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Oligopoly and Differentiated Competition

We now move away from the extreme ends of the market-structure pyramid (see Figure 16-1) and shift more toward its center. Here, we find businesses closer to the real world; we see them day in and day out—from our favorite delicatessen down the street to the major corporations of the world.

In this middle range of market structures, it often becomes harder for economic theorists to accurately describe what happens. Biology may offer the most appropriate metaphor: we must try to understand a kind of *ecology* in the form of vast, complex interactions *among* businesses and how larger forces of change, often worldwide in scope, affect these relationships. These forces can be changes in energy supplies or exchange rates, regional droughts or new political regimes groping for more effective economic policies, domestic and international debt, government regulation, the quality of the workforce, dramatic shifts in consumer tastes, and large currency flows between the major financial centers of the world.

Some of these factors are short term; while can only be measured in decades. Much of this interlocking "economic ecology" is poorly understood and therefore difficult to integrate into a single theory. It is not surprising that no one framework can

explain and predict economic behavior in this complex, real-world "middle ground."

Still, it is the job of economists to try to simplify these conditions. To do this, they must, as we have done before, hold some factors constant while they search for common patterns from which to construct a workable theory about how such enterprises maximize profits. Let's begin by reviewing the most prominent class of business in our economy, commonly known as oligopolies.

Oligopoly

In Chapter 2, we learned that the key word in our definition of "oligopoly" is the word "few": an oligopoly is a market or industry dominated by a *few* firms or producers. But how do we actually measure this key characteristic of "domination"?

One approach is to take the total revenues of a single industry and calculate the percent of total sales taken in by the largest four firms. Economists call this percent the four-firm ***concentration ratio.*** If, for example, a certain industry has total sales of $10 billion and the so-called "Big Four" companies have sales of $8 billion, then the four-firm concentration ratio is 8/10 = 0.80. Examples of industries that approximate this 0.80 ratio include laundry soap and vacuum cleaners. Other industries with relatively high four-firm concentration ratios include farm machinery, tobacco, breakfast cereals, and domestically manufactured automobiles. Obviously, when foreign competition is factored in, this ratio declines in certain industries, such as the automobile industry.

Although some oligopolists sell pretty much the same product (as is true in the gasoline and steel industries), most oligopolists make an attempt to *differentiate* their product or service from that of their closest competitors. Promotion, however, is usually accomplished *not* by lowering price but by a variety of techniques that economists call ***nonprice competition.***

Nonprice competition includes differences in fashions and styles, brand-name recognition, advertising, service, quality, and special, convenient locations. This kind of competition can be as honest as a "five-year, unconditional warranty," quality craftsmanship in construction, and low frequency of repair or as

devious as projecting an improbable image of sexual conquest or financial success. Price cutting, however, is generally frowned on by the industry because it tends to destabilize corporate earnings.

It is also common for many oligopolies to maintain their market domination by setting up a variety of ***entry barriers.*** You might take a moment to think through the probable obstacles you would face if you tried to establish a competing automobile company, market a new breakfast cereal, or manufacture your own brand of an over-the-counter drug. You would obviously need a relatively large production unit to take advantage of economies of scale (Chapter 15), which would, in turn, require a *large capital investment.*

In addition to the problem of establishing large-scale production, you would also need to gain access to, and earn the confidence of, financial lenders, researchers and engineers, specialized production experts, and many other suppliers of essential resources during the various production stages, including regional distributors and, ultimately, the consumers themselves. At each stage of operation, you would probably face enormous difficulties as you attempted to enter your competitors' "turf," break down established arrangements with consumers and suppliers, and rearrange traditional patterns of operation. You would also have to fend off the defensive ploys of the dominant producers in the industry, which could take the form of legalities (for example, defending patent rights), high-powered advertising campaigns, or temporary price cuts. Entry barriers, in short, can be quite formidable.

Another characteristic of an oligopoly is ***mutual interdependence***—complex interactions among producers to ensure their survival and profit maximization that approximate an economic ecology. Recall that when Chester Olson was only one hay producer among many (in the competitive model), he really didn't care what the other hay producers were doing. Essentially, Chester sold the same product (hay) at the "going" market price. Sure, he might have been curious, possibly even envious, if his neighbor bought a new tractor or built a new barn; but what his neighbor (or any other hay producer) did, did not change Chester's financial situation.

In contrast, oligopolists are vitally concerned about their rivals' pricing, packaging, styling, advertising, new technologies, and other product-related activities. At times, this mutual interdependence can become as complex and mock warlike as a grand-master chess game.[43] The inherent nature of mutual interdependence makes it difficult to design an appropriate theory that offers a clear, consistent, predictive model of oligopolistic behavior. One model that does seem to work well (but under unique and sometimes hard-to-maintain conditions) is the classic cartel. Let's take a closer look.

Cartels

A **cartel,** as we saw in Chapter 16, is a group of oligopolists that combine forces to fix industry prices and act as if they are a single monopolist. The ultimate impact of a cartel on the economy and society is much the same as that of a monopoly. Of course, domestic cartels are illegal under U.S. anti-trust laws, but that doesn't prevent conspiracies from taking place; the great electrical conspiracy of the 1950s and the decades-long paper-company cases (and convictions) are examples.[44]

International cartels, such as OPEC (the Organization of Petroleum Exporting Countries), are not under the jurisdiction of U.S. anti-trust laws and consequently offer us a transparent view of how cartels can, at times, price like a single monopoly. In 1972, for example, the price of a barrel of crude oil was about $2.50. By 1980, a barrel of oil cost the nations of the world roughly $34. The cartel didn't last, however. In 1982, international pricing "discipline" became lax as oil demand softened, giving "cheaters" an opportunity to cut prices and temporarily raise their revenues. By the mid-1980s, oil prices had dropped so far that the entire oil industry, including OPEC, was in a severe slump.

Price-Leadership

Another oligopolistic theory revolves around the concept of **price-leadership,** whereby one of the dominant producers establishes an industry price and the other producers simply follow along. Because no formal agreement regarding the pricing structure is made among these producers, the price-leadership method does not fall into the category of an illegal cartel. There is, however, an element of ***parallel pricing*** among producers, based on price information obtained from speeches, press releases, trade-journal publications, and other legal intraindustry communications.

Price leaders of recent history include such companies as General Motors, U. S. Steel, R. J. Reynolds, Kelloggs, and IBM. A price leader may obtain its special status simply by being the largest firm and/or the lowest-cost producer in the industry. In theory, a price leader tries to work out its individual demand curve based on possible pricing arrangements. Any business that is not absorbed by the price leader is divided up among the so-called "fringe" firms. Once the price leader approximates its demand curve, then the firm follows the standard price-searching practice we examined in Chapter 16. First, the price leader maximizes profits where its marginal costs equal its marginal revenue (MC = MR); from that point, the firm can easily determine its profit-maximizing quantity and price. The price, once announced, then becomes the overall industry price.

Price-leadership helps us to understand why there is frequently a large degree of *price rigidity* within oligopolistic industries, giving them the go-ahead to engage in various forms of nonprice competition. A related oligopolistic theory that also explains industry price rigidity is represented by the "kinked-demand" curve. Let's take a look at an example in detail by bringing back Chester Olson, who was last seen in Chapter 16 operating a hay-baler monopoly.

The Kinked Demand Curve

After a number of years, assume that Chester loses his former monopoly position due to technological changes in the hay-baling industry. Old stand-bys, such as John Deere, reestablish themselves in the marketplace and continue to manufacture their innovative hay balers with relatively high efficiency, based on economies of scale. For argument's sake, we'll also assume that John Deere becomes the price leader. Chester is now just one of three or four other "fringe" manufacturers in the industry. Soon the price leader moves ahead to establish an industry price, which we will call P_a, the administered price.

Once P_a becomes the prevailing price, how can it affect Chester's own demand curve? If Chester takes it upon himself to *raise* his unit price, then the rest of the industry producers probably won't be too concerned; they will gladly watch Chester lose much of his old business as a result of unilateral price-raising. The very fact that Chester will lose a large part of his

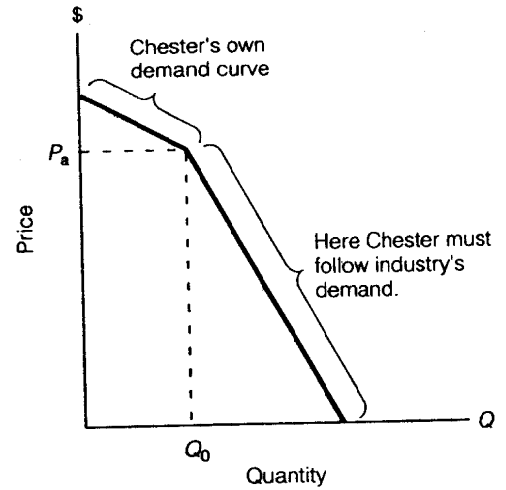

FIGURE 17-1 *The kinked demand curve:* the kink in Chester's demand curve indicates that when Chester the *oligopolist* increases his price higher than P_a), the rest of the industry will let him "go it alone." However, if Chester tries to reduce his price below P_a, then other oligopolists will join in the price cutting and Chester will be forced to follow the more inelastic industry demand curve.

market share implies that he is on the elastic portion of the demand curve, which we will call "Chester's own demand curve." Naturally, our friend should think twice about raising his unit price.

Another strategy would be for Chester to *lower* his unit price and hope to capture a larger share of the market for himself. This plan might work as long as the rest of the industry leaves him alone, which is unlikely. But the other producers simply aren't willing to lose their market shares to the "Olson Baling Company." Thus, if Chester lowers his price, the other sellers *will follow right along,* forcing Chester to move onto the industry demand curve. This curve, in turn, will be much less elastic than Chester's own demand curve. Chester might gain some additional customers after lowering his price, but his gains will be minimal because other producers will be lowering their prices, too.

Chester is therefore faced with two distinctly different demand curves: the demand curve above the administered price P_a will be highly elastic; the demand curve below P_a will be less elastic. When these two curves are combined, the **kinked demand curve** that results represents all of Chester's price-quantity options (see Figure 17-1).

Perhaps you already have a feeling about why Chester would be reluctant to make a price change. Instinct tells us there is no practical reason to raise or lower the unit price, but we have yet to *prove* (via profit maximization) that this instinct is correct. Now let's see what kinked-demand theory tells us about profit maximization specifically.

Profit Maximization

To find out where the oligopolist maximizes profits, we again refer to the standard price-searching strategy, whereby profits are maximized when the marginal cost is equal to marginal revenue (MC = MR). What does Chester's MR curve look like in relation to his kinked demand curve?

Chester's MR curve as an oligopolist will be quite similar to the MR curve we developed for Chester as a monopolist (see Figure 16-2), implying that the MR curve lies somewhere *below* the demand curve. The only difference is that we are now dealing with *two* demand curves and, therefore, with *two* MR curves, each of which lies below its respective demand curve and reflects a different demand-curve slope.

Referring to Figure 17-1, we can say that up to output level Q_0, the relevant MR curve is the one associated with the relatively elastic individual demand curve; after Q_0 the relevant MR curve is the one associated with the less elastic industry demand curve. Figure 17-2 shows the two MR curves and some additional sample MC curves to help us find the price-quantity point at which Chester will maximize his profits. Note that because the kinked demand curve has two distinct slopes, it causes a *discontinuity* between the two separate MR curves: a long break in the curve occurs directly under the kink and above Q_0. This discontinuous section provides the basis for price rigidity in oligopolistic markets.

Chester will achieve his maximum-profit position (MC = MR) in the vertical plane, where the MC curve intersects the discontinuous MR section. Chester then moves down from this point to the horizontal axis to find the maximum-profit quantity and then up to the demand curve and over to the vertical axis to find the maximum-profit price.

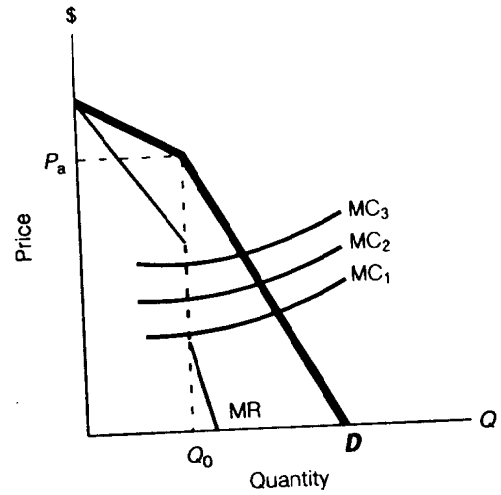

FIGURE 17-2 *Price rigidity in oligopoly:* a relatively flat demand curve above the kink and a relatively steep curve below the kink give rise to two marginal revenue (MR) curves separated by a discontinuous (vertical) segment directly under the kink. If an MC curve crosses this vertical segment, then the maximum profit price associated with MC = MR will be the same as the administered price P_a.

For each MC curve shown in Figure 17-2, the most profitable quantity is Q_0, and the most profitable price is P_a (the industry leader's administered price). Therefore, *maximum profitability is consistent with a large degree of price rigidity.* In short, price competition usually doesn't pay.

In many oligopolistic industries, we find pricing policies that may be closer to the monopoly model than to pure competition. There is certainly fierce rivalry in design, workmanship, packaging, advertising, and service among oligopolists, but their consumers very rarely benefit from good, old-fashioned price competition.

As we approach the end of our microeconomics section, we should examine one more market structure—an industry often referred to as ***monopolistic competition.*** This term, however, makes this market structure appear to be related more closely to a monopoly, when such industries are actually much more similar to decentralized competitive markets. We will therefore call this market structure by a slightly different name—***differentiated competition***—to more accurately reflect its true nature.

Differentiated Competition

It's always enjoyable to work with the differentiated competitive model because many of us can identify with these smaller business operators who strike out on their own, attempting to become "their own bosses." This partly romantic notion reminds us of the old ideal of free enterprise—a value that continues to be deeply ingrained in the minds of many people throughout the world today.

Who exactly are these differentiated competitors? They are the small restaurant and resort owners, the barbers and beauticians, the used-car salespeople, and the repair-shop owners. They are also the struggling artists, rock bands, freelance photographers, poets, craft potters and painters, and small publishers. A producer in this kind of market may compete in an industry containing dozens and dozens, perhaps hundreds, of other producers.

Differentiated industries share with their purely competitive cousins the easy-entry/easy-exit characteristic; thus, scale requirements are usually not an important factor in entering a differentiated market. Easy entry also implies that differentiated competitors face an uphill struggle to achieve anything more than a modest profit in the long run (if they are lucky!). Indeed, these smaller operators contribute disproportionately to overall business mortality statistics.

It would not be unusual for you to be thinking about starting a differentiated competitive business someday as, say, a restaurant manager, artist, photographer, store owner, or small-scale manufacturer. Many people, young and old alike, find the idea of controlling their own destinies appealing and dream about the possibilities of taking an entrepreneurial "fling" at the universe—risking their savings, working long days, and sometimes bringing in partners or their families for extra help.

Perhaps you are thinking that this sounds a lot like a purely competitive market: many, many sellers, easy entry and exit, high risk, and little (if any) long-run profits. In the differentiated market, however, each producer has a *slightly* different product, service, and/or location. There is almost always some difference between Frank's and Joe's barber shops or bars, or "Super Sally's Roast Beef" and "The Village Cafeteria," or the many makers of designer clothing. In short, differentiated

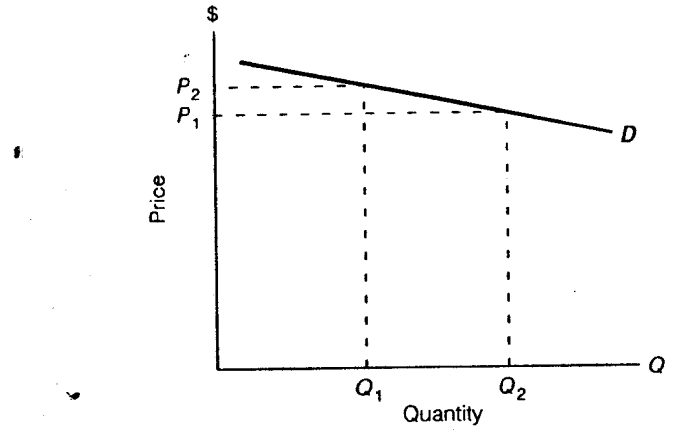

FIGURE 17-3 The single seller in a *differentiated competitive market* faces a demand curve that is fairly flat (or elastic) but not perfectly horizontal, as in perfect competition. Its modest slope is due to the fact that sellers have a slightly differentiated product or service and enjoy some degree of consumer loyalty in the face of small price increases.

competitors have an identifiable product or brand name that attracts *some degree of consumer loyalty.*

Consumer loyalty, in turn, means that the producer has a *slight* amount of control over the price of the good or service being offered. A competitive seller of corn can't get away with selling this product for even one cent above the industry price. In contrast, the differentiated competitor usually has a *small amount of price flexibility*. However, if prices increase too much, even loyal customers will turn away and take their business to one of many alternative producers.

Therefore, a differentiated competitor's demand curve would probably be quite elastic but not perfectly so. A sample curve is shown in Figure 17-3. Note that the differentiated competitor can raise its price from P_1 to P_2 without losing all of its customers (Q_1 will still be demanded). Thus, some people will continue to patronize the differentiated producer because of its brand name or an individualized product or service.

· Returning to the odyssey of our friend Chester, rumor has it that he has sold the Olson Baling Company—bailing out after a firm developed a revolutionary new baler, as he had done years before. Chester decides to move to Los Angeles and operate a small, neighborhood bicycle-motorcycle sales and repair shop. A

glance at the metropolitan Yellow Pages tells him that there are many, many other shops like his in the city, but he hopes to gain an element of customer loyalty over time, derived from his innate friendliness and mechanical expertise. Chester has now made the rounds—from competitor to monopolist to oligopolist; now he is comfortably settled into a differentiated competitive market. Since we have already approximated a demand curve for this type of market (see Figure 17-3), we will now assume that this curve represents the demand for Chester's standard motorcycle tuneup. How does Chester maximize profits under these new conditions?

First, he figures out his MR curve. As in our earlier example, the MR "curve" would be a straight line that falls below the very elastic demand curve. Next, Chester computes his long-run marginal cost (LMC) curve. Figure 17-4 shows approximations of both of these curves.

At what price-quantity point does Chester maximize profits? Like a broken record, repeating itself over and over, "Profits are maximized at the quantity at which MC = MR." Thus, Chester's profit-maximizing quantity is Q_1. We move from Q_1 on the horizontal axis up to the demand curve and over to the vertical axis to find out that Chester will charge $33 for output level Q_1.

Next, let's look at the extent of Chester's profits. Our standard procedure to determine profits is to move up from Q_1 on the horizontal axis to the LAC curve to find the average cost (LAC) and then compare this cost with the price P. When Chester does this, however, he is unhappy to discover that his average cost *equals* his price (LAC = P), leaving him no long-run profits. What characteristic of this market structure denies a producer a long-run profit?

The answer, as it was for the pure competitive model, is the easy-entry/easy-exit factor. The fact that Chester has no excessive profit still implies that he is earning a fair wage and receiving some normal rate of return on his investment. Just as when Chester was in the purely competitive hay-baling business, there is no way that he can keep other firms from easily moving into the bicycle-motorcycle repair market. For anyone who is interested in becoming a differentiated competitor, this easy-entry market characteristic should raise a red warning flag! As the saying goes, "Hope for the best, but expect the worst."

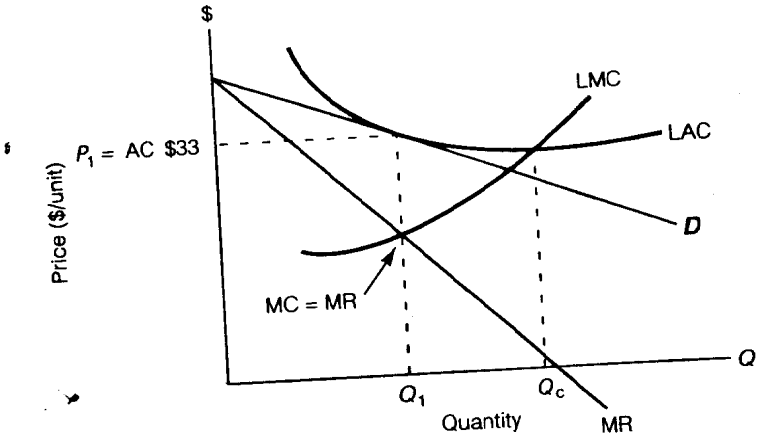

FIGURE 17-4 Differentiated competitors also maximize profits at the point at which MC = MR. Here, Q_1 is the maximum profit quantity and P_1 ($33) is the maximum profit price. Note that in the long run, however, the easy-entry characteristic of this market will, in theory, squeeze out above-normal, short-run profits, forcing the price down to the point at which the selling price is equal to the average cost.

There is, however, another more optimistic side to this model: the possibility of creating a unique product—a fantastic restaurant, a book store that provides unequaled service and selection, an incredibly good repair shop, or popular photographs or songs—that will reap "quasimonopoly" profits. But don't count on it! Those who make it big against competitive odds are few and far between.

Now if this model has some advantages and disadvantages from the producer's viewpoint, how does it fare in terms of overall economic efficiency? To find out, we must take another look at Figure 17-4. Note that Chester's output is not the ideal-scale output, which is represented by the bottom of his LAC curve. The optimal quantity is Q_c, the quantity that prevails under purely competitive conditions.

Differentiated competitors may build less than optimally efficient plants or operate their businesses at less than optimal capacities. We can observe workers in gas stations, barber shops, bars, and other small businesses spending many relatively idle hours during each day. Even when this condition is obvious, or seems to be obvious, some "brand new" seller can easily enter the scene, diluting the market even more.

A differentiated competitive industry does not offer the consumer the lowest possible price; however, due to a highly elastic demand curve, the price will not differ too markedly from the purely competitive price. You can easily verify this point in Figure 17-4.

In summary, differentiated competition tends (in theory) to have the following long-run drawbacks:

- A tendency toward low or zero long-run profits for the producer.
- Some underutilization of resources.
- A price slightly higher than the competitive price.

However, let's remember that this type of market has some advantages, too. If you live in a modern city, just look around you. For one thing, these differentiated businesses offer consumers a *variety of suppliers.* Who, for example, would like to have only two or three restaurants to choose from? Particularly in large, urban settings, these little businesses add a considerable degree of interest, variety, and novelty to city living.

Another advantage, alluded to earlier, is a symbolic one. It stems from the free-enterprise dream. Unlikely? Yes, but still possible. What we have here is a group of relatively small-scale business possibilities that provide an opportunity to escape from a hierarchical existence—from large, bureaucratic institutions or from the boredom of the factory assembly line—if that's what an individual wants to do. It is a small slot within a basically large-scale economic system, where you can still organize your own resources, test your entrepreneurial strength, and—just possibly—not only survive but prosper.

Questions for Thought and Discussion

1. What would happen in an oligopoly if the competitors decided *not* to follow the price leader?
2. Justify the slightly higher price charged by a firm in a differentiated market.
3. What is the relationship between the number of available consumption substitutes and the shape of the demand curve?

4. Relate this relationship to the demand curves of firms in each of the four market structures.
5. How would the nature of nonprice competition differ in a firm making steel compared to a firm manufacturing automobiles?
6. *True or false?* All cartels will break up after a long enough period of time. Explain.