**Microeconomics**

**Chapter 1. Introducing the Economic Way of Thinking**

1. Economics- the study of how society chooses to allocate its scarce resources to the production of goods and services to satisfy unlimited wants
2. Microeconomics- how decisions are made by individuals and firms
3. Macroeconomics- broader tissues that affect the economy as a whole
4. Scarcity- the condition in which human wants are forever greater than the available supply of time, goods, and resources
5. Fundamental economics questions: 1) what products will be produced, scarcity 2) how will they be produced, resources 3) for whom will they be produced (government or owners of factors of production)
6. Resources, factors of production: land (anything natural above or below the ground), labor, capital
7. Labor- the mental and physical capacity of workers to produce goods and services, number and skill, education
8. Capital- a human-made good used to produce other goods and services, factory or machinery
9. Entrepreneurship- creative ability, innovation, creates a growing economy
10. Methodology- 1) identify the problem 2) develop a model, theory, no interior design for airplane models 3) gather data and test whether the theory can be supported by the data, forecast and predict 4) formulate a conclusion
11. Hazards, pitfalls- 1) failing to understand the ceteris paribus assumption 2) confusing correlation (association) and causation
12. Ceteris Paribus- while certain variables change, all other variables remain unchanged, isolate and select
13. A model is only valid when a cause-and-effect relationship is stable and dependable over time, not chance and disappears, stock prices correlated not caused price of cookies
14. Efficiency- where society is doing the best it can with existing resources and technology, best combinations, maximizing production, size of the pie
15. Equity- fairness how production is distributed, distribution of the pie
16. Positive economics- objective facts tested, what is true or false
17. Normative economics- subjective what ought to be, value judgements, cannot be proven
18. Direct relationship- positive association between 2 variables, same direction
19. 2 variable graph, ceteris paribus
20. Inverse relationship- negative association between 2 variables, different direction
21. Independent relationship - 0 association, one changes, other unchanged
22. Three variable relationship - shows a shift in a curve when ceteris paribus is relaxed, and third variable not on either axis is allowed to change

**Chapter 2. Production Possibilities, Opportunity Cost, and Economic Growth**

-what to produce, how to produce, and for whom to produce

-scarcity, choice, and opportunity cost

-opportunity cost- the next best alternative that was sacrificed when making a choice, next highest; movie stars not going to college

-marginal analysis- heart of all rational decision-making, examines the effects of incremental additions to or subtractions from a current situation

-rational decision maker- marginal benefit exceeds marginal cost

-Production Possibilities Model, production possibilities curve- scarcity means that society’s capacity to produce combinations of goods is constrained by its limited resources and existing technology; the maximum combinations of two outputs that the economy can produce in a given period of time with its resources and technology; each point represents maximum production possible (productively efficient points, maximum output levels, more of one good requires less of another good)

-PPM- 1) fixed resources; quantities and qualities of resources remains unchanged, but can shift from producing consumer goods to capital goods 2) fully employed resources; greatest possible output without waste or mismanagement 3) fixed technology; creates constraints, technology is the body of knowledge applied to how goods are produced

-efficiency- society is doing its best to produce with existing resources

-productive efficiency- all the points, where a society produces the most it can with existing resources and technology; more of one good can only be produced by producing less of another good

-inefficient output level, underproducing, not full employment, idle equipment

-currently unattainable points, not possible based on current resources and technology

-scarcity limits an economy to points on or below its production possibilities curve

-productively efficient points, marginal benefit exceeds marginal cost

-allocative efficiency- only 1 point, when society allocates, or channels, its limited resources into production of those products desired by society; only one point on PPC, marginal benefit = marginal cost

-The Law of Increasing Opportunity Costs- the opportunity cost rises because workers are not equally suited to making both tanks and sailboats; 10,000 tanks is the opportunity cost of producing 20,000 more sailboats; the opportunity cost increases as production of one output expands; holding the stock of resources and technology constant (ceteris paribus), this law causes the PPC to display a bowed-out curve; workers are not equally suited to the production of both goods, least-skilled tank workers shift first, then most-skilled workers; if all workers are equally suited to production of tanks and sailboats, PPC is a straight line (international finance)

-because resources are not equally suited to production of all goods, experience increasing opportunity costs and bowed-out PPC

-economic growth- if quality or quantity of resources increase or technology advances, PPC will shift outwards; the ability of an economy to produce greater levels of output, outwards shifting PPC

-changes in resources- natural resources (land), baby boom (labor), factories (capital), PPC shift outward; PPC shift inward from natural disasters, pandemic casualties labor, war factories

-increase the productivity of existing resources, like labor, through education, health, and training; quality of capital improves, better factories

-technological change, invention, stone into a wheel, innovations of entrepreneurship

-innovation- developing new productive processes; seeking profits, new, better, or less expensive products; organizing an improved mix of resources, Henry Ford Assembly Line

-training does not affect PPC of all goods equally, trained to grow crops does not result in an increase of construction shelter, when technological advances only affect the production of 1 good

-when the decision for an economy involves between choosing between the production of consumer goods and capital goods, the output combination chosen for the present period can affect future output; sacrificing consumer goods for capital goods causes a lower standard of living, which can be unpopular

-long-run benefit from accumulation of capital that can offset the opportunity cost of losing consumer goods output in the present

-public investment, private-sector productivity, 15% to 45%, safer water and cleaner air

-investment- accumulation of capital, such as factories, inventory, and machines, used to produce goods and services

**Chapter 3. Market Demand and Supply**

-use markets to answer the basic economic questions that result from scarcity

-market economy, products are bought and sold by individuals coming together as buyers and sellers in markets

-demand - choice making decisions for consumers

-supply - choice making behavior for producers

-interaction of supply and demand in the marketplace determines the price and quantity

-demand curve - a curve or schedule showing the different quantities of product consumers are willing to purchase at various prices during a time period, ceteris paribus; summary of buying intentions

-law of demand - inverse relationship between the price of a good and and quantity buyers are willing to purchase in a time period, ceteris paribus, negative slope, decrease in price (vertical axis) results in increase of quantity (horizontal axis)

-market demand curve, horizontal sum of all individual demand curves

-change in quantity demanded- ceteris paribus, movement on a stationary demand curve resulting from a change in price

-demand nonprice determinants, demand shifters: 1) number of buyers, population growth 2) tastes and preferences, fads fashions advertising 3) income 4) expectations of buyers, war and gas 5) prices of related goods

-change in demand- increase (rightward shift) or decrease (leftward shift)

-normal goods- change in income has a positive effect, new cars, direct

-inferior goods- change in income has negative effect, used cars, inverse

-substitute good- competes with another good, tea and coffee, nonprice determinant; when the price of a substitute good increases, the demand for the original good also increases

-complementary good- jointly consumed, nonprice determinant; an increase in the price of one good decreases the quantity demanded of the other good

-changing price of good causes a movement along demand curve, change in quantity demanded

-changing price of nonprice determinant shifts demand curve, change in demand

-supply- relationship between various prices and quantity supplied

-law of supply- direct relationship between the price of a good and quantity sellers are willing to offer in a time period, ceteris paribus

-supply curve- quantity supplied (horizontal axis) and price (vertical axis), positive slope, increases both

-market supply curve, horizontally sum all individual supply curves

-change in quantity supplied- change in quantity along a stationary supply curve from a change in price, ceteris paribus; change in price, movement along supply curve

-change in supply- increase or decrease in quantity supplied at price; increase (rightward shift) decrease (leftward shift)

-supply nonprice determinants- shift the supply curve, 1) numbers of sellers, drought and tariffs 2) technology 3) resource prices, natural resources labor capital entrepreneurship 4) expectations of sellers, war and gas 5) prices of other goods the firm can produce, opportunity cost

-surplus- a market condition existing at any price where the quantity supplied is greater than the quantity demanded, lower prices

-shortage- a market condition existing at any price where the quantity supplied is less than the quantity demanded, higher prices

-equilibrium- market clearing, quantity demanded and quantity supplied are equal; trial and error will make all possible price-quantity combinations unstable except at equilibrium, ceteris paribus, only nonprice determinants can change quantity and price, equilibrium price-quantity point

-price system- a mechanism that uses the forces of supply and demand to create equilibrium through rising and falling prices; rationing role, distributes scarce resources to those willing and able to pay

-simultaneous change in supply and demand, cannot say what will happen to curves

**Chapter 4. Markets in Action**

-demand is marginal benefit, supply is marginal cost

-demand curve, marginal benefit curve, consumers’ willingness to pay for a product, diminishing marginal utility, diminishing marginal rate of substitution, downward sloping, each point is valued less than the previous point, get a bonus for first products purchased before market price point

-supply curve, marginal cost curve, minimum price necessary for producers to cover the opportunity costs of production and offer a product for sale

-competitive market is efficient, equilibrium point is where marginal benefit of consumption equals marginal cost of production

-market failure- occurs when market equilibrium results in too few or too many resources being used in production

**Sources of Market Failure**

1. Lack of competition- if firms are able to collude to reduce competition to restrict supply, there will be an inefficient equilibrium with artificially high price and too few resources devoted to production
2. Externalities- a cost or benefit imposed on people other than the consumers and producers; spillover effects, neighborhood effects; third parties; negative externality or external cost, positive externality or external benefit
3. Public goods- national defense; A) users collectively consume the benefits B) there is no way to bar people who do not pay, free riders, from consumption, nonexclusive

-when the supply curve fails to include external costs, equilibrium price is artificially low, and equilibrium quantity is artificially high, external costs overallocate resources

-when the demand curve fails to include external benefits, equilibrium price is artificially low, and equilibrium quantity is artificially low, external benefits underallocate resources

-if public goods are available only in the marketplace, people wait for someone else to pay, and the result is an underproduction or zero production of public goods

**Policies to Correct Market Failure**

1. Regulation- workplace safety, pollution in steel, required to get Covid shots,
2. Price controls- price ceiling and price floor
3. Taxes and subsidies- alter the costs and benefits in a market, school vouchers

-price ceiling- legally established maximum price a seller can charge, rent controls; can lead to black market, results in a shortage in the market

-price floor- a legally established minimum price a seller can be paid, minimum wage and unemployment surplus, results in a surplus in the market

-consumer surplus- top, the distance between the demand curve and the price line at each quantity, area below the market demand curve but above the equilibrium price, the difference between the maximum consumers would be willing to pay, and what they actually do pay

-producer surplus- bottom, area above the supply curve and below the price, measures the value to producers of being able to sell all slices of pizza at the same market price

-price ceiling above equilibrium price would have no effect, and below would be effective

-price floor above equilibrium price would be effective, and below would have no effect

-positive externality, shift demand curve outward, the market equilibrium quantity produced will be less than the efficient quantity

-negative externality, shift supply curve inward, greater than

**Chapter 5. Elasticity**

-elasticity- how sensitive changes in one variable are to changes in another variable

-price elasticity of demand- how sensitive changes in quantity demanded are to changes in price; how much quantity will change, how strongly consumers react to a change in price

Ed- percentage change in quantity demanded/ percentage change in price, elasticity coefficient, degree of elasticity

-Midpoints formula- ((Q2-Q1) / (Q1+Q2)) / ((P2-P1)/(P1+P2)); %Q/%P

-how changes in consumer and the prices of related goods income affect percentage changes in the quantity demanded

-the responsiveness of the quantity demanded to a change in price determines the elasticity coefficient: 1) numerator greater than denominator 2) denominator greater than numerator 3) numerator = denominator

-elastic demand- % change in quantity demanded is greater than % change in price; Ed greater than 1; price decrease = larger quantity increase = total revenue increase; price increase = larger quantity decrease = total revenue decrease

-When demand is elastic, a price increase will lead to a significantly larger decrease in the quantity demanded, while a price decrease will result in a proportionally larger increase in the quantity demanded; meaning consumers are highly sensitive to price changes and will readily switch to substitutes if the price rises too much

-total revenue- dollars earned from sales, price x quantity

-inelastic demand- % change in quantity demanded is less than % change in price; total revenue falls; Ed less than 1; price decrease = smaller quantity increase = total revenue decrease; price increase = smaller quantity decrease = total revenue increase

-When demand is inelastic, a price increase will result in only a small decrease in the quantity demanded, meaning consumers are not very responsive to price changes and will still buy roughly the same amount even if the price goes up; conversely, a price decrease will also lead to only a small increase in the quantity demanded

-unitary elastic demand- % change in quantity demanded is equal to % change in price, total revenue does not change, Ed equal to 1; price increase or decrease equals same quantity increase or decrease and no change in total revenue

-perfectly elastic demand- a small % change in price brings about an infinite % change in quantity; Ed = infinity

-perfectly inelastic demand- quantity demanded does not change as price changes; Ed = 0

-determinates of price elasticity of demand- 1) availability of substitutes; limited alternatives, more price inelastic 2) share of budget spent on project; larger share, more price elastic 3) adjustment to a price change over time; short-run elasticity of gasoline is inelastic than long-run

-demand is more elastic when there are substitutes, larger share of budget, or more time to adjust

-any downward sloping straight-line demand curve has ranges of all 3 elasticities of demand

-income elasticity of demand- % change in quantity demanded to % change in income

E1= ((Q2-Q1)/(Q1+Q2)/ (I2-I1)/(I1+I2))

-normal good- income elasticity of demand is positive E1 > 0; demand and income move in same direction

-inferior good- income elasticity of demand is negative E1 < 0

-cross elasticity of demand- responsiveness of quantity demanded to a change in price of another good, substitute or complement

Ec = ((Qx2-Qx1)/(Qx1+Qx2)/ (Py2-Py1)/(Py1+Py2))

Ec > 0, substitutes, variables change in same direction, larger the positive coefficient, greater the substitutability between goods

Ec < 0, complements, variables change in different directions, larger the negative coefficient, greater the complementary relationship

-price elasticity of supply- Es = % change in quantity supplied / % change in price; same Es coefficients values

-the more substitutes a product has, the more elastic its demand will be, meaning a price change will likely lead to consumers switching to alternative options

-most elastic Merlot, middle elastic wine, least elastic beverages; laundry detergent more elastic than salt or computers, monthly cell phone bill more elastic

-price elasticity of supply is greater in the long run

-tax incidence- share of tax paid by consumers and sellers; determined by the price elasticity of demand and supply

-with a downward-sloping demand curve and upward-sloping supply curve, sellers cannot raise the price by the full amount of the tax

-with more elastic demand, flatter demand curve, consumers pay less tax

**Chapter 6. Consumer Choice Theory**

-basis for law of demand is self-interested behavior

-motivation to consume goods and services is utility

-utility- the satisfaction or pleasure that people receive from consumption; want-satisfying power in the eye of the beholder

-total utility- amount of satisfaction received from consuming all units of good or service; util

-marginal utility- change in total utility from one additional unit of a good or service

-law of diminishing marginal utility- extra satisfaction declines from additional consumption; universal principle of human consumption behavior

-disutility- marginal utility is negative, have to be paid to consume

-TU curve becomes flatter as marginal utility diminishes

-marginal utility per dollar, MU/P- ratio of marginal utility of each good to its price

-consumer equilibrium- condition in which total utility cannot increase by spending more on one good and less on another good

-if the marginal utility per last dollar spent on each good is equal and the entire budget is spent, total utility is maximized

-income effect- the effect of a price change on real income; change in quantity demanded caused by a change in real income, purchasing power

-nominal, money- money you earn

-real income- price changes, lower price causes real income to rise and quantity demanded to rise

-substitution effect- changing relative prices, prices of other goods; change in quantity demanded caused by a change in the price of its substitutes

-when the price of a normal good falls, the income and substitution effects combine to cause the quantity demanded to increase

-MUa/Pa = MUb/Pb; MUa/MUb= Pa/Pb

-indifference curve- shows the different quantity combinations of 2 goods that gives the same satisfaction or total utility

-marginal rate of substitution- the rate at which a consumer is willing to substitute one good for another with no change in total utility

-indifference map - selection of a consumer’s indifference curves

**Chapter 7. Production Costs, Electrical Engineer, CompuTech**

-profit- total revenue - total cost

-economic profit- total revenue - total opportunity cost; total revenue - (explicit costs + implicit costs), economists

-accounting profit- total revenue - total explicit cost; accountants

-normal profit- 0 economic profit, the minimum profit necessary to keep the firm in operation

-profit maximization goal- best assumption for why producers choose a particular level of output or price

-total opportunity cost- explicit costs and implicit costs

-explicit costs- payments to nonowners, outsiders, of a firm for resources; wages, rent, utilities, insurance, materials

-implicit costs- opportunity costs of using resources owned by a firm; outside salary, outside rent, interest, warehouse

-production- the process by which firms turn resources, inputs, into products, output

-short run v. long run- the ability to vary the inputs or resources used in production

-fixed input- quantity cannot change in the time period, machinery

-variable input- quantity can change in the time period, workers, raw materials, utilities

-short run- at least 1 fixed input

-long run- all inputs are variable; build new factories or purchase new machinery, enter or exit markets

-production function- relationship between the maximum amounts of output a firm can produce and various quantities of inputs; technology fixed; steeper at lower output and flattens as output expands, not downward sloping

-adding more workers lets them specialize

-law of diminishing returns- after certain numbers of workers; beyond some point the marginal product decreases as additional units of a variable factor are added to a fixed factor; assumes 1 fixed input, so is short run; declining portion of MP curve, rising portion of MC curve

-marginal product- the change in total output produced by adding one unit of a variable input, holding all other inputs fixed; plotted at the midpoints because the change in total output occurs between each additional unit of labor used

-increasing marginal returns, first 2 workers, diminishing marginal returns in short run as workers share fixed inputs, marginal product has reached its peak

-total cost curves- TFC + TVC; TFC curve does not vary with output, so TC curve is determined by TVC curve, vertical distance between TC and TVC is TFC

-total fixed costs- short run, costs for fixed inputs that do not vary with production and must be paid even if output is 0

-total variable costs- short run, costs for variable inputs that are 0 when output is 0 and vary as output varies

-average cost curves- ATC = TC/Q

-average fixed cost- TFC/Q

-average variable cost- TVC/Q

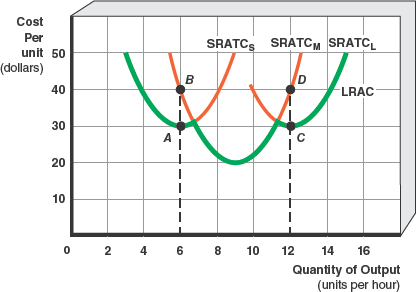
-marginal cost curve decreases, reaches a minimum, then increases as output increases; MC curve intersects AVC and ATC at minimum points; AFC declines as output increases; AFC is difference between ATC and AVC

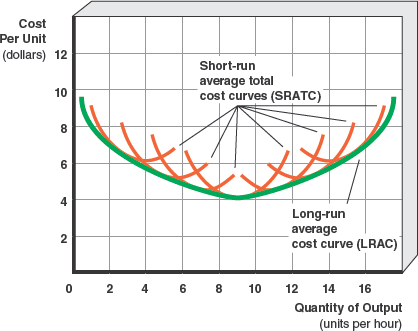
-AVC curve and ATC curve are U-shaped, determined by J-shaped MC curve; ATC falls at first because AVC and AFC are falling, the rises as output increases, while AFC declines

-marginal cost- change in TC/ change in Q; change in total cost as output varies; J-curve

-marginal average rule- when marginal cost is below average cost, average cost falls; when marginal cost is above average cost, average cost rises; when marginal cost = average cost, average cost is at minimum; applies to grades, weights, and any average

-marginal product and worker productivity direct relationship, inverse to marginal cost





-long run average cost curve- LRAC, lowest cost per unit to produce output at factory size, U-shaped

-economies of scale- when LRAC declines with more output; 1) division of labor and specialization 2) greater efficiency of capital

-constant returns to scale- flat or horizontal LRAC, LRAC does not change as output increases

-diseconomies of scale- LRAC rises as output increases; firm needs to downsize

**Chapter 8. Perfect Competition**

-demand and supply, cost of production, and marginal analysis all influence how competitive markets determine prices, outputs, and profits

-in the short run where there are profits, additional firms enter the market and start producing output; when there are losses, some firms leave the market, halting production

-the entry and exit of firms drives economic profit to 0, long-run equilibrium

-market structure- describes the key traits of a market, including number of firms, similarity of products, and ease of entry and exit; market conditions

-perfect, pure, competition- market structure characterized by: large number of small firms, homogeneous product, and easy entry/exit; theoretical, ideal: agricultural markets, stock market, foreign exchange markets; competitive firm faces horizontal demand curve and can earn profits in short-run, not long-run; industry demand curve is downward sloping

-when each firm has no significant share of total output, and no ability to affect price; each firm acts independently, egg farmers

-homogeneous product- standardized, rules out rivalry in advertising and product quality

-no barriers to entry- obstacles to entry, financial, technological, or government (licenses, permits, patents)

-price taker- perfect competition, no control over price, price determined by market supply and demand; demand curve is perfectly elastic, horizontal, at market equilibrium price; individual demand curve is not the same as market demand curve

-short-run profit maximization for perfect competition- only output is considered

-Total Revenue-Total Cost Method- break-even point, zero economic profit, normal profit

-Marginal Revenue (marginal benefit) Equals Marginal Cost (J-curve) Method- marginal analysis, extra, one more output

-MR= change in total revenue/ one-unit change in output; perfect competition, MR = price, horizontal demand curve

-profit = (P - ATC) x Q; (P x Q) - TC/Q

-maximizes profit where MC = MR; largest TR - TC

-average profit per unit = (P - ATC); Profit/Q = (P x Q)/Q - TC/Q; ATC curve

-Short-run Supply in Perfect Competition- PC firm takes price determined by market supply and demand, market conditions can change price; positive profits (price exceeds ATC), zero profit, negative profit (price lower than ATC)

-if the firm is able to pay a portion of fixed costs, producing at a loss is better than stopping production, because of fixed costs

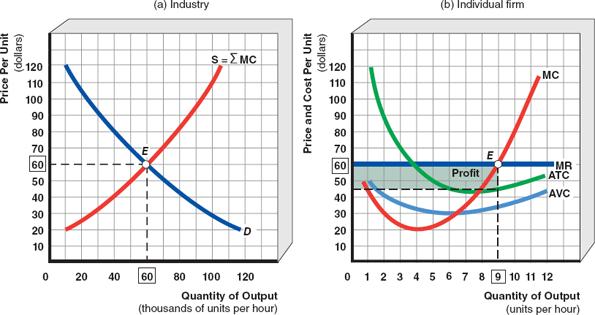
-if price, MR, is below minimum AVC curve, should shut-down

-Myrtle Beach motels, keep operating in winter; Kevin shirt business

-Short-run Supply Curve in Perfect Competition- MC curve above minimum point on AVC curve

-Industry Short-run Supply Curve in Perfect Competition- horizontal summation; based on assumption that input prices remain constant as output expands

-short-run equilibrium for perfect competition



-long-run supply in perfect competition- all inputs are variable in the long run; free entry and exit

-economic profit, more firms enter, and shift short-run industry supply curve to right, causing prices to fall until economic profits are 0 in long-run; economics losses, shifts left, prices rise

-normal profit, zero economic profit, MR = price, equals the minimum point on SRATC curve and LRAC curve

=P = MR = SRMC = SRATC = LRAC

-perfectly competitive industry long-run supply curve- shows quantities supplied by industry at different equilibrium prices after entry and exit

1. Constant-cost industry- input prices remain constant with entry/exit; expansion of industry with new firms does not affect the firm’s SRATC curve; long-run supply curve is perfectly elastic and horizontal
2. Decreasing-cost industry- input prices fall as new firms enter, and output expands, individual cost curves shift downward; as production of electrical components expands, price of computer chips falls; greater sales volume and economies of scale
3. Increasing-cost industry- input prices rise as new firms enter, and output expands; labor and machines; individual cost curves shift upward; electrical engineer salaries; most industries, long-run supply curve is upward sloping

**Chapter 9. Monopoly**

-perfectly competitive market yields efficient outcome, monopoly market yields inefficient outcome; major difference is shape of individual demand curves, not cost curves

-monopoly firm has the ability to set its own prices and not worry about competitors; 1) single seller 2) unique product with no close substitutes 3) impossible entry into the market

-local monopolies better approximation than national or world monopolies; campus bookstore, electric power company, only gas station, drugstore or grocery store in small town, hot dog stand at football game, post service nationally

-unique product, few suitable substitutes; students can buy textbooks online, solar energy could substitute for electric heat, email can be used in place of first class mail

-barriers to entry- 1) ownership of a vital resource 2) legal barriers; franchises, licenses, patents, copyrights; water company, ABC stores, lottery, postal service 3) economies of scale; LRAC of the firm falls, lower per-unit cost as it expands output

-natural monopoly- economies of scale; natural gas, water, television, regulated through commissions

-network good- economies of scale and monopoly power, a good that increases in value to each user as the total number of users increases

-monopolist- price maker, faces downward sloping demand curve

-as the monopolist lowers its prices to increase quantity, changes in both price and quantity affect total revenue

-price is where MR curve intersects the quantity axis, halfway between the origin and intercept of the demand curve; MR curve always lies below the demand curve, which is a result of the monopolist charging all customers the same price

-expanding production and sales continues to generate marginal revenues that are less than the successively lower prices found on the demand curve

-demand curve is downward sloping market demand curve, only 1 seller, MR curve downward sloping and lies below demand curve

-when the MR curve is above the quantity axis, elastic demand, total revenue is increasing because MR is positive; at intersection of MR curve and quantity axis, unit elastic demand, total revenue is at maximum; when MR curve is below quantity axis, inelastic demand, total revenue is decreasing, never operate

-Total Revenue-Total Cost Method, short run profit maximization - MR = MC, charge corresponding price from demand curve, elastic segment of demand curve, profit is maximized where the vertical distance between total revenue and total cost curves is greatest, will not be greatest total revenue

-MR = MC Method- where MR and MC intersect, when MR = MC is below ATC, short-run loss, when MR = MC is below AVC, shut down

-monopolist earns a profit in long run

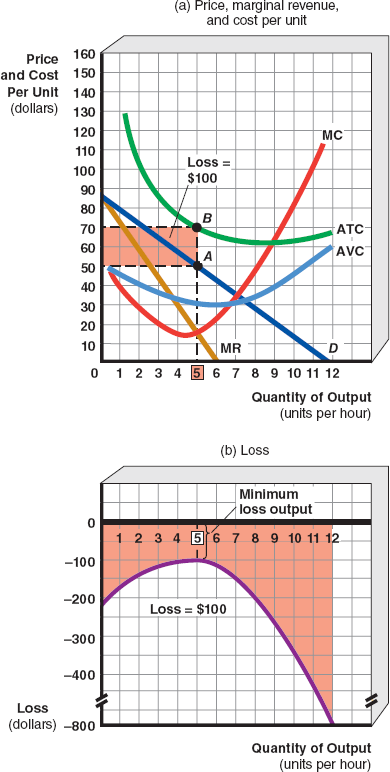
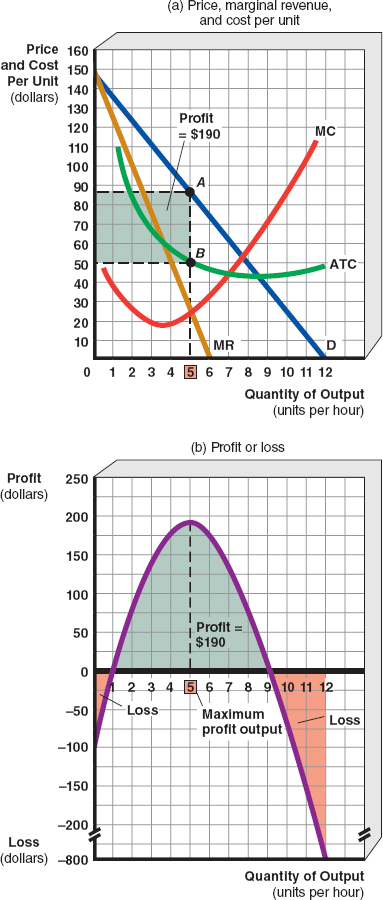
-price discrimination- college tuition, scholarships, children, senior citizens, industrial customers, cannot prevent resale of theatre popcorn, when a seller charges different prices for the same product that are not justified by cost differences; 1) seller is price maker and faces a downward sloping demand curve, not just monopolists 2) segment the market, separation of buyers based on different elasticities of demand 3) customers cannot engage in arbitrage, buying a good at a low price and reselling it at higher price

-disadvantages of monopoly (P > MC) and advantages of perfect competition (P = MC) form basis for government policies, such as antitrust legislation

-perfect competitive market results in efficient allocation of resources, monopoly does not; level of output is where MR, demand, equals MC

-monopolist sets MC = MR by restricting output to Qm and raising price to Pm, higher price and lower output; monopolist uses too few resources

1. MR = MC 2) Short-run Loss



**Chapter 10. Monopolistic Competition and Oligopoly**

-monopoly- downward facing demand curve and market power, restrict output and set prices to maximize profit

-price makers- differentiate product with unique features and advertise, can charge a higher price without losing all customers

-monopolistic competition- many small sellers (can raise prices a little), differentiated product (close, but not perfect substitutes), ease of entry and exit (harder than perfect competition); most common form, grocery stores, hair salons, clothing stores, gas stations, restaurants; demand curve and marginal revenue curve downward sloping; demand curve more elastic than monopolist because of substitutes

-nonprice competition- advertising, packaging, product design, better quality, better service, hours of operation, better location; monopolistic competition

-advertising, make demand curve less elastic and shift right by changing consumers’ tastes; upward shift in LRAC and average cost curve, vertical distance between LRAC1 and LRAC2 is the average cost of advertising; economies of scale

-advertising- resources better used for schools, bridges, hospitals; provides info about sales, product availability, and product advantages; ads increase price competition among sellers; consumers are rational and cannot be fooled by advertising

-short run, monopolistic competition is like monopoly; demand curve slopes downward because of nonprice competition; MR = MC maximize profit

-long run- entry by new firms leads to more competitive market outcome; normal profit like perfectly competitive; demand curve shifts downward (leftward) due to more firms; LRAC curve shifts upward because of advertising

-perfect competition is efficient resources use, monopoly is not; monopolistic competition is not; Marginal Benefit(price) = MC, too little production, too few resources

-long run equilibrium perfectly competitive- P = MR = MC = LRAC

-long run equilibrium monopolistic competition- output is left of minimum point on LRAC, and price exceeds MC; like monopolist, charge higher prices and produce less output, excess capacity (output not produced), underutilized resources

-oligopoly- few large sellers, homogeneous or differentiated product, difficult market entry (economies of scale); steel, aluminum, automobiles, aircraft, drugs, tobacco

-among the few, mutual interdependence, an action by one firm may cause a reaction by other firms

-differentiate product through advertising or research innovation

1. Kinked demand curve- why car makers change prices less than perfectly competitive wheat; match a price decrease, ignore price increase; price makers, high interdependence among sellers; segment of demand curve below kink is inelastic and change in price does not result in change in quantity, less revenue; price lists in catalogs
2. Price leadership- follow the leader, match price of dominant firm
3. The cartel- peace treaty, do not follow mutual interdependence, form cartel; reap monopoly profits by replacing competition with cooperation; if no firms cheats on cartel, each firm faces higher horizontal demand curve
4. Game theory- model of strategic moves and countermoves by rivals; payoff matrix; mutually interdependent; low-price strategy that does not maximize mutual profits; tit-for-tat, price leadership, cartel

-oligopoly price higher than perfect competition; oligopoly spends money on advertising, shifting demand curve to right, price and output higher under oligopoly, oligopoly technological advances, oligopoly earns economic profit in long run because of barriers to entry

| Market Structure | Number of Sellers | Type of Product | Entry Condition | Control of Price | Examples |
| --- | --- | --- | --- | --- | --- |
| Perfect Competition | Large | homogeneous | Very easy | Price taker | agriculture |
| Monopoly | One | unique | impossible | Price maker | Public utilities |
| Monopolistic Competition | Many | differentiated | easy | Price maker | Retail trade |
| Oligopoly | Few | Homogeneous or differentiated | difficult | Price maker | Auto, steel, oil |

**Chapter 11. Labor Markets**

-competitive labor market model- no single buyer or seller can influence the price (wage) of labor

-market for labor- firms demand labor and consumers supply labor

-wage rate or price paid to labor and quantity of labor demanded depends on whether or not the labor market is competitive

-perfectly competitive labor market- many sellers and buyers of labor services so wages and salaries are determined by the intersection of demand and supply for labor

-production function- numbers of workers and production per day

-marginal product of labor- additional output from hiring each worker

-law of diminishing returns- the marginal product of labor falls as the firm hires more workers

-marginal revenue product (MRP)- the increase in a firm’s total revenue resulting from hiring an additional unit of labor; dollar value of worker productivity; MRP = MP x P

-if the MRP of labor, value of worker to the firm, is greater than or equal to the wage the firm must pay, the firm should hire that worker

-demand curve for labor- quantities at wages; = MRP of labor; the firm’s downward sloping MRP of labor curve

-derived demand- demand for labor, for labor and other factors of production depends on the consumer demand for final goods and services the factors produce

-supply curve of labor- wages and quantities; upward sloping for market, horizontal for firm, wage taker, more workers are willing to work at higher wages

-human capital- describes why there are more unskilled workers than skilled workers; the accumulation of education, training, and experience and health that enables a person to enter the workforce and be productive

-equilibrium wage rate- higher demand or lower supply results in higher wages

| Changes in Labor Demand | Changes in Labor Supply |
| --- | --- |
| Unions | Unions |
| Prices of substitute inputs | Demographic trends |
| Technology | Expectations of future income |
| Demand for final products | Changes in immigration law |
| Marginal product of labor | Education and training |

-perfectly competitive labor market does not apply to unions

-unions- improve working conditions and raise wages

-raise wages- increase demand for labor, decrease supply of labor, exert power to force employers to pay a wage rate above the equilibrium rate

-increase demand for labor- decrease imports, Look for the Union label

-featherbedding- push employers to hire more workers than they need or decrease output per worker; contract provisions only allow carpenters to do carpentry work

-decrease supply for labor- restricting union membership, longer apprenticeship programs, reduce immigration or shorten worker hours, higher membership fees

-collective bargaining- the process of negotiating labor contracts between the union and management concerning wages and working conditions, creates unemployment in industry

-after a union has been certified as the representative of the majority of workers, employer must deal with the union, strikes

-employers must respond by substituting capital for labor, or moving operations overseas

-employer power, monopsony- labor market in which a single firm hires labor, company town, unwilling to relocate or learn new skills, hospitals and nurses, upward sloping supply curve, cannot hire an additional worker without raising the wage rate paid to all workers, marginal factor cost curve (MFC) lies above the market supply curve for labor, exceeds the wage rate

-marginal factor cost, monopsony- the additional total cost resulting from a one unit increase in factor, labor; MFC curve lies above market supply curve for labor, and the gap between the two curves increases as more workers are hired, midpoints

-monopsonist hires labor at the point where marginal revenue product of labor = marginal factor cost, MRP = MFC, hires fewer workers and pays a lower rate than competitive

-monopsonistic employer, form a union and do collective bargaining

**Chapter 12. Income Distribution, Poverty, and Discrimination**

-distribution of income- how wages and salaries are divided among members of society; for whom question

-positive concept- there is an unequal distribution of income in America

-equity- the way the economic pie is divided among members of society

-efficiency- making the pie as large as possible

-income distribution should be more equal- favor equity over efficiency; higher incomes and political power, unequal opportunities

-underutilized productive capital is a waste of human capital; children in poverty not going to college; poverty less able to afford healthcare, national concern; fairness, human dignity, economic security

-income distribution should be unequal- favor efficiency over equity; income inequality gives people a reason to be productive; lack motivation with same income, incentive to go to college, increase the size of the economic pie, more human capital

-Lorenz Curve- a graph of the actual cumulative distribution of income compared to a perfectly cumulative distribution of income; vertical axis, cumulative percentage of family income; horizontal axis, cumulative % of families from lowest to highest income; shaded area between perfect equality line and Lorenz Curve is degree of inequality in distribution of income; the more the Lorenz Curve is bowed outwards, the more unequal the distribution of income

-money income does not represent government programs like food stamps; income before taxes, unreported income

-wealth, or accumulation of assets, is much more unequally distributed in a population than income

-Lorenz Curve in developed nations is more equal than in developing nations

-absolute poverty- a dollar figure that represents some level of income per year required to purchase some minimum amount of goods and services essential for basic needs

-relative poverty- level of income in the lowest 20%

-poverty line- level of income below which people are experiencing poverty; cost of a minimal diet multiplied by 3, because a family spends ⅓ of their income on food

-problems with poverty line- 1) gives no indication of what level of poverty the people included are experiencing 2) computing by comparing a person’s census cash to to the poverty line

-cash income does not include in-kind transfers, nonmonetary, food stamps

-poverty affected by region, South, head of household, male or female, education

-antipoverty programs- disabilities, seniors, dependent children, entitlement programs

-means test- requirement that income fall below a certain level to be eligible for public assistance, entitled

-cash assistance and in-kind transfers; in-kind transfers not included, did not exist when the poverty line was created

-social security (OASDHI)- old age, survivors, disability, health insurance; payroll tax, benefits paid to spouse and children

-earned income tax credit (EITC)- refund of federal taxes, cash payment

-unemployment compensation- payroll tax on employers, size of employer’s payroll; nothing deducted from employees; 1 week waiting period, terminated and did not quit; collected by feds, administered by states

-temporary assistance for needy families (TANF)- with children; cannot receive payments more than 60 months, unwed teen parents must live at home and stay in school, nonworking adults must do community service within 2 months and find work within 2 years; parents with children under 1 exempt from work requirements, under 6 if no child care

-worker earnings taxed for social security up to 142,800

-in-kind transfer payments- Medicare, Medicaid, SNAP, Government Housing

-welfare criticisms- 1) work disincentives 2) inefficiencies, much of the transfer ends up for staff 3) inequities, TANF and Medicaid controlled by states

-reform proposals- 1) negative income tax 2) workfare, based on work, not entitlement

-negative income tax- cash payments decrease as income increases, combine all cash and in-kind transfer programs into a single agency; phase-out rate, break-even income; payments inversely related to income

-workfare- work within 2 years or lose benefits, disabilities work for government; subsidies for on the job training for companies; subsidies can stigmatize recipients, subsidies create a windfall for companies, displacement problem

-labor market discrimination

-comparable worth- employees for the same employer must be paid same wage even if different jobs if the jobs have similar training requirements, women earn less than men

**Chapter 13. Antitrust and Regulation**

-threat of high legal costs from defending antitrust lawsuit is a deterrent to companies

-when antitrust policy is successful, lower prices and more output

-after Civil War, many companies merged or formed a trust, to be a cartel, robber barons

-predatory pricing- temporarily lowering prices to eliminate competition then raising prices

-political corruption for trusts

-Sherman Act of 1890- prohibits monopolization and conspiracies to restrict trade; contract, trust, or conspiracy is illegal; misdemeanor

-Clayton Act of 1914- strengthened Sherman Act, outlined specific practices; price discrimination, exclusive dealing, tying contracts, stock acquisition of competing companies, interlocking directorates

-The Federal Trade Commission Act of 1914- FTC 5 member board concerned with unfair trade; enforcing consumer protection legislation, prohibiting deceptive advertising, preventing collusion; negotiate a settlement, cease and desist order, initiate a lawsuit

-Robinson Patman Act of 1936- amendment to Clayton Act for price discrimination; Chain Store Act, WWI

-Celler Kefauver Act of 1950- amendment to Clayton act for mergers and purchase physical assets to lessen competition

-Standard Oil- rule of reason, being a monopoly alone is not enough to prosecute, American Tobacco Trust broken up, US Steel not broken up

-Alcoa Aluminum- per se rule, monopoly is bad by itself; did not break up, subsidized competitors

-IBM- started in 1969, dropped in 1982, 100 million dollars

-AT&T, Ma Bell, broken up into 22 baby bells, local rates rose, long distance rates fell, customers bought their own phones

-MIT- Ivy League price fixing, MIT did not sign cease order, finally did

-Microsoft-

-horizontal merger- same market

-vertical merger- firm with suppliers

-conglomerate merger- unrelated markets

-no antitrust laws in other countries because they have smaller populations, and Adam Smith’s individualistic competition

-1887 to Great Depression, railroads regulated ICC FDA, 1930s communications and financial, ICC Interstate Commerce Commission CAB Civil Aeronautics Board FCC Federal Communications Commission SEC, 1970 health safety and environment, OSHA EPA CPSC Consumer Product Safety Commission, 1980 deregulation, Obama more regulation, Trump less

***Cases for Government Regulation, Market Failure***

1. Natural monopoly- economies of scale, regulators relaxed marginal cost pricing, fair-return price and normal profit
2. Externalities- external cost (pollution) and external benefits (vaccinations)
3. Imperfect information-

**Chapter 14. Environmental Economics**

-air and water are shared resources that are not priced into the marketplace; treated as free, resulting in overuse; competitive markets fail when they price air and water as free

-personal or private benefits and costs- benefits and costs to the decision maker, ignoring those to third parties; firms only consider private costs, not external costs

-competitive markets, price, reflects marginal private benefits = marginal private cost

-social benefits and costs- sum of private and external

-economic efficiency- marginal social benefits = marginal social cost

-with negative externalities, competitive market has lower price and greater quantity produced

-externalities are market failure, must consider alternatives, like government intervention

-government failure- when the government fails to correct market failure

-incentive based regulations- set an environmental goal but are flexible as to how sellers and buyers achieve that goal; profitable for firms to reduce emissions

-command and control regulations- set an environmental goal and dictate how that goal will be achieved; firms that do not meet emissions targets are penalized, and those exceeding do not profit; little incentive to invest in better technology, because firm must meet, not beat, goals; barrier of entry to other firms, both domestic and international

-IB preferred over CAC, because economists favor market system over command system

-effluent tax- simplest form of IB regulation, a tax on the pollutant, gasoline tax; double dividend, could also be used to reduce income taxes, lower pollution and lower taxes, not socially efficient, too little pollution

-taxes can achieve efficiency directly or indirectly and can be placed on sellers or buyers

-1) how do we measure external cost 2) has to be quite large

-emissions trading, cap and trade- market to buy and sell right to pollute; sulfur emissions, better than CAC, CAC has been reinstituted

-offset- reduction in pollution from existing source to new source

-buy permits for each unit of pollution, drives up cost, eventually reduces cost through technological innovation

-new source bias- when regulations provide an incentive to keep assets past the efficient point; firm needing offsets for new factory may stick with older dirtier factory; coal-fired plants

-free rider problem- people wishing to junk their cars may wait another year if prices increase; some individuals benefit while others pay

-smaller number of buyers or sellers, imperfect information about the value of a permit, and concerns about permit value in the future

-hot spot problem- applies to emissions that do not disperse uniformly, emissions may be higher in regions where firms can buy permits that allow them to increase emissions

-Chicago Board of Trade, Smog Exchange

-public is more comfortable with controls and rules than pricing and trading, no pollution is efficient; mistrust of experts, nuclear power

-concern about the effectiveness of government policy in meeting environmental regulations, defense waste sites, generals going to prison

-Coase Theorem- the private sector could achieve social efficiency with minimal governmental intervention; government should be limited to legal establishment of property rights, with courts deciding environmental issues; private market negotiations can achieve social efficiency regardless of the initial definition of property rights; why assume that the sparking railroad is worse than farmer losing crops

-no transactions costs in Coase Theorem, no difference to willingness to pay and willingness to accept, only 2 parties

-Tragedy of the Commons, when individuals use an open access resource to the point of exhaustion, basing their use on private benefits while disregarding the external costs to others

-sustainability- meeting the needs of the present without compromising the future; more stringent that social efficiency