16
Monopoly

To get a perspective on the subject of monopoly, first we'll take a look at a broader concept that encompasses monopoly markets as well as other *market structures* that are *not* perfectly competitive. As a broad group, economists refer to these more concentrated structures or industries as **imperfect competition.** Let's take a moment to review this important idea briefly.

Imperfect Competition

Just why, in reality, are so many U.S. industries *not* perfectly competitive? Recall from the end of Chapter 15 that some types of production require such a large scale or size to operate efficiently that there is room for only *one* firm in the industry (for example, an electric utility). Other production systems, including automobile, steel, and computer manufacturing, also require large-scale facilities but can accommodate a number of firms (although not the thousands necessary to classify them as truly competitive).

In addition to this scale requirement, existing firms in an industry may discourage potential rivals from entering the market. Barriers such as patent protection, monopolization of raw

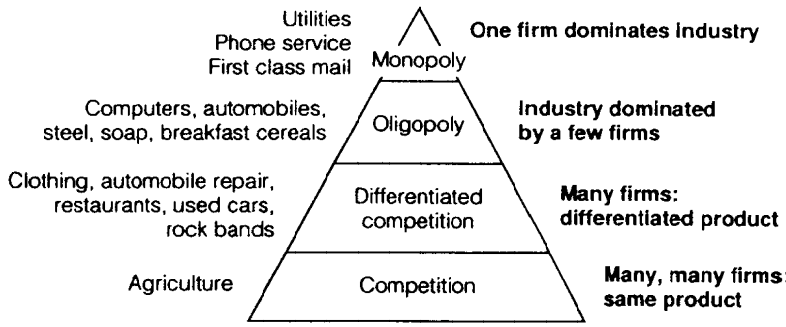

FIGURE 16-1 The top three market structures or types of industries in the *market structure pyramid*—monopoly, oligopoly, and differentiated competition—are considered to be imperfectly competitive.

materials, brand-name recognition, and aggressive price cutting are often erected to ward off newcomers.

With these entry barriers, we begin to move into the "real-world" economic environment that we briefly examined in Chapter 2. In addition to the noncompetitive models of monopoly and oligopoly, we will be looking at a new model called ***differentiated competition.*** Let's look at the **market-structure pyramid,** which shows how all of these markets and pure competition are related to each other in terms of degree of concentration (see Figure 16-1).

If we are going to get an accurate picture of how our economy actually functions, we must now go beyond pure competition. Fortunately, this does not mean that we have to begin all over again with resource pricing and cost curves. Our cost theory for noncompetitive systems is pretty much the same, since *all* firms in any one of the four market structures have similar-looking long-run average cost (LAC) and long-run marginal cost (LMC) curves, based on their resource use and productive capabilities. So what is the difference between the competitive market structure and the three noncompetitive structures: monopoly, oligopoly, and differentiated competition?

The major difference between these markets is reflected in the *individual firm's demand curve.* The demand curve, in turn, is based on the firm's relative *control* over the industry market. Recall that the perfect competitor faces a horizontal demand curve, reflecting the competitor's inability to influence the overall industry price. The monopolist, however, controls the entire

industry demand and therefore can select one price (from a variety of prices) that will maximize profits. We will examine the oligopolistic and competitively differentiated market structures in Chapter 17; for now, let's focus our attention on the pure monopolist.

A Definition of Monopoly

Perhaps the easiest way to define a monopoly is simply as a *one-firm industry.* In theory, there are no close substitutes for the monopolist's product. Consumers have no choice: they either buy from the monopolist or they don't get the product or service. The monopolist may attain its unique status by scale requirement alone; if the market cannot economically support more than one producer (as in the case of an electric utility), then this is a ***natural monopoly.***

On the other hand, in some cases, as occurred during the formation of the original Standard Oil Company, the monopoly attains a dominant position in the industry by mergers or ruthless price-cutting practices, which "freeze out" the competition. Economists call this a ***predatory monopolist.*** Monopolies can also be formed through the discovery and use of new technology (Polaroid instant cameras) or the exclusive ownership or control of raw materials (DeBeers Diamonds of South Africa). But no matter how a monopoly is formed, the monopolist always winds up with industry demand all to itself.

Of course, there are some limits to the monopolist's power. Even though a monopoly can exert considerable control over the price of its product, it must still operate within the confines and constraints of consumer demand. If it charges an outrageous price for its product, the monopolist will discover (as is true in any other business) that consumers will learn to do without its product and nobody will buy it.

Nevertheless, price control does work to the monopolist's advantage because it "fine tunes" the industry price to gain maximum profits. Unlike the perfect competitor, which is a "price-taker" economists say that a monopolist is a "price-maker" or, more accurately, a "price-searcher"—searching for that one price that will earn the highest net income or, in business vernacular, maximize "bottom-line" profits. Certainly, no other market structure enjoys so much flexibility.

To show how a pure monopolist can use price controls to maximize profits, let's devise a new example. We will assume that Chester Olson is fed up with the risks and uncertainties of baling hay. He decides to manufacture a new baler that is so efficient and technologically advanced it will make all other hay balers virtually obsolete. Despite some start-up problems, Chester establishes a huge baler factory and successfully markets his baler nationally. Farm trade journals, in turn, praise Chester as "the new Henry Ford" of hay-baler manufacturing.

As an effective monopolist, Chester now finds himself in a much more favorable position than he did when he was just plain "Chester Olson, competitive hay supplier." Then he had to abide by the industry price, no matter what it happened to be. Now Chester can set his own price, geared to make maximum profits within the constraints of market demand and production costs. Just how does Chester search for his "ideal" price?

The procedure is not much different from the earlier method Chester used to maximize profits. He first looks for the output level associated with the greatest profits. Thus, he will continue to produce balers as long as the extra cost, or marginal cost (MC), of producing a baler is lower than the extra revenue, or **marginal revenue** (MR), of selling that particular baler.

The marginal revenue is the extra revenue gained from selling an extra unit of output. When Chester was a competitive hay supplier, the marginal revenue was exactly the same as the price of a load of hay; if Chester sold an extra load, he received an additional amount of revenue equal to that price. Now, however, as a monopolist, Chester is dealing with *total* industry demand; he is undoubtedly facing a *downward-sloping demand curve* with a marginal revenue that varies from the price. To understand this point more clearly, let's work through a simple example, which will also help to illustrate how Chester chooses the "ideal" quantity and price at which to maximize profits.

First, let's figure out Chester's industry demand curve. We will assume that if Chester charges $1000 for a baler, he won't sell any, but that he will sell one baler at $900. If Chester drops his unit price to $800, he will sell two balers; to $700, three balers; and so on. The first two columns of the following table contain Chester's demand-curve information. To work out Chester's **total revenue** (TR), in the third column, we multiply price by quantity.

From the total-revenue column, we can now calculate Chester's additional revenue from the sale of one extra unit

Baler Quantity (Q)	Price (P)	Total Revenue (TR)	Marginal Revenue (MR)
0	$1000	$0	$0
1	900	900	900
2	800	1600	700
3	700	2100	500
4	600	2400	300
5	500	2500	100
6	400	2400	−100

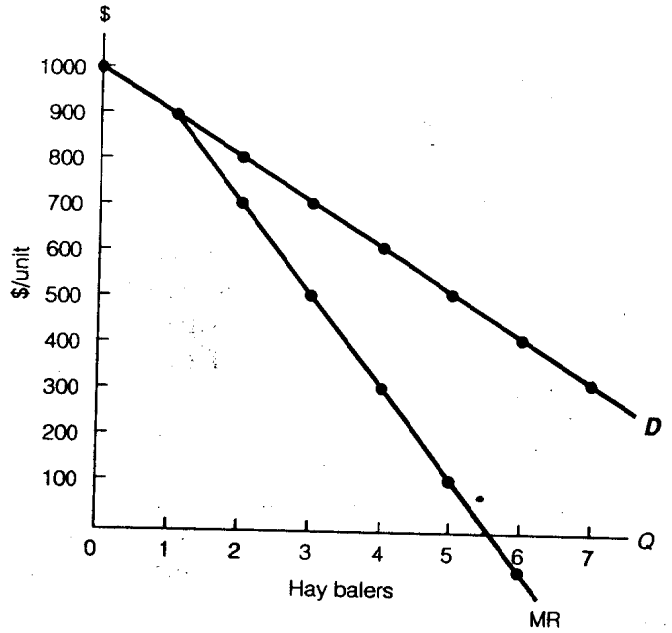

FIGURE 16-2 Chester's *marginal revenue* (MR) *curve* shows how much extra revenue Chester will earn when he sells one additional product unit.

(baler). This is Chester's marginal revenue, shown in the fourth column. For example, the marginal revenue of unit 2 is \$1600 (total revenue from selling unit 2) minus \$900 (total revenue from selling unit 1), or \$700; similarly, the marginal revenue of unit 5 is \$2500 – \$2400 = \$100. Note the interesting relationship between the marginal revenue of a given unit and its price. In each case (except for unit 1), marginal revenue is lower than price (MR < *P*). By graphing Chester's MR curve against his demand curve, we can actually see these relationships (see Figure 16-2).

Chester now knows what his demand and MR curves look like. But to make profit-maximizing marginal decisions, Chester must determine his marginal costs. In Figure 16-3, all of the relevant curves (including the LAC curve) are shown on the same graph. This figure provides Chester the monopolist with all the information he needs to maximize his profits using the old marginal decision-making approach.

The first question Chester asks is, "Is the first unit profitable?" Since we can see that unit 1 earns Chester far more

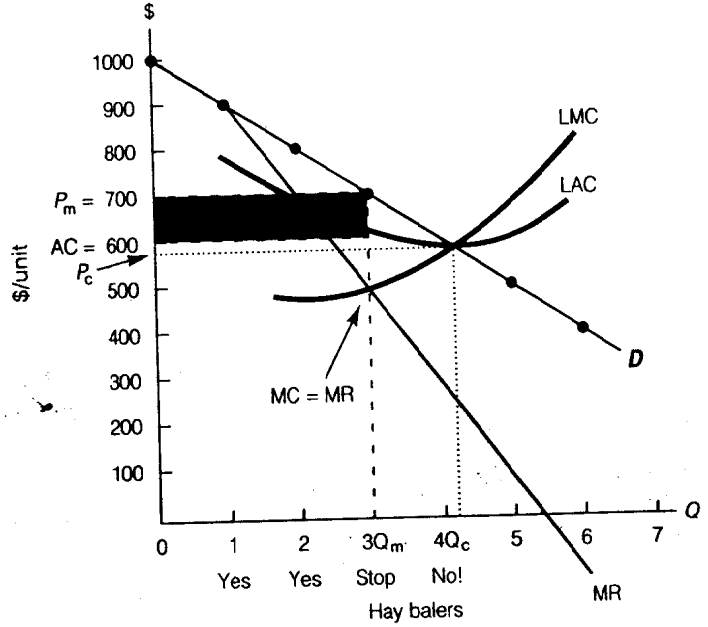

FIGURE 16-3 A *monopolist* maximizes profits at the point at which MC = MR. Below this point is the maximum profit quantity of 3 units. The maximum profit price is the price (read from the demand curve) associated with 3 units, or \$700. If the average cost (read from the LAC curve) is \$600, then Chester will make a profit of \$100 per unit, or \$300 (\$100 × 3).

revenue than it costs him to produce it, the answer is a very profitable "yes." It is also profitable for Chester to produce unit 2, but he will receive a smaller marginal profit on this unit because MR is dropping rapidly. Chester obviously ought to stop producing at unit 3, where his marginal cost equals his marginal revenue (MC = MR). Past unit 3, there is no hope that any more units will be profitable; the MR curve is dropping too fast, while the LMC curve is rapidly climbing upward.

This example shows the logic behind marginal decision making, but we can simplify this process by using a more direct method: *maximum profits are achieved at the quantity at which MC = MR*. From now on, we will simply note the point at which the LMC curve crosses the MR curve and then move directly down to the horizontal axis to locate the quantity Q_m associated with maximum profits.

Pricing and Efficiency

Once we know that Chester maximizes profits at 3 units (Q_m), we can trace the other important information concerning his monopoly operation. It is possible to derive the following information from Figure 16-3:

- **Monopoly price P_m:** Move vertically up from the profit-maximizing quantity Q_m to the demand curve; then move horizontally over to the price axis. In this example, P_m = \$700 per unit.
- **Average cost (AC):** Move vertically from Q_m to the LAC curve; then move horizontally over to the price axis. Here, AC = \$600.
- **Per-unit profit:** In this example, each unit sells for \$700 and AC = \$600, so the per-unit profit is \$100.
- **Total profit:** Selling 3 units at a per-unit profit of \$100 means that total profits (shaded area) are \$300 (\$100 × 3).

Figure 16-3 also shows what the output and price would have been in a long-run competitive situation. From Chapter 15, we know that a competitive market forces a long-run price equivalent to the lowest possible average cost (lowest point on the LAC curve). In Figure 16-3, the **competitive price** P_c would be just under \$600; the **competitive quantity** Q_c, which is a little more than 4 units, can be found by moving directly down to the horizontal axis from the lowest point on the LAC curve.

Thus, a competitive market has some advantages over a monopoly. Competition offers a lower unit price to the consumer and increases output to a level more in line with the optimal scale of operation. The monopoly, in contrast, often creates an "artificial scarcity" of the product it is supplying and simultaneously charges a higher price than the competitive price. The net result is a misallocation of the economy's resources.

Consumers are often irritated by the unusually large profits they believe monopolies make simply because they control a considerable portion, if not all, of a market. It might surprise you to know that monopolists sometimes do not make such excessive profits, because profits earned by a monopoly are dependent on a favorable average cost situation in relation to the demand curve. As an example, Chester could become such a complacent businessman that he allowed his LAC curve to creep

up above the market price of the baler. If this happened, monopolist Chester Olson would actually lose money (admittedly, an unusual situation).

Assuming that Chester earns a significant profit as a monopolist, can we say that this profit is unjustified? Some consumers would probably answer "yes," but there may be reasonable justification for both monopolists and other businesses operating under imperfect competitive situations to earn large profits. For example, it is generally acknowledged that profits can be a legitimate return on *innovation*. In Chester's case it is difficult to argue that he does not deserve some financial reward for creating his superior hay-baling machine. In addition, Chester should probably receive some kind of monetary recompense for the *risk* involved in undertaking this financially hazardous venture. Finally, economists generally recognize that a certain amount of profit should be earned for *entrepreneurial skills* (the effective coordination of resources).

Nevertheless, economists are still concerned that any degree of monopoly within a market, compared to a more competitive situation, will ultimately result in a less efficient use of society's resources. Furthermore, monopoly profits are not always the result of innovation, risk, and efficient resource coordination. Monopolists often profit by barring new firms from the industry. Illegitimate profits can also result from the formation of a **trust, cartel,** or **shared monopoly,** in which producers form an alliance to carve up markets and fix prices, acting as if they were a single monopolist. (For more details on how cartels operate, see Chapter 17.) Recognizing that monopolies can create economic problems for society, economists search for ways to reduce the harmful effects of these market structures. Let's take a look at some of their strategies.

Dealing with Monopoly

Perhaps the easiest type of monopoly to recognize and to deal with is the natural monopoly. As we learned earlier, natural monopolies result from scale requirements; a telephone or electric company can be allowed legal status as a monopolist as long as it consents to *regulation* by some publicly appointed commission. The regulators then establish a unit price and quantity

more in keeping with what would be true under competitive conditions.

Another method of eliminating unjustified monopoly profits is to "tax them away" with a *fixed* or *lump-sum tax.* If, for example, the government decides that all of Chester's monopoly profits are unjustified, it can tax him the full $300 profit by raising his LAC curve equal to $100, so that monopoly price equals average cost (P_m = AC) and Chester earns no profit. The drawback to this "solution" is that it leaves Chester's old MC = MR intact; thus, he will continue to produce at the artificial-scarcity level of Q_m (see Figure 16-3).

Cartels and predatory monopolies present a slightly different situation. These monopolies are often difficult to recognize; once they are detected, the government must legally prove their anti-competitive behavior under U.S. antitrust laws. Firms that violate these laws may be penalized with stiff fines, and the individuals responsible for the illegal decisions could be sentenced to jail terms.

Other types of monopolies are even more difficult to detect and monitor. In *Tools for Conviviality,* Ivan Illich identifies what he calls "radical monopolies," which dominate large product systems:

> I speak about radical monopoly when one industrial production process exercises an exclusive control over the satisfaction of a pressing need. . . . Cars can thus monopolize traffic. They can shape a city into their image—practically ruling out locomotion on foot or by bicycle in Los Angeles.[42]

Illich has also written about radical monopolies in schools in *Deschooling Society* (1970) and modern medicine in *Medical Nemesis* (1976)—monopolies so powerful and pervasive that they leave us with very few practical alternatives. If Illich's conclusions are correct, radical monopolies may pose greater problems for an economic system than industrial or corporate monopolies do. This is one important area of economics that needs further research.

An understanding of an economic monopoly can help us deal with this problem in other guises; for example, a political dictatorship or a one-party state is a form of monopoly. The parent-child relationship can also be considered a monopoly, a theme explored in John Holt's book *Escape from Childhood* (1984).

In whatever way we look at the concept of monopoly—whether in purely economic terms or in a broader context, it is usually a no-alternative situation for the "consumer" because the competitive system of checks and balances is all but absent. Without regulation or mitigating circumstances, a monopoly can easily become exploitative and gain an inordinate amount of profits and power. Understanding the monopoly—identifying it in operation and, when necessary, evolving strategies to reduce its injurious effects—in economics, politics, and elsewhere—is important to us all.

A monopoly is the extreme form of concentrated economic power. Now let's descend the market-structure pyramid in Figure 16-1 to examine the other two imperfectly competitive models: oligopoly and differentiated competition.

Questions for Thought and Discussion

1. Are the antitrust laws in the United States *really* effective in controlling monopolies? Why or why not?
2. Compare and contrast free enterprise with pure competition.
3. Does free enterprise mean that monopolies should not exist? Explain.
4. *True or false?* Monopolists have no reason to advertise, because they have no competition. Explain.