Contents

1 Chapter 6

1.1 Price Ceiling

- Price ceiling or price cap is a regulation that makes it illegal to charge higher than a specified level
- Price ceilings applied to a housing market is called a rent ceiling

- If the rent ceiling is above equilibrium rent, it has no effect. A rent ceiling set below the equilibrium creates
  - A housing shortage
  - Increased search activity
  - Black Market
  - Occurs because the legal price cannot eliminate the shortage and other mechanisms take over
- Increased search activity: the time spent looking for someone with whom to do business activity
  - Opp. cost of housing = rent (regulated) + opp cost of search activity (unregulated)
  - The opportunity cost of housing can exceed unregulated rent (cost is higher than equilibrium)
- A Black Market: An illegal market that operates alongside a legal market in which a price ceiling or other restriction has been imposed.
- Rent Ceiling Inefficiency
  - A rent ceiling below equilibrium leads to inefficient underproduction
  - Rent ceiling decreases quantity suppled to less than efficient quantity
  - Marginal social benefit exceeds Marginal cost and deadweight loss occurs
- Are Rent Ceilings Fair
  - According to fair rules, rent ceilings are unfair because they block voluntary exchange
  - According to fair results, a rent ceiling is unfair because it doesn't usually benefit the poor
  - Allocation methods:
    * Lower willingness to pay search costs
    * Lottery, doesn't help the poor more than others
    * First come, first served
    * Discrimination

1.2 Price Floor

- A price floor is a regulation that makes it illegal to trade at a price lower than a specific lvl
- Price floor applied to labor market = minimum wage
- Price floors below the equilibrium have no effect
- If minimum wage is above equilibrium wage, quantity of labor supplied exceeds quantity demanded by employers, creating a suprlus of labor
- Because the legal wage rate can't eliminate surplus, this causes unemployment
- Inefficency of a Minimum Wage
  - Supply of labor measures the social cost of labor to workers
  - The demand for labor measures its marginal social benefit
  - A minimum wage above equilivium wage decreases the quantity of labor emplyed
  - Deadweight loss arises with potential loss from increased job search costs
- Ultimately, both this price floor and price ceilings lead to underproduction
- Is Minimum Wage Fair?
  - Currently 7.25, same since 2009
  - Many economists believe that min wage rates increase unemployment of young, low-skilled workers

1.3 Taxes

1.3.1 Tax Incidence

- Tax incidence is the division of the burden of a tax between buyers and sellers
- When an item is taxes, the price might rise by the full amount of the tax, by a lesser amount, or not at all

- If market price rises by the full amount of the tax, the buyer pays the tax
- If the market rises by a lesser amount than the tax, the buyer and seller share the tax burden
- If the market price doesn't change, sellers pay the tax

1.3.2 Equivalence of a Tax on Buyers and Sellers

- The effect of a tax is the same, regardless of which side of the market the tax is imposed upon
- Demand decreases (moves down), Supply decreases (moves up), overall always decreasing quantity
- Price paid by buyers is always higher than price recieved by sellers
- Price paid by buyers is always on the original demand curve, price paid by sellers is always on the original supply curve
- With no tax, marginal social benefit = marginal social cost, maximizing surplus
- Taxes decrease quantity, raising buyer's price and lowering seller's cost
- Tax revenue takes part of the total surplus

1.3.3 Tax Incidence and Elasticity

- The more inelastic the demand, the larger the buyers' share of the tax
  - Perfectly inelastic: buyer pays full tax
  - Perfectly elastic: seller pays full tax
- The more inelastic the supply, the larger the sellers' share of the tax
  - Perfectly inelastic supply: seller pays the full tax
  - Perfectly elastic: buyer pays the full tax

1.3.4 Taxes in Practice

- Taxes are usually levied on goods and services w inelastic demand or inelastic supply
- Alcohol, tobacco, and gasoline have inelastic demand, so buyers pay most of the tax
- Labor has inelastic supply, so sellers usually pay most of the tax

1.3.5 Taxes and Fairness

- Benefits Principle: People should pay taxes equal to the benefits they recieve from the govt
- Ability-to-Pay Principle: People should pay taxes based on how easily they can bear the tax

1.4 Quotas and Subsidies

- Quota: an upper limit to the quantity of a good that may be produced during a specified period
- Subsidy: a payment made by the government to a producer
- Quotas help protect producers to create a profit when the market isn't doing well
- Quotas make production inefficient and producers have an incentive to cheat

1.5 Markets for Illegal Goods

1.5.1 Penalties

- Penalties on sellers has the same effect of a tax on the seller
- Supply of the good decreases to penalty * cost of being caught + marginal cost
  - Supply + Cost of Breaking the Law
- Penalty on buyers = Demand - cost of breaking the law
- Opportunity cost increases

- Penalties on both buyers and sellers is the intersection of S+CBL and D-CBL
- The new market price is P(c), buyer pays P(b) and seller gets P(s)

1.5.2 Legalizing and Taxing Drugs

- An illegal good can be legalized and taxed
- A high enough tax rate decreases consumption to the level that occurs when trade is illegal

2 Chapter 5

2.1 Introduction

- Efficiency: Are we getting the most that we can out of our scarce resources?
- Equity: Is what we're getting out of our resources fairly dstributed?

2.2 Resource Allocation Methods

- Scarce resources might be allocated by
  - Market price
  - Command (government, organizations and their hierarchical structures, rations, etc.)
  - Majority rule
  - Contest
  - First come, first served
  - Lottery
  - Force

2.3 Demand and Consumer Surplus

- Demand, Willingness to Pay, and Value
  - Value is what we get, price is what we pay
  - The value of one more unit of a good or service is its marginal benefit

  - The maxumum price that a person is willing to pay reveals marginal benefit
  - The demand curve is a marginal benefit curve

- Individual Demand and Market Demand
  - The relationship between the price of a good and the quantity demanded
    * by one person: individual demand
    * by all buyers in the market: market demand
  - The market demand curve is the horizontal sum of individual demand curves

- Consumer Surplus
  - the excess of the benefit recieved from a good over the amount paid for it
  - Calculate as the marginal benefit of a good - price, summed over quantity bought
  - Market consumer surplus is the sum of individual consumer surplus

2.4 Supply and Producer Surplus

- Supply and Marginal Cost
  - To make a profit, firms must sell their output for a price $>$ cost of production
  - Cost is what the producer gives up, price is what the producer recieves

- Supply, Marginal Cost, and Minimum Supply-Price
  - The cost of one more unit of a good or service is the marginal cost
  - The minimum price that a firm is willing to accept is its marginal cost
  - A supply curve is a marginal cost curve
  - The market supply curve is the horizontal sum of the individual supply

curves and is formed by adding the quantities supplied by all the producers at each price.

- Producer surplus
  - The excess of the amount recieved from a sale over the cost of production
  - Calculate as price - marginal cost, summed over quantity

2.5 Is the Market Efficient?

- Efficiency of Competitive Equilibrium
  - Resources are allocated efficienty when marginal social benefit = marginal social cost
  - If nobody other than producers and consumers are effected, the competitive equilibrium can allocate resources efficiently

2.6 Underproduction and Overproduction

- Market failure occurs upon an inefficient outcome (overproduction or underproduction)
- Deadweight loss is the quantification of inefficiency by calculating the area of the full triangle before or after the equilibrium on a marginal social benefit & cost curve

2.7 Market Failure

- Sources of Market Failure:
  - Price and quantity regulations -> blocks price & production, leads to underproduction
  - Taxes and subsidies -> taxes lead to underproduction, subsidies lead to overproduction
  - Externalities -> a cost/benefot affecting someone other than seller/buyer, leads to either underproduction or overproduction
  - Public Goods and Common Resources
    - Public goods: benefit everyone, nobody can be excluded. Nobody wants to pay for a public good, leading to underproduction.

        * Common resouce: owned by nobody, but can be used by everyone. Leads to tragedy of the commons and overproduction
        * Monopoly -> self-interest to produce profits results in underproduction
        * High Transaction costs -> leads to underproduction

2.8 Fairness

- Ideas of fairness can be divided into two rules
    - Not fair if the result isn't fair
        * Utilitarianism: greatest happiness for greatest number
    - Not far if the rules aren't fair

2.8.1 It's not Fair if the Results aren't Fair

- If everyone gets the same marginal utility from a given amount of income, and if the marginal benefit of income decreases as income increases, then taking a dollar from a richer person and giving it to a poorer person increases total benefit
- Only when income is equally distributed has the greatest happiness been achieved
- Utlitarianism ignores the cost of making income transfers
- Recognizing these costs leads to the big tradeoff between efficiency and fairness

2.8.2 It's not Fair if Rules aren't Fair

- Symmetry principle: the requirement that people in similar situation be treated similarly
- Nozick suggests that fairness is based on two rules
    - The state must create and enforce laws that establish/protect private property
    - Private property may be transferred form one person to another only by voluntary exchange

3 Chapter 4

3.1 Introduction to Elasticity

- closeness of substitutes is critical to understanding elasticity of supply and demand

3.2 Elasticity of Demand

3.2.1 Calculting Elasticity of Demand

- Price elasticity of demand is a unit free measure of the responsiveness of quantity demanded to a change in price when all other influences stay the same
- percentage change in quantity demanded/percentage change in price
- percent change in price is calculated as change in price/average of two goods/services

3.2.2 Inelastic and Elastic Demand

- Demand can be inelastic, unit elastic, or elastic
- Elasticity can range from 0 to infinity
- If quantity demanded doesn't change when the price changes, price elasticity = 0 and the good has perfectly inelastic demand (Vertical demand curve)
- If price elasticity equals exactly one, the good has unit elastic demand
- If price elasticity of demand is less than 1 then the good has inelastic demand
- If price elasticity is greater than 1, then the good has an elastic demand
- If the price elasticity is infinity, the good has a perfectly elastic demand (Horizontal demand curve)

3.3 Factors Influencing Elasticity of Demand

3.3.1 Closeness of substitutes

- the closer the substitutes, the more elastic the demand for a good or service

- necessities, such as food or housing, generally have an inelastic demands
- luxuries, such as exotic vacations, generally have elastic demand

3.3.2 Proportion of Income Spent on Good

- The greater the portion of income consumers spend on a good, the larger the elasticity of demand

3.3.3 Time Elapsed Since Price Change

- The more time consumers have to adjust to a price change or the longer the good can be stored without losing its value, the more elastic the demand for the good

3.4 Elasticity on a Linear Demand Curve & Total Revenue Test

- At the midpoint of a linear demand curve, demand is unit elastic
- At prices above the midpoint, demand is elastic
- At prices below the midpoint, demand is inelastic

3.4.1 Total Revenue and Elasticity

- Total revenue from the sale of a good or service = price of good * quantity sold
- Raising the price doesn't always increase total revenue
- If demand is elastic, a 1% price cut increases quantity sold by >1%, total revenue decreases
- If demand is inelastic, a 1% price cut increases the quantity <1%, total revenue decreases
- If demand is unit elastic a 1% price cut increases the quantity sold by 1%, total revenue same

3.4.2 Total Revenue Test

- a method of estimating the price elasticity of demand by observing the change in total revenue that results from a price change
- If a price cut increases total revenue, demand is elastic
- If price cut decreases total revenue demand is inelastic
- If a price cut doesn't change total revenue, demand is unit elastic
- On a bell curve, increase shows elastic, decrease shows inelastic, and peak is unit elastic

3.5 Income Elasticity and Cross Elasticity of Demand

3.5.1 Income Elasticity

- Income elasticity of demand measures how the quantity demanded responds to a change in income
  - % change in quantity demanded/ % change in income
- If income elasticity is >1, demand is income elastic and the good is a normal good
- If the income elasticity is $0<x<1$, demand is income inelastic and the good is normal elastic
- If income elasticity is <0, the good is an inferior good

3.5.2 Cross Elasticity of Demand

- Measure of the responsiveness of demand to change in the price of a substitute/complement
  - % change in quantity demanded/ % change in price of substitute/complement
- Cross elasticity of demand is:
  - positive for a substitute
  - negative for a complement

3.6 Elasticity of Supply

- Elasticity of supply: measures the responsiveness of quantity suppled to a change in price
  - % change in quantity supplied / % change in price
- Supply is perfectly inelastic when supply curve is vertical and elasticity = 0
- Supply is unit elastic if the supply curve is linear and passes through the origin
- Supply is perfectly elastic when the supply curve is elastic and the elasticity = infinity

3.6.1 Factors Influencing Elasticity of Supply

- Depends on
  - Resource substitution possibilities
    - The easier it is to substitute among resources used, the greater the elasticity of supply
  - Time frame for supply decision
    - Momentary supply - perfectly inelastic for physical goods
    - Short-run supply is somewhat elastoc
    - Long-run supply is the most elastic

4 Chapter 3

4.1 Introduction

- Markets are any arrangements that enable buyers and sellers to get information and do business with each other
- Competitive Market: many buyers and many sellers so no single buyer or seller can influence prices

4.2 Demand

- Reflects the buyers' side of the market
- If you demand something, you
  - want it
  - can afford it
  - have a definite plan to buy it
- Quantity demanded: amount that consumers plan to buy during a particular time @ a particular price
- Law of Demand: other things remaining the same, the higher the price of a good, the smaller the quantity demanded (and vice versa)
- Substitution Effect: when the relative price of a good rises, people seek substitutes so the quantity demanded decreases
- When the price of a good rises relative to income, people cannot afford all the things they previously bought so quantity demanded decreases
- Demand Curve and Demand Schedule
  - the term demand refers to the entire relationship between good and quantity demanded
- Demand Curve: exhibits relationshit between quantity demanded and price when all other consumers' planned purchases remain constant
- Willingess and Ability to Pay
  - The smaller the quantity available, the higher the price someone is willing to pay for another unit
  - Willingness to pay measures marginal benefit
- Changes in Demand: when some influence on buying plans other than price changes, there is a shift in demand for that good
- 6 factors influencing demand:
  - Price of related goods
    - substitutes - good that can be used in place of another
    - complement - good that is used in conjunction with another

    - If $ substitute inc or $ complement dec, demand of good inc
    - if $ substitute dec or $ complement inc, demand of good dec
  - Expected future prices
    - if expected future price inc, current demand inc
    - if expected future price dec, current demand dec
  - Income
    - normal good: a good for which demand inc as income inc
    - inferior good: a good for which demand dec as income inc
    - if expected future income increases/credit is easier to get, current demand inc
  - Population
    - The higher the population, the higher the demand
  - Preferences
    - People with the same income have different demands if they have different preferences

4.3 Supply

- If a firm is a supplier, they
  - have the resources and tech to produce it
  - can profit from producing it
  - has a definite plan to produce and sell it
- Quantity supplied: the amount producers plan to sell during a given time at a particular price
- Law of Supply: Other things remaning the same, the higher the price of a good, the greater the quantity supplied (and vice versa).
- Supply Curve and Supply Schedule
  - Minimum supply price: As quantity produced inc, marginal cost inc.
  - The lowest price at which someone is willing to sell an additional unit rises
  - This lowest price is called the marginal cost

- Changes in Supply
  - Increases in supply shifts the curve to the right (and vice versa)
- Factors that affect Supply
  - Prices of factors of production
    - If the price of an input inc, supply dec; curve shifts left
  - Prices of related goods produced
    - denoted by substitute for production, not just substitute
    - supply of a good inc if price of a substitute dec
    - complements in production: goods that must be produced together (beef & leather)
    - supply of a good inc if the price of a complement in production inc
  - Expected Future Prices
    - If expected future price inc, current supply dec
  - Number of Suppliers
    - as number of suppliers inc, supply inc
  - Technology
    - Advances in technology lower the cost of making existing products
    - inc in technology means inc in supply
  - State of Nature
    - natural forces and disasters can dec supply

4.4 Equilibrium

- Equilibrium: a situation in which opposing forces balance each other
- Equilibrium Price: the price at which quantity demanded = quantity supplied
- Equilibrium Quantity: quantity bought and sold at equilibrium cost
- Price Regulation
  - Price regulates buying and selling plans
  - Price adjusts when plans don't match

- Price adjustments
  - Surplus forces prices down
  - Shortage forces prices up
- Increases in demand
  - When demand increases without changes in supply, shortages occur
  - Price therefore increaes
- Decrease in demand
  - At the original price, there is a surplus
  - Price therefore falls
- Increase in supply
  - At the original price, there is a surplus
  - Price therefore falls
- Decrease in supply
  - At the original price, there is a shortage
  - Price therefore increases

5 Chapter 2

5.1 Production Possibilities Frontier

- PPF is the boundary between combinations of goods and services that can and can't be prodiced
- Points outside the PPF are unattainable

5.1.1 Production Efficiency

- We can achieve production efficiency if we cannt make more of one good without making les of another such good.
- All points on the PPF are efficient, while all points within the PPF are inefficient

5.2 Opportunity Cost on the PPF

- Every choice/movement along the PPF is an opportunity cost
- Opportunity Cost = Amnt given up/Amnt gained
- Opportunity cost increases as we move along the PPF
  - Because resources are not equally productive for all activities, the PPF bows outwards
  - The outward bow of the PPF means that as the quantity of each good increases, so does the opportunity cost

5.3 Marginal Costs

- Marginal Cost: The opportunity cost of producing one more unit of that good
- Marginal Cost curve slopes upward for the same reason that the PPF bows outward

5.4 Marginal Benefits

- Preferences: A description of a person's likes and dislikes
- Marignal benefit: the benefit recieved from consuming one more unit of that good
- Marginal benefot is measured by the amount that a person is willing to pay for one more unit of a particular good or service
- Principle of Decreasing Marginal Benefit: The more we have of any good, the smaller the marginal benefit of that good

5.5 Allocative Efficiency

- When we cannot produce more of any one good without giving up some other good that we value more highly
- Point at which marginal cost and marginal benefit curve meet

5.6 Comparative & Absolute advantage

- Comparative advantage: When a person can perform an activity at a lower opportunity cost than anyone else
- Absolute advantage: When a person is more productiv than others

5.7 Economic Growth

- Two key factors:
  - Technnological Change
  - Capital accumulation (growth of capital resources)
- Economic growth is not free, investing in tech and capital costs production today but helps production tomorrow through smart investment

5.8 Cricular Flow Model

- Need:
  - Firms (take input, make output)
  - Markets
  - Property Rights
  - Money

6 Chapter 1

6.1 Scarcity

- all economic questions arise because we want more than we can get
- inability to satisfy all wants because of scarcity
- scarcity = limited resources

6.2 Definition of Economics

- because we face scarcity, we must make choices
- incentive = a reward that encourages an action or a penalty that discourages an action

- economics is the social science that studies the choices that individuals, businesses, etc. make as they cope with scarcity and the incentives that influence and reconcile those choices
- Economics divides into two parts:
  - Microeconomics = study of choices that individuals and businesses make & how those choices interact with markets and the influence of governments
  - Macroeconomics = the study of the performance of national and global economies

6.3 6 Key Ideas

- a choice is a tradeoff: ever choice is an exchange giving up one thing for another
- making a rational choice: a rational choice compares costs and benefits, maximizing benefit
- benefit = what you gain: the gain or pleasure something brings about, determined by preferences
  - preferences = what a person likes, dislikes, and the intensity of those feelings
- cost = what must be given up
  - opportunity cost = highest val alternative that must be given up
- choosing at the margin: the benefit of pursuing an incremental increase in some action is marginal benefit of that action
  - the opportunity cost of pursuing an incremental increase in some action is marginal cost
  - if marginal benefit $>$ marginal cost, rational choice is to do more of that action
- choices respond to incentives: a change in marginal cost/benefit changes our incentives & choices

6.4 Positive & Normative

- economists distinguish between two types of statements:
  - positive statements: can be tested by checking the facts
  - normative statements: express an untestable opinion
- economists as social scientists
  - economists test economic models
  - economic model = a description of some aspect of the world w only the necessary features
- economists as policy advisors

6.5 Resources & Highest Valued Use

- the scope of economics:
  - how do choices end up determining "what, how, and for whom" goods and services get produced
- goods and services are produced using productive resources called factors of production
  - land
  - labor
  - capital
  - entrepreneurship
- who gets goods and services depends on income
  - land earns rent, labor earns wages, capital earns interest, entrepreneruship earns profit
- **resources gravitate towards their highest value use**

6.6 Self Interest & Social Interest

- self interest = choices that are made because you think they are the best for you
- social interest = choices that are best for society as a whole

- social interest has two dimensions:
  - efficiency: resource use is efficient if it is not possible to make someone better off without making someone else worse off (no waste to be eliminated)
  - fair shares/equity: refers to the fairness with which resource division occurs in a society
- tension between self & social interest: information revolution, climate change, globalization