- Monopolies drive down consumer surplus by setting higher prices than would be charged in a competitive market

- Reduce total surplus

Aggressive tactics

- Exclusive agreements
- Aggressive methods of persuasion
- Punish anyone who did business with independent producers
- Predatory pricing
    - Temporarily slashing prices until rival local stores are forced out of business
- Buying promising-looking investors in search technology

How monopolies work

- Want to maximize its profits
- Constrained by the fact that its production decisions cannot affect the prevailing market price
- Monopoly does not face this constraint
    - Constrained by the market demand curve

Monopolist and the demand curve

- Perfectly competitive market → horizontal demand curve
    - Slopes downwards
    - Each firm is assumed to be too small for its production decisions to affect the market price
- Undercut by competitors and won't be able to sell anything
    - Horizontal demand curve
- Monopolist faces the downward-sloping market demand curve
    - Chose to sell at any price it wants without fear of being undercut → no other firms to do the undercutting
        - Constrained by market demand
            - Quantity demanded falls as price rises
                - Choose any price-combo on the demand curve → unable to choose points that are not on the curve
        - Perfectly competitive market
            - Individual producer cannot deviate from the market price
                - Quantity the firm chooses to sell at that price does not affect quantity
                - Monopolist can choose to charge higher or lower price

Monopoly revenue

- Map out the revenues it can bring in

        - When the price is high, consumers demand a small quantity
        - As price decreases, consumers demand higher and higher quantities
    - Price increases and quantity sold decreases → TR first rises then falls
        - TR increases on sections of the demand curve where demand is price-elastic
            - Decreases on sections of the curve where demand is price-inelastic
    - Average revenue
        - TR/Quantity sold
        - Average revenue is equal to price
    - Monopolist's marginal revenue is not equal to price
        - Revenue generated by selling each additional unit
            - TR at a certain quantity - TR with quant is one unit lower
    - Monopoly choice to produce an additional unit drives down the market price
        - **Quantity effect:** TR increases due to the money brought in by the sale of an additional unit
        - **Price effect:** TR decreases because all units sold now bring in a lower price than they did before
    - Which effect is larger → TR might increase or decrease
        - Increases the quantity it sells
        - No price effect
            - Marginal revenue would be determined solely by the quant effect aka price
        - Price effect works in the opposite direction of the quantity
            - Decreases revesby
        - Marginal revenue in a monopoly market is always less than the price, except for the very first unit sold. For that first unit, average revenue and marginal revenue are both equal to price
        - Marginal revenue can sometimes be negative
            - Means that the price effect has become bigger than the quantity effect
            - Each additional unit of output decreases total revenue
            - MR curve crosses the x-axis represents the revenue-maximizing quantity

Maximizing profits by picking price and quantity sold

- Marginal and average revenue slope downward for the monopolist
- Just as in a competitive market
    - **Profit-maximizing quantity of output for a monopoly is the point at which the marginal revenue curve intersects the marginal cost curve**
- **Marginal revenue of a unit is higher than marginal cost → unit brings more money in sales than the firm spends to produce it**
    - **Contributes to the firm's profits**

- **Marginal revenue is lower than marginal cost**
    - **Unit cost more to produce than it brings in**
        - **Firm loses money by producing it**

- Any quantity of output below the intersection of the marginal revenue and marginal cost curves → MR is higher than MC → earn profit by offering an additional goods for sale
- Any quantity of output above the intersection → company loses profits on each additional diamond offered for sale → earn more profits by offering fewer goods for sale
- Increase the quant of output up to the point where it can no longer earn more profits by increasing output
- Stop producing output before it starts losing money
- Price is greater than marginal revenue → price is also greater than marginal cost at the optimal production point
- Profit-max price is the price on the demand curve that corresponds to the profit maximizing quantity of output
- Monopoly's profit max price is higher than its marginal costs

Profit = (P - ATC) X Q

- **Price is greater than ATC → profits will be positive, even in the LT**
- Strong incentive to maintain its monopoly power
- Allowed it to earn economic profits in the LT

Problems with monopoly and public policy solutions

- Monopolies are great for the monopolist and not so great for everyone else
- Fewer goods at higher price
- Inefficiency reduces total surplus
    - Has welfare costs

The welfare costs of monopoly

- Produces the quantity at which marginal revenue = marginal cost
- Quantity is lower than the market equilibrium quantity
- Price is higher than the competitive price
- Consumer surplus is smaller than in the competitive case
- Fewer trades take place → society suffers a deadweight loss
- Description of the costs of monopoly is a positive statement
- Monopolies are usually a bad thing
- Maximizing total surplus means that society's resources are being used efficiently
    - Few people are anxious to provide extra profits to monopolie

Public Policy responses

- Policy makers have developed a range of policy responses to monopolies

- Break up existing monopolies → prevent new ones from forming and ease the effect of monopoly power on consumer
- Canada has a *Competition act*

Public ownership

- Natural monopolies pose a particular problem for policy makers
- Achieve lower cost of production
- Chooses to produce at a price that is higher than marginal cost → deadweight loss
- Run natural monopolies as public agencies
    - Canadian postal services and Via rail
- Publicly owned monopoly could also set prices lower as an unregulated monopolist would
- Public ownership of a natural monopoly has its problems
    - Politionas will feel pressured to lower prices even further below the level they would be in a competitive market
- Create shortages and people will demand more than it makes sense for the producer to supply at that price
    - Business decisions → where to locate or what types of products to offer
- Loss of the profit could reduce the publicly owned monopolist motivations to improve efficiency and to provide better services or lower cpsy
- No rule stating that all monopolies must make a profit
- If an efficient public monopoly cannot provide a service at a price that sufficient numbers of people are willing to pay, it can remain in operation by covering its losses with revenue from taxes
- Public ownership of monopolies has become much less common

Regulations

- Regulate the behaviour of natural monopolies
- Controls on the prices natural monopolies are allowed to charge
- Utility markets
- Firms have an incentive to avoid giving regulators useful information about their true cost of production
- Privatizing natural monopolies relates to incentives → private firm should be more motivated than public one to increase its profits by innovating and reducing costs → lower prices for consumers
- Regulator sets a price so low that all the cost savings go to consumers → firm will have no incentive to reduce costs
- Sets the price at a level insufficient to cover the monopolist's costs → even drive the firm out of business

Vertical splits

- Split an industry vertically and introduce competition into parts of it
    - Operate at different points in the production process
- Never split one horizontally

No response

- Some economists conclude that the best response to a monopoly is sometimes no response at all
- Regulation is too difficult to create or manage effectively
- Government intervention in the market are subject to corruption of political mishandeling

Market power and price discrimination

- More monopoly power a firm has the more it is able to transform their consumer surplus into your producer surplus
- Charging customers different prices for the same good is called *price discriminations*
    - Discrimination between customers on the basis of their willingness to pay
- Perfectly competitive market
    - Can't afford to offer discounted prices to students
        - Negative profits
- Monopolies → possible
    - Gain a degree of market power → look for ways to exploit varied willingness to pay
        - Periodics sales
    - More monopoly power a firm has → more a price is able to price discriminate
        - Profits = TR - FC

Perfect price discrimination

- Students, business owners and others
- Blunt ways of discriminating among them → millions
- Owner individual willingness to pay
- Allows a firm to change each customer a price closer to his or her willingness to pay → consumer surplus becomes producer surplus and increasing the firm's profits

Price discrimination in the real world

- Defining categories of customers
- Many products can easily be resold
- Lend themselves to this kind of tracking as easily as software or theatre tickets
- Wants to practice perfect price discriminations

- Challenges are even more formings
- Need to be able to read the minds of each individual customer and form an accurate impression of how much that customer would be willing to pay

Chapter 17: International Trade

Comparative advantage

- Consumers have something to gain from trade
- Voluntary exchanges generate surplus → both parties are better off than they were before
- *Absolute advantage*
    - Ability to produce more of a good that the others with a given amount of resources
- *Comparative advantage*
    - Who produces what
    - Ability to produce a good or service at a lower opportunity cost than others can

Gains from trade

- Both countries can gain when each specializes in producing the goods for which it has a comparative advantage
- Trade to get the combination of goods that people in each country want to consume
- Increase in welfare in both countries that results from specialization and trade is called, straightforward enough, the *gains from trade*
- Trade in action → total production and consumption with and without trade
- Without trade → each country has to produce the combination of goods that its people actually want to consume
- When trade is possible → each country can produce the goods that it has a comparative advantage at producing, rather than the exact combination of goods its consumers want
- Global production is higher, both countries can consume more that they were able before
- Both consumers have higher consumption of both goods after specialization and trade

The roots of comparative advantage

- Countries trading = national entities
- Trade requires governments to get together, employ an economic super planner and agree on who is going to specialize in what
- Day-to-day business of trade is carried out almost entirely by firms and individuals, not by government
- Invisible hand
- Right decision about what to produce and who to trade with happens automatically

- Research the cost of inputs such as labour and raw materials as well as the sale prices of different goods you could produce → most profitable option → get it wrong and you go out of business
- Gravitate toward producing the products in which they have a comparative advantage and the gains from trade fall into place
- Factors of production
- Decrease in supply for making the shirts → pushes the wage for shirt making → lower cost of producing shirts → willing to offer shirts at a lower price on the world market
- Price of each factor of production incorporates the opportunity cost of using that factor to produce other goods
- Price you could get for shirts on the world market → factory won't be able to break even selling shirts at this lower price
- Market saying that your factory does not have a comparative advantage
- What causes this determinant in comparative advantage
    - Natural resources and climate
    - Endowment of factors of production
    - Technology

<u>Natural resources and climate</u>

- Diversity in climate and natural resources is an important determinant
- Climate and geography may also affect the costs of transporting goods to other places once they are produced

<u>Factor endowment</u>

- Different factors of production
- Land-intensive activities such as grazing cattle or sheep
- Plenty of capital and little land
- More capital-intensive activities such as producing high-tech electronics, providing financial services, or engaging in biomedical research
- Less abundant to skilled labourer and capital → comparative advantage shifted towards counties with more cheap labour relative to the other factors of production

<u>Technology</u>

- Can have an effect on comparative advantage
- Technology tends to spread from country to country equalizing opportunity cost
- Technology or production processes developed in a particular company may give that country a temporary comparative advantage

Incomplete specialization

- No national economy is a perfectly free market and neither is trade between national economies

- Specialization is often limited by trade agreements, which are dependent on non-economic considerations such as
    - National security
    - Tradition
    - Not-so-rational politicking
- Restrictions and political concerns puts limits on how much specialization we can expect
- Even if trade was perfectly free → nations would not specialize completely, within each country there are differences in the natural resources, climate and relative factor endowment of different areas

From autarky to free trade

- Free trade between countries maximizes surplus
- Producing benefits for both parties just as free exchanges between individual buyers and sellers do
- Some firms will lose some will gain
- Total gains will be higher than total losses
- Effects of trade on a more detailed level and to see who exactly gains in that way, we need to dig deeper
- *Autarky*
    - Economy that is self-contained and does not engage in any trade with outsiders
    - Impossible to import or export anything
        - *Imports*
            - G&S that are produced in other countries and are consumed domestically
        - *Exports*
            - G&S that are produced domestically and consumed in other countries
    - Nothing produces outside the country is sold inside and vice versa

Becoming a net importer

- Being bought and sold at world price does not mean the same as Canadian pricing
- Intersection between domestic supply and demand and the world price
- Lower the price has pushed the quantity demanded and the quantity supplied down
- Country opens its markets to trade and the world price is lower than the domestic price → domestic price will fall to meet the world price
- At the lower price → domestic quantity demanded increases, domestic quantity supplied decreases

    - Imports will make up the difference between the quantities domestically supplied and demanded at the world price
- Domestic S&D do not shift
- Trade does not affect the quantity that consumers want to buy at any given price or the quant that domestic producers are willing to sell at any given price
- Allow consumers to buy at a price where domestic demand does not equal domestic supply
- Total quantity supplied still has to equal total quantity demanded at the equilibrium price
- Part of that supply can come from international producers
- Consumers and producer surplus in the market for shirts change when Canada goes from autarky to free trade in clothing
- Consumer and producer surplus in the domestic market under autarky

Becoming a net exporter

- Producers always lose and consumers always win with free trade
- World price is lower than the domestic price
- World price is higher than the domestic price
- Canada opens itself up to international trade in a good where the world is higher
- Domestic supply and demand curves for wheat in Canada
- Before trade restrictions are lifted, we can find the domestic price and quantity of wheat at the intersection of the supply and demand curves
- Canadian produces *respond* to this difference in price when trade opens up
- They can sell as much wheat as they want to foreign consumers
- No incentive to see it at a lower price in Canada
- Canadian consumers want to buy wheat
- Is sold outside the country
- New equilibrium, the price of what is higher and Canada has become a net exporter of wheat
- Net exporter of wheat affected the welfare of Canadian consumers and producers
- Surplus is the wheat market under Autarky and under free trade
- Surplus for somebody both before and after trade
- Represents surplus that was enjoyed by Canadian consumer before trade and is now enjoyed by Canadian producers
- Producers because trade enables them to sell more what at a higher price
- The post-trade equilibrium is more efficient than the pre-trade equilibrium
- Producers have gained, but consumers have lost

Big Economy, Small Economy

- Discussed the external factors that determine demand and supply

- You might have wondered about our analysis of moving from autarky to trade
- Increase in the number of buyers is one of the external factors → Dcurve to the right
- Free trade cause an increase in the world demand for shirts as Canadian consumers join the world market pushing the world price up
- Decision of its citizens about what quantity to produce or consume have no effect on the world price
- Buyers and sellers are price takers if they are too small
- Relative to the total size of the market, to have enough market power to influence the price
- Price taker in the global market for some good, the quantity it produces and consumes must be very small relative to the total amount of that good bought and sold worldwide
- In some markets, Canad is probably small enough to be considered a price taker
- The quantity of goods produced and consumed in Canada is very small compared to the total quantity sold globally
- Canada decided to stop trading goods → almost certainly affect the world price
- Producers and consumers is a large relative to the total quantity sold worldwide
- Supply and demand in the world market for wheat
- World demand curve shifts to the right because Canadian wheat consumers have entered the market
- World supply curve also moves to the right, because Canadian wheat producers have also entered the world market
- New equilibrium in the world market, we need to see where the new supply and demand curves intersect
- Supply has increased by more than demand
- Effect of Canada joining the market is that the world price of what decreases
- Canadian decision to move from autarky to free trade decreases the world price
- Increases and the country as a whole is better off, but Canadian what producers benefit and the wheat consumers lose
- This nuance to the analysis, Canadian moves from autarky to free trade also affects wheat producers and consumers outside Canada
- Entry into the world market has decreased the price of wheat consumer in the rest of the world would have to pay less per bushel
- Increases the surplus they enjoy
- Lower surplus due to the lower price and lower quantity they sell
- If we were to press the same analysis for shirts, we would find that the effect of the Canadian entry into the world market would be to increase the world price of shits
- Good news for foreign shirt producers and bad news for forehand shorts consumers

Restrictions on Trade

- Proposals to impose or lift restrictions on the trade will be viewed very differently by different people
- Autarky to free trade would be welcomed by foreign shirt producers and Canadian wheat farmers
- Significant quantities of goods and services flow between countries
- Prices and quantities will be affected by trade
- Who wins and who loses requires us to understand trade restrictions

Why restrict trade?

- Trade enhances efficiency
- Increasing total surplus regardless of whether the country becomes a net importer or a net exporter of a particular good
- Restrict trade to some extent
- Based on global politics much of the rationale has to do with protecting those who lose surplus, or are perceived to lose surplus, as a result of free trade
- Laws limiting trade = *trade protection*
- Preference for police that place limits on trade is *protectionism*
- Policies and actions that reduce trade restrictions and promote free trade are often referred to as *trade liberalization*

Tariffs

- *Tariff* → tax that applies only to imported goods
    - Causes deadweight loss and is inefficient
    - Raises public funds but that is not usually its aim
    - Most important goal of a tariff is to protect the interests of domestic producers
    - Producers are not willing to produce as much as consumers want to buy at that price
    - The difference between the quantity supplied and the quantity demanded is still made up by imports, but that difference is smaller than it was before the tariff
    - Domestic good producers enjoy an increase in surplus
    - Comes at the expense of a loss for domestic buyers of goods
    - Consumers lose the surplus represented to producers
    - Loss in consumer surplus is converted into revenue for the government, which collects tariff payments on imports
    - Lost consumer surplus → deadweight loss
    - Combined benefits that the tariff brings to *producers* and the Canadian government are outweighed by the loss in surplus suffered by domestic *consumers*
    - Policy would significantly hurt the growth of the use of renewable energy in canada (example: if solar panels)

- Tariff would not exactly achieve its goal of helping the domestic solar industry

Quotas

- *Quota* → limit on the amount of a particular good that can be imported
- Different countries were subject to different quotas for different kinds of clothing brands
- Effect of the quota is very similar to the effect of a tariff
- Domestic demand decreases, domestic supply increases, quantity of imports FALLS
- Domestic producers gain surplus from selling a higher quantity at a higher price; domestic consumers lose even more surplus from buying a lower quantity at a higher price; resulting in deadweight loss
- Important distinction between the impacts of tariffs and quotas
- Canadian government collects tax revenue equal to the quantity of imports multiplied by the difference between the domestic price and the world price
- Under a quota, this value goes to whoever holds the rights to import
- The value of a tax revenue under a tariff runs into profits earned by foreign firms or governments under a quota aka *quota rents*
- Granted the right to import how much of what goods into which countries is among the thorny issues that trade negotiators grapple with when deciding on the details of trade treaties

Selective exemptions from quotas and tariffs

- Wealthy countries may try to help poorer countries by agreeing to exempt them from quotas
- Higher opportunity cost at producing goods
- If there were no quotas, we would not expect some countries to produce any goods at all
- Effect of quota is to drive up prices
- When trade restrictions on clothing began to fade away, countries face competition from other countries who have a bih, low-cost producers

Trade agreements

- Closed economy opens up to trade
- Help developing countries by exempting them from quotas
- Dig deeper into how such decisions often are motivated by political and moral ideas
- Economic analysis can be harnessed to understand their implications

International labour and capital

- Pritectionsis accuse free-traders of shipping overseas the jobs of hard-working Canadians
- Free-traders accuse protectionsts of giving handouts to big corporations at the expense of Canadian consumers

- Although the country as a whole gains from liberalized trade, certain segments of the population will lose out
- Free trade increases demand for factors of production that are domestically abdudant, and it increases the supply of factors that are domestically scarce
- Acts to equalize the supply of and demand for factors of production across countries, which in turn causes factor prices to converge across countries
- Domestically scarce factors of production loss due to increased competition and the owners of domestically abundant factors gain from increased demand
- People can earn income from ownership of the factors of production
- Changes in factor prices as a result of international trade have a big effect on the distribution of income within a country
- In the past → a lot of international trade, land owners benefited from their control over that scarce resource, using cheap labour that was in plentiful supply
- Land was scarce in relation to labour
- Country became more and more connected to international supply
- Land was scarce in relations to labour
- Country became more and more connected to international markets through trade, textile firms seeking cheap labour moved in
- Earn enough from textile work to be able to import food from countries where land is less scarce
- Price of labour has risen, the price of land has fallen
- Incomes of owners of labour and land have changed accordingly
- A more subtle change in the factor distribution of income has taken place
- Does not have so many low-skilled workers
- Country didn't engage in much trade → good for the low-skilled workers
- Represented a scarce resource relative to high-skilled workers which drive up the wages of low-skilled workers
- Trade increases efficiency and total surplus → expect economies to grow as a result of trade
- Economies grow → usually create jobs
- Canadians whose jobs have been lost to freer trade should be able to find new jobs
- For someone who has spent ten or twenty years doing a particular job → idea of moving and retaining for a different type of work is understandable daunting or unappealing
- Impose trade restrictions to protect the owners of scarce factors of production
- That any move to restrict trade creates losers as well as winners
- Losers would be Canadian shareholders and factory workers

WTO and Trade Meditation

- Imposed a duty on Canadian softwood lumber on the grounds that the industry benefited from an indirect subsidy by the Canadian government
- *World Trade Organization (WTO)*
    - International organization designed to monitor and enforce trade agreements while also promoting free trade
    - Founded explicitly to prevent such trade wars from escalating

Labour and Environmental Standards

- Problem of inconsistent standards can be approached in two main ways: policy makers making explicit laws about imports and consumers making voluntary purchasing decisions

Import Standards

- Blanket standards imposed on all imports
- Import standards on specific countries

- *Blanket standards*
    - Address issues affecting consumers, rather than workers in the countries where production takes place
- *Import standards* on specific countries are less common. Such standards typically address production issues in the country of origin, such as labour or environmental conditions
- Various issues: the eliminations of child labour, prevention of workplace injuries, enforcement of minimum wages and equal pay for men and women, among others

Fair(ly) Free Trade

- Absence of regulations setting standards for imported goods, individual consumers can still make choices about what they are and are not willing to buy
- *Fair trade movement* attempts to inform and influence consumers' choices
- Labels goods whose production meets certain standards → paying workers minimum wages, ensuring safe working conditions and not causing undue harm to the environment
- Fair trade standards usually costs more fair trade-certified products cost more, too
- Individuals consumers decide whether it is worth it to them to pay more for products that are produced in a certain way
- The fact that some consumers are willing to pay more for fair trade goods means it is a way for producers to differentiate their products
- Raising standards in its factories and marketing itself as a source of fair trade clothing
- Activist groups try to change industry-wide standards by influencing individual buying decisions
- Activist encouraged consumers to boycott Nike

Embargoes: Trade as Foreign Policy

- Motivations behind trade restrictions are not ultimately economic at all
- Countries may use trade as a tool for foreign policy
- Trade increases surplus and allows a county to access goods that it cannot manufacture itself restricting the ability to trade can be seen as a form of punishment
- Prohibition of trade in order to put political pressure on a country is an *embargo*

Chapter 18: Externalities

What are externalities?

- Underlying *trade off* that you consider
- Because it imposes costs on other people

External costs and benefits

- *Private costs*
    - Call costs that fall directly on an economic decision maker
- *External costs*
    - Pollution, or any other cost that is imposed without compensation on someone other than the person who incurred it
- *Social Cost*
    - When we add private costs to external cost = the sum
- Externalities are not all bad news
- *Private benefit*
    - Benefits that accrue directly to the decision maker
- *External benefit*
    - Benefit that accrues without compensation to someone other than the person who caused it
- *Social benefit*
    - When we add private and external benefit together
- *Externalities*
    - External costs and external benefits
        - *Negative externality*
            - External cost
        - *Positive externality*
            - External benefit
    - Most common sources of market failure
    - Choices that are optimal from the perspective of an *individual decision maker,* and choices that are operating from the perspective of a *society as a whole*

    - Involves a *constant, predictable* external cost or benefit
- Network externality
    - Effect that an additional user of a good or participant in an activity has on the value of that good or activity for others
    - People can help or harm others simply by participating in a group
    - Can be positive or negative
        - Negative → driving downtown, internet
        - Positive → technology, communication technology and social media

Negative externalities and the problem of too much

- Where there are externalities, the free market no longer allocates resources in a way that maximises total surplus for society as a whole
- Take only the private cost into account
- Pay the higher social cost for each liter → cost-benefit trade-off would look less favourable and they would choose to buy less gas
- Another demand curve
- Social demand curve → trade-offs that drivers would consider if external costs were factored into their decision making
- Smaller quantity at any given price → final price they will end up paying is actually the market price plus the additional money per to cover external costs
- Implement a pollution tax → will make people consider external costs
- Pay the market price plus the external cost represented by the social demand curve
- Resulting in a lower price-quantity combination
- Market price is lower in new equilibrium
- End result is that a lower quantity of gas is purchased
- Effect of a tax is always to reduce surplus
- External costs → tax can increase surplus → market is more efficient
- Tax does reduce the surplus enjoyed by buyers and sellers of a good
- Loss of surplus suffered by people who breathe polluted air
- Consumer and producer surplus have clearly shrunk but now we no longer to subtract the loss of surplus of people who breath dirty air
- Total surplus → surplus not only of market participants but of society as a whole
- Add consumer and producer surplus in the unregulated market and then subtract the loss of surplus to others → we see that the total surplus in the presence of a negative externality is calculated
    - Total surplus = consumer surplus + producer surplus - external cost
- Social cost of gas → calculating total surplus is straightforward
    - Total surplus = consumer surplus + producer surplus
- Negative externality always reduces surplus

- Consumer surplus falls because drivers buy fewer liters of gas and pay a higher cost for driving producer surplus falls because producers sell a smaller quantity of gas
- Benefits from internalizing the externality
- Those not involved in this market as buyers and sellers
- Efficiency increases by shifting the external cost from those not involved in the market to those involved
- The social supply curve would be above the original market supply curve, as companies would want to supply less at any given price
- Reduce the equilibrium quantity just as in our analysis above

Positive externalities and the problem of too little

- Negative externality decreases surplus
- A positive externality pushes quantity away from the efficient equilibrium level → reducing total surplus
- Turn the external benefit into private benefit
- Benefits of painting would increase and the cost would stay the same
- Difference between the private trade-off and the social trade-off by adding a new demand curve
- At any given market price, homeowners will behave as if the price were reduced by the amount of the external benefit
- Adding the new demand curve above the original demand curve
- Equilibrium point to move up along the supply curve to a higher price-quantity combo
- Existence of a positive externality tells us that a market is not well-functioning
- No externalities, private costs and benefits are the same as social costs and benefits
- Market equilibrium maximises total surplus
- Private benefits of house painting understate the social benefits
- Subsidy that the neighbours pay actually makes this a well-functioning market
- Reverse of analyzing a negative externality
- Total surplus in the presence of a positive externality
- Calculate consumer and producer surplus under the lower eq price and quantity
- Add the value of the external benefit to those outside the market
- Calculation of total surplus in the presence of a positive externality
    - Total surplus = consumer surplus + producer surplus + external benefit
- Increases producer and consumer surplus → if internalized
- Simply add consumer and producer surplus based on the new equilibrium point
    - Total surplus = consumer surplus + producer surplus
- Positive externality caused inefficiency and reduced total surplus
- Positive externality always reduces surplus

- The surplus gained by consumers who would have painted their houses anyway but now capture the external benefit is exactly eua; to the surplus that was enjoyed by people outside of the market before it was internalized
- These gains and losses exactly cancel each other
- Represent a direct transfer from those outside the market to those inside it
- Change in the demand curve also causes an increase in quantity
- Consumers and producers gain additional surplus from the increased number of trades
- Total gains in surplus from internalizing the externalities outweigh the losses
- Possible to internalize the same positive externality by applying a subsidy to the supply side of the market
- Social benefit of supplying goods, rather than just the private benefit, the entire supply curve would be higher, as he would be willing to paint more houses at any given price
- Increase the equilibrium quantity of houses painted

Dealing with externalities

- Externalities lower total surplus
- Possible to address this problem by transforming external cost and benefits into private ones
- Solutions to externality problems are often easier to describe than to implement
- Benefits can be diffused, complex and hard to control
- Must try to ensure that economic decision makers create costs and benefits that are equal in value to the true social costs and benefits of their choices
- Everyone affected has to be involved in the process, that could mean coordinating across millions of people
- Tricky problem to solve
- Tension between efficiency and fairness in finding solutions to externalities
- Works efficiently means only that it maximized surplus
- Distribution of that surplus
- Technologically sound solution might seem unfair and thus might not get very far in the political arena
- Private individuals may be able to deal with externalities, restoring efficiency to the market on their own

Private remedies

- Reserve the term market failure for situations in which the actions of private individuals and firms are insufficient to ensure efficient markets
- Influential economic theory sets out the circumstances under which people should be able to solve externality problems by themselves
- Underlying reasoning is intuitive

- Invisible hand tells us that individuals will pursue mutually beneficial trades with other individuals
- No mutually beneficial trade should go unexplored because someone always has something to gain from pursuing it
- When we add up all of the actions of self-interested individuals, every opportunity to gain surplus has been exploited and total surplus is maximized
- Externality reduces surplus
- Mutually beneficial trades should go unexplored because someone always has something to gain
- People who bear the cost of air pollution lose more surplus than is gained by drivers who don't have to pay for it
- Individuals can reach an efficient equilibrium through private trades, even in the presence of an externality, is called the *Coase theorem*
    - Couple of key assumptions that must hold: that people can make enforceable agreements (contracts) to pay one another and that there are no transaction costs
- Private solution yields an efficient outcome
- Surplus-maximizing quantity of gas is bought and sold
- Distribution of that surplus is very different from the solution we imagined earlier, in which the drivers had to pay others
- Solution is efficient, but the assumptions about what is fair and who has the rights to do what are different
- Efficiency is all about maximizing total surplus
- Says nothing about achieving a fair distribution of that surplus
- Often feel that it is not fair to do
- Discovers that a big company is polluting the groundwater in her community . allegedly causing high rates of cancer and other health conditions
- People usually care not only about reaching an efficient equilibrium but also about how we get there and who benefits

Tax and subsidies

- Cost and difficulty of coordinating private solutions
- People often turn to public policy for solutions to externalities
- Most basic public policy remedy to an externality probably involve counterbalancing the externality with a tax or subsidy

Countering a negative externality with a tax

- Using that money to compensate suffers from pollution
- Many governments around the world use taxes
- A tax meant to counter the effect of a negative externality is called *Pigouvian tax*

    - Carbon tax, sin taxes (alcohol and cigarette)
- Increase the effective price that is paid for a good
- Creates a new demand curve below the original
- Demand curve bushed down that it will move the dequalinium quantity to the efficient level
- Level at which the market maximizes total surplus
- Equally valid to represent the effect of tax as adding a new supply curve above the original
- Tax is levied on consumers or producers but ultimate effect is the same
    - Increase price and reduce quantity to the efficient level
- Are not a perfect solution to externalities
- Setting the tax at the right level
- Not always easy to put a value on external costs
- Estimate is wrong → external cost is higher → tax is set too low → market will move closer to the efficient equilibrium but remains inefficient
- Estimate is too high → tax is set to high → market will overshoot → new equilibrium quantity will be inefficient because it is too low rather than too high
- Taxes are effective at transferring surplus away from consumers and producers and toward the government there is no guarantee that the government can or will do anything to help the people who are bearing the external cost
- Revenue from Pigovian tax is sometimes used as compensation
- Tax maximizes total surplus in society as a whole
- Distribution of surplus is entirely separate question from maximizing total surplus

Capturing a positive externality with a subsidy

- Subsidy can help consumers or producers capture the benefits of positive externalities
- Adds a new demand curve above the original and move the market to its efficient equilibrium
- Using a subsidy to increase efficiency does not necessarily equal fairness
- Maximize total surplus in society
- Distribution of that surplus depends on where the government gets the money to pay for the subsides
- Faire if the subsidies were died for our of property taxes
- Total surplus would still be maximized if the money was collected from general taxation
- Public policies that use subsidies to solve externality problems are sometimes less noticeable than taxes but are important (ex: educating children)
- Quantifying the external cost or benefit accruent
- Subsidy is set too low → efficiency too low

- Subsidy is set too high → total surplus will not be maximized because the increase in social benefit will be less than the cost of the subsidy

Quotas and regulations

- Social optimal quantity of something
- Limiting total consumption to the efficient quantity does not make the market efficient
- Invisible hand allocates resources to those with the greatest willingness to pay
- Maximizing surplus depends not only on how much is bought and sold but also on who buys and sells it
- Tax allows a market to sort itself out in this way; quota does not
    - Net benefit = marginal benefit - marginal cost

Tradable allowances

- Missed opportunity for a mutually beneficial trade
- Choose a quantity rather than set a tax rate while still ensuring that the quota is allocated to the people with the highest willingness to pay
- Production or consumption quota that can be bought and sold = *tradable allowance*
    - Efficient quantity of a good being bought and sold
    - Quota is set at the right quantity
    - Like a tux → tradable allowance maximize surplus
    - Tax → revenue collected by the government
    - Tradable allowance → market in which quota rights are bought and sold among private parties
- Gov could collect revenue by selling the initial quotas, programs have been implemented they are more usually allocated for free to consumers or producers who tend to trade among themselves

Chapter 19: Public Goods and Common Resources

- *Excludable*
    - Possible for sellers to prevent its use by those who have no paid for it
- *Rival in consumption*
    - One person's consumption prevents or decreases others' ability to consume it
- *Private goods*
    - Both excludable and rival in consumption
    - One or both of these lack characteristics

Excludable goods

- Allows owners to set an enforceable price on a good

- Can't prevent people from consuming something, they have little reason to pay for using it
- Excludability can be a matter of degree
- Rivalry has to do with whether or not a good is "used up" when someone consumes it
- Rivalry is a matter of degree

Four categories of goods

- *Private goods*
  - Goods that are both excludable and rival
  - Allocated efficiently by competitive markets as we've discussed throughout the book
- *Public goods*
  - Opposite of private goods; neither excludable or rival
- *Common resources*
  - Not excludable but are rival
- *Artificially scarce goods*
  - Excludable but not rival

	Excludable	Non-excludable
Rival	**PRIVATE GOODS** Plane tickets, pizza, minivans	**COMMON RESOURCES** Forests, Fisheries, wildlife
Non-rival	**ARTIFICIALLY SCARCE GOODS** MP3s, Pay-per view movies, subscription-only websites	**PUBLIC GOODS** Open-source software, traffic lights, national defence

The problems with public goods and common resources

- Markets work well for allocating private goods differently, but not always so well for allocating public goods and common resources
- Price has charged by competitive firms does not capture the true cost and benefits of consumption
- Problems with public goods and common resources are closely tied to the problems of externalities
- The free-rider problem and the tragedy of the commons
- *Free-rider problem*
  - Described is caused by non-excludability leading to undersupply of a public good
  - Good is not excludable, what people pay for it will not necessarily reflect the real value they place on it

- Since public goods are non-excludable → free-rider problem is a common one
    - Public transportation
- Free-riders enjoy positive externalities from others' choices to pay for bus rides, clean public bathrooms or shovelled roads
- Undersupplied if left solely to the market
- Undersupply problem can be solved in a variety of ways
- Making the good or service more excludable to government making somebody responsible for the provision of a certain quantity of the good or service
- Abstract public goods is general knowledge or information
- Free-rider problem surrounding these public goods has apparently been overcome to everyone's benefits

The tragedy of commons

- A common resource
- Causes people to demand a higher quantity than they would if they had to pay for what they consumed
- Inefficiently high demand and dwindling quantity leads to what is often called the *tragedy of the common*
    - Depletion of a common resource due to individually rational but collective inefficient overconsumption
- *Individually rational* part of the equation → consumption decision
    - Typically think they don't have a market value

Dealing with public goods and common resources

- Under-supply of public goods and over-demand for common resources lead to an inefficient quantity of production and consumption
- Types of goods are subject to market failures
- Social norms, government regulation and provisions and private property rights
- Society tries to get people to act in the interest of society by shifting social norms
- The Government tries to fix the market failure through regulation or direct provision
- Adjust the quantity of a good that is produced or consumed by either restricting private production (over produced) or expanding production (under-produced)
- Creating property rights that turn a non-excludable good into an excludable one
- Regulation and provisions → solve market failures by converting social costs to private costs → when individuals act optimally, socially optimal outcome is achieved
- Trade-off between cost and benefit that people face when supplying or consuming a public good or common resource
- Range of so;itunes to these two problems is related to externalities