

Market Structures and Market Power

This topic considers how markets are organized, specifically how the level of competition is determined and how it affects equilibrium.

We begin with *perfect competition*. We have already modeled perfect competition in our basic model of supply and demand. Recall that a key feature of perfect competition is that both sides of the market have no market power and are *price takers*. As a result, if a firm charges a penny above the equilibrium, they will lose all their sales. This is obviously not realistic. Perfect competition is thus a reference point. Real markets may come close, but none is actually perfectly competitive.

So what would it take for a market to be perfectly competitive? There are some basic conditions:

1. All firms must produce a fully identical product. This means that consumers must have no taste for variety among different firms' output. Some agricultural products, like milk, come close.
2. All consumers must be small enough to have no market power.
3. Firms must be able to freely enter and enter the market. There need not actually be a large number of producers. There only needs to be the ability of other producers to quickly enter the market to take a share of any excess profits in order to ensure that all producers are price takers.

The presence, or lack thereof, of barriers to entry is thus critical to the nature of a market. If there are barriers to entry, #3 is violated and firms may exercise market power. There are numerous real world examples of barriers to entry.

- i. Fixed costs/ economies of scale. Consider an electrical producer. It is very costly to supply the first customer with electricity because it entails building a power plant (or other source) along with other infrastructure. As a result, we tend to only see a small number of firms in local energy markets.

- ii. Intellectual property. In some markets proprietary knowledge may make it hard for new firms to enter the market. No matter how hard I try, I cannot replicate KFC's eleven herbs and spices.
- iii. Legal barriers. Examples include patents, which grant inventors the exclusive rights to sell a product, or licenses, which restrict the number of producers. In some cases (*e.g.* the United States postal service), a government may choose to create a monopoly.
- iv. Illegal barriers. One example of this is predatory pricing. Suppose that I control a market. If I have more resources than a new entrant, I could charge a below equilibrium price to drive any new entrant out of business. This is illegal in many economies.
- v. Collective bargaining. This applies to labor markets where a union or other worker association negotiates working conditions for all employees. The key is that other workers cannot enter and negotiate individually.

Features of Perfect Competition

A perfectly competitive market has some important features. First, free entry and exit ensures that firms minimize their average costs, both in the short and long run. This must be true because if it were not, new firms could enter the market and capture the entire market by charging less than the existing average total cost.

A second feature follows from price taking. Because a producer cannot affect the price, it will continue to produce until the price equals the marginal cost of production. Likewise, because each consumer has no ability to affect the price, they will continue consuming until their marginal utility of consumption equals the price. Recall from our basic model of supply and demand that if there are no market failures, this leads to an efficient outcome where the sum of consumer and producer surplus is maximized.

Monopoly

Monopoly refers to a case where a market has a single supplier. There must be a barrier to entry to create a monopoly. Under perfect competition, each firm is a price taker and their only

decision is how much to produce. Under monopoly, the firm chooses where on the demand curve it wants to be. It may choose any combination of price and quantity, as long as it is on the demand curve.

We can look at how the monopolist maximizes profits in two different ways. The first is geometrically. Here, the monopolist chooses the demand curve that yields the biggest producer surplus. They do this by restricting quantity, in order to drive up the price. The monopolist can usually increase their profits (recall that profits are producer surplus less fixed costs), by charging a higher price. But too high of a price reduces profits by reducing sales by too much.

The more inelastic demand is, the higher the markup above marginal cost will be. This is because higher prices will have less of an adverse impact on sales.:

Graph: Monopoly with elastic and inelastic goods.

Monopoly works the same way in labor markets. In labor markets, the monopolist may be the only worker capable of performing a type of work: I cannot enter the market for all-star NBA players because I would only average about 15 pts/game as a starter. Or it may represent a labor union which bargains on behalf of all workers in a market. In this case, the monopolist against restricts quantity (employment) in order to achieve a higher price (wage) and does so to maximize producer surplus.

We can solve the monopolists problem a second way by looking at a sample demand curve.

Table 1: Market where Marginal Cost Equals \$20

Units	Marginal Utility	Revenue	Marginal Revenue	Acc. Profit
1	\$100	\$100	100	80
2	\$90	\$180	80	140
3	\$80	\$240	60	180
4	\$70	\$280	40	200
5	\$60	\$300	20	200
6	\$50	\$300	0	180
7	\$40	\$280	-20	140
8	\$30	\$240	-40	80
9	\$20	\$180	-60	0
10	\$10	\$100	-80	-100

This example assumes that marginal cost is constant at \$20. Under perfect competition, this would also be the price. The monopolist, however, charges \$60 and sells 5 units (technically they are indifferent between this outcome and selling 4 units at \$70. As always, the monopolist restricts supply in order to drive up the price.

Table ?? includes the monopolist's revenue and marginal revenue, which is the change in revenue from each additional unit. In general, the outcome that maximizes the monopolist's profits occurs where marginal revenue equals marginal cost.

Recall that under perfect competition, suppliers provided the good as long as the price was above marginal cost. Because firms were price takers, however, the marginal revenue was just the price. The statement that a profit maximizing firms set marginal revenue equal to marginal cost is thus true even under perfect competition.

Students should calculate and compare consumer and producer surplus under monopoly and perfect competition. They should then calculate deadweight loss.

Policy Responses to Monopoly

Because monopoly produces deadweight loss, policy makers often try to prevent them from capturing markets. Most of these policies fall under the banner of *antitrust law*. The details of antitrust law vary by country, but often include the following:

- i. Regulation of mergers and mechanisms to prevent mergers which result in excessive market power (not just monopoly). In the United States, both the Department of Justice and Federal Trade Commission can initiate lawsuits to prevent mergers that lead to excessive market power.
- ii. Mechanisms for breaking up existing monopolies. Famous examples include the U.S. government's breakup of Standard Oil in 1911 and the breakup of the Bell Phone System in 1982.
- iii. Forbidding closed unions shops (where firms may only hire existing members of a labor union) or union shops (where membership in a union is a condition of employment).
- iv. Right to work laws where non-union members cannot be obligated to pay union dues. Some U.S. states, but not all, have such laws.
- v. Provisions (including criminal provisions) that disallow firms from colluding on pricing decisions.

Monopsony

Monopsony is the demand equivalent of monopoly where there is just a single demander. In this case, the monopsonist restricts quantity in order to *lower* the price. Geometrically, the monopsonist chooses the point on the supply curve that maximizes consumer surplus.

Graph: Monopsoist with elastic and inelastic goods.

Monopsony may occur in goods and services markets (*e.g.* where a government is the only buyer of military goods). It is of particular interest, however, in labor markets. Here, there are two important implications:

- i. If firms have market power, then minimum wage laws may not have the same impact on employment as predicted by our supply and demand model with perfect competition.
- ii. Suppose that a labor market includes both a monopolist and a monopsonist, a scenario that is relatively likely in a labor market. The resulting price and quantity is not clear from theory. Instead, the supplier and demander will bargain over the price and quantity. Adding a labor union may offset the monopsonist's market power and move the equilibrium closer (though not necessarily equal to) to that of perfect competition.

Price Discrimination

So far, we have assumed that a firm must charge the same price to all consumers. Under *price discrimination*, a firm may charge different prices to different consumers. If this is the case, a monopolist may be able to further increase their profits. Suppose, for example, that a firm may charge two prices. It will choose a high price for high demand customers and a low price for low demand customers:

Graph: Price Discrimination

Price discrimination is common in a variety of industries. here are a few examples:

1. Airlines use algorithms to estimate customers; willingness to pay. Customers who buy tickets closer to the date of the flight, for example, are often willing to pay more (emergencies, business travel, etc.) and airlines thus charge more.
2. A local marijuana store is offering reduced prices to customers who but their weed between 9-12 AM. Apparently, morning weed shoppers are more discerning, and less willing to pay, than the late night crowd.

Antitrust Enforcement

In most developed countries, the government asserts the right to prevent excess market power through antitrust enforcement. This may entail preventing a merger or acquisition that leads to excess market power or even breaking up an existing firm that has too much market power. This usually affects suppliers although there are cases (*e.g.* Penguin Press) of the government blocking monopsony power.

One recent case was a proposed merger in 2024 between Kroeger and Albertsons, two large U.S. supermarket chains. This raised the question of whether or not the newly merged firm would have excess market power. One tool that antitrust authorities use is the Herfindahl-Hirschman Index (HHI). Suppose, for example, that there are five firms in the market, each with 20% market share. To calculate the HHI, we use the following:

$$HHI = 20^2 + 20^2 + 20^2 + 20^2 + 20^2 = 2000 \quad (1)$$

This would be considered moderately concentrated If there are one million small firms, then the HHI will be very low, suggesting little market power. If there is a monopoly, then the HHI is $100^2 = 10,000$, its maximum possible value.

Antitrust authorities look at the HHI before and after a potential merger. In this example, they concluded that while the HHI was low measured nationally, in state and regional markets, it was too high.

In December 2024, the Federal Trade Commission sued to block the merger. A Federal judge then issued an injunction temporarily blocking the merger. Afterwards, Albertson's abandoned the effort and the chains remain distinct firms.

Many Bates graduates have worked in litigation consulting, of which anti-trust is a significant component.