

Intermediate Microeconomics : Class Notes 6

Industrial Organization: Market Structure and Market Outcomes

I. Industrial Organization

There is a sub area of micro economics called “industrial organization” that studies why different industries behave differently, they may have prices that are more or less above average total cost, they may innovate at different rates, they may have more entry and exit, they may employ different kinds of persons and capital goods.

Here one might consider the “old fashioned” (pre internet) industries of steel, automobiles, electronics, retail sales, medical services, military equipment, etc.

One of the main differences among industries (and regions) is the number of firms and/or consumers. Some industries are more “concentrated” than others. Sometimes, purchasers (customers) are more concentrated than others or differ in important respects. For example, military products are sold principally to governments.

In this course, we’ll take a look at three or four types of market structures in addition to the perfectly competitive ones that we’ve already examined. These are all market structures in which the “price taking” characteristic of firms or consumers is unlikely to hold.

The less competitive market types that are easiest to model with our (neoclassical) tools are monopoly (one seller), monopsony (one buyer), and monopolistic competition.

And this is where we’ll start our examination of market structure.

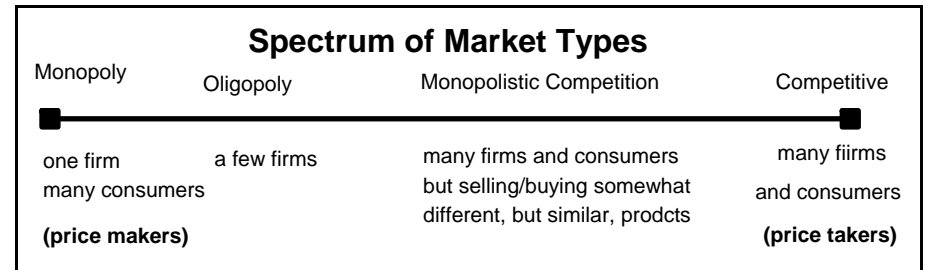
Other intermediate cases require other tools to analyze and have less “sharp” predictions about prices, outputs, and efficiency. We’ll take a look at some of them using game theory in lecture block (7).

Of course, the number of firms and consumers in an industry is partly endogenous. That is to say, it is largely a consequence of demand,

technologies of production, distribution, risk sharing, and information. It is partly a matter of firm strategies.

Market concentration is also greatly affected by economic regulation (patents, licensing, and antitrust laws), which in turn are affected by local political decisions.

A useful **rule of thumb** is that as the **number of rivals** shrinks, the **degree of price and quality competition falls**. As numbers of rivals fall, it also becomes easier for firms to form **cartels** or to behave as if they have “monopoly” power in other ways.



Of course more than the number of firms is important, but as a first approximation, the number of firms can be used to represent the degree of monopoly power held by suppliers. The more firms, the less price setting ability a single firm tends to have.

II. Monopoly

- A. The easiest type of market to model is one in which there is a single firm and many purchasers of its goods or services. In this case, the firm completely controls the supply of its product and so can price and produce its output anyway that it wants.

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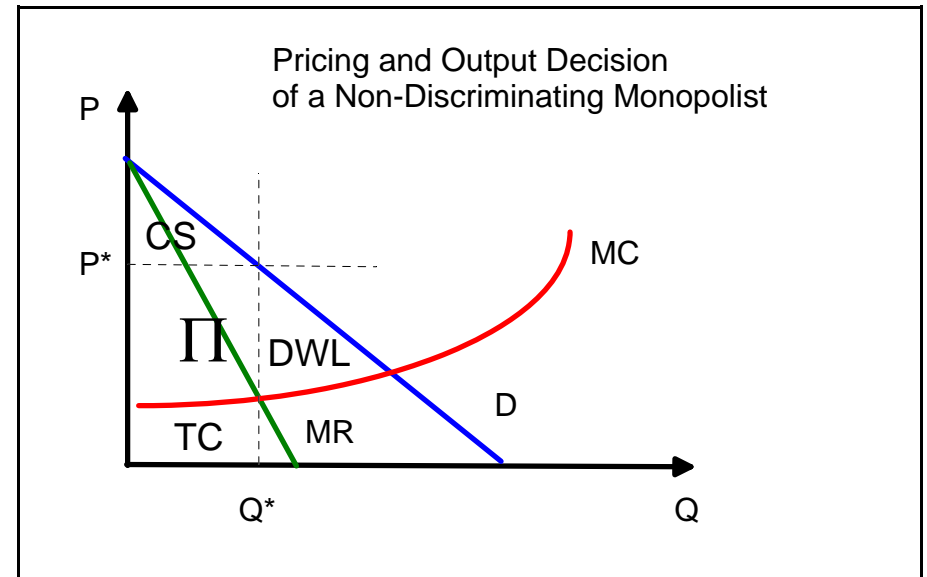
- However, a firm will not sell its output at the highest possible price, but rather at the price and output combination that maximizes profits.
- A monopolist will produce an output that sets marginal cost equal to marginal revenue, but marginal revenue is no longer a horizontal line determined by market prices.
- Instead it is a downward sloping curve or line that reflects market demand for its products.

B. For those who know a little calculus, **here is how one derives a marginal revenue curve** for the simple (non discriminating) monopolist.

- Suppose that demand is $Q = a - bP$, which can be rewritten as $P = a/b - Q/b$. This tells the monopolist how price changes as it produces more output.
- The firm's total revenue, R , is PQ , which is $R = aQ/b - Q^2/b$, given the above demand curve.
- Differentiating R with respect to Q gives us the firm's marginal revenue function or curve, which is $dR/dQ = a/b - 2Q/b$.
- Note that it is also a straight line in this case, starts at the same point on the horizontal axis (a/b) but falls twice as fast as the demand curve we started with, $2Q/b$ instead of Q/b .

C. An illustration of the profit maximizing price and output of a non-discriminating monopolist.

- Note that the monopolist still produces the output where $MC=MR$, because it is this output that maximizes profits.



- Note that it can sell all Q^* units of its product at price P^* , which is the price implied by the demand curve. At a price of P^* , consumers will want to purchase Q^* units.
- Note that areas for consumer surplus and profit can be calculated in the usual way.
- Deadweight loss occurs because social net benefits are smaller than they would have been in an equivalent competitive market.

D. The quantity supplied equals the quantity demanded, as in competitive markets, but there are some differences.

- For example, prices no longer equal a firm's marginal cost or marginal revenue.
- The output level chosen no longer maximizes social net benefits.

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- (There is a dead weight loss. Social net benefits are maximized where the MC curve (SMC) crosses the demand curve (SMB).
- Consumer surplus is smaller and profits are larger than they would have been had price equalled marginal cost at Q^{**} .
- As an exercise, draw several monopoly diagrams with different slopes for the demand curve and label the consumer surplus and profits associated with the Monopolists output and pricing decision.
- Next, analyze the social net benefits that could have been realized at the point where $SMB = SMC$. (Hint: assume that Demand is SMB and the firm's MC curve is SMC.)
- Discuss: is the area labelled DWL perhaps better labelled as "unrealized gains to trade?"
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E. Monopoly Markets with Price Discrimination

The above model and all of our previous models have assumed that all consumers pay the same price for their goods and services: the same price for every unit of the service sold.

However, if firms can charge different prices to different consumers and/or different prices for different units of output sold to the same customer, profits can often be increased by doing so.

- Selling the same product at different prices is called **price discrimination**.

A **perfectly discriminating monopolist** would sell every single unit of its output at the highest price possible.

- If it can actually do this, this implies that the demand curve is its marginal revenue curve.
- **Recall that** the market demand curve can be thought of as the marginal benefit curve for all consumers in the market; marginal benefit curves plot the highest prices that consumers are willing to pay for a particular unit of a good; so the highest price that can be gotten for each successive unit of the good to be sold is captured by the demand curve..
- (In the non-discriminating case, the demand curve is the **average revenue curve** rather than the marginal revenue curve. [Explain why.])
- If a monopolist can perfectly discriminate, the firm will sell the output level where its MR curve (now the demand curve) crosses its MC curve.
- Note that this is the social net benefit maximizing quantity.
- However, notice also, **that consumers gain no consumer surplus in this extreme case**.
- In this limiting case, all the net benefits are captured by the perfectly discriminating monopolist.

F. Natural Monopolies

Monopoly markets can occur for many reasons, including innovation, distance, patent rights, regulation, and luck.

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What Marshallian economists call “natural monopolies” occur when the market is too small to support more than one efficiently sized firm. This may occur, for example, when MC slopes downward over the range of interest (out to beyond the point where MC and the demand curve cross).

Note that no firms can profitably enter this market, unless it has a technological (cost) advantage over the firm already in the market.

These sorts of monopolies are fairly common in rural areas where only a single gas station, grocery store, or pub can be supported by local demand.

At the world level, these are far less common, but it could be argued that Microsoft’s operating system and Google’s search engine come close to those conditions for the world.

- As an exercise draw a monopoly price and output diagram for a natural monopolist. (Hint: MC is downward sloping over the entire range of the market demand for natural monopolists.)
- Note prices, outputs, profits, and deadweight loss.
- Are such monopolists always profitable?
- Show a case where a natural monopolist would run at a loss if it priced its output at marginal cost.

Natural monopolies are often said to exist in electricity and telephone (land line) services. To increase consumer surplus, such local monopolists are often **regulated** by state utility commissions, who set prices that can be charged for electricity, which has the effect of making monopolists price takers.

- As an exercise, show how price regulations may increase outputs and consumer surplus in monopoly markets, although they tend to reduce profits.
- (George Stigler, the winner the 1982 Nobel prize in economics, once argued that regulators tend to be “catured” by those who they regulate. In that case, regulation would not change the natural monopoly outcome. Explain why.)
- (The natural monopoly case, with and without price regulation, will be analyzed in class.)

G. Artificial Monopolies: Cartels and Regulatory Monopolies

Of course, not all monopolists are “natural.” A group of firms may organize a “pricing club,” cartel, or trust and try to coordinate pricing and output decisions, rather than compete.

- A **perfectly organized cartel** would function as a monopolist, and sell its output at monopoly prices.
- However, such cartels are difficult to organize because firms have incentives to “cheat” on their cartel agreements by producing more than their allowed output and/or by trying to sell their output at a price below that set by the cartel.
- Explain why that might be profitable for a cartel member.
- (We’ll take this problem up in more detail in the game theory block of the course.)

Another artificial source of monopoly is **patent laws**. Patent law gives inventors a temporary monopoly (14 years) as a reward for inventing something of value.

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This, of course, tends to produce a deadweight loss, but the theory is that it spurs invention and other innovations, which generate dynamic benefits that are hopefully greater than the static costs (creation of artificial monopolies with their associated DWL).

- Is it possible that patents have different effects in different kinds of markets?
- That in some markets it spurs innovation, but in others simply tends to produce monopolies? Discuss.

H. Can there be monopolists in the long run?

The Marshallian logic of competitive markets implies that firms will try to enter and compete with monopolists--unless the market is a natural monopoly (because of economies of scale.)

In that case, monopoly markets will tend to be temporary phenomena.

In cases in which there is an entry barrier such as a patent, entry may be difficult.

However, if the logic of patents is correct, the existence of monopoly profits will induce other firms to innovate so that they can enter and compete with existing monopolists by creating new, but similar, products. When this is possible, even patent protected monopolists are likely to face competition in the long run.

How would this affect your preferred level of antitrust activity?

I. Monopoly Buyers: Monopsonists

The effects of monopoly power on the buyer side of the market resembles that of the classic monopoly price and output decision.

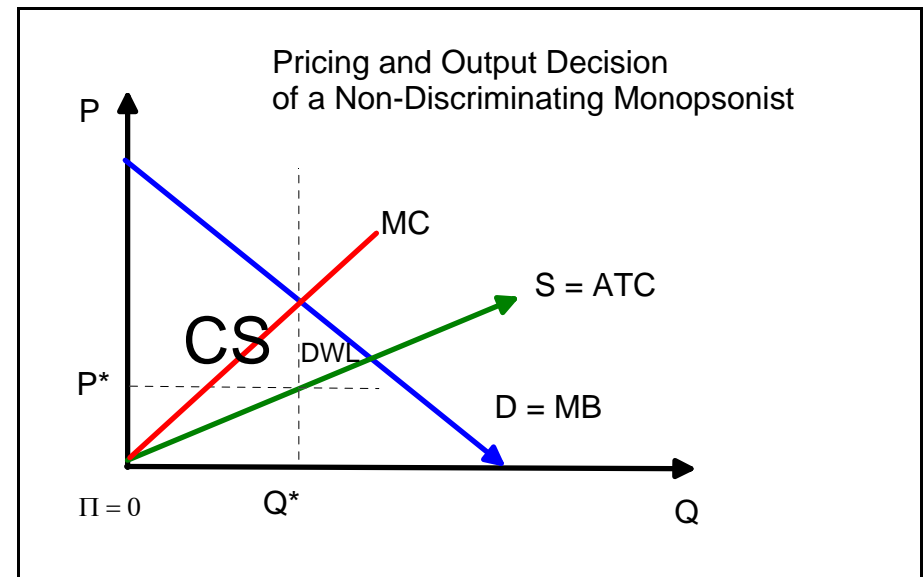
A **monopsony buyer** will want to purchase the output level that sets his, her or its marginal benefits equal to its marginal costs. But, it will realize that its purchase decisions will affect market prices and take that effect into account.

A monopsonist's MC curve can be derived as follows. Suppose that supply is simply $Q = aP$. This can be rewritten as $P = Q/a$.

Total cost for a buyer is $C = PQ = Q^2/a$.

Marginal cost is the derivative of the total cost function with respect to Q , which in this case is $MC = 2Q/a$.

Note that the monopsonist's MC curve rises twice as fast as the supply curve that it faces.



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Note that the monopsonist also first identifies the net benefit maximizing quantity to purchase given its upward sloping MC curve and downward sloping MB curve.

Given the quantity, it offers to pay just the amount that will induce this quantity to be supplied by firms in the industry. This maximizes buyer net benefits, although it does not maximize social surplus (why?).

- A non-discriminating monopsonist will produce a deadweight loss similar to that of a monopolist.
- Some potential gains to trade will go unrealized.

As with monopolists, there can be “natural” or “unnatural” monopsonists, and, as with sellers, again “price clubs” or cartels of purchasers may be useful ways to increase buyer net benefits.

And again, price discrimination may be useful for buyers and may reduce social net losses.

III. Monopolistic Competition

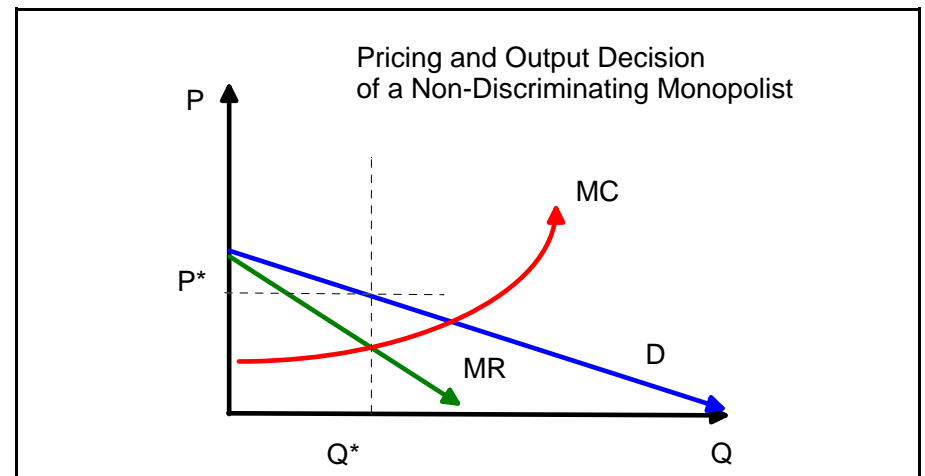
The idea that monopolists might compete with other firms who produce similar but not identical products was proposed and analyzed by Edward Chamberlin in 1933.

Chamberlin’s idea refers to markets where firms sell similar but not identical products, as true of many modern products. The products are good, but not perfect, substitutes for one another. In old town Morgantown, there is one Japanese, one Chinese, and one Tai restaurant.

They are good substitutes for one another, but not perfect substitutes, so each has some monopoly power.

A. Each firm’s monopoly power depends on the extent to which other firms produce goods that consumers regard to be similar--that is to say, good substitutes..

- Entry into a monopolistically competitive market occurs by firms producing different, but similar products.
- As the available substitutes become better (that is, as more close substitutes become available, demand curves shift down and become “flatter” and monopoly power falls (although not to zero).
- (Note that the flatter is a firm’s own demand curve, the more his situation resembles that of a firm in a perfectly competitive market.)



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- In long run equilibrium, there are enough firms producing similar, but different products, that no new entrant can joint the market and obtain enough sales to be profitable.
- This condition sometimes relies upon fixed costs to produce an equilibrium, but this is not really necessary. U shaped MC curves can achieve this as well.
- Draw a zeros profit monopoly outcome as an exercise.
- The main point, however, is that with monopolistic competition each firm's demand curves is "lower" and "flatter" (more price sensitive), so firms in monopolistically competitive markets have less monopoly power (less ability [or interest] in charging consumers more than the marginal cost of production).
- In the linear case, the markup is still 2 to 1, but the result is closer to MC in dollars than a similar demand curve with a steeper slope would have been.

B. Both monopolistically competitive markets and monopoly markets have persons or organizations in them who can directly determine prices.

- i. This differs from perfectly competitive markets where all persons are price takers. (And, there are no price makers.)
- ii. Nonetheless, **the comparative static results are similar to those found for competitive markets.**
 - Prices tend to rise if MC increases or if Demand increases.
 - There are mutual gains from trade: consumers realize consumer surplus and firms realize profits.
- iii. So many of the results from "demand and supply" based analysis will apply to monopoly markets as well, although monopolists tend

to realize a greater share of the gains from trade than competitive markets do, because they are no longer selling (the last unit of) their output at marginal cost.

- $MR=MC$ at Q^* (the profit maximizing output)
- However, in monopolistic markets price is no longer equal to MR, nor is it equal to MC. Instead, price is greater than MC.
- [An exception to this rule of thumb occurs when a monopolist is able to engage in perfect price discrimination, in which case the last unit sold will have a price equal to MC, although all other units will be sold at above MC].
- How much greater price is than marginal cost depends on the slope of the demand curve. The less price sensitive demand is (the steeper it is), the more prices will be above marginal cost (in dollars per unit).
- (Other dynamic considerations, and price discrimination will also affect pricing decisions, but these are neglected in this summary.)

IV. Antitrust Law

- A. Concern with monopoly firms emerged in the 19th centuries as industrialization occurred and as national transportation networks allowed single firms or cartels to dominate production of important goods and services.
 - In previous periods, most monopolies were created by governments and sold off as a revenue source.
 - These were also of concern, but this was less frequently done in the West after the eighteenth century.
- B. The first national antitrust law adopted in the US was the Sherman Antitrust Act of 1890. (Named after senator John Sherman, an Ohio Republican, who was the main author of the bill.)

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- i. i. The Sherman Act essentially makes cartels and other methods of monopolization illegal.
 - “Section 1 prohibited contracts, combinations, and conspiracies in restraint of trade; section 2, monopolization and conspiracies and attempts to monopolize. Other provisions of the act imposed criminal sanctions for its violation but also authorized injunctive suits by the Justice Department and treble-damage suits by private parties.”
 - The current (amended) wording of the Sherman Act can be found at:
<http://www.antitrustupdate.com/statutes/shermanact/st-sherman1-4.html>
 - ii. Like most areas of public law. How to apply the law was not entirely clear, and so it was left up to the courts to work out how to apply the law to specific cases.
 - Thus, antitrust law is partly a product of the legislature and partly a product of court decisions, a few of which we’ll look at later in this section.
 - iii. iii. Concerns over whether the Sherman Act was being applied in a reasonable (politically reasonable) manner led to two additional anti-trust acts: The FTC (Federal Trade Commission) Act of 1914, and the Clayton Act also in 1914.
- C. The FTC act created a new federal agency and gave it responsibility for enforcing antitrust law. It forbade “unfair methods of competition” including “tie in” sales and “exclusive” dealing.
- The FTC acts exempts banks, airlines, common carriers, from its rules. (why?)
 - FTC decisions were to be final unless appealed to the Supreme Court.
- The amended text of the FTC act can be found at:
<http://www.stolaf.edu/people/becker/antitrust/statutes/ftc.html>
- D. The Clayton Act forbade price discrimination, stock acquisitions, interlocking directorships, which could be used to coordinate pricing and output decisions, but were not monopolies nor trusts.
- The Clayton Act, like the Sherman Act, also allows those who sue for damages to recover triple damages.
 - Sec 17 of the Clayton Act exempts labor unions and (non-profit) farm cooperatives from antitrust suits.
 - (Baseball was exempted after a 1922 Supreme Court decision.)
See
<http://www.nytimes.com/1994/12/24/sports/baseball-antitrust-exemption-history.html> for a nice overview of that decision.
 - The amended text of the Clayton Act can be found at:
<http://www.stolaf.edu/people/becker/antitrust/statutes/clayton.html>
- E. These three laws remain the main legislative basis of antitrust law suits and criminal actions.
- i. In 1950, these three acts were augmented by the Celler-Kefauver Act, which addresses mergers that may reduce competition.
 - Antitrust acts after 1914 were often formally amendments of the Sherman, FTC, or Clayton Acts and so normally appear in the text of the contemporary (amended) texts of these acts.
 - The main civil remedy was a provision for **triple damages** for a firm that successfully wins an anti-trust case.

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- Note that triple damages creates strong incentives for damaged (and other) firms to launch civil suits charging monopoly practices.
 - (This provision could be “efficient” in the sense of the punitive damages of tort cases, if only a fraction of monopoly damages are every brought to court, otherwise it simply encourages more law suits.)
- ii. During the 1955, 1974, and 1990, the various criminal penalties (fines) for anti-trust law violations were increased, although the triple (treble) damages provisions were kept.
- Such criminal proceedings could be initiated by the FTC or the Department of Justice.
 - Richard Posner’s book on Anti-trust law includes a table that list the number of anti-trust cases brought by the Department of Justice. See his Table 1.
 - That table shows that after the Sherman Act was adopted, relatively few cases were brought by the Justice Department (aka DOJ), just 15 in the first ten years, 42 in the next ten years, and 126 between 1910 and 1919.
 - More and more cases were brought each decade except during the Great Depression, peaking in the 1980-1989 period (Reagan Presidency) with 741 cases, followed by 609 cases in 1990-1999 (Clinton Administration).
 - The cases are roughly 2-fifths civic cases and 3-fifths criminal cases.
 - Average fines have been increasing through time in nominal terms, rising from about 20K during the 1910-1929 period to

about 325K in the 1970-1989 period, and then rising dramatic during the 1990s to nearly 5 million dollars. (See Posner’s table 2).

V. APPENDIX 1: Competition, Innovation, and Growth

- A. **There are at least two general kinds of technological innovation of interest to economists and relevant for price theory and market structure theories.**
- B. **Technological innovation** that affects the method of production can be represented in either competitive markets or monopolistic markets as shifts in isoquants and/or reductions in MC curves at the firm and industry level.
- C. **Product innovation** affects the number, kind, and quality of products sold in markets. It is difficult to analyze with competitive models, because they assume that there are always a large number of firms selling the same product.
- When an entirely new product is introduced (i-phone, i-pad, etc), the firm that introduces it is initially a monopolist.
 - How much market power that firm has depends on how different, how “new,” the product is--that is to say on how good the substitutes for that new product are.
 - Other firms will often enter such markets after they are proved to be profitable.
 - This shifts the market type from monopoly, to duopoly, oligopoly, to monopolistic competitive etc ... depending upon the number of relatively efficient firms that can be supported in the market and how similar the products introduced are.
 - We’ll return to analyzing product innovation towards the end of the course.

D. Together, innovation and product differentiation make it difficult to fully capture the welfare effects of monopolistically competitive markets.

- In static terms, many firms that innovate generate a (temporary) monopoly, with its associated monopoly profits
- However, **consumers benefit from product variety**, so the greater variety produced by monopolistically competitive markets create other benefits not captured by the standard one dimensional social net benefit analysis.
- The higher profits of monopolistically competitive markets tend to attract entry and encourage product innovation, there are dynamic advantages of such markets over perfectly competitive markets. Their innovation rates tend to be higher.
- (See Schumpeter in the last lecture or two of the course.)

E. **The degree of competition is jointly determined** by the nature of the product, its production process (are there economies of scale or not), the size of the market (how many efficient sized firms can be supported), and the regulation imposed on the market (entry barriers etc).

In many cases, the **size of the market** (village, town, city, state, country, world) determines the degree of competition (number of firms selling the same or similar products).

- **The same products may be thus be sold in more or less competitive conditions according to the size of the markets in which consumers are located.**
- **Perfect competition:** burgers, coffee, doughnuts, repair shops, stock markets, banking, insurance, etc **in large cities**

- **Monopolistic competition:** burgers, coffee, doughnuts, repair shops, stock markets, banking, insurance, etc in **large towns and small cities**.

- **Oligopoly or Duopoly:** burgers, coffee, doughnuts, repair shops, stock markets, banking, insurance, etc in **small towns**

- **Monopoly:** burgers, coffee, doughnuts, repair shops, stock markets, banking, insurance, etc in **very small towns and villages**

- Note that the **internet** tends to increase the size of markets and degree of competition by allowing consumers to shop all over the country, which reduces local price setting power. This has caused many small companies (local monopolies) to go out of business as they face competition from other firms with lower costs or better products in a larger more competitive market than they confronted previously.

- Lists types of products that can and cannot be sold via the internet. In which cases, will there tend to be local monopoly power?



F. The **two main drivers of economic growth** are innovation (in both products and production) and the accumulation of capital (through savings and education).

- Schumpeterian Competition: Innovation and the *Process of Creative Destruction* will be covered later in the course

VI. APPENDIX II Some Famous Antitrust Cases

A. Antitrust law evolved through a long series of court decisions, especially those made by the Supreme Court.

i. There are essentially two lines of argument;

- (1) that some practices and levels of concentration are “**per se**” in violation of the antitrust acts and so illegal.
- (2) that only practices that “**unreasonably** constrain competition or restrain markets” are illegal. These vary case by case according to what is “reasonable” for firms in the market of interest.

ii. **Both interpretations came to be more and more influenced by economic arguments**, with the result that the central issue often became (i) the extent of market concentration and (ii) whether a particular practice increased or diminished competition (and/or social net benefits.)

- Richard Posner (2010-10-22). Antitrust Law, Second Edition Provides a lengthy defense of the “reasonable practices” view of proper applications of anti trust law.
- [Posner is a law professor at the University of Chicago and a judge on the 7th US Court of Appeals in Chicago.]
- [Economists who specialize in “industrial organization” often earn large fees to appear in monopoly cases as “expert witnesses.”]
- This is not to say that the court always gets it right (economically), but it is to say that the trend is toward a “reasonability” standard (anti-competitive standard), rather than a per se standard.

iii. Other economists and lawyers support “per se” laws because they are clearer and less subject to manipulation in court.

- See Dennis Mueller (1996) for a somewhat less optimistic take on US antitrust law that favors using “per se” rules in most cases.

B. A sense of how the Sherman act affected antitrust law (changed it from traditional common law practices) can be taken from the Appeal to the Supreme Court in the Standard Oil Case. [Source http://www.law.cornell.edu/supct/html/historics/USSC_CR_0221_0001_ZS.html]

i. The debates in Congress on the Anti-Trust Act of 1890 show that one of the influences leading to the enactment of the statute was doubt as to whether there is a common law of the United States governing the making of contracts in restraint of trade and the creation and maintenance of monopolies in the absence of legislation.

- While debates of the Congress enacting it may not be used as means for interpreting a statute, they may be resorted to as a means of ascertaining the conditions under which it was enacted.

ii. The terms "restraint of trade," and "attempts to monopolize," as used in the Anti-Trust Act, originated in the common law, and were familiar in the law of this country prior to and at the time of the adoption of the act, and their meaning should be sought from the conceptions of both English and American law prior to the passage of the act.

- The original doctrine that all contracts in restraint of trade were illegal was long since so modified in the interest of freedom of individuals to contract that the contract was valid if the resulting restraint was only partial in its operation, and was otherwise reasonable.
- The early struggle in England against the power to create monopolies resulted in establishing that those institutions were incompatible with the English Constitution.

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- At common law, monopolies were unlawful because of their restriction upon individual freedom of contract and their injury to the public and at common law, and contracts creating the same evils were brought within the prohibition as impeding the due course of, or being in restraint of, trade.
 - At the time of the passage of the Anti-Trust Act, the English rule was that the individual was free to contract and to abstain from contracting and to exercise every reasonable right in regard thereto, except only as he was restricted from voluntarily and unreasonably or for wrongful purposes restraining his right to carry on his trade. *Mogul Steamship Co. v. McGregor*, 1892, A.C. 25..
- C. **Standard Oil** (the appeal brief is available at: http://www.law.cornell.edu/supct/html/historics/USSC_CR_0221_0001_ZS.html)
- i. J. D. Rockefeller created Standard Oil in 1870 and largely through that firm became the worlds richest man and America's first billionaire by corning the US market for refined oil products and also through large oil and pipeline holdings. He also managed to obtain preferential rates for rail road shipping. In 1890, it controlled 88% of the refined product market, and continued to increase it share of production and sales..
 - ii. Rockefeller and his major partners invested a good deal of their dividends in Railroad stocks, which may account for his ability to gain preferential rates for shipping relative to other refined oil producers.
 - iii. The company began in Ohio, where the first American Oil boom occurred.
 - In 1885, SO moved from Ohio to NY and then on to NJ, because of its more lenient corporate law
 - iv. SO produced so much refined product, that it exceed US demand and created major export markets and SO outlets in Europe and Asia.
 - v. In 1909, the US Justice Department sued SO and ordered it to be broken into 34 companies.
 - "Rebates, preferences, and other discriminatory practices in favor of the combination by railroad companies; restraint and monopolization by control of pipe lines, and unfair practices against competing pipe lines; contracts with competitors in restraint of trade; unfair methods of competition, such as local price cutting at the points where necessary to suppress competition; [and] espionage of the business of competitors, the operation of bogus independent companies, and payment of rebates on oil, with the like intent."
 - "The evidence is, in fact, absolutely conclusive that the Standard Oil Company charges altogether excessive prices where it meets no competition, and particularly where there is little likelihood of competitors entering the field, and that, on the other hand, where competition is active, it frequently cuts prices to a point which leaves even the Standard little or no profit, and which more often leaves no profit to the competitor, whose costs are ordinarily somewhat higher."
 - vi. In May 1911, the US Supreme Court upheld the lower court judgment and declared SO to be an "unreasonable monopoly," and ordered it to be broken up into 34 firms.
 - Among the larger firms created are the present day Exxon, Chevron, Amoco, and Mobil Oil.
 - SO (ESSO) continues to operate in Europe and many other parts of the world.

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- (Surprisingly, total share prices rose after the breakup, making Rockefeller even richer!)
- By the time of the break up SO's share of refined product production had fall from around 90% in 1900 to around 65% in 1911.

D. US Steel

- i. US Steel was founded in 1901 in Pittsburgh by Andrew Carnegie, JP Morgan, Charles Scwab, and E. H. Gary. It was essentially a conglomeration of steel and steel product producing companies.
 - It grew to be the worlds first company worth more than a billion dollars. Mergers and aquisitions continued and it began to look to many as if US Steel completely dominated the market for steel and steel products.
 - US Steel built the town/city of Gary Indiana in 1906, the site of one of the worlds largest steel mils.
- ii. During its formative period the company was dominated by Gary (its CEO), who exercised influence throughout the American steel industry through his famous "Gary dinners," attended by the heads of major steel producers; out of the meetings came agreements on cooperative pricing and marketing that stabilized a once wildly fluctuating market. Gary opposed "unreasonable" competitive practices as well as labour organizers.(Brittanica.com)
- iii. From its inception it was the dominant steel producer in the US, with a market share of well over 50%. It's market share remained more or less flat or shank somewhat between 1901 and 1911, although industry output increased by 25% during that period. (A. Cotter 1916: 224)
- iv. In 1911, the **department of justice began antitrust proceedings** against US Steel.

- In 1920, the US Supreme Court decided that US Steel **was not** a monopoly and so its conduct did not come under the Antitrust laws.
 - Held that the power attained by the United States Steel Corporation, much greater than that of any one competitor, but not greater than that possessed by them all, did not constitute it a monopoly.
 - The fact that a corporation, alleged to be an illegal combination, during a long period after its formation, persuaded and joined with its competitors
 - Page 251 U. S. 418
 - Its efforts, **at times successful and at times not, to fix and maintain prices in violation** of the Anti-Trust Act, dos not warrant present relief against it if the illegal practices were transient in purpose and effect, were abandoned before the suit was begun because of their futility and not for fear of prosecution, and have not since been resumed, and if no intention to resume them or dangerous probability of their resumption is shown by the evidence. Pp. 251 U. S. 444 et seq.
 - Purpose and effect of the Steel Corporation's acquisition of control of the Tennessee Coal & Iron Company considered in the light of President Roosevelt's prior approval of the transaction and his testimony concerning it. P. 251 U. S. 446.
- v. Upon the question whether the power possessed by the Steel Corporation operated per se as an illegal restraint, held that testimony of its officers, its competitors, and hundreds of its customers to the effect that competition was not restrained and that prices varied or remained constant according to natural conditions must be accepted as clearly outweighing a generalization advanced

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by government experts that constancy of prices during certain periods evinced an artificial interference. P. 251 U. S. 447.

- vi. **An industrial combination short of a monopoly is not objectionable under the act** merely because of its size -- its capital and power of production -- or merely because of a power to restrain competition, if not exerted. Pp. 251 U. S. 447, 251 U. S. 450 et seq.

E. Alcoa

- i. Was founded as the Pittsburgh Aluminum Co by a group of young entrepreneurs (Hall, Cole, Hunt, and others) in 1888, shortly after Charles Hall discovery of a new method for recovering Aluminum from Bauxite ore in 1886, based on a patent for the process (finally issued in 1889).
- It expanded its operations to include fabrication as well as recovery of aluminum from ore in 1890.
 - Between 1888 and 1897, the price of aluminum fell from 8\$/lb to 36 cents/lb.
(http://www.alcoa.com/usa/en/alcoa_usa/history.asp)
- ii. Because of its patent an innovations in production and fabrication, Alcoa had **a virtual monopoly** on US production and produced 60% of world output.
(http://www.alcoa.com/usa/en/alcoa_usa/history.asp)
- iii. In 1907, the company was renamed the Aluminum Company of America (ALCOA).
- Raising funds for expansion required selling shares, and the Mellon family gradually became the largest share holder--controlling about a third of Alcoa's shares.
- iv. **In 1937, the FTC launched an antitrust suit against Alcoa.**
- The Justice Department believed that Alcoa had violated the Sherman Act on three counts: making restrictive covenants, engaging in alleged acts of unfair competition and participating in

foreign cartels.

(http://www.alcoa.com/usa/en/alcoa_usa/history.asp)

- The FTC believed Alcoa tried to monopolize bauxite, attempted to monopolize the water power of the world, dominated and controlled the foreign market for aluminum in the US, and engaged in injurious price cutting.
- v. Alcoa won the trial on all 130 counts.
- vi. **But the Government won the appeal.**
- vii. Review by the Supreme Court was impossible, since four of the justices had been involved in prior antitrust suits against Alcoa.
- A special act of Congress was necessary to give the 2nd Circuit Court of Appeals the weight of a Supreme Court opinion in this matter.
 - In 1944, the court found Alcoa controlled over 90% of the US market for aluminum ingot. This proportion alone was sufficient to support a violation of the Sherman Act, regardless of intent to monopolize.
- viii. The decision was made by **Judge Learned Hand**, included the following:
- "It was not inevitable that it [Alcoa] should always anticipate increases in the demand for ingot and be prepared to supply them. Nothing compelled it to keep doubling and redoubling its capacity before others entered the field. It insists that it never excluded competitors; but we can think of no more effective exclusion than progressively to embrace each new opportunity as it opened, and to face every newcomer with new capacity already geared into a great organization, having the advantage of experience, trade connections and the elite of personnel."

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- “90 percent is enough to constitute a monopoly; it is doubtful whether 60 to 64 percent would be enough; and certainly 33 percent is not.”
 - [Some lawyers and economists regard this characterization to be the “per se” rule as oppose to the “rule of reason” interpretation of monopoly as “unreasonable restraint of trade or competition.” The debate between the “per se” rule and the “rule of reason” approach played an important role in antitrust suits for the rest of the 20th century.]
- ix. In 1947, Alcoa made the argument to the court that there were two effective new entrants into the aluminum market – Reynolds and Kaiser – as a result of demobilization after the war and the government's divestiture of defense plants. In other words, the problem had solved itself and no judicial action would be required.
- On this basis, the district court judge ruled against divestiture in 1950, but the court retained jurisdiction over the case for five years, so that it could look over Alcoa's shoulder and ensure that there was no re-monopolization.

F. ATT

- of the “Bell System” into 7 different regional telephone firms and a long distance provider (AT&T)..
- v. **The breakup lead to a surge in competition in both long distance service and in telephone technology.**
- (However, many of the new firms were allowed to merge 15-20 years later, which reduced the 7 to two or three by 2012.)
 - See my law and economics website for more on antitrust law.
- i. Graham Bell invented the telephone in 1875 and received two patents on the telephone in 1876.
- ii. These were used to launch the Bell Telephone company in 1877.
- Service expanded fairly rapidly with the first calls between Chicago and NY occurring in 1892, and the first transatlantic calls in 1927.
- iii. Because of its near monopoly over telephone service in the US, AT&T was the target of many antitrust actions over the decades, although settlements of various kinds were normally worked out, which left the company in one piece.
- iv. In 1974, the Department of Justice launch an anti trust suit against AT&T, which was finally decided in 1984, and caused the break up