The public, policy-makers, and economists are concerned with the power that monopoly industries have. In this chapter I discuss how monopolies behave and the “case” against monopolies. The case against firms in the core of the economy has already been discussed in a previous chapter. This chapter provides more details and does so in the context of a discussion of the important industry structure of monopoly.

**MONOPOLIES**

A monopoly industry has the following characteristics:

- it has a single seller
- high barriers to entry keep other firms from entering the industry, and
- no close substitute exists for its product

A monopoly industry might have a single firm or it might have a number of firms that plan and act together for their joint benefit.

**HOW ARE MONOPOLIES ACHIEVED?**

Monopolies appear through three basic broad mechanisms. First, a new product is introduced and only the monopolist is able to make this product, perhaps due to a patent and/or other very high barriers to entry such as only they process the knowledge and skill to produce this product.

Second, an existing industry starts with many competitors. But, competition leads all firms to be driven out of business except for one firm (or a group of sellers who act jointly). Additionally, high barriers to entry exist (or are constructed by the monopolist) to keep out new entrants.
Third, the government decides to grant to a firm the exclusive right to produce for a certain market (even though the firm does not have a patent). Cable TV companies are often granted this right by a local government.

**THE MARKET POWER OF MONOPOLIES**

Monopolies can potentially earn high profits because they have a power other industries do not have: the ability to determine the price at which they sell their product.

In other types of industries, firms find that competition often takes over price setting and these firms have little choice but to sell their product for a price that follows far below what they would like to.

Monopoly sellers, however, have no competition and, so, competition does not set the price. The monopoly seller sets the price instead.

But how high will the monopolist set the price?

**THE PROFIT-MAXIMIZING PRICE FOR A MONOPOLIST**

For now, I will ignore the costs the monopolist has whenever they produce their good (that is, I will ignore the monopolist’s average cost). To simplify I will assume the monopolist can produce their good with an average cost of zero.

With this assumption, I can focus exclusively on the revenue the monopolist earns. The goal of the monopolist, in this case, will be to earn the most revenue they can. As all revenue is profit, the highest revenue leads to the highest profit.

What price will the monopolist set for its good? Answer: the price that leads to the greatest revenue.

Figure 0-1 presents a demand curve for a monopoly firm. Which of the prices indicated ($2, $5, or $10) will be that which maximizes profits for the monopolist?
One reasonable first guess is the monopolist will set the highest price possible. Some people believe that this is actually what a monopoly will do—take the consumer for all it can.

In the above figure, assume $10 represents the highest price that can be charged. At this price, the revenue will be $10 \times 100$, or $1000$.

Does this highest price bring the greatest revenue/profit? Consider the revenue earned at other two prices ($5$ and $2$). What will revenue be at these two other prices?

Table 0-1 presents the prices, sales, and revenues for the three prices.

<table>
<thead>
<tr>
<th>Price</th>
<th>Sales</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10</td>
<td>100</td>
<td>$1,000</td>
</tr>
<tr>
<td>$5</td>
<td>250</td>
<td>$1,250</td>
</tr>
<tr>
<td>$2</td>
<td>500</td>
<td>$1,000</td>
</tr>
</tbody>
</table>
As can be seen, the revenue-maximizing price is not $10, the highest price. Rather the price that brings the highest revenue (profit) is $5, which is much less than the highest price possible. The $10 price is “too high” while the $2 price is “too low” from the point of view of the monopolist. The price that brings a monopolist the greatest revenue will generally not be the highest price possible in the market.

The criticism of monopoly, then, is not that it charges the highest price possible.

Rather, the criticism of monopoly is that the price it sets is above that which would occur in a more competitive setting. Suppose that the $1,250 is a good amount of profit. If this industry suddenly lost its barriers to entry, firms would enter the industry hoping to grab a part of this high profit. As competition breaks out in the industry, the price will fall. The price will continue to fall until the profits in the industry reach the lower level found elsewhere in the economy.

MARKUP, PRICE, AND OUTPUT FOR A MONOPOLIST
Suppose that in a monopoly industry and in a competitive industry, the average cost is $25. In the monopoly industry the firm will have more success in gaining a large markup.

Perhaps in the competitive industry competition drives the markup down to $4. Perhaps in the monopoly industry the monopolist finds the markup giving it the most profit is $10; the monopolist is able to price its good at $10 as it has no competition.

In the competitive industry, then, the price will be $29 (= $25 + $4). In the monopoly industry the price will be $35 (= $25 + $10).

Consumers are clearly better off with the $29 competitive price than with the $35 monopoly price. This is just another example in which the monopoly price is “too high.”

Further, consumers will be willing to buy more at the competitive price ($29) than at the monopoly price ($35). The monopoly price is further up the demand curve. Perhaps consumers at the competitive price would be willing to buy 1000 while at the monopoly price they would be willing to purchase only 700.

This situation is illustrated in Table 0-2:
Table 0-2

<table>
<thead>
<tr>
<th></th>
<th>Competitive Industry</th>
<th>Monopoly Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Cost</td>
<td>$25</td>
<td>$25</td>
</tr>
<tr>
<td>Markup</td>
<td>$4</td>
<td>$10</td>
</tr>
<tr>
<td>Industry Price</td>
<td>$29</td>
<td>$35</td>
</tr>
<tr>
<td>Industry Sales</td>
<td>1,000</td>
<td>700</td>
</tr>
</tbody>
</table>

Monopolies hurt consumers by: (1) having higher markups (compared to the competitive situation, in this case $10 versus $4) and (2) making less available for consumers to purchase (here, 700 versus 1,000).

This harm to consumers is a result of the market power of monopolies: lacking competition, monopolies are able to set the markup that they want—the markup that gives them the high profits they desire to achieve. Monopolies are not unique in desiring high profits; they are unique in that their market power often permits them to achieve high profits.

**MONOPOLY AND EFFICIENT PRODUCTION**

I assumed above that monopolies and competitive firms had same average cost in order to focus on the market power of monopolies.

In the real world, however, some forces tend to make monopolies have higher average costs than competitive firms. At the same time, in the real world some forces might contribute to a monopoly having a lower average cost than a competitive firm.

**EFFICIENCY**

Efficiency is generally a good thing. The simply idea behind efficiency is that you get the most you can from some given input. Suppose you have a small handful of corn seed. If you use planting technique #1 you get 200 ears of corn. If you use planting technique #2 you get 250 ears of corn. Planting technique #2 is more efficient that is planting technique #1. If one planting technique, say #7, provides the most corn, say 300 ears, of all the known planting techniques then we say that planting technique #7 is efficient and the other techniques are inefficient. However, among the inefficient techniques some are more efficient that others (as #2 is more efficient than #1).

Efficiency is not always the most important criteria for choosing between situations. For instance, it is possible that the most efficient way of doing
something is also unfair or unjust in some way. This issue, however, is beyond
the text.

MONOPOLIES AND HIGHER PRODUCTION COSTS
Lacking competition, monopolies are able to be less concerned with continually
looking for ways to reduce their unit production costs. A reduction in a
monopolist’s unit production costs would lead to (even) higher profits. But this
motive to earn (still) higher is less powerful than the fear of going out of
business felt by a firm in a highly competitive market.

As a result, the costs for a monopolist might be higher than for a firm in a
highly competitive industry. Table 0-3 table shows a hypothetical example
based on the numbers found in the previous table.

<table>
<thead>
<tr>
<th></th>
<th>Competitive Industry</th>
<th>Monopoly Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Cost</td>
<td>$25</td>
<td>$27</td>
</tr>
<tr>
<td>Markup</td>
<td>$4</td>
<td>$10</td>
</tr>
<tr>
<td>Industry Price</td>
<td>$29</td>
<td>$37</td>
</tr>
<tr>
<td>Industry Sales</td>
<td>1,000</td>
<td>650</td>
</tr>
</tbody>
</table>

Here, the unit production cost is higher for the monopolist. This might
contribute to even higher prices than otherwise would exist ($37 in this table
versus $35 in the previous table).

MONOPOLIES AND ECONOMIES OF SCALE
On the other hand, some monopolies benefit from economies of scale that
might not be obtainable in a highly competitive industry. And, these economies
of scale continue on as the firm becomes larger and larger. For instance,
suppose that a monopolist is less concerned with finding the absolute lowest
cost way to produce a good. But this firm is also so large that it achieves unit
production costs that are below that achievable by a small highly competitive
firm.

In this case, as illustrated in Table 0-4, the price increase due to the
existence of a monopoly might not be very large at all. In this table, I assume
that the average cost for a competitive firm is $25 but that for the monopoly
firm is only $20 due to the attainment of economies of scale.
It is even possible that a monopolist achieves much lower costs and a much lower price even with a very large markup (compared to what would be the case if the industry had many small competitors). This is illustrated in Table 0-5. Here, the average cost of the monopolist is far below that for the competitive industry and even a large markup fails to increase the monopolist’s price above the competitive level.

**Table 0-5**

<table>
<thead>
<tr>
<th></th>
<th>Competitive Industry</th>
<th>Monopoly Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Cost</td>
<td>$25</td>
<td>$15</td>
</tr>
<tr>
<td>Markup</td>
<td>$4</td>
<td>$12</td>
</tr>
<tr>
<td>Industry Price</td>
<td>$29</td>
<td>$27</td>
</tr>
<tr>
<td>Industry Sales</td>
<td>1,000</td>
<td>1,200</td>
</tr>
</tbody>
</table>

**MONOPOLIES AND DYNAMIC EFFICIENCY**

Dynamic efficiency refers to the pace with which:

- a firm achieves production cost declines over time and/or
- a firm achieves important product improvements over time.

A firm is labeled as being dynamically efficient if it achieves rapid production cost reductions and/or a rapid rate of important product improvements over time.

Firms that fall behind others in achieving production cost declines or important product improvements are identified as “dynamically inefficient.”

Two main determinants of the level of dynamic efficiency are:

- the importance to the firm of achieving dynamic efficiency
- the amount of money invested by the firm in the attempt to gain dynamic efficiency.
Although exceptions exist, most monopolies are believed to be dynamically inefficient. Monopoly firms do often earn high enough profits so that they are able to invest a good amount of money into an attempt to gain dynamic efficiency. But, at the same time, the lack of competition that gives the monopoly high profits also fails to provide an immediate incentive to seek out dynamic efficiency. Therefore, although monopolies are able to invest much in the seeking of dynamic efficiency they often appear to turn this “able to invest” into actual investment as the monopolies are insulated from competition.

REGULATED MONOPOLIES

Substantial economies of scale can lead to monopoly. The first firm to become big, when substantial economies of scale exist, gains a major cost advantage. It might eventually wipe out all its competition and grow to take over the whole market.

In some of these cases, however, consumers might not be better off with many small competitors in this industry. These small competitors do have low markups but their higher unit production costs also lead to high prices.

In such a situation, the government sometimes decides that the best course of action is to permit the monopolist to stay as the only firm in the industry. But, they also force the monopoly firm to show some “restraint” in their markup. This might lead to a situation such as illustrated in Table 0-6.

<table>
<thead>
<tr>
<th></th>
<th>Competitive Industry</th>
<th>Monopoly Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Cost</td>
<td>$25</td>
<td>$20</td>
</tr>
<tr>
<td>Markup</td>
<td>$4</td>
<td>$6</td>
</tr>
<tr>
<td>Industry Price</td>
<td>$29</td>
<td>$26</td>
</tr>
<tr>
<td>Industry Sales</td>
<td>1,000</td>
<td>1,200</td>
</tr>
</tbody>
</table>

Here, the government makes the monopoly firm keep the markup at $6, which might be far below that markup the monopolist otherwise would be able to earn. But, this $6 markup is much better than the $4 markup that is earned by competitive firms. At the same time, the price in this industry falls below that which would exist in a highly competitive industry ($26 versus $29).

A monopoly industry partially controlled by the government is known as a “regulated monopoly.”
The number of industries for which economies of scale are so great that one single firm is destined to take over the industry is low. And, it appears that fewer and fewer industries now benefit from such significant economies of scale.

**THE DISAPPEARANCE OF MONOPOLY POWER**

A monopoly can be very profitable for a firm. However, monopolies generally do not last forever.

Monopolies do disappear. Sometimes a monopoly disappears relatively quickly, perhaps in only a few years. Some monopolies do, however, last decades.

Patents, which grant a monopoly, expire after 17-20 years. Many firms who have established a monopoly through a patent are able to keep the monopoly going far longer than this 17-20 year period by reinvesting some of their monopoly profits to find new and improved (and patentable!) ways to make their product. This can permit the firm to gain “rolling patent protection” for their product over a very long time.

The high profits earned by a monopolist, however, can lead to its eventual demise. The barriers to entry that protect a monopoly might seem insurmountable. However, if the monopoly earns high enough profits firm after firm outside the industry might try to break down these barriers to entry. They know that are unlikely to succeed, but they also know that if they are successful the rewards might be great. And, so, they try.

Eventually one or more succeeds in breaking into the industry and the monopoly is industry disappears. More competition now exists within the industry now that more than a single firm exists within the industry. The result is only rarely a high level of competition. Most often the result is an oligopoly with only a few firms. But, from the point of view of consumers, an oligopoly is generally better than a monopoly.

In some cases the government steps in to eliminate the monopoly. This involves the use of anti-trust laws, but does not happen very often.

**MONOPOLY PRICING STRATEGIES IN THE LONG-RUN**

Sometimes a monopoly firm decides to charge a price that is less than that which gives them the highest profits in the short-run. Their profits in this situation fall below that they could earn.
However, by earning less profit then they could the monopoly industry attracts less attention from outsiders. As a result, the monopoly industry will experience fewer attempts by outsiders to break down the existing barriers to entry.

As a result, the monopoly might last longer than otherwise they might. Rather than earning, say, very high profits for 5 years, they might earn moderately high profits over 20 years. This latter situation might actually lead to much high profit for the monopolist.

In Table 0-7 the profits earned by a monopolist charging a high price and the profits earned by a monopolist charging a more moderate price are given. The total over the 7 years indicated for the high price monopolist is 375. The total profits over the same period for the monopolist charging a more moderate price is 525. A profit-seeking monopolist, then, might not charge as high a price as they could if they take into account how long it will be until their monopoly disappears by firms breaking into the industry.

<table>
<thead>
<tr>
<th>Year</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Total over 7 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>High price</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>50</td>
<td>20</td>
<td>5</td>
<td>0</td>
<td>375</td>
</tr>
<tr>
<td>Moderate Price</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>75</td>
<td>525</td>
</tr>
</tbody>
</table>

**SUMMARY**

Unregulated monopolies are generally considered bad. They often charge higher prices than would exist in a more competitive industry, they are often less efficient, and they often sell less than a competitive industry would sell. Further, it appears that most monopolies fail to achieve dynamic efficiency.