Chapter 15 Lecture - Monopoly and Antitrust Policy

Is Any Firm Ever Really a Monopoly?

We define monopoly.

Monopoly is a market structure consisting of a firm that is the only seller of a good or service that does not have a close substitute.

Monopoly exists at the opposite end of the competition spectrum to perfect competition.

We study monopolies for two reasons:

1. Some firms truly are monopolists, so it is important to understand how they behave.
2. Firms might collude in order to *act like* a monopolist; knowing how monopolies act helps us to identify these firms.

Do Monopolies Really Exist?

Suppose you live in a small town with only one pizzeria. Is that pizzeria a monopoly?

1. It has competition from other fast food restaurants
2. It has competition from grocery stores that provide pizzas for you to cook at home

If you consider these alternatives to be *close* substitutes for pizzeria pizza, then the pizza restaurant is not a monopoly.

If you do not consider these alternatives to be close substitutes for pizzeria pizza, then the pizza restaurant is a monopoly.

Regardless, the pizzeria's unique position may afford it some *monopoly power* to raise prices and obtain economic profit.

Where Do Monopolies Come From?

For a firm to exist as a monopoly, there must be *barriers to entry* preventing other firms coming in and competing with it.

The four main reasons for these barriers to entry are:

1. *Government restrictions on entry*
2. *Control of a key resource*
3. *Network externalities*
4. *Natural monopoly*

The next few slides will examine these in detail.

1. Government Restrictions on Entry

In the U.S., governments block entry in two main ways:

a. *Patents* and *copyrights*

Newly developed products like drugs are frequently granted **patents**, the exclusive right to produce a product for a period of 20 years from the date the patent is filed with the government.

Similarly, **copyrights** provide the exclusive right to produce and sell creative works like books and films.

Patents and copyrights encourage innovation and creativity, since without them, firms would not be able to substantially profit from their endeavors.

b. *Public franchises*

A government designation that a firm is the only legal provider of a good or service is known as a **public franchise**. These might exist, for example, in electricity or water markets.

Sometimes governments even *operate* these firms as a *public enterprise*.

- A U.S. example of this is the U.S. Postal Service.

2. Control of a Key Resource

For many years, the Aluminum Company of America (Alcoa) either owned or had long-term contracts for almost all the world's supply of bauxite, the mineral from which we obtain aluminum.

- Such control over a key resource served as a substantial barrier to entry for additional firms.

The National Football League (NFL) acts as a monopoly in this manner too: it ensures that the majority of the world's best football players are under contract to the NFL and unable to be used for another potential league.

3. Network Externalities

Economists refer to **network externalities** as a product characteristic whereby the usefulness of a product increases with the number of consumers who use it.

Examples: *Auction sites (like eBay)*
Computer operating systems (like Windows)
Social networking sites (like Facebook)

These network externalities can set off a *virtuous cycle* for a firm, allowing the value of its product to continue to increase, along with the price it can charge.

But consumers may be locked into an inferior product.

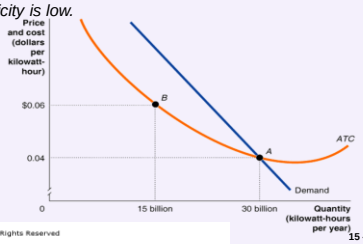
4. Natural Monopoly

A **natural monopoly** occurs when economies of scale are so large that one firm can supply the entire market at a lower average total cost than can two or more firms.

Natural monopolies are most likely when fixed costs are high.

- *Example: A firm producing electricity must make a substantial investment in production and distribution infrastructure; the marginal cost of producing another hour of electricity is low.*

In the market for electricity delivery, a single firm (point A) can deliver electricity at a lower cost than can two firms (point B).



How Does a Monopoly Choose Price and Output?

We explain how a monopoly chooses price and output.

In our study of oligopoly, we abandoned the idea of marginal cost and marginal revenue, because the strategic interaction between firms overrode these concepts.

But monopolists have no competitors and hence no concern about strategic interactions.

- They seek to maximize profit by choosing a quantity to produce, just like perfect and monopolistic competitors.

In fact, monopolists act very much like monopolistic competitors: they face a downward sloping demand curve.

- The difference is that barriers to entry will prevent other firms from competing away their economic profit.

Figure 15.2 Calculating a Monopoly's Revenue (1 of 2)

Time Warner Cable is a monopolist in a local market for cable television services.

The first two columns of the table show the market demand curve, which is also Comcast's demand curve.

Total, average, and marginal revenue are all calculated in the usual manner.

Subscribers per Month (Q)	Price (P)	Total Revenue ($TR = P \times Q$)	Average Revenue ($AR = TR/Q$)	Marginal Revenue ($MR = \Delta TR/\Delta Q$)
0	$60	$0	–	–
1	57	57	$57	$57
2	54	108	54	51
3	51	153	51	45
4	48	192	48	39
5	45	225	45	33
6	42	252	42	27
7	39	273	39	21
8	36	288	36	15
9	33	297	33	9
10	30	300	30	3

Figure 15.2 Calculating a Monopoly's Revenue (2 of 2)

As the monopolist decreases price to expand output, two effects occur:

1. Revenue increases from selling an extra unit of output.
2. Revenue decreases, because the price reduction is shared with existing customers.

So marginal revenue is always below demand for a monopolist.

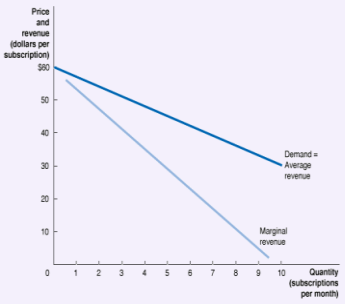
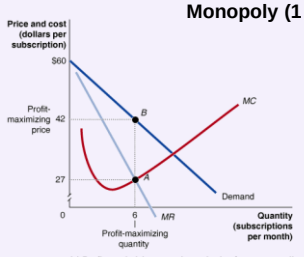


Figure 15.3 Profit-Maximizing Price and Output for a Monopoly (1 of 2)

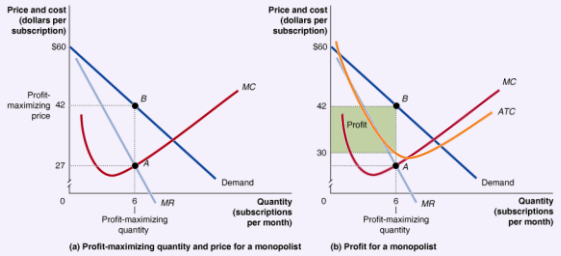


(a) Profit-maximizing quantity and price for a monopolist

The monopolist maximizes profit by producing the quantity where the additional revenue from the last unit (marginal revenue) just equals the additional cost incurred from its production (marginal cost).

MC = *MR* determines quantity for a monopolist.

Figure 15.3 Profit-Maximizing Price and Output for a Monopoly (2 of 2)



At this quantity,

- The demand curve determines price, and
- The average total cost (*ATC*) curve determines average cost.

Profit is the difference between these (*P*–*ATC*), times quantity (*Q*).

Long-Run Profits for a Monopoly

Since there are barriers to entry, additional firms cannot enter the market.

- So there is no distinction between the short run and long run for a monopoly.

Then unlike for monopolistic competition, we expect monopolists to continue to earn profits in the long run.

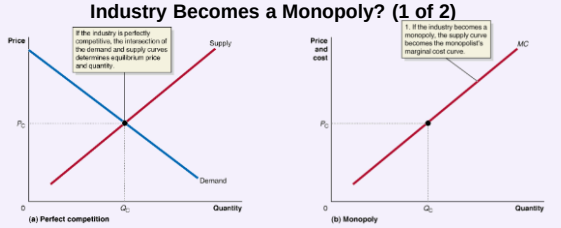
Does Monopoly Reduce Economic Efficiency?

Suppose that a market could be characterized by either perfect competition or monopoly. Which would be better?

Thought experiment: suppose the market for smartphones is perfectly competitive, then one firm buys up all of the smartphones in the country. What would happen to:

- Price of smartphones?
- Quantity of smartphones traded?
- The net benefit of consumers (i.e. *consumer surplus*)?
- The net benefit of producers (i.e. *producer surplus*)?
- The net benefit of all of society (i.e. *economic surplus*)?

Figure 15.4 What Happens if a Perfectly Competitive Industry Becomes a Monopoly? (1 of 2)

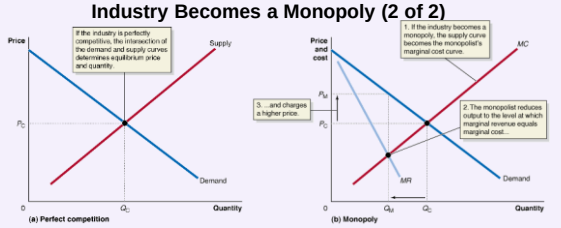


The market for smartphones is initially perfectly competitive.

- Price is P_C, quantity traded is Q_C.

Now the market is supplied by a single firm. Since the single firm is made up of all of the smaller firms, the marginal cost curve for this new firm is identical to the old supply curve.

Figure 15.4 What Happens if a Perfectly Competitive Industry Becomes a Monopoly (2 of 2)



But the new firm maximizes market profit, producing the quantity where marginal cost equals marginal revenue (*MC* = *MR*).

This quantity (Q_M) is lower than the competitive quantity (Q_C)…

… and the firm charges the corresponding price on the demand curve, P_M. This price is higher than the competitive price, P_C.

Measuring the Efficiency Losses from Monopoly

Fewer smartphones will be traded at a higher price.

- Consumer surplus will fall (with the higher price).
- Producer surplus must rise, otherwise the firm would have chosen the perfectly competitive price and quantity.

Could the increase in producer surplus offset the decrease in consumer surplus?

- No! Perfectly competitive markets maximized the economic (total) surplus in a market; if fewer trades take place, the economic surplus must fall.

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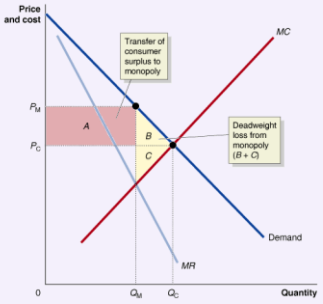
Figure 15.5 The Inefficiency of Monopoly

With the higher monopoly price, consumer surplus decreases by the areas A+B.

Producer surplus falls by C, but rises by A; an overall increase.

Area A simply is simply a transfer of surplus: neither inherently good nor bad.

But areas B and C are lost surpluses: deadweight loss.



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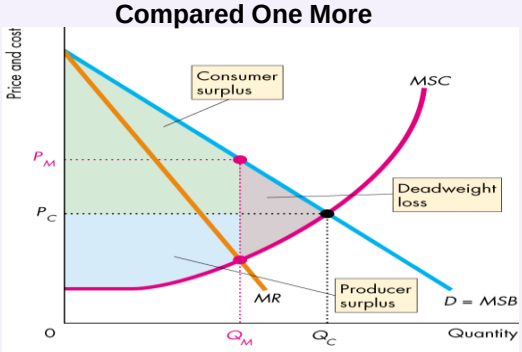
Single-Price Monopoly and Competition Compared One More



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How Large Are the Efficiency Losses?

There are relatively few monopolies, so the loss of economic efficiency due to monopolies must be relatively small.

- But many firms have **market power**: the ability of a firm to charge a price greater than marginal cost.
- In fact, the only firms that *do not* have market power are perfectly competitive firms, and perfect competition is rare.

Economists estimate that overall, the loss of efficiency in the United States due to market power is probably less than 1 percent of total U.S. production—about $500 per person annually.

- Why so low? Most firms face a relatively large degree of competition, resulting in prices much closer to marginal cost than we would see with monopolies.
- So deadweight loss due to market power is relatively small.

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An Argument in Favor of Market Power

Market power may produce some benefit for an economy: the prospect of market power (and the resulting economic profits) drives firms to innovate, creating new products and services.

- This drive affects both large firms—who reinvest profits in the hope of making larger future profits—and small firms—who hope to obtain profits for themselves.

The Austrian economist Joseph Schumpeter claimed that this drive would create a "gale of creative destruction" that would eventually benefit consumers more than increased price competition.

- This helps to explain governmental ambivalence regarding large firms with market power.

Government Policy Toward Monopoly

We discuss government policies toward monopoly.

Because monopolies reduce consumer surplus and economic efficiency, governments regulate their behavior.

- Many governments try to stop firms *colluding* and seek to prevent mergers and acquisitions creating large firms, through *antitrust laws*.

Collusion: An agreement among firms to charge the same price or otherwise not to compete.

Antitrust laws: Laws aimed at eliminating collusion and promoting competition among firms.

Table 15.1 Important U.S. Antitrust Laws

In the 1870s and 1880s, several "trusts" had formed: boards of trustees that oversaw the operation of several firms in an industry and enforced collusive agreements.

The federal government responded with antitrust laws to limit anti-competitive behavior.

Law	Date Enacted by Congress	Purpose
Sherman Act	1890	Prohibited "restraint of trade," including price fixing and collusion. Also outlawed monopolization.
Clayton Act	1914	Prohibited firms from buying stock in competitors and from having directors serve on the boards of competing firms.
Federal Trade Commission Act	1914	Established the Federal Trade Commission (FTC) to help administer antitrust laws.
Robinson–Patman Act	1936	Prohibited firms from charging buyers different prices if the result would reduce competition.
Cellar–Kefauver Act	1950	Toughened restrictions on mergers by prohibiting any mergers that would reduce competition.

Figure 15.6 A Merger That Makes Consumers Better Off (1 of 2)

Antitrust laws also cover mergers; particularly **horizontal mergers**: mergers between firms in the same industry, as opposed to **vertical mergers** between two firms at different stages of the production process.

- Such mergers are likely to enhance firms' market power.

The graph shows such a merger, increasing the price from the competitive price (P_C) to the monopoly price (P_M) and resulting in deadweight loss.

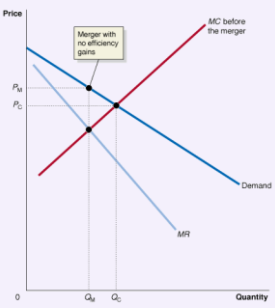


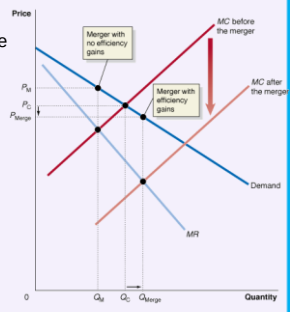
Figure 15.6 A Merger That Makes Consumers Better Off (2 of 2)

Firms seeking to merge typically argue that the resulting larger firm will have lower costs and hence be able to produce more efficiently.

- Then even if they charge the (new) monopoly price, the result is an improvement for consumers.

However, costs may not decrease by as much as the firms claim, resulting in consumers being worse off.

- Economists with the FTC and Department of Justice review potential mergers one by one.



DOJ and FTC Merger Guidelines

Economists and lawyers at the Department of Justice and the Federal Trade Commission have developed guidelines for themselves and firms to use in evaluating whether a potential merger is acceptable.

These include:

1. *Market definition*
2. *Measure of concentration*
3. *Merger standards*

We will examine each of these on the following slides.

1. Market Definition

Suppose Hershey Foods sought to merge with Mars Inc.

- In what market do these firms compete? The market for candy? The market for snacks? The market for all food?

The more broadly defined the market, the smaller (and more harmless) the merger appears.

To determine the appropriate scope of the market, the government tries to determine which goods are close substitutes for those produced by the firms.

- The "appropriate market" is defined as the smallest market containing the firms' products for which an overall price rise within the market would result in total market profits increasing.
- (If profits would decrease, there must be adequate substitutes available; hence the market is too narrowly defined.)

2. Measure of Concentration

A market is *concentrated* if a relatively small number of firms have a large share of total sales in the market.

To determine if a market is concentrated, the government uses the *Herfindahl-Hirschman Index (HHI)* created by squaring the percentage market shares of each firm and adding up the results.

Some examples are given below:

Firm market shares	Formula	HHI
100%	100^2	10,000
50%, 50%	$50^2 + 50^2$	5,000
30%, 30%, 20%, 20%	$30^2 + 30^2 + 20^2 + 20^2$	2,600
10%, 10%, …, 10%	10×10^2	1,000

Table 15.2 Federal Government Standards for Horizontal Mergers

Value of the Herfindahl-Hirschman Index (HHI) of a Market after a Merger	Amount by Which the Merger Increases the HHI	Antitrust Action by Federal Regulators
Less than 1,500	Increase doesn't matter	Merger will be allowed.
Between 1,500 and 2,500	Fewer than 100 points	Merger is unlikely to be challenged.
Between 1,500 and 2,500	More than 100 points	Merger may be challenged.
Greater than 2,500	Fewer than 100 points	Merger is unlikely to be challenged.
Greater than 2,500	Between 100 and 200 points	Merger may be challenged.
Greater than 2,500	More than 200 points	Merger is likely to be challenged.

Based on the calculated HHI values, the DOJ and FTC apply the standards above to decide whether to challenge a merger.

- Firms having their merger applications challenged must satisfy the DOJ and FTC that their merger would result in substantial efficiency gains. The burden of proof is on the merging firms.

Regulating Natural Monopolies

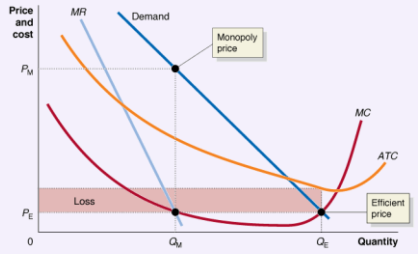
Natural monopolies have the potential to serve customers more cheaply than multiple firms. But the usual market forces that drive price down do not exist.

Local and/or state *regulatory commissions* typically set prices for these natural monopolies, instead of allowing the firms to set their own price.

But that raises the question: what price should the regulators choose?

- A price that makes the monopoly make zero profit?
- The *efficient price* that would maximize consumer welfare and total economic surplus?

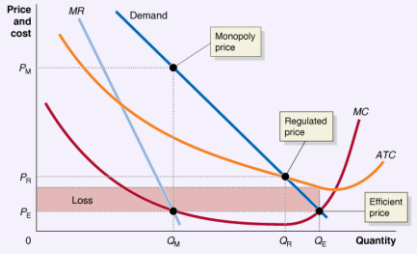
Figure 15.7 Regulating a Natural Monopoly (1 of 2)



If the natural monopoly were not subject to regulation, it would choose quantity Q_M and price P_M.

Efficiency ($MC = MR$) suggests a price of Q_E. But then the firm makes a loss.

Figure 15.7 Regulating a Natural Monopoly (2 of 2)



A typical compromise is to allow the firm to charge a price where it can make zero economic profit: P_R. The resulting quantity Q_R is hopefully close to the efficient level, keeping deadweight loss small.