

I

Economics

In this chapter, I will introduce economic concepts that I plan to use throughout the text, set out the basic economics of monopoly, and compare monopoly with its polar opposite, perfect competition. I also will discuss some relatively new topics, such as transaction-cost and information economics, and their relevance to antitrust policy.

I. DEFINITIONS

A. Monopoly

A monopolist is a single supplier of a good. However, this definition is too simple, because it includes firms that become dominant by being the lowest-cost competitor and those that obtain an exclusive franchise from the state. As far as antitrust policy is concerned, there is a big difference between these two cases. Because the simple, “single-supplier” definition is potentially misleading, one should focus on market conditions. The crucial feature of monopoly status is the *absence of competition* from other firms.

The common example of monopoly in our lives is local telephone service, provided in most places in the United States by a regulated, privately owned monopoly. However, even here competition from wireless and optical fiber companies has eroded the monopoly status of the local telephone companies. One of the purest monopolies in recent memory was Aeroflot, the airline of the former Soviet Union. Before the breakup of the Soviet Union, there were no competing airlines.

Cambridge University Press

052179031X - Antitrust Law: Economic Theory and Common Law Evolution

Keith N. Hylton

Excerpt

[More information](#)

2

Economics

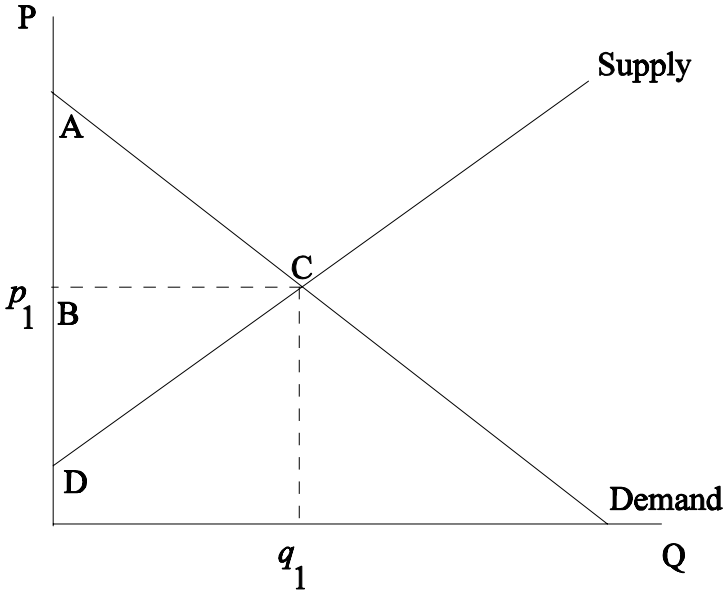


Figure 1.1

B. Market Price

A *market equilibrium*, where the quantity demanded by consumers equals the quantity supplied by producers, generates a market price, as shown in Figure 1.1. The downward sloping line is the demand curve and the upward sloping line is the supply curve. Think of the demand curve as a schedule of bids offered by consumers. Each point along the curve is a maximum price that at least one consumer is willing to pay. The horizontal axis measures the total quantity demanded at a given price, and since each consumer would accept the item at a lower price, quantity demanded increases as price falls. Similarly, one can think of the supply curve as a schedule of minimum asking prices stated by producers. Since each producer is willing to sell the good at a price at or above his asking price, the total quantity offered for sale at a given market price (measured by the horizontal axis) increases as price rises.¹

¹ More technically oriented treatments typically explain that each consumer has a schedule of bids for each quantity desired. Consumers offer less per unit for higher quantities because the utility gained per unit of consumption falls as consumption expands. The market demand curve is the “horizontal sum” of the individual demand schedules. The student trained in economics may prefer to think in these terms. I have attempted to simplify the presentation in the text.

Cambridge University Press

052179031X - Antitrust Law: Economic Theory and Common Law Evolution

Keith N. Hylton

Excerpt

[More information](#)*I. Definitions*

3

In a market with many producers and consumers, none of them actively sets the equilibrium price. It is, in a passive sense, determined by the actions of the marginal consumer and marginal producer. The marginal consumer (point C in Figure 1.1) is just indifferent between buying the good and going without it, given the market price. Similarly, the marginal producer (also at C) is indifferent between selling at the market price and keeping his output. The inframarginal consumer (to the left of C along the demand curve in Figure 1.1) is willing to pay more for the good than is the marginal consumer, and the inframarginal producer (to the left of C along the supply curve) is willing to part with the good for a lower price than the marginal producer would accept. The price in an exchange between inframarginal actors is indeterminate – it is any level between the maximum the consumer is willing to pay and the minimum the producer is willing to accept.

To see the role played by marginal actors in the determination of equilibrium, suppose the price is initially set above the level that equalizes the amounts demanded and supplied. Suppliers would offer a quantity larger than consumers were willing to purchase, and as a result some sellers would be unable to find buyers. Among them would be inframarginal sellers, who would cut their asking prices in order to make a sale. This process would continue until the equilibrium price is reached.

C. Market's Contribution to Wealth

Because the marginal consumer determines price, all other consumers (inframarginal) gain by making trades in the market. *Consumers' surplus* measures the gain to consumers from taking advantage of the market: some consumers would still buy the good at a higher price, but they can purchase it at the cheaper market price. Similarly, because the marginal producer determines price, *producers' surplus* measures the gain to producers generated by market transactions.

The diagram in Figure 1.1 also illustrates the incremental wealth generated by the market, which is equal to the sum of consumers' surplus and producers' surplus. Consumers' surplus is the area ABC, and producers' surplus is the area DBC. The total surplus, or the market's contribution to wealth, is maximized when price is equal to the market equilibrium level p_1 and quantity is equal to the market equilibrium level q_1 . Because total surplus hits its maximum at the market equilibrium, I will refer to this as the *social optimum*.

Although this may seem an unusual way to measure incremental wealth,² this is the approach Adam Smith emphasized in arguing against the mercantilist policies followed by England and other European countries over the eighteenth century.³ The doctrine of mercantilism, still with us today in many quarters, held that a government should manage foreign trade in order to maximize gold reserves. To the mercantilists, this was how a country became wealthy. In practice, the doctrine necessitated a strategy of maximizing exports and minimizing imports. Adam Smith's argument, startlingly counterintuitive at the time and still misunderstood by the majority of governments today, was that the mercantilists' conception of wealth was invalid and that their policies were likely to reduce rather than increase wealth. A market's real contribution to wealth is the difference between the value of the benefits a good provides and the resource cost of its production. Smith argued that a policy of free trade in competitive markets maximizes this measure of incremental wealth. Of course, understanding Smith's argument requires some familiarity with the properties of competitive markets. I take up that topic next.

D. Defining Perfect Competition

A competitive equilibrium satisfies the assumptions of the model of perfect competition, which are as follows.

1. Atomism. The output of each seller and the consumption amount of each buyer is a small fraction of the total output of the market, so no buyer or seller can have more than a very small influence on market price or quantity. Alternatively, each buyer and seller takes market price as given.

We could speak generally of a spectrum with atomism on one end and monopoly on the other. Of course, the theoretical endpoints are hardly ever observed. Atomism, in its extreme version, requires an infinite number of infinitesimally small producers and consumers. Monopoly requires a single seller, but even where we do find a single seller of an item, often suppliers of close substitutes constrain the monopolist's price-setting decisions.

² It is important to note the difference between stocks and flows. Consumers' surplus is a flow while wealth is a stock. In view of this, I have referred to consumers' surplus as a component of incremental wealth.

³ *An Inquiry into the Nature and Causes of the Wealth of Nations* (Edwin Cannan, ed., New York: Modern Library 1994).

Cambridge University Press

052179031X - Antitrust Law: Economic Theory and Common Law Evolution

Keith N. Hylton

Excerpt

[More information](#)

I. Definitions

5

2. *Perfect Information.* Consumers can distinguish between different goods. They also know if one seller is offering a particular good at a lower price than another seller. Really, all we need is that information must get around reasonably fast. The assumption of perfect information simplifies the matter.

Obviously, the assumption is not an accurate description of the world.⁴ In the real world, we see firms advertising. We could make the model resemble the real world more closely by assuming that information is a commodity that must be supplied.

However, once we assume information must be supplied, the reason for making the simplifying assumption of perfect information starts to become clear. The market for information is peculiar. Information is a *public good*, in the sense that a decision to supply it to one person generally means that the good is also available to others. For example, the purchaser of a newspaper may read it and then give it to a friend. Because the information can be shared, the producer may not receive compensation for the benefits conferred upon a large number of consumers, and in this case the market may provide insufficient incentives to produce news. This is illustrated in Figure 1.2. The forward-shifted demand curve includes the benefits of newspapers to nonpaying readers. The social optimum is at (p_2, q_2) rather than the market equilibrium (p_1, q_1) .

This example suggests that relaxing the assumption of perfect information immediately introduces some element of market failure into the model. Consider the case of advertising to inform consumers of the existence of a better mousetrap. Suppose there are competing sellers of this new mousetrap. A seller who advertises the mousetrap cannot be sure that the benefit will accrue to himself alone, because he cannot limit the message only to consumers who will purchase from him. Since some of the benefits may go to other sellers, his incentive to pay for informative advertising is attenuated.

In the extreme case, failure of the assumption of perfect information can make a market virtually infeasible. The best example is the problem of *adverse selection* in the insurance market. Suppose there is a

⁴ A related and more fundamental criticism is that the assumption of perfect information ignores the central problem that needs to be explained: how privately held information is revealed and communicated among market participants, see F. A. Hayek, *Individualism and Economic Order* 77–106 (London: Routledge & Kegan Paul, 1949). Although Hayek's critique has important implications for antitrust policy, space will not permit me to cover it here.

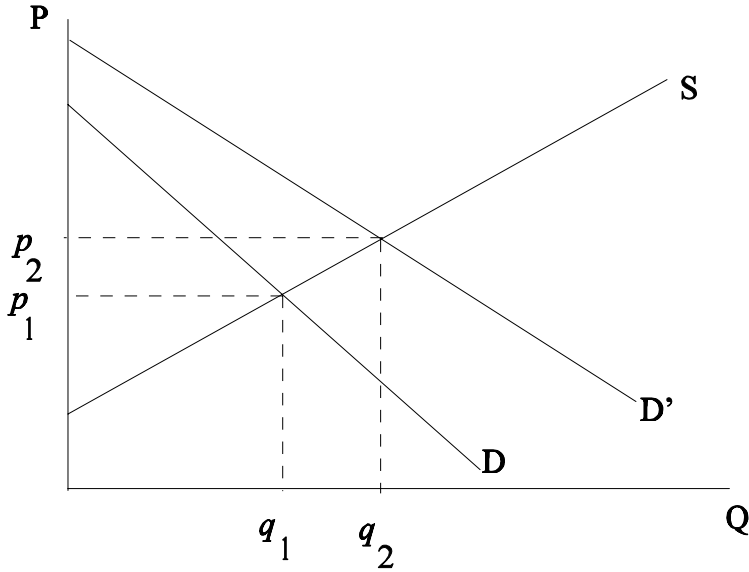


Figure 1.2

continuum of risk levels among potential insurance purchasers, and the insurer cannot determine the risk level of each applicant. The insurer's price will be a weighted average of the prices that should be charged to each type, the weights reflecting the anticipated shares of each risk type in the insured population. If some relatively low-risk customers exit the relationship and insure themselves or do without insurance altogether, then the price must be increased for the relatively high-risk customers who remain. But this may lead others to drop their policies, and so on. In the end, only the most risky customers seek insurance, and with little to be gained from pooling their risks, the market vanishes.

3. Mobility. Resources flow easily from one market or sector of the economy to another: no barriers to entry exist. Without mobility, monopoly power becomes possible. Simply meeting the assumption of atomism does not eliminate the possibility of market power.

To take a concrete example, consider the market for attorneys. In the United States, there are too many of them to count. It would seem, therefore, that the atomism requirement is satisfied. However, the market is not perfectly competitive because not everyone who could perform as an attorney is permitted to enter the market. Every attorney must pass

Cambridge University Press

052179031X - Antitrust Law: Economic Theory and Common Law Evolution

Keith N. Hylton

Excerpt

[More information](#)

a bar exam and be sworn in to the state in which he or she wishes to practice. The bar passage requirement reduces the total number of attorneys and allows them to earn a return in excess of the opportunity costs of the skills and resources employed in that profession.

4. *No Third-Party Effects.* The model of perfect competition assumes there are no *externalities*, that is, third-party effects. The parties who contract over the supply of a good or service bear all of the costs and benefits associated with the production of that good or service.

Externalities lead to production levels that deviate from the social optimum. For example, consider the case of a company that produces chemicals and also pollutes the water as a byproduct. The company produces too much from society's point of view. The total cost of the company's output is more than the production cost borne by the company, it also includes the costs generated by the pollution. If the company were forced to bear the pollution costs, it would demand a higher price in order to supply the market. Put another way, the supply curve for the chemical producer would shift back, as shown in Figure 1.3, reflecting the higher price demanded for each level of output. The

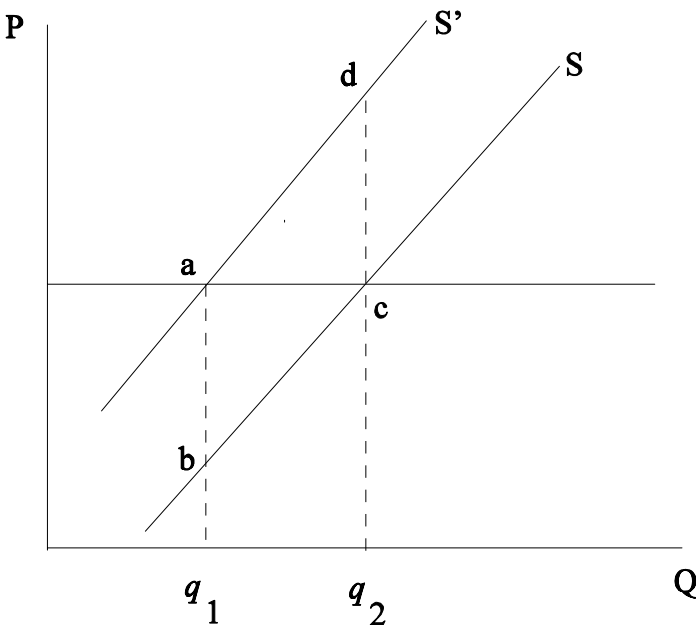


Figure 1.3

Cambridge University Press

052179031X - Antitrust Law: Economic Theory and Common Law Evolution

Keith N. Hylton

Excerpt

[More information](#)

upward-shifted supply curve in Figure 1.3 reflects the real costs of producing chemicals. As the diagram also shows, given any market price, the firm overproduces, relative to the social optimum (which is at q_1).

One way to correct the overproduction demonstrated in this example is to tax the chemical producer. The company's supply should be reduced by taxing it at a rate that reflects the costs generated by the pollution it imposes on society.

A more general approach to solving this problem was suggested by Ronald Coase.⁵ Coase demonstrated that in a regime in which transaction costs were zero, and property rights well-defined, resource allocation would be efficient. To see why this holds, consider again the example of the chemical producer who pollutes the water. Suppose a downstream firm finds that it must clean the water in order to use it in production. If it is less costly for the upstream chemical producer to reduce its production than for the downstream firm to clean the water, then the downstream firm will have an incentive to offer a payment to the upstream chemical producer in exchange for a reduction in the upstream producer's level of output. The incentive for such a side payment remains as long as the gain from cleaner water to the downstream firm (area **abcd** in Figure 1.3) exceeds the loss from cutting back production to the downstream firm (area **abc**). As Figure 1.3 suggests, the side payments will continue until the upstream producer cuts back to the optimal level q_1 .

5. *Homogeneous Product.* Products are not differentiated. For example, a seller of wheat really sells standard wheat – nothing fancier or different from what every other wheat seller offers.

This assumption implies that markets cannot be divided up into small enough portions to violate the atomism assumption. If, for example, the market for wheat could be divided into one million markets for different types of wheat, one of those one million markets could likely contain only one firm. Thus, the homogeneity assumption provides another way of avoiding monopoly.

Homogeneity also helps avoid the informational problems suggested above. Suppose there were several brands of wheat and consumers could not distinguish one from another. Then an inferior brand might sell for the same price as a superior brand, because consumers were unable to make fully informed choices.

⁵ R. H. Coase, *The Problem of Social Cost*, 3 J. Law & Econ. 1 (1960).

E. Economic Profit

Economic profit is the excess of revenue over costs, where costs include compensation for risk-taking and the opportunity cost of capital. This is not the same as accounting profit, which makes no attempt to include risk-taking and lost opportunities as elements of total cost. A firm may be earning positive accounting profits and negative economic profits. This is why one cannot infer monopoly power simply from observing the profit reports of a company.

A simple story illustrates the concept of economic profit. Suppose a wealthy ice cream lover donates two plots of land to a company that runs a chain of ice cream parlors. One plot is in Quiet Square, a sleepy, small-town intersection that rarely sees crowds. The other plot is on Busy Street, smack in the middle of downtown Busy City, an area full of pedestrians from sunrise to sunset. One would not be surprised to find that the Busy Street parlor makes a substantially greater accounting profit than the Quiet Square parlor. However, the relation between their economic profits may be the opposite. To measure the economic profit of the Busy Street parlor, one must subtract from accounting profit an estimate of the rental value, or opportunity cost, of the plot of land on Busy Street. Economic profit at either ice cream store is measured by the extent to which accounting profit exceeds the rental price for the location.

II. PERFECT COMPETITION VERSUS MONOPOLY

A. Perfect Competition

The fundamental result of the model of perfect competition is the following: *In long run competitive equilibrium, firms earn zero economic profits.*

This happens because of entry and exit. If firms earn positive economic profits, then rivals will enter the market. Entry continues until the increase in supply pushes price down to a level that just compensates for the cost of producing and the opportunity cost of capital and managerial skill. If firms earn negative economic profits, exit will occur until economic profits return to zero.

It is important to keep in mind that entry and exit occur in response to economic profits, not accounting profits. Second, economic profits go to zero in the long run, not the short run. Nothing in the model of perfect

Cambridge University Press

052179031X - Antitrust Law: Economic Theory and Common Law Evolution

Keith N. Hylton

Excerpt

[More information](#)

competition suggests that firms cannot earn economic profits in the short run. Indeed, the appearance of economic profits (economic losses) in the short run causes entry (exit).

Although the five assumptions of perfect competition described in the previous section should be sufficient to generate the zero economic profits proposition, an intermediate set of assumptions (almost all of them derivable from the initial five) are useful in analyzing the long run equilibrium of a perfectly competitive economy.

The first intermediate assumption is that each individual firm faces an infinitely elastic demand curve. The *elasticity of demand* measures the responsiveness of the quantity demanded to the changes in the price of the good. A zero demand elasticity means that a price change has no effect on the quantity demanded. Infinite elasticity means that a firm can produce as much as it wants to sell at the equilibrium price without that increase in quantity supplied having any effect on the market price.

Because of this assumption, the firm in a competitive economy becomes a “price taker,” that is, it takes the market price as given – fixed, not subject to its influence. A firm can certainly charge a price different from the market price; however, the assumption implies that the firm has no incentive to do so. Suppose the firm sets its price above the competitive level. It will sell nothing, because consumers can buy at the market price from another firm. Suppose the firm sets its price below the competitive level. Then it sells the same amount as it would at the competitive price, but it will make less revenue because it sold at a lower price.

The second intermediate assumption is profit maximization. In long run competitive equilibrium, economic profits are zero, which implies that price is equal to average cost. Let C = production cost, AC = average cost (C/q), MC = marginal (or incremental) cost. Then profit = $pq - C = q(p - AC)$, so positive profit implies $p > AC$, and zero profit implies $p = AC$. Since the firm is also maximizing profits, price must equal marginal cost ($p = MC$). Why? The firm is maximizing profits, which means it increases output until marginal revenue equals marginal cost ($MR = MC$), or that it will produce each unit that brings in as much or more revenue than it costs. When the demand curve is infinitely elastic, $MR = p$. Thus, in long run competitive equilibrium $MR = MC = AC = p$.

Profit-maximization is not a strong behavioral assumption because a competitive environment more or less forces firms to maximize profits. Suppose a firm chose not to maximize profits. Since economic profits, among profit-maximizing firms, are zero in the long run, a firm that did not maximize profits would earn a negative economic profit. The owners