LECTURE NOTES

INTRODUCTION TO MICROECONOMICS

EC1

3. Assumptions in Economics - economic models of human behavior are built upon assumptions; or simplifications that permit rigorous analysis of real world events, without irrelevant complications.

    a. model building - models are abstractions from reality - the best model is the one that best describes reality and is the simplest – Occam's Razor.

    b. simplifications:

        1. ceteris paribus - means all other things equal.

        2. There are problems with abstractions, based on assumptions. Too often, the models built are inconsistent with observed reality - therefore they are faulty and require modification. When a model is so complex that it cannot be easily communicated or its implications easily understood - it is less useful.

4. Goals and their Relations -

    a. POSITIVE economics is concerned with what is;

    b. NORMATIVE economics is concerned with what should be.

        1. Economic goals are value statements, hence normative.

    c. Economics is not value free, there are judgments made concerning what is important:

        1. Individual utility maximization versus social betterment

        2. Efficiency versus fairness

        3. More is preferred to less

2. Economic Problems

Lecture Notes

1. The economizing problem involves the allocation of resources among competing wants. There is an economizing problem because there are:

    d. unlimited wants

    e. limited resources

2. Resources and factor payments:

    d. land - includes space (i.e., location), natural resources, and what is commonly thought of as land.

        1. land is paid rent

    e. capital - are the physical assets used in production - i.e., plant and equipment

        2. capital is paid interest

    f. labor - is the skills, abilities, knowledge (called human capital) and the effort exerted by people in production.

        3. labor is paid wages

    d. entrepreneurial talent - (risk taker) the economic agent who creates the enterprise.

        4. entrepreneurial talent is paid profits

3. Full employment includes the natural rate of unemployment and down time for normal maintenance (both capital & labor). However, full production or 100% capacity utilization cannot be maintained for a prolonged period without labor and capital breaking-down:

a. underemployment - utilization of a resource in a manner, which is less than what is consistent with full employment - using an M.D. as a practical nurse.

4. Economic Efficiency consists of the following three components:

   a. **allocative efficiency** - is measured using a concept known as Pareto Superiority (or Optimality)

      1. Pareto Optimal - is that allocation where no person could be made better off without inflicting harm on another.

      2. Pareto Superior - is that allocation where the benefit received by one person is more than the harm inflicted on another. [cost - benefit approach]

   b. **technical efficiency** - for a given level of output, you minimize cost or (alternatively) for a given level of cost, you maximize output.

   c. **full employment** - for a system to be economically efficient then full employment is also required.

5. Allocations of resources imply that decisions must be made, which in turn involves choice. Every choice is costly; there is always the lost alternative -- the opportunity cost:

   a. opportunity cost - the next best alternative that must be foregone as a result of a particular decision.

6. The production possibilities curve is a simple model that can be used to show choices:

   a. assumptions necessary to represent production possibilities in a simple production possibilities curve model:

3. Interdependence and the Global Economy

Lecture Notes

1. The modern economic system is no longer the closed (i.e., U.S. only) system upon which the debates surrounding isolationalism occurred prior to World War II.

    a. Imports and Exports are increasingly important

    b. Foreign investment versus U.S. investment abroad

        1. Outsourcing
        2. Technological transfers

    c. Balance of trade issues.

        1. Current accounts (import v. exports)
        2. Capital accounts (foreign investment)

2. Capitalist Ideology - The characteristics of a capitalist economy and the ideology that has developed concerning this paradigm are not necessarily the same thing. The elements of a capitalist ideology are:

    a. freedom of enterprise

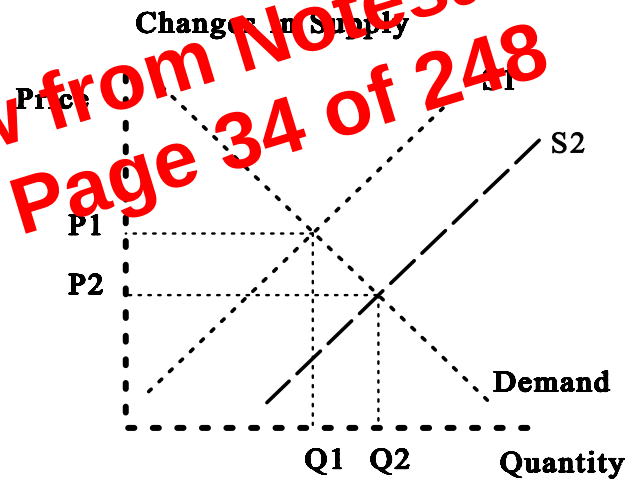
    b. self-interest

    c. competition

    d. markets and prices

Movement of the demand curve from D1 (solid line) to D2 (dashed line) is a decrease in demand (as demonstrated in the above graph). Such decreases are caused by a change in a nonprice determinant of demand (for example, the number of consumers in the market declined or the price of a substitute declined). With a decrease in demand there is a shift of the demand curve to the left along the supply curve, therefore both equilibrium price and quantity decline. If we move from D2 to D1 that is called an increase in demand, possibly due to an increase in the price of a substitute good or an increase in the number of consumers in the market. When demand increases both equilibrium price and quantity increase as a result.

Considering the following graph, movement of the supply curve from S1 (solid line) to S2 (dashed line) is an increase in supply. Such increases are caused by a change in a nonprice determinant (for example, the number of suppliers in the market increased or the cost of capital decreased). With an increase in supply there is a shift of the supply curve to the right along the demand curve, therefore equilibrium price and quantity move in opposite directions (price decreases, quantity increases). If we move from S2 to S1 that is called an decrease in supply, possibly due to an increase in the price of a productive resource (capital) or the number of suppliers decreased. When supply decreases, equilibrium price increases and the quantity decreases as a result. That is the result of the supply curve moving up along the negatively sloped demand curve (which remains unchanged).



If both the demand curve and supply curve change at the same time the analysis becomes more complicated.

Consider the following graphs:

5. Supply & Demand: Elasticities

Lecture Notes

1. Price Elasticity of Demand is how economists measure the responsiveness of quantities demanded to changes in prices.

    a. The elasticity coefficient is calculated using the midpoints formula presented below:

    1. $E_d = \dfrac{\text{Change in Qty}}{(Q1 + Q2)/2} \div \dfrac{\text{Change in price}}{(P1 + P2)/2}$

    b. Elastic demand means that the quantities demanded respond more than proportionately to changes in price; with elastic demand the coefficient is more than one.

    c. Inelastic demand means that the quantities demanded respond less than proportionately to changes in price; with inelastic demand the coefficient is less than one.

    d. Unit elastic demand means that the quantity demanded respond proportionately to change in prices; with unit elastic demand the coefficient is exactly one.

2. Perfectly Elastic and Perfectly Inelastic Demand Curves

If the price of pizza doubles then the new budget constraint becomes the dashed line. The slope of the budget constraint is the negative of the relative prices of beer and pizza.

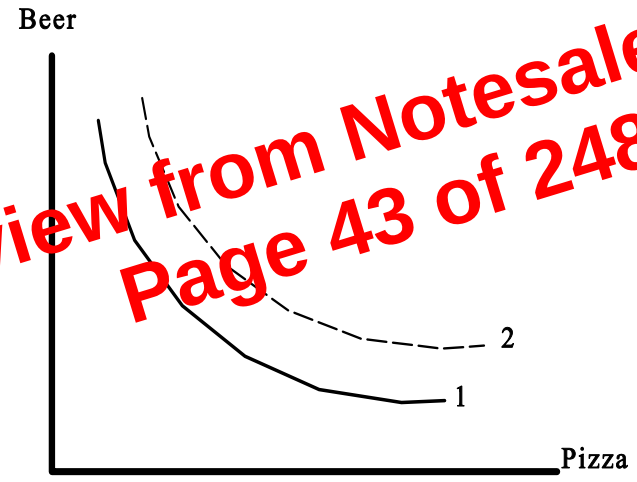
b. The indifference curve shows the consumer's preferences:

1. There are three assumptions that underpin the indifference curve, these are:

    1) Indifference curves are everyplace thick

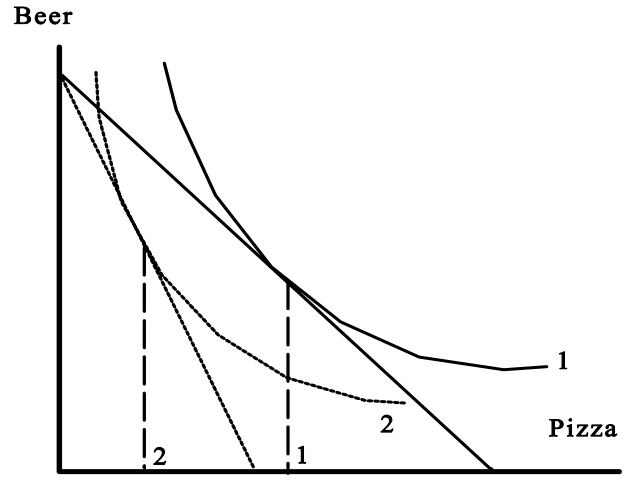
    2) Indifference curves do not intersect one another

    3) Indifference curves are strictly convex to the origin



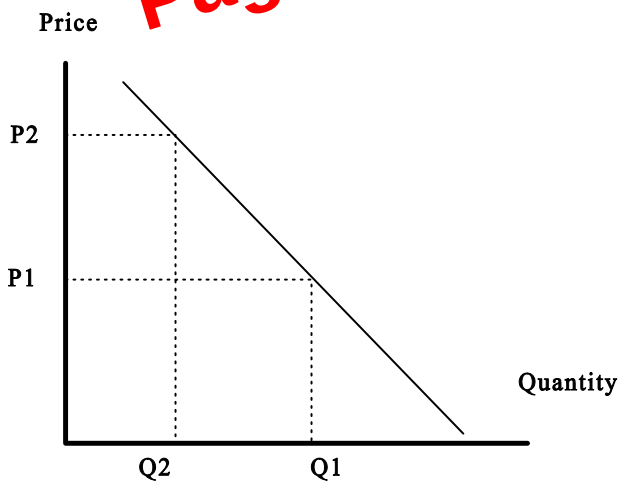
The dashed line (2) shows a higher level of total satisfaction than does the solid line (1). Along each indifference curve is the mix of beer and pizza that gives the consumer equal total utility.

Consumer equilibrium is where the highest indifference curve they can reach is exactly tangent to their budget constraint. Therefore if the price of pizza increases we can identify the price from the slope of the budget constraint and the quantities purchased from the values along the pizza axis and derive and individual demand curve for pizza:



When the price of pizza doubled the budget constraint rotated from the solid line to the dotted line and instead of the highest indifference curve being curve 1, the best the consumer can do is the indifference curve labeled 2.

Deriving the individual demand curve is relatively simple. The price of pizza (with respect to beer) is given by the (-1) times slope of the budget constraint. The lower price with the solid line budget constraint results in the level the higher level of pizza being purchased (labeled 1for the indifference curve - not the units of pizza). When the price increased the quantity demanded of pizza fell to the levels associated with budget constraint 2.



Notice that Q2 and P2 are associated with indifference curve 2 and budget constraint 2, and that Q1 and P1 result from indifference curve 1 and budget constraint 1. The above model shows this individual consumer's demand for pizza.

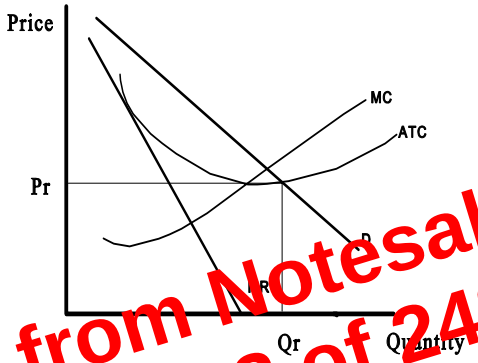
2. Income distribution may lack fairness.

3. There may be a limited range of consumer choice.

4. Many natural monopolies are in evidence in the real world.

1. This firm is being regulated at the social optimum, in other words, what the industry would produce if it were a purely competitive industry. The price it is required to charge is also the competitive solution. However, notice the ATC is below the demand curve at the social optimum which means this firm is making an economic profit. It is also possible with this solution that the firm could be making an economic loss (if ATC is above demand) or even shut down (if AVC is above demand).

b. A monopolist regulated at the fair return P = D = AC



1. The fair rate of return firm enforces a normal profit because the firm must price its output and produce where ATC is equal to demand. This eliminates economic profits and the risk of loss or of even putting the monopolist out of business.

c. The dilemma of regulation is knowing where to regulate, at the social optimal or at the fair return. In reality regulated monopolies are permitted to earn a rate of return only on invested capital and all other costs are simply passed on to the consumer.

1. Rate regulation using, invested capital as the rate base, causes an incentive for firms to over-capitalize and not be sensitive to variable costs. This is called the Averch-Johnson Effect.

d. X-efficiency is where the firm's costs are more than the minimum possible costs for producing the output. Electric companies over-capitalize and use excess capital to avoid labor and fuel expenditures (which are generally

much cheaper than the additional capital) - nuclear generating plants are a good example of this.

9. Sherman Antitrust Act – monopolize or restraint trade or conspire to monopolize a market.

    a. Interstate Commerce

    b. Criminal Provisions

        1. Felony

    c. Civil Provisions

        1. Private civil suit, not criminal
        2. Treble damages

READING ASSIGNMENTS

INTRODUCTION TO MICROECONOMICS

EC101

Both the public and private policy formulation process is a dynamic one. Economic goals change with public opinion and with achievement. Step 1 involves the value statement of setting goals. Step 2 involves selecting the appropriate model and the options associated with that model to accomplish the specified goal. The final step involves gathering evidence and the appropriate analysis to determine whether the policy needs revision. The process of formulating policy is therefore a loop, and requires continuous monitoring and revising.

The major difference between public policy and private policy is that private policy is not subject to democratic processes. The Board of Directors or management of a company will decide what goals are to be accomplished and what policy options are best used to do so. Often private policy is made behind closed-doors without public accountability, even though there are often public costs imposed. The strength of public policy is created in the open, with public debate, and often has the force of law (and not just company rules and regulations).

Objective Thinking

Most people bring many misconceptions and biases to economics. After all, economics deals with people's material well-being, a very serious matter to most. Because of political beliefs and other value system components rational, objective thinking concerning various economic issues fail. Rational and objective thought requires approaching a subject with an open-mind and a willingness to accept what ever answer the evidence suggests is correct. In turn, such objectivity requires the shedding of the most basic preconceptions and biases -- not an easy assignment.

What conclusions an individual draws from an objective analysis using economic principles, are not necessarily cast in stone. The appropriate decision based on economic principles may be inconsistent with other values. The respective evaluation of the economic and "other values" (i.e., ethics) may result in a conflict. If an inconsistency between economics and ethics is discovered in a particular application, a rational person will normally select the option that is the least costly (i.e., the majority view their integrity as priceless). An individual with a low value for ethics or morals may find that a criminal act, such as theft, as involving minimal costs. In other words, economics does not provide all of the answers; it provides only those answers capable of being analyzed within the framework of the discipline.

There are several common pitfalls to objective thinking in economics. Among the most common of these pitfalls, which affect economic thought, are: (1) the fallacy of composition, and (2) post hoc, ergo prompter hoc. Each of these will be reviewed, in turn in the following paragraphs.

The fallacy of composition is the mistaken belief that what is true for the

Law of Unitended Consequences "The Legend of Pig Iron"
(David A. Dilts, *Indiana Policy Review, Vol. 1, No. 5, pp. 28-29.)*

Many a cliché seems to center on pork. The head of the household is supposed to " put bacon on the table," "pork barrels," and politicians are frequently accused of being in too close a proximity. It only seems fitting that one more story concerning pork should be brought to your attention.

During World War II, farmers in the corn belt argued that regulation of the price of pork had no effect on the war effort, and that they should be permitted to sell their commodities without government interference. The farmers brought political pressure to bear on the Congress and our representatives to deregulate the price of pork. The end result was to shut down the steel mills in Gary.

Shut down our steel mills? How could this be?

Since it is not intuitively obvious how this happened, I'll explain. In 1942, there had been a change in management in the Philippines. And, as luck would have it, we didn't have good trade relations with the new management -- the Japanese. Therefore we did not have access to Manila fibre, necessary in making everything from rope to battleships. We had not yet developed synthetic fibre and therefore has to rely on the fibre previously available. That fibre was hemp.

Now hemp grows in the same places, under the same climatic conditions as does corn. Corn is what hogs eat. And because corn was not being grown in the Midwest, the farmers sought alternative feed for the increased number of hogs they were raising. (Remember, increased price results in a larger quantity supplied.) Oats, wheat and barley were available from the Great Plains region. The problem was shipping it to where the hogs were raised in the Corn Belt of the Lower Midwest.

In their search for transportation, the farmers found that railroads were regulated and reserved for military and heavy industry; trucks needed gasoline and rubber, both in short-supply; and airplanes were being built almost exclusively for military purposes.

This left the farmers without a ready source of domestic transportation for the needed grain. But they eventually found a source of shipping that was neither regulated nor controlled, because it was international in nature -- the iron-ore barges on the Great Lakes.

They bid up the price and the barges started hauling oats to the pigs and stopped hauling ore to the Gary steel mills. And there you have it:

Without the requisite iron ore the steel mills could not produce; they were actually shut down for a period as a direct result of deregulating the price of pork.

population, over half, live in low income economies.

Perhaps the greatest economic issue facing the current generation is what can be done to bring the low income economies into meaningful participation in the global economy. The poverty of the low income economies is a serious matter without any other issue. AIDS, malaria, and a host of other health problems are associated with the poverty in these nations. Perhaps more importantly, with rising incomes in these parts of the world come several benefits globally. As income rise in low income countries, cheap labor is no longer a cause for outsourcing from the high income, industrialized parts of the world. Further, as income rise, so too does the demand for goods and services. The often used cliché “a rise tide makes all boats float higher” is exactly the case in these nations emergence into full participation in the global economy. More concerning these issues will be offered later in this book.

KEY CONCEPTS

Economizing problem
- Scarce Resources
- Unlimited Wants

Resources and Factors Payments
- Land - rent
- Labor - wages
- Capital - interest
- Entrepreneurial Talent - profits

Full Employment
- Underemployment

Economic Efficiency
- Allocative Efficiency
- Technological Efficiency
- Full Employment

Opportunity Cost
- Implicit vs. Explicit Costs

Production Possibilities Frontier (or Curve)
- Growth
- Inefficiency
- Law of Increasing Opportunity Costs

Individual Self-Interest and Social Welfare

An Inquiry into the Nature and Causes of the Wealth of Nations (Adam Smith, New York: Random House, Modern Library editions, 1937 [original published 1776] Book IV, Ch. 2)

Every individual necessarily labours to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. By preferring the support of domestic to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it. I have never known much good done by those who affected to trade for the public good. It is an affectation, indeed, not very common among merchants, and very few words need be employed in dissuading them from it.

Capitalist ideology is therefore what we wish to perceive it to be, rather a dispassionate observation of some characteristics of actual economic system. The characteristics of a market system are dispassionate observations about markets and their operation. Therefore capitalist ideology is different than the characteristics of a market system.

The characteristics of a capitalist economy are familiar to anyone who has grown up in western industrialized countries. The elements of a capitalist ideology are: **(1) freedom of enterprise, (2) self-interest, (3) competition, (4) markets and prices, and (5) a limited role for government**.

Freedom of enterprise, self-interest and a limited role for government are related characteristics of capitalist ideology. By limiting government participation in the economy it is thought that economic freedom to pursue one's self-interest increases – hence government participation is often called “interference.” To the extent that government limits the freedom of enterprise, there is merit to this argument. However, there are often problems associated with the pursuit of self-interest. One of the primary problems with this aspect of the ideology is it is based on the assumption that the power to limit people's self-interest comes only from government. There is also a significant amount of potential to limit economic freedom by predatory behaviors from the private sector. For example, large businesses running small ones out of business to obtain a monopoly to permit prices to increase.

Again, assuming that monopoly power is not exerted over otherwise competitive markets, the competition among producers in a market economy will approximate a

KEY CONCEPTS

Capitalist Ideology
- Freedom of Enterprise
- Self-Interest
- Competition
- Markets and Prices
- Limited Role for Government

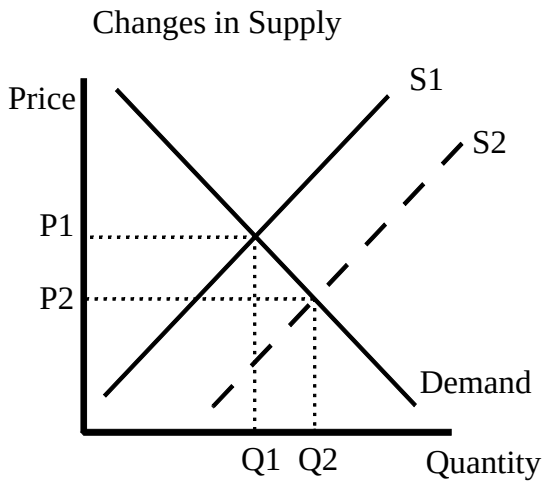
Market System Characteristics
- Division and Specialization of Labor
- Capital Goods
- Comparative Advantage

Barter
- Coincidence of Wants

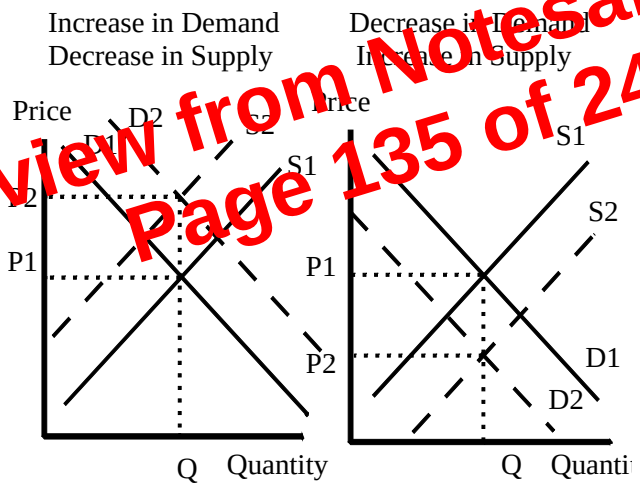
Functions of Money
- Medium of exchange
- Store of Value
- Measure of Worth

Foreign Exchange
- Balance of Payment
- Current Account
- Capital Account
- Exchange Rates
- Imports and Exports
- Foreign Investment

Circular Flow Diagram
- Interdependence
- Sectors
- Foreign Sector



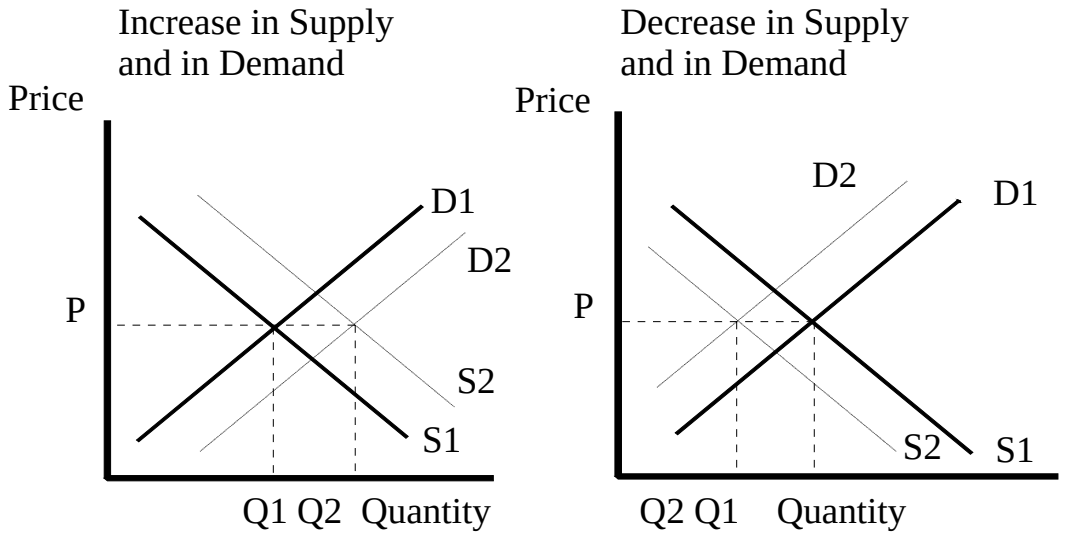
If both the demand curve and supply curve change at the same time the analysis becomes more complicated. Consider the following graphs:



Notice that the quantity remains the same in both graphs. Therefore, the change in the equilibrium quantity is indeterminant and its direction and size depends on the relative strength of the changes between supply and demand. In both cases, the equilibrium price changes. In the first case where demand increases, but supply decreases the equilibrium price increases. In the second panel where demand decreases and supply increases, the equilibrium price decreases.

In the event that demand and supply both increase then price remains the same

(is indeterminant) and quantity increases, and if both decrease then price is indeterminant and quantity decreases. These results are illustrated in the following diagrams.



The graphs show that price remains the same (is indeterminant) but when supply and demand both increase quantity increases to Q2. When both supply and demand decrease quantity decreases to Q2.

Shortages and Surpluses

There is some rationale for limited government intervention in a free market economy. Perhaps the most powerful rationale for limited government arises from the effects of price controls in competitive markets. Shortages and surpluses can only result because by having some sort of price controls in the market.

For example, the Former Soviet Union had a centrally planned economy and the government decided what would be produced and for what price that production would be sold. The government also was the sole employer and paid very low wages, therefore prices were also controlled at below market equilibrium levels. The result was that whenever any commodity was available in the market, there were long lines observed at any store with anything to sell, prices were low but there was nothing to buy (shortages). The popular Russian immigrant comedian, Yakov Simirnov, summed-up the plight of the working class consumer in Russia prior to break-up of the Soviet Union. He said, "In Russia we used to pretend to work, but that was alright, the government only used to pretend to pay us!"

Repeat exercise 2, using a price ceiling.

Using the system:

$Q_d = Q_s$, where $Q_d = 124 - 4P$ and $Q_s = -16 + 3P$

What is the equilibrium price and quantity exchanged in this market? What would happen if there were a price floor of 6 imposed in this market? If 6 was a price ceiling would that change your answer? If so, how and why?

Sample Questions:

Multiple Choice:

If a minimum wage were imposed below the competitive equilibrium what would we expect to observe in the effected labor markets?

A. An excess demand for labor
B. People being attracted by the higher wage cannot find jobs and some who were employed will lose their jobs, but those remaining employed will have a higher wage
C. There will be unemployment created by people losing jobs, but there will be no new employees attracted to this labor market.
D. **Nothing will be caused by the introduction of this minimum wage**

If there is an increase in demand and an increase in the quantity supplied in a product market what should be observed?

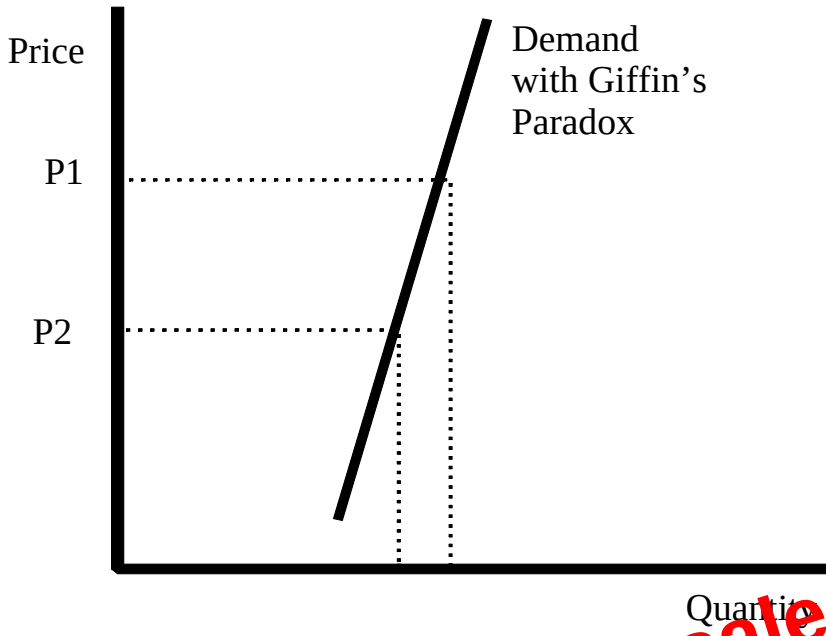
A. Price increases, quantity exchanged is indeterminant
B. Price decreases, quantity exchanged is indeterminant
C. Price decreases, quantity exchanged decreases
D. **Price increases, quantity exchanged increases**

True - False:

The longer the period the more suppliers can adjust to price changes, hence the greater the price elasticity of supply. {TRUE}

The income elasticity of demand shows whether a product has a close substitute or complement. {FALSE}

The maximum point on the total revenue curve correlates with the elastic range of the demand curve. {FALSE}



In the diagram above notice that as price is decreased from P1 to P2 the quantity demanded decreases, hence snob appeal may go down from the loss of a prestigiously high price – consumers who value the product simply because it is high priced leave the market as the price falls. As price increases from P2 to P1 poor people can't afford other more luxurious items therefore they have to buy more of the very commodity whose price wrecked their budgets.

In the case of poor people who experienced the price of necessity increasing, their limited resources may result in their buying more of the commodity when its price increases. For example, if the price of rice increases in a less developed country, people may buy more of it because of the pressure placed on their budget prevents them from buying beans or fish to go with their rice. To maintain their caloric intake rice will be substituted for the still more expensive beans and fish.

The other situation is where a luxury is involved. There is the snob appeal possibility where the higher the price, the more desired the commodity it. Often people will drive expensive cars, simply because of the image it creates. If the car is extremely expensive, i.e., Rolls Royce, the snob effect may be the primary motivation for the purchase. This also works with less expensive commodities. For example, Joy Perfume advertised itself as the world's most expensive to attract consumers that their marketing surveys indicated would respond to the snob effect.

Sample Questions:

Multiple Choice:

Which of the following describes the utility maximization rule? (where MU is marginal utility and P is price)

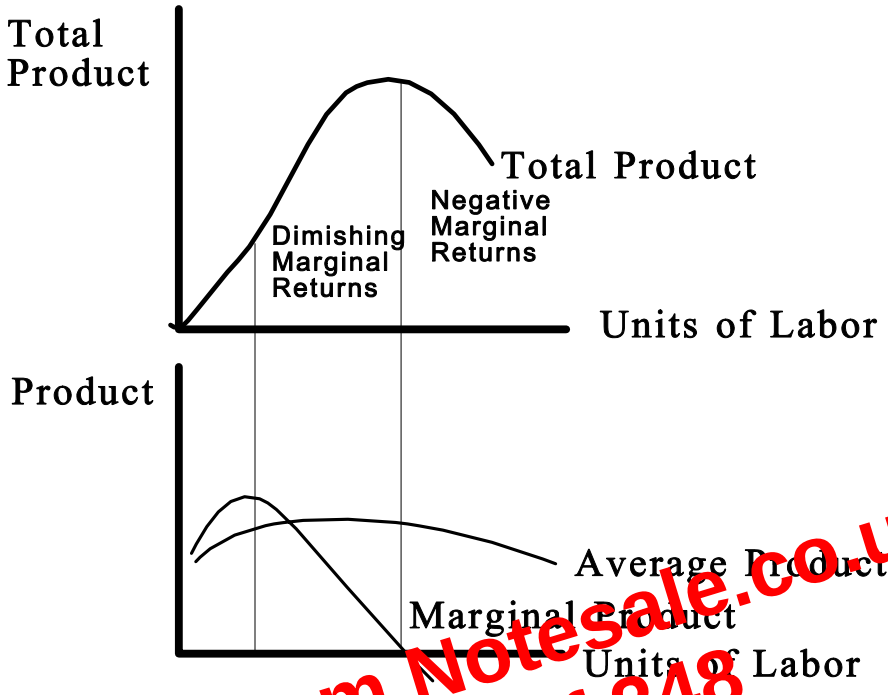
A. **$MU_a/P_a = MU_b/P_b = . . . = MU_z/P_z$**
B. Total MU = Total P
C. $MU_a = MU_b = . . . = MU_z$
D. None of the above describe the rule

True - False:

The law of diminishing marginal utility states that total utility will become negative as more units of a commodity are consumed. {FALSE}

Typically, the income and substitution effects combine to cause a downward sloping demand curve. {TRUE}

The following diagram provides a graphical presentation of total, average, and marginal products for a hypothetical firm.



The top graph shows total product. After total product reaches its maximum marginal product where marginal product changes from positive to negative (first derivative is zero, second derivative is negative). When the total product curve reaches its maximum, increased output results in negative marginal product. The maximum on the marginal product curve is also associated with the first inflection point (the acceleration or where the curve becomes steeper) on the total product curve. The ranges of marginal returns are identified on the above graphs.

The beginning point in developing the cost structure of a firm is to examine total costs in the short run. Total costs (TC) are equal to variable costs (VC) plus fixed costs (FC).

TC = VC + FC

Variable costs are those costs that can be varied in the short-run, i.e., the cost of hiring labor. Fixed costs are those costs that cannot be varied in the short-run, i.e., plant (interest). Therefore, total costs consist of a fixed component and a variable component.

These relations are presented in a graphical form in the following diagram:

These relations are presented in equation form below:

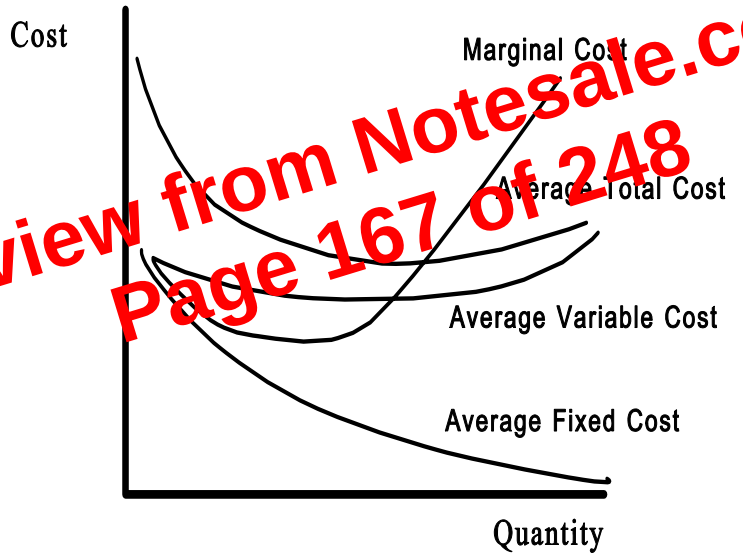
ATC = TC/Q

AVC = VC/Q

AFC = FC/Q

MC = △TC/△Q; where △ stands for change in.

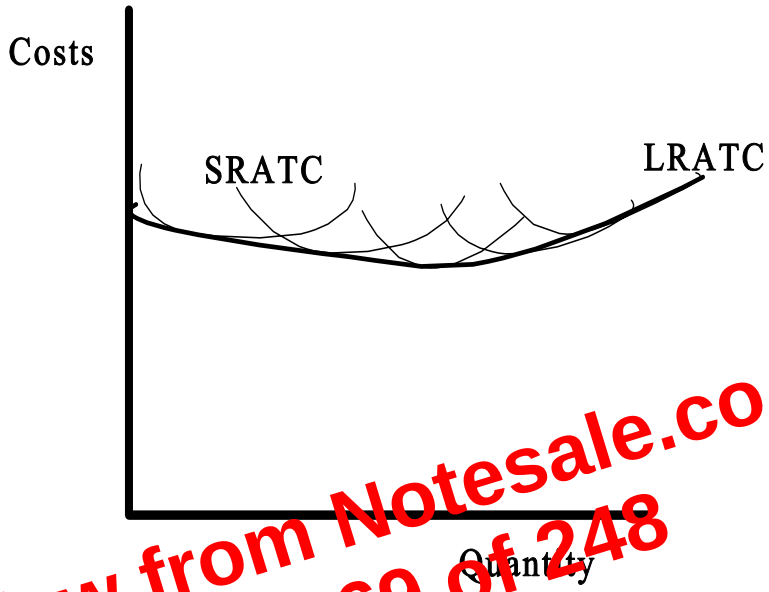
The following diagram presents the average costs and marginal cost curve in graphical form.



Please notice that the average fixed cost approaches zero as quantity increases. This occurs because a constant is being divided by increasingly large numbers. Average total cost is the summation of the average fixed and average variable cost curves. Because average fixed cost approaches zero, the difference between average variable cost and average total cost also approaches zero (the difference between ATC and AVC is AFC). The marginal cost curve intersects both the average total cost and average variable cost curves at their respective minimums. In other words, as marginal cost is below average total (and average variable) cost the average function is falling to meet marginal cost. As marginal cost is rising above the average function then average

The long-run average total cost curve (LRATC) is therefore a mapping of all minimum points of all possible short-run average total cost curves (allowing technology and all factors of production (i.e., costs) to vary). The enveloping of these short-run total cost curves map all potential scales of operation in the long-run. Therefore, the LRATC is also called the planning horizon for the firm.

The following diagram illustrates a LRATC:



The shape of the LRATC is dependent upon the available resources and technology that a firm can utilize to produce a given commodity. The downward sloping range of the LRATC is due to economies of scale, the upward sloping range of the LRATC is due to diseconomies of scale, and if there is a flat range at the minimum point of the LRATC this is called a range of constant returns to scale.

Economies of scale are benefits obtained from a company becoming large and diseconomies of scale are additional costs inflicted because a firm has become too large. The causes of economies of scale are that as a firm becomes larger it may be able to utilize labor and managerial specialization more effectively, capital more effectively, and may be able to profitably use by-products from its operations. Diseconomies of scale result from the organization becoming too large to effectively manage and inefficiencies developing.

Constant returns to scale are large ranges of operations where the firm's size matters little. In very capital intensive operations that must cover some peak demand, the size of the firm may matter very little. Several public utilities, such as electric generating companies, telephone company, and water and sewer service have

Long-run

Law of Diminishing Returns

Total, average, and marginal product

Short-run Costs
- Total costs
- Average Total
- Average Fixed
- Average Variable
- Marginal

Long-run average total cost
- Economies of Scale
- Diseconomies of Scale
- Minimum efficient scale

Planning Horizon

Natural Monopoly

STUDY GUIDE

Food for Thought:

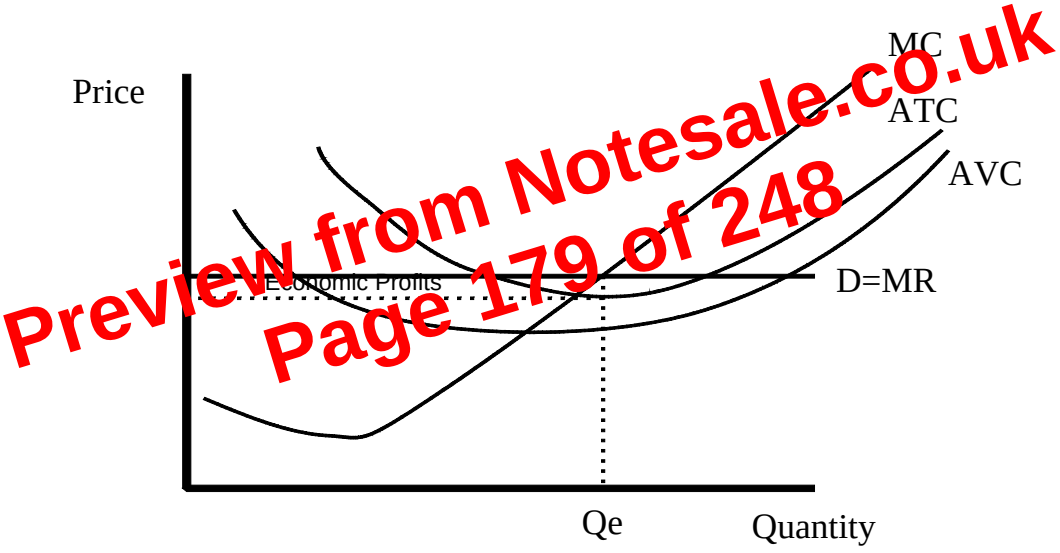
Complete the following table then draw the relevant curves from the data (fixed cost is $200).

Total Product	Total Variable Costs	Total Costs	Average Fixed Cost	Average Variable Cost	Average Total Cost	Marginal Cost
0	0	___	___	___	___	
1	20	___	___	___	___	>
2	38	___	___	___	___	>
3	58	___	___	___	___	>
4	64	___	___	___	___	>
5	76	___	___	___	___	>
6	93	___	___	___	___	>
7	114	___	___	___	___	>
8	139	___	___	___	___	>

Again, the price is established by the interaction of supply and demand in the industry (Pe) and the quantity exchanged in the industry is the summation of all of the quantities sold by the firms in the industry. However, this yields little information save what price will be charged and what quantity the industry produce. To determine what each firm will produce and what profits each firm will earn, we must add the cost structure (developed in the previous chapter).

Economic profits are total revenues in excess of total costs. Remember from Chapter 7, that profits from the next best alternative allocation of resources is included in the total costs of the firm. In this short-run it plausible that some firms in pure competition can exact an economic profit from consumers, but because of freedom of entry, the economic profit will attract new firms to the industry, hence increasing supply, and thereby lowering price and wiping out the short-run economic profits.

The following diagram adds the costs structure to the purely competitive firm's demand curve and with this information it is possible to determine the profits that this firm makes:



The firm produces at where MC = MR, this establishes Qe. At the point where MC = MR the average total cost (ATC) is below the demand curve (AR) and therefore costs are less than revenue, and an economic profit is made. The reason for this is that the opportunity cost of the next best allocation of the firm's productive resources is already added into the firm's ATC.

However, the firm cannot continue to operate at an economic profit because those profits are a signal to other firms to enter the market (free entry). As firms enter the market, the industry supply curve shifts to the right reducing price and thereby eliminating economic profits. Because of the atomized competition assumption, the number of firms that must enter the market to increase industry supply must be

Regulated Monopoly

Because there are natural monopoly market situations it is in the public interest to permit monopolies, but traditionally in the United States they are regulated with respect to price. The purpose of the rate regulation was to ensure that the public would not suffer price gouging as a result of the monopoly position of the firms. Examples of regulated natural monopolies are electric utilities, cable TV companies, and telephone companies (local).

Throughout the 1980s and 1990s, up through 2002, there was substantial deregulation of the power industry, cable TV industry, and telecom. In the 1980s ATT was broken-up into several local telecom companies, i.e., Verizon, Southwestern Bell, Ameritech, and US West, among other, the long lines company (ATT) and Bell Labs (Lucent). The idea was to permit competition in long distance and local service. What happened was far different. The local providers had much invested in microwave towers, switches, and telephone lines – there would be charges permitted for the use of these assets by competitors, and what resulted was poorer service, at higher prices in most areas. In the summer of 2001, California consumers got a taste of what Enron could do in selling power to local public utilities. Consumers were victims of unscrupulous business practices that resulted in billions of dollars in overcharges that cannot be recovered.

The problem with regulating the prices that monopolists can charge is that there are several competing goals that can be accomplished through rate regulation. If allocative efficiency is the goal, then the monopolist should be constrained to charge a **price where MC = D or the social optimum**. If technical efficiency is the goal then some argue that the monopolist's minimum total cost should be the basis for the rate regulation. If we are concerned about consistently and reliably having the product of the monopolist available, at a reasonable price, then it might be more sensible to regulate the monopolist to charge a **price at where ATC = D, or the fair rate of return**. So regulatory agencies have alternatives as to where to regulate any monopolists within their jurisdiction. **The potential prices at which a monopolist could be regulated, and the potential results of those price levels, is called the dilemma or regulation.** This dilemma has presented the opportunity for considerable debate about whether rate regulation is appropriate, and if so, what sorts of regulation should occur.

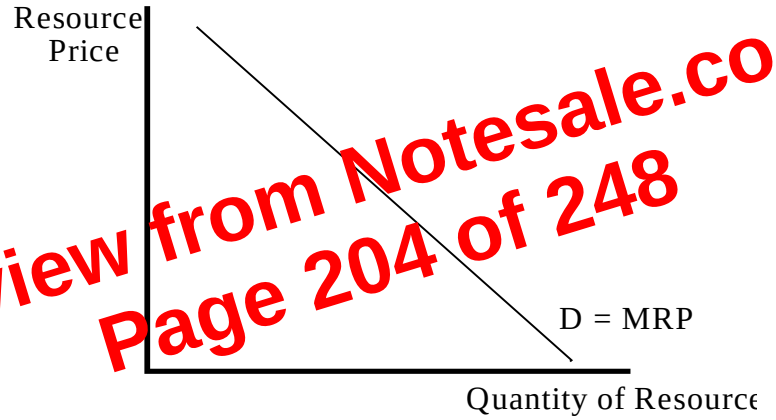
Consider the following diagram, this is a monopolist that is being regulated at the social optimum (MC = D):

unit of that resource:

$$\mathbf{MRP = \Delta TR/\Delta L}$$

The demand for a productive resource comes from the business sector and the supply of that productive resource comes from the households (see Chapter 3). This is exactly the opposite of what happens in the product market, where consumers are from the households and the suppliers are from the business sector.

Because the demand for a productive resource is a derived demand, the demand schedule for that productive resource is simply the MRP schedule for that resource by the firm. The following diagram presents a demand curve (MRP schedule) for a productive resource. Notice, if you will, this demand schedule is downward sloping and is therefore for an industry is pure competition.



The determinants of resource demand are:

(1) productivity of that specific resource,

(2) quality of resource (i.e., education, etc.), and

(3) the technology in which the resource will be employed.

KEY CONCEPTS

Derived Demand

Marginal Product, Marginal Physical Product

Marginal Revenue Product, Resource Demand
- Determinants
  - Productivity
  - Quality of Resource
  - Technology
- Elasticity Determinants
  - Rate of Decline of MRP
  - Ease of Resource Substitutability
  - Elasticity of Product Demand
  - K/L Ratios

Marginal Resource Cost, Resource Supply

Least Cost Combination of Resources
- Technology

Marginal Productivity Theory of Income Distribution
- Monopoly power
- Monopsony in the resource market

STUDY GUIDE

Food for Thought:

Fully explain the profit maximizing rule for employing resources and the least cost combination of resources rule.

Using the following data complete the following table and derive a demand curve for labor (price of output is $2 per unit):

CHAPTER 11

Wage Determination

This chapter is focused on the labor market. The model of the purely competitive firm's labor market will be developed. Once the competitive model has been completed, the model of a monopsony in the labor market will be developed. These models will be used to analyze minimum wages and unionization.

Wages and Labor Supply

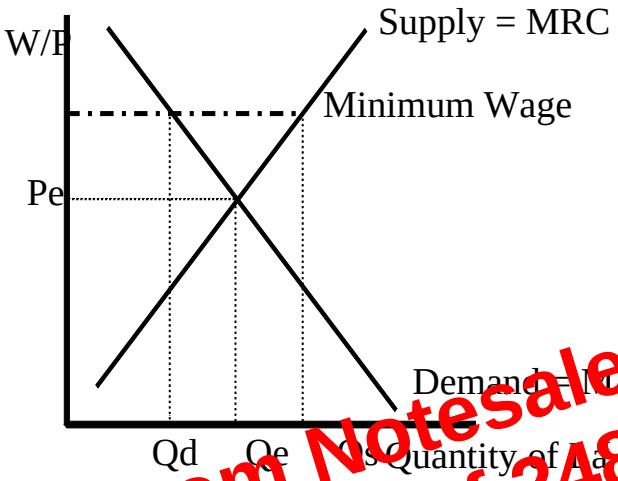
Labor cannot be separated from the human being who provides it. The result of the inseparability of labor from the people who provide it, is that the wage for the last hour worked must be equal to the utility lost from the use of that hour for leisure activities (all other activities except work.) Further, because labor is provided by people who are also consumers, the wage variable (the price of labor in a labor market) is somewhat more complicated than prices in product markets.

Workers offer their services in the labor market for the standard of living that their wages will provide for them and their households. Therefore, the nominal wage (money wage) unadjusted for the cost of living; or W, means very little in determining the quantity of labor supplied in a factor market. The relevant wage variable is the real wage rate, which is the money wage (W) adjusted for the cost of living or price level (P); or W/P.

In theory (in the competitive labor market) an employee should be paid what she earns for the company. What the employee contributes to the revenues of the firm is the marginal revenue product, MRP (the marginal physical product (MPP) times the price of the product produced (P) – MRP = MPP x P). In a perfectly competitive world this is what is supposed to happen. In a competitive labor market the wage is determined in the industry. The firm faces a perfectly elastic supply of labor curve. The equilibrium wage and level of employment is then determined by the intersection of the factor's MRP with the factor's marginal resource cost, MRC.

wages. This approach is focused on controlling the worst effects of monopsony in the sense of inequitable redistributions from the working poor to the firms. A minimum wage does little to correct monopsony inefficiencies in all by the lowest paying occupations.

What is interesting is that some economists argue that the minimum wage is a source of unemployment and inefficiency. To prove their point they argue the minimum wages' effects under the assumptions of a purely competitive labor market. Consider the following diagram.

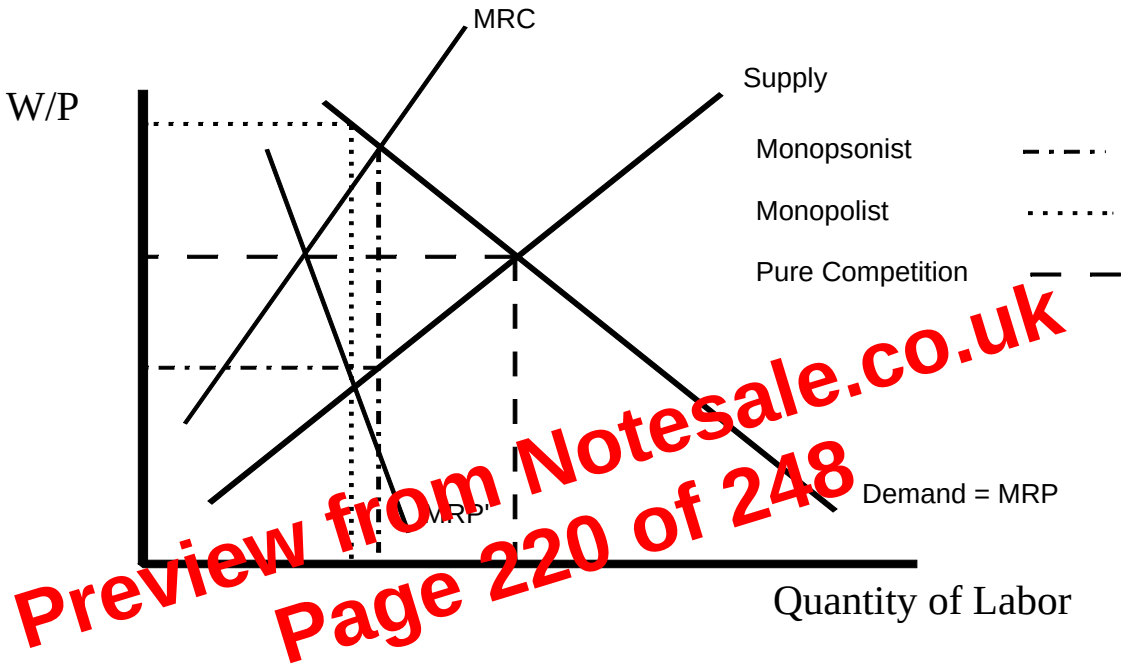


The minimum wage acts the same as an effective price floor in that it creates a surplus of labor -- unemployment. The distance between Qd and Qe is the number of workers who lost jobs, and the distance between Qe and Qs is the number of workers attracted to this market that cannot find employment. This analysis is exactly correct under these assumptions. However, remember the minimum wage was established to offset market power possessed by employers whose wage policies worked to the detriment of the working poor -- i.e., the monopsonist. To the extent that there may be some labor markets that approximate a competitive labor markets, the minimum wage creates unemployment. However, purely competitive markets, either product or factor, exist only in the pages of textbooks.

If minimum wages are analyzed in the context of the monopsony model for which the policy was intended the results obtained are far different than those of the competitive model. This is an example of how an analysis that has been passed-off as positive economics is really a normative model. If we assume competitive labor markets, we are making a normative statement, because only imperfectly competitive markets can be described in the real world.

These are the types of conditions that result in employees attempting to form unions for purposes of collective bargaining. Not only in this country, but in Europe and Asia too, where the industrialized nations have higher proportions of union organization.

The most common approach to monopsony control is to attempt to offset the monopsony power of the employer by creating a countervailing power on the supply side of the market. To offset monopsony power, unions attempt to approximate a monopoly, which theoretically should neutralize the monopsony. This addition of a monopoly on the supply side to a monopsony is called bilateral monopoly. The



following diagram shows a monopsony that has been confronted by a monopoly.

The bilateral monopoly model is rather complex. The employer (monopsonist) will equate MRC with demand and attempt to pay a wage associated with that point on the supply curve. The monopolist (union) will equate MRP' (MRP' occurs because now the union also has a pricing policy and must lower price to sell more labor) with supply and attempt extract a wage associated with that point on the demand curve. The situation shown in this graph shows that the competitive wage is just about half-way between what the union and what the employer would impose. The wage and employment levels established in this type of situation is a function of the relative bargaining power of the employer and union, therefore this model is indeterminant. The theory is that if the union and employer have equal bargaining power, the results of their collective bargaining should approximate the competitive labor market solution and restore allocative efficiency in these markets.

The academic significance of the indeterminant nature of this model is the lack of an ability to predict wages and employment levels is why industrial relations developed as a separate field from economics (in large measure). In fact, marginal analysis has

damage will occur in its absence. The violation of an injunction is punishable as contempt of court. The use of labor injunctions has a long, and sorted history in the United States. Because jurists came from the propertied class they often permitted their biases to interfere in the proper exercise of their obligations.

There are literally hundreds of examples of courts issuing injunctions interfering with union activities without evidence in support of the employer's request, or where evidence was clearly not competent, or where the injunction prohibited any and all union activities (blanket injunctions). Frequently, unions and their representatives were not given an opportunity to even be present in court when the petition for the injunction was first heard (a temporary restraining order) and the restraining order was converted to a permanent injunction without a hearing.

Perhaps, worse still, workers in the coal fields (and elsewhere) were often required to sign "Yellow-dog" contracts before they were hired. The "Yellow-dog" contract was an instrument where an employee agreed that they would neither join nor associate themselves with unions (and if they did they by so doing resigned their position with the company). Courts, particularly in southern and Midwestern states, enforced these so-called contracts with injunctions. The Congress finally banned the use of labor injunctions and made "Yellow-dog" contracts unenforceable in 1932 with the passage of the Norris-LaGuardia Act.

In 1890, the American economy was being overrun by massive monopolies that had become fairly anti-social. The Sherman Act was passed in 1890 to break the power of these giant businesses or trusts. Unfortunately, the anti-trust laws were not brought to bear against monopolies unless their conduct was totally unreasonable (i.e., Standard Oil, Amstar, American Tobacco). However, these anti-trust laws were routinely used against organized labor to prevent or punish labor unions. In 1914, the Congress passed amendment to the Sherman Act (Clayton Act) to remove judicial interpretations that union could fall under the provisions of the Sherman Act. Again, the courts ignored the law, and finally in 1932 these issues were not made subject to judicial inquiry, unless a product market was effected or there was clear evidence of union misconduct.

In 1932, the Congress enacted the first of the federal statutes designed to bring reason to labor-management relations in the United States. The first law passed was the Norris-LaGuardia Act and President Hoover (a conservative Republican) signed it into law. This act outlawed the use of injunctions against unions, the requirement that an employee sign a Yellow-Dog contract, and limited the use of the anti-trust laws

Appendix A

Sample Examinations

1. Sample Midterm Examination
2. Sample Final Examination

Sample Midterm Examination

Answers are found at the end of this section.

Multiple Choice (4 points each):

1. Which of the following factors of production are **NOT** properly matched with their factor payments?

    A. Capital - interest
    B. Land - profits
    C. Labor - wages
    D. All are properly matched

2. Which of the following terms means "all other things equal"?

    A. Post Hoc, Ergo Propter Hoc
    B. Fallacy of Composition
    C. Ceteris Paribus
    D. None of the above

3. Economic growth can be illustrated with the use of a production possibilities curve:

    A. By a shift to the left of the curve
    B. By a shift to the right of the curve
    C. By a point on the inside of the curve
    D. By a point on the outside of the curve

4. A small developing country in Central America has an economy that exhibits the following characteristics: (1) exchange occurs through markets, (2) private property is permitted, but there is also a large public sector, (3) what will be produced is decided by the government and the operation of markets, and (4) there is also a strong social desire to maintain the status quo.

    A. This is definitely a capitalist system
    B. This is definitely a command system
    C. The economy is most likely a mixed system
    D. It is impossible to tell what type of economic system this is from the information given

18. Where is the range of unit elasticity for the following demand curve?

Price	Quantity
8	3
7	4
6	5
5	6
4	7
3	8

A. From price 8 to price 6
B. From price 6 to price 5
C. From price 5 to price 3
D. From price 7 to price 5

19. With perfectly inelastic demand, then if supply increases:

A. Price remains the same, quantity increases
B. Price remains the same, quantity decreases
C. Price increases, quantity remains the same
D. Price decreases, quantity remains the same

20. The price of Pepsi decreased from .50 to .40 and the quantity demanded increased from 100 million to 150 million. Which of the following statements are true?

A. Quantity demanded decreased
B. Demand is elastic
C. Demand increased
D. None of the above is true

True/False (1 point each)

1. A laissez faire economy will always result in economic efficiency.

2. Business sell to households in the resource markets, but households sell to businesses in the product markets.

3. If the prices of Fords decrease, we should expect the demand for Chevrolet to

19. The law of diminishing marginal utility states that some consumers experience less utility from the consumption of a commodity than do other consumers.

21. When total revenue and price move in the same direction, demand is price inelastic; when they move in opposite directions demand is price elastic.

Answers:

Multiple Choice:

1. B	11. A
2. C	12. D
3. B	13. B
4. C	14. C
5. C	15. A
6. D	16. D
7. D	17. A
8. C	18. B
9. A	19. D
10 A	20. B

True/False:

1. F	11. F
2. F	12. T
3. T	13. F
4. T	14. F
5. T	15. T
6. T	16. T
7. F	17. T
8. F	18. F
9. F	19. F
10 T	20. T

10. A monopsonist in an otherwise competitive labor market will cause (as compared with the competitive labor market):

    A. Employment to increase, wages to decrease
    B. Employment to decrease, wages to decrease
    C. Employment to increase, wages to increase
    D. Employment to decrease, wages to increase

11. A craft union is characterized by all but which of the following?

    A. Changes supply by manipulation of apprentice programs
    B. Cause a kink in the supply curve at the minimum acceptable wage
    C. Organizes only one skill group of employees and was associated with the AFL
    D. All of the above are true

12. In a small Ohio community, we have only five employers who pay wages within a narrow range that is basically acceptable to each of the employers. The employees believed that the wage they received was below the competitive equilibrium so they unionized. The effects of this unionization in the small community was:

    A. A higher wage, but with increased employment
    B. A higher wage but with decreased employment
    C. The wage didn't change, but there was increased employment
    D. We simply do not know because the underlying economic model is indeterminant

13. If we have a monopolist that provides electrical service to a community and it is observed that the monopolist charges, what is viewed by most people as excessive rates, we may wish to regulate the monopolist. If we were to regulate the monopolist at competitive equilibrium we have regulated the monopolist at:

    A. The social optimum (allocatively optimal)
    B. At where marginal cost is equal to average revenue
    C. At a point where there is a greater quantity than would be observed at the monopoly rate
    D. All of the above are true

14. Which of the following is not an assumption of the pure competition model?

    A. The is only public relations type non-price competition
    B. There are no barriers to entry or exit
    C. There is a standardized product
    D. All of the above are