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Semester IV Micro Economics II Monopolistic Competition

Monopolistic Competition

This lecture introduces the tools for analyzing the behaviors of companies in monopolistic competition.

1. Begin by looking over the Objectives listed below. This will tell you the main points you should be looking for as you read the chapter.
2. New words or definitions and certain key points are highlighted in italics and in red color. Other key points are highlighted in bold type and in blue color.
3. You will be given an In Class Assignment and a Homework assignment to illustrate the main concepts of this chapter.
4. There are a few new words in this chapter. Be sure to spend time on the various definitions. Go over the graphs very carefully. They will be very important throughout the remainder of the course.
5. The teacher will focus on the main technical parts of this chapter. You are responsible for the cases and the ways by which each case illustrates a main principle.
6. When you have finished the text, the Test Your Understanding questions, and the assignments, go back to the Objectives. See if you can answer the questions without looking back at the text. If not, go back and re-read that part of the text. When you are ready, take the Practice Quiz for Chapter 20.

Objectives for this lecture: Monopolistic Competition

At the end of this lecture, you will be able to answer the following:

1. Explain how a company in **monopolistic competition** would determine the profit-maximizing quantity and price.
2. Show the **graph** for a company in monopolistic competition
3. Explain what will result in monopolistic competition if a company is earning economic profits. Show this on the graph.
4. Explain what will result in monopolistic competition if a company is earning economic profits. Show this on the graph.
5. Explain what will happen to a company in monopolistic competition if there is **a decrease in demand** for the product. Apply this analysis to the case of movie theaters.
6. Explain what will happen to a company in monopolistic competition if **there is a decrease in a fixed cost of production or a variable cost of production**. Apply this analysis to the case of movie theaters.
7. Compare the performance of monopolistically competitive and purely competitive industries. Why do monopolistically competitive companies have **"excess capacity" in the long-run**?
8. Explain what is meant by **"creative destruction"**.
9. Using the computer industry as an example, explain both how monopolistically competitive companies operate and also the process of "creative destruction".
10. What is an **"experience good"**? How is it marketed differently than other goods?

Monopolistic Competition

Monopolistic competition is defined as an industry with one seller (i.e., a monopoly) of a very narrowly defined product. The demand for this product is very elastic because there are many close substitutes for it. The close substitutes provide the competition.

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Examples given included Coca Cola, McDonalds, and personal computers. In essence, *monopolistic competition has four main characteristics:*

1. *One seller of a narrowly defined product (such as Diet Coke)*
2. *Many close substitute products --- the products of the competitors are differentiated*
3. *Good information on the part of buyers and sellers*
4. *Relatively easy entry and exit from the industry.*

Monopolistic competition is the way that most actual competition occurs. In most cases where there is sufficient competition, **the products of the various competitors are differentiated**. Supermarkets sell dozens of brands of cereal, ice cream or frozen yogurt, soaps, toothpaste, and so forth. Companies spend billions of dollars in advertising, trying to differentiate their products from those of their competitors. **There are several reasons that this product differentiation is so common. First, and most obvious, is the fact that the tastes of different people are different.** In some cases (for example aspirin), there are no actual differences between the products. But people **perceive** that there are real differences. For example, one coffee company ran a series of commercials showing that customers in fancy restaurants could not tell the difference between their instant coffee and fresh coffee. Yet, most buyers still prefer the fresh coffee to instant coffee. Some prefer coffee strong while others prefer it weaker. Some prefer it sweeter while others dislike sweet coffee. Companies try to produce for all of these different preferences. **Second, there are differences in income that cause people to buy different goods and services.** For this reason, sellers will sell color television sets that range in price from \$300 to several thousands of dollars. And the Honda Motor Company produces Civics, Accords, and the Acuras.

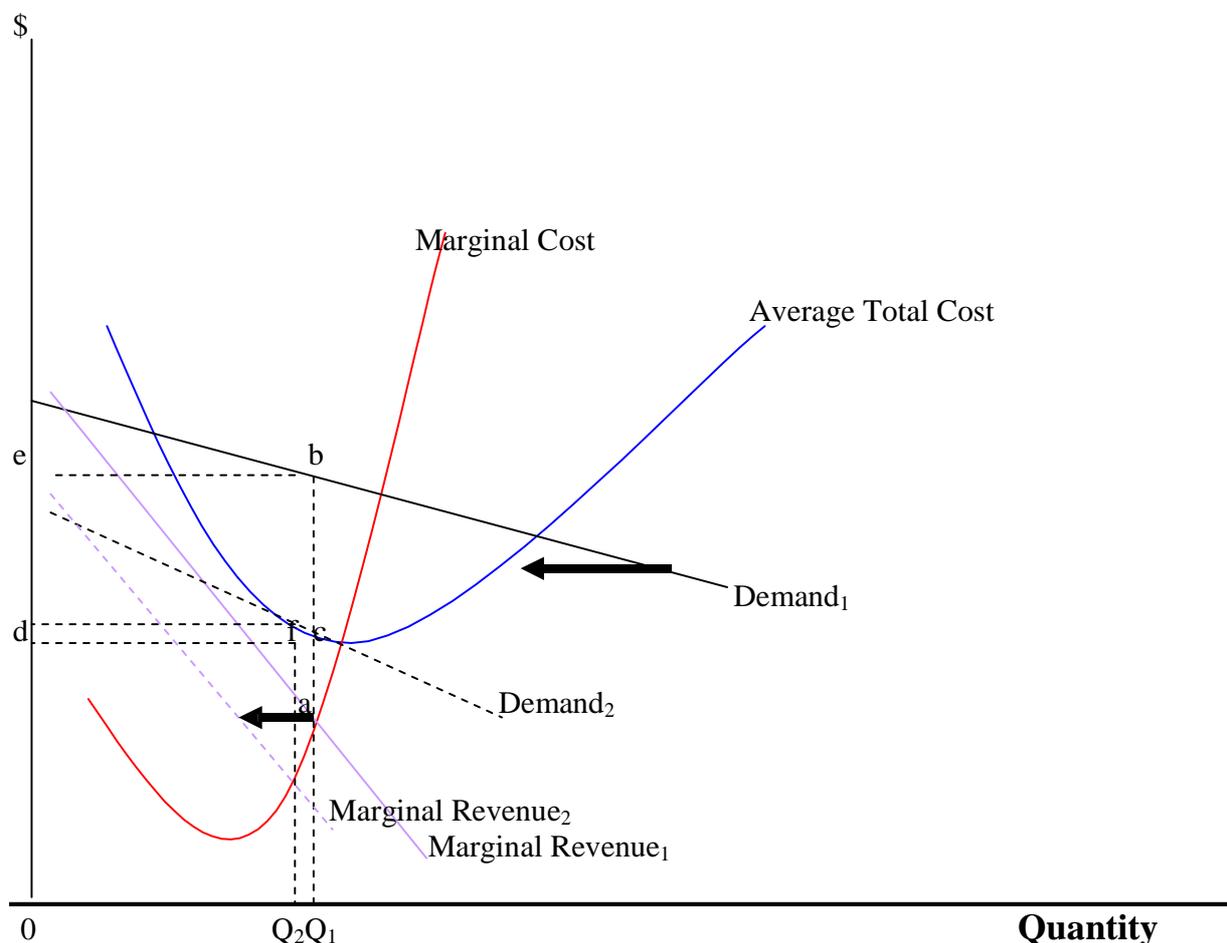
Decision Making with Monopolistic Competition

Let us examine the graph for a company in a monopolistically competitive industry as shown on the next page. **Notice that the demand for the company's product is very elastic (flat). But it is not horizontal.** For example, Coca Cola can raise its price above its competitors' prices and still be able to sell Coca Cola. However, if it raises its prices very much, the quantity it sells could fall dramatically. Because an increase in price causes the quantity demanded to fall, the demand curve is downward-sloping. And as we saw in Chapter 18, **since the demand curve is downward-sloping, the marginal revenue must be below the demand curve.** This is the same situation as in any "monopoly" --- that is, in any situation in which the company has some ability to affect its price. The only difference between the demand curve facing a seller in monopolistic competition and the demand curve facing the seller in pure monopoly is that the demand curve for monopolistic competition is very elastic (because there are many substitute goods). The goal of the company is to maximize profits. We know that this occurs where the **marginal revenue equals the marginal cost (point a)**. The company produces quantity Q_1 .

Going up from point a to the demand curve (point b) shows that the price is P_1 . Finally, we **calculate the profits as (price minus average total cost) times the quantity** --- the rectangle bcde. There is no industry supply curve here. Each company must be considered separately. There is no way to add up hamburgers, pizzas, and tacos.

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Monopolistic Competition with Economic Profits



Explanation. Since the demand is downward-sloping, the marginal revenue is below the demand curve. This is the same situation as in any “monopoly” --- that is, in any situation in which the company has some ability to affect its price. The goal of the company is to maximize profits. This occurs where the marginal revenue equals the marginal cost (point a). The company produces quantity Q_1 . Going up from point a to the demand curve (point b) shows that the price is P_1 . Finally, we calculate the profits as (price minus average total cost) times quantity --- the rectangle bcde. In the long run, competing companies would enter. The company would perceive that new competitors were taking away its business. The demand for its product would fall (shift left). As it did, the economic profits would fall. When the economic profits fell to zero, there would be no reason for new competitors to enter. The situation is called “**long-run equilibrium**” (point f)

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So far, the situation looks similar to that of a pure monopoly. But there is one big difference. The company shown in the graph on Page 3 is making economic profits. This attracts new competitors. In monopolistic competition, there are no barriers to entry. The new competitors come in to compete with this company, often producing slightly different products. How do we show this on the graph? We cannot show an increase in supply because there is no industry supply curve. We must show this as the company would perceive it. *What the company would perceive is that the new competitors were taking away its business. The demand for its product would fall (shift left). As it did, the economic profits would fall.* When the economic profits fell to zero, there would be no reason for new competitors to enter. The situation, shown in the graph above, is called **“long-run equilibrium”** (point f). The number of competitors will then remain unchanged until something occurs to change demand or costs.

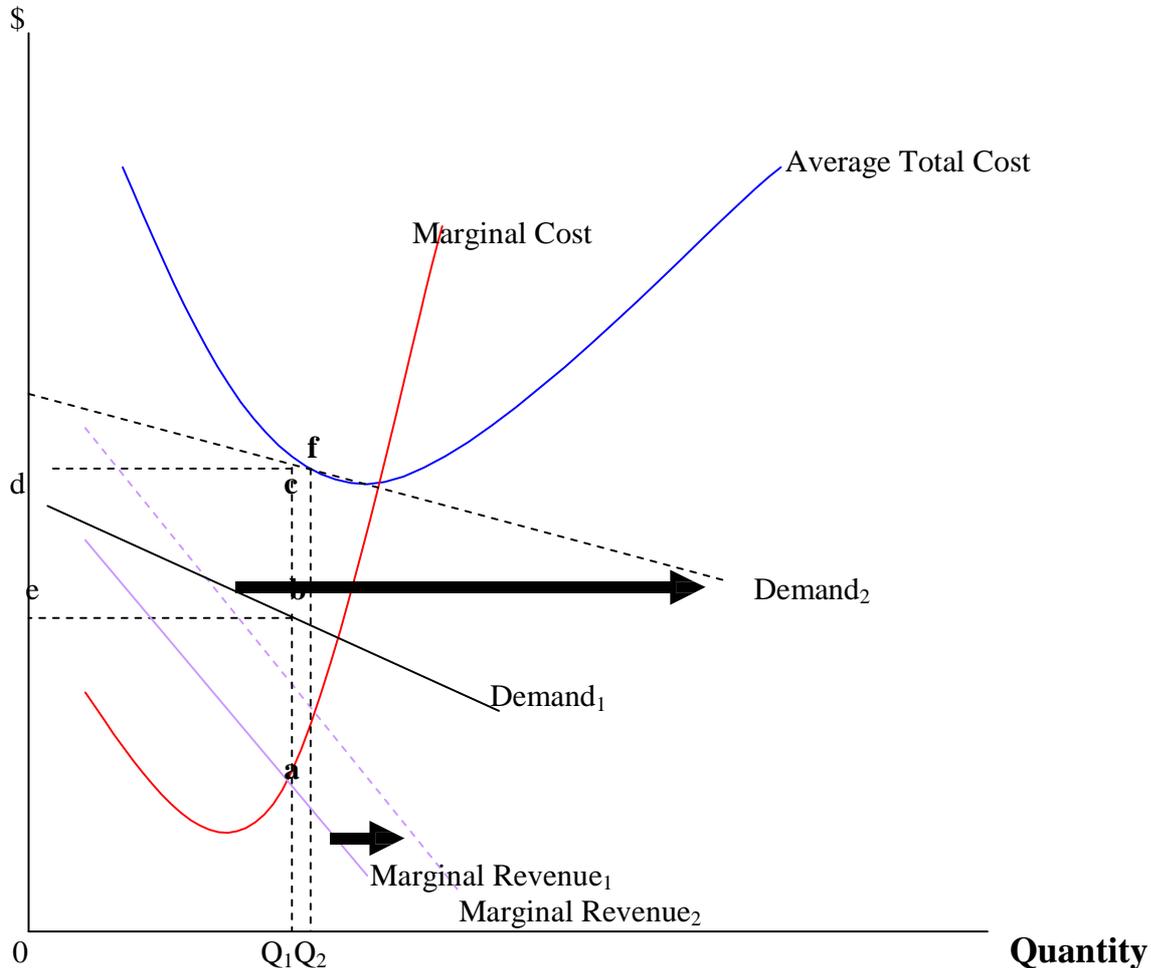
The graph below shows the same situation, except that the company is making **an economic loss**. The economic profits are still given by the rectangle bcde. However, since the price is less than the average total cost, the economic profit is negative (loss). In the long-run, companies will leave --- i.e., they will stop producing the product. They may go out of business altogether. Or they may just stop producing this product and shift to another. How do we show this on the graph? *If this company stays in business and its competitors leave the business, the company will perceive an increase in demand for its product.* Those who bought from the former competitors will now buy from this company. The increase in demand reduces its economic losses. *When the economic losses reach zero, there is no reason for companies to leave the business. Long-run equilibrium has been reached (point f).* The adjustment here may take longer than the adjustment when there are economic profits. Each company will resist leaving the business, hoping that the others will leave first. However, eventually some will have to leave the business and long-run equilibrium will be reached.

Case: Premium Ice Cream

The changes in demand noted above can be illustrated with the case of premium ice cream. Premium ice cream is ice cream with at least 13% butterfat content, giving it the thick, creamy texture and superior taste to regular ice cream. The first company to market premium ice cream was Pillsbury, marketing it under the name Haagen Daz. The demand for the product was very high. As a result, the company was making considerable economic profits. As would be expected, many new companies began producing this product. All of the new competitors made products slightly different from Haagen Daz (perhaps the only difference was in the customers' minds). Ben and Jerry produced chunky premium ice cream. Swensens not only produced premium ice cream but also opened stores to sell it. Baskin and Robbins, which had previously sold only in their stores, began to package their products. Others, such as Dreyers, and Breyers (Kraft) appeared. For each individual company, the demand for its product fell as buyers bought more from competitors. The demand continued to fall until the economic profits were zero.

Some years after the product came onto the market, it became known that a large amount of fat in the diet is unhealthy. The demand for premium ice cream fell. As a result, companies began to experience economic losses in the production of premium ice cream. As would be expected, companies then reduced their production of premium ice cream. In this case, they did not leave the frozen dessert business altogether. They simply shifted to other products such as frozen yogurt and fat-free ice cream. With fewer facilities being devoted to premium ice cream, the demand for any one producer rose (as there were fewer competitors). Economic profits returned to zero.

Monopolistic Competition with Economic Losses



Explanation. Since the demand is downward-sloping, the marginal revenue is below the demand curve. This is the same situation as in any “monopoly” --- that is, in any situation in which the company has some ability to affect its price. The goal of the company is to maximize profits. This occurs where the marginal revenue equals the marginal cost (point a). The company produces quantity Q_1 . Going up from point a to the demand curve (point b) shows that the price is P_1 . Finally, we calculate the profits as (price minus average total cost) times quantity --- the rectangle $bcde$. In this case, this is an economic loss. In the long run, companies would leave the industry. The company would perceive that, with fewer competitors, it would have more business. The demand for its product would rise (shift right). As it did, the economic profits would rise. When the economic profits rose to zero, there would be no reason for new competitors to leave. The situation is called **“long-run equilibrium”** (point f)

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Case: Movie Theaters

A similar situation occurred for movie theaters. In the mid-1970s, assume that movie theaters were in long-run equilibrium with economic profits of zero. **Then, there was a large decrease in the demand for movie theaters.** The reason, of course, was the invention and spread of the Video Cassette Recorder as well as the video rental store. This allowed people to rent movies and see them at home. As the demand for movies fell, the quantity produced would fall as would the price. The economic profits fell below zero (see the graph on the previous page). In this situation, one would expect many theaters to go out of business. And indeed many did. **However, there is another response they could make --- find a way to produce at a lower cost so as to make sufficient profits even with the decrease in demand.** Movie theaters did this by forming into large units of very small theaters --- the multiplex that is familiar to anyone who attends movies. First of all, this lowered costs by allowing a spreading of the fixed costs. The building is being used more intensively when people are in ten different parts of it watching ten different movies. If there were only one movie showing in a large theater, many seats might be empty. Also, the multiplex allows more efficient use of labor. Only one or two people are needed to sell tickets or to sell food items. Ushers and people to clean can work in one theater while the other ones are being used. These cost savings are reductions in both fixed and variable costs. The decrease in fixed cost is a shift down in the average total cost. The decrease in the variable cost is a shift down in both average total cost and marginal cost. The costs continue to decrease until the economic profits rise back to zero.

Test Your Understanding

1. Show on a graph (like the one above) the result of **the decrease in demand for movie theaters that resulted from the invention, and subsequent popularity, of the Video Cassette Recorder.** Show what would occur in the short-run. Then, show what would occur in the long-run. Explain the changes you made. In each case, what happens to the quantity of movie theater seat sold, the price of movies, and the economic profits of movie theaters?
2. The movie theaters responded to the Video Cassette Recorder by moving into large multiplex theaters. At first, six or eight theaters would be found in one structure. Now, twenty or thirty theaters may be found in one structure. The purpose of doing this is **to lower costs so as to regain profitability.** The building is used more efficiently if many parts of it are showing different movies. The workers, ticket takers, ushers, cleaners, etc. can also be used more efficiently. In each case, **is the reduction in the cost a reduction in a fixed cost or in a variable cost?** Show the results of these cost reductions on the same graph --- in both the short-run and the long-run. In each case, what happens to the quantity of movie theater seat sold, the price of movies, and the economic profits of the movie theaters?

Test Your Understanding

1. Consider the fast food industry, including companies such as Wendys, Burger King, Taco Bell, and so forth. First, explain why this industry would be considered monopolistic competition.
2. The company under consideration is Taco Bell. Taco Bell spends a large amount of money on **advertising.** The purpose of the advertising is to increase the demand for Taco Bell products and to make that demand more inelastic (that is, to have fewer real substitutes). Assume that the advertising succeeds in doing this. Show the new demand and marginal revenue on the graph for Taco Bell, assuming you begin in long-run equilibrium.
3. The advertising is a cost of production. Is it a fixed cost or a variable cost? Why? Show the change in the cost curves on the same graph.
4. Explain what will result in the short-run to the quantity of Taco Bell products produced, the prices of them, and the economic profits of Taco Bell. Finally, explain what will result in the long-run.

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Comparing Monopolistic Competition and Perfect Competition

Since monopolistic competition is much more common than perfect competition, it is important to examine the list of benefits to society to see if they still pertain. Return to the list of benefits to society from perfect competition in Chapter 17.

First, **in perfect competition, all companies earned economic profits of zero in the long-run.** Do they do so in monopolistic competition? The answer, of course, is “yes” and for the same reason. In both cases, when companies are earning economic profits above zero, new competitors will continue to enter until the economic profits have been reduced to zero. In both cases, companies can earn economic profits in the short-run. But if these do not last very long, they are socially desirable because they motivate companies to enter industries whose products are desirable, to find ways to lower costs, and to find improvements to products. *Economic profits will be zero in the long-run in any case in which there are no barriers to entry.*

Second, companies in perfect competition achieved productive efficiency. In the short-run, this meant that they produced the quantity being produced as cheaply as possible. That would also occur for companies in monopolistic competition, as they also desire to maximize their profits. In the long-run, productive efficiency meant that each company would produce that quantity for which average total cost is at its minimum. The least possible is sacrificed for the production of each unit of the product. Does this result occur in monopolistic competition? Just looking at the long-run equilibrium in the graphs above indicates that it does not. The facts that demand is downward sloping and that the price equals the average total cost (when economic profits equal zero) require that *the quantity produced in the long-run equilibrium is less than the quantity for which average total cost is at its minimum. The company is said to have excess capacity.* Why is this so? Remember that the average total cost falls because of the spreading of the fixed cost (that is, the cost of the capital goods). *Companies in monopolistic competition will not produce enough to take full advantage of the spreading of the fixed cost. If they produced a greater quantity, the cost of producing per unit would be lower. However, they do not produce a greater quantity because doing so would reduce their economic profits (if they produced more, the marginal revenue would be less than the marginal cost).*

There are many illustrations of this excess capacity. Walk into a supermarket at noon. You will observe eight or nine cash registers. However, only one or two are open. The others are excess capacity. You will also observe much freezer space with few customers. This too is excess capacity. Walk into the branch of a bank in the morning. You will observe several teller positions. However, only one or two are open. **This phenomenon of increased cost per unit due to excess capacity is common to companies in monopolistic competition.** This increased cost per unit explains why companies in monopolistically competitive industries, such as supermarkets and banks, are frequently the subject of *horizontal mergers (two or more competing companies coming together into one company)*. The takeovers of Lucky by American Stores (Alpha Beta), which was later taken over by Albertsons, or of Vons by Safeway, or of Home Savings Bank by Washington Mutual are just a few examples. Mergers were discussed in Chapter 10.

Third, companies in both perfect competition and monopolistic competition have incentives to find ways to lower costs over time. The incentive in both cases is increased economic profit -- in the short-run. *However, only companies in monopolistic competition have incentives to “improve” the product.* In perfect competition, products are identical and all buyers know this.

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In monopolistic competition, differentiating products is the main competitive strategy. Remember that an “improvement” occurs only if buyers prefer the product more and are more likely to buy it.

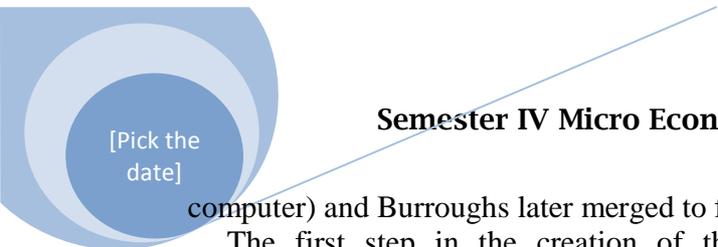
Finally, companies in perfect competition achieve allocative efficiency. Exactly the “right” quantity of each good and service is produced. We know that *this occurs when the price is equal to the marginal cost*. Does allocative efficiency occur in monopolistic competition? An examination of long-run equilibrium in either graph above shows that it does not. The company maximizes its profits at the quantity for which the marginal revenue equals the marginal cost. But, because the demand is downward-sloping, the price is greater than the marginal revenue. *This means that the price must be greater than the marginal cost for a monopolistically competitive company. Too little of the product is being produced (allocative inefficiency).* Society would benefit from having more of the product produced; however, the company would lose profits if it produced more of the product (because the marginal revenue would be less than the marginal cost).

In summary, companies in monopolistic competition realize all of the same benefits to society as companies in perfect competition --- except for two. They generate economic profits of zero in the long-run. The short-run economic profits that can be earned will motivate socially desirable behaviors by the businesses. They provide incentives to be cost efficient in the short-run, to find ways to reduce costs over time, and to find ways to “improve” the product. The two exceptions are that monopolistically competitive companies do not produce at the lowest possible cost per unit (they have excess capacity) and that they produce too little of the good from the point of view of society as a whole (allocative inefficiency). However, they do confer one additional advantage to society that companies in perfect competition do not. **They provide an endless variety of products.** Since consumers’ tastes and incomes are different, it is likely worth it to have the great variety of choices and to suffer the burdens of excess capacity and allocative inefficiency.

Monopolistically competitive industries are in a constant state of flux. Companies are always trying to gain a short-run advantage by finding ways to produce at a lower cost or by finding products that consumers like more. *Entrepreneurship is the most important factor of production in monopolistically competitive industries.* The dominant company of today may be replaced very soon by a company that no one has yet heard of. The process --- labeled “*creative destruction*” by the famous economist Joseph Schumpeter --- is central to the dynamics of a market economy. This entrepreneurial drive to gain short-run profits seems to be the most important reason for the creation of great wealth in countries that rely basically on markets. This is illustrated in the following case.

Case: The Personal Computer Industry

The modern computer was actually born during World War II. The first American computer was the ENIAC, designed to calculate artillery tables. It was an incredibly large device, weighing 30 tons and containing 18,000 vacuum tubes. From that time until the early 1980s, the main computer was the mainframe computers used by businesses and universities. These were very large, requiring most of the space in an air conditioned room, and were very expensive. Over 60% of all mainframe computers were sold by IBM. Other large producers were Sperry Rand, Burroughs, and Honeywell. Sperry Rand (which actually produced the first mainframe



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computer) and Burroughs later merged to form Unisys.

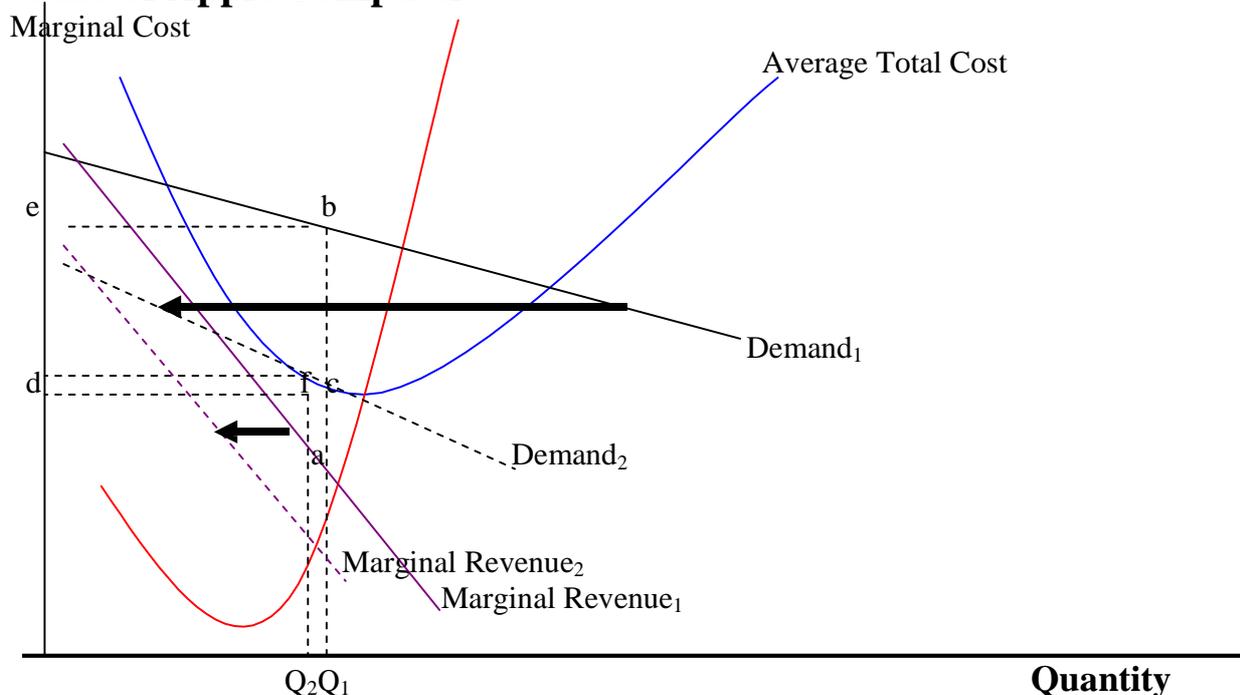
The first step in the creation of the personal computer was the development of the microprocessor on a silicon chip by Intel in 1968. Once it had created the microprocessor, Intel had all of the ingredients necessary to produce a personal computer. However, Intel saw no practical application for such an invention. It saw the microprocessor as useful only for such items as calculators and traffic lights. The only interest in personal computers at the time came from a group of hobbyists. These young people had learned how to use and program the mainframe computers. This became their passion. Since gaining time on a mainframe computer was difficult, they yearned for a computer they could use at home. The first such personal computer was invented in 1975 by Ed Roberts, who worked for a calculator company in New Mexico. Called the Altair 8800 (named after a star used in the Star Trek series), it was designed only for the hobbyist. It was expensive and came in a kit that one had to assemble oneself. Very few were sold. Since computers work through thousands of circuits which are either “on” or “off”, the Altair needed a way of relating the activities on the keyboard to the “on” or “off” positions of the circuits. Two young hobbyists, Bill Gates and Paul Allen of Seattle, devised a version of the computer language BASIC for the Altair. (BASIC stands for Beginners All-Purpose Symbolic Instruction Code.) BASIC was a simple and commonly used language to program large mainframe computers. With this language, which was loaded into the Altair using paper tape, hobbyists could develop games and word processor applications for the Altair.

In California, several of the young computer enthusiasts belonged to a club, called the Homebrew Club. To impress their friends, two of the club members, Steve Wozniak and Steven Jobs, built a primitive computer, which they called Apple. They then improved it into the Apple II, a packaged computer that did not have to be assembled by the purchaser. The Apple II was a big improvement in that Wozniak had engineered it so that far fewer microprocessor chips were needed. Granted funding from venture capitalist Arthur Rock, Apple was formed as a private company marketing the Apple II. Until the end of the 1970s, the market was still limited to computer enthusiasts. But then, in 1979, Dan Bricklin and Bob Frankston of the Harvard Business School developed the first electronic spreadsheet, VISICALC, for use on the Apple II. The spreadsheet was desired greatly by businesses, especially on Wall Street. Sales of Apple II soared. In 1980, Apple went public (that is, it sold its shares on the market to anyone who wished to buy them). With the sales of the stock, Steven Jobs was worth over \$100,000,000 by age 23. The situation for Apple is shown in the graph below. The economic profits of Apple encouraged market entry by such companies as Atari, Osborne, and Radio Shack.

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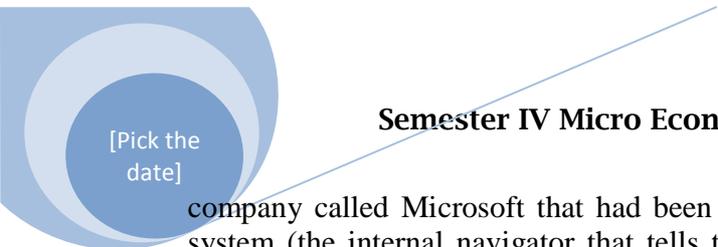
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Case of Apple Computer



Explanation: The high demand and the virtual monopoly of personal computer is depicted above. The economic profits (bcde) are very large. This attracts new producers to make a similar product. In the Apple case, the main new competitor was IBM.

The rise in the sales of Apple II caught the attention of IBM, who feared a great loss in their sales of mainframe computers. **Anytime a company is earning large economic profits, it can expect to find new potential competitors.** IBM had one main advantage: it was greatly trusted by businesses. Business represented the largest potential market for personal computers. But IBM had one great disadvantage: its decision-making processes were very slow. IBM made the decision to go into the personal computer business in 1980. It estimated that it would take four years for it to produce a computer if it produced all or most of the components, as Apple had. To expedite the process, IBM abandoned its traditions and decided to purchase components from other companies (called “open architecture”). For example, the microprocessor chips were purchased from Intel. The computer language was to be BASIC and was purchased from a new



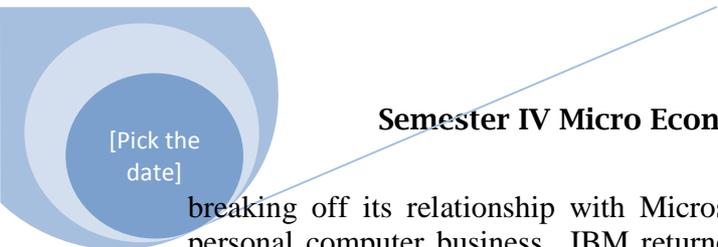
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company called Microsoft that had been started by Bill Gates and Paul Allen. The operating system (the internal navigator that tells the computer how to store files, how the keyboard is connected to the screen, and so forth) was also to be purchased. The logical seller was Gary Kildall, who had developed an operating system for the personal computer called CPM. In one of those great turns of history, Kildall treated IBM representatives in a manner they considered a snub. IBM then turned to Bill Gates, asking to purchase both the computer language and the operating system. At the time, the business of Microsoft was computer languages; Microsoft did not have an operating system to sell. But Microsoft saw the advantage to itself of linking with IBM who were so highly esteemed by businesses. So it looked around and found an operating system that had been developed by Tim Patterson for a small company called Seattle Computer Products. This system was adapted from (very similar to) CPM and was called QDOS (the quick and dirty operating system). Seattle Computer Products was short of cash. So Microsoft bought QDOS for \$50,000, changed the name to MS-DOS (Microsoft Diskette Operating System), and licensed (not sold) MS-DOS to IBM. Finally, IBM purchased the rights to a spreadsheet that had been developed by Lotus Corp. of Massachusetts called "Lotus 1-2-3". The IBM was marketed through Sears and Computerland stores. The only components that IBM produced for itself was the RAMBIOS, a chip that connects the hardware with the software. The new IBM personal computer came on the market in August of 1981 and was an instant success, quickly reaching 30% of the market by 1984. However, the demand for Apple computers did not fall as one would expect. The introduction of the IBM had increased the market for personal computers so greatly that some of the increase actually spilled over to Apple.

The huge economic profits still being earned by Apple and now being earned by IBM should attract competitors. And this is exactly what occurred. It was relatively easy for outsiders to produce machines very similar to the IBM. All of the components could be purchased except one. The operating system could be leased from Microsoft. In one of the major mistakes in business history, IBM had allowed Microsoft to maintain control of the MS-DOS operating system. It had never considered that Microsoft could lease the system to anyone else since, at the time, there were no other companies to lease to. The first main competitor for IBM was Compaq. It developed its RAMBIOS through a process known as "reverse engineering" (take the IBM RAMBIOS, take it apart to see how it works, and then develop one that is similar without violating the patent). Others, such as AST and Dell, also became competitors to IBM. They were known as "**IBM clones**" because all of the software for IBM personal computers would work on their personal computers. The clones reduced the demand for Apple and IBM personal computers, causing the prices of them and the economic profits to fall. The clone companies were able to operate with very low fixed costs since they were buying most of their components. As a result of the low cost of production of the clones, the prices of personal computers fell at the rate of 30% every six months.

To restore its "monopoly" position, IBM changed its strategy. It decided to develop its own operating system and also to produce personal computers by producing all of the components itself. This was the **OS/2**. To develop the operating system for the new OS/2, IBM asked Microsoft to write the code. IBM and Microsoft had worked closely together before. But the OS/2 was designed to eliminate the market for clones. This clone market was the market in which Microsoft had made most of its profits from the leasing of MS-DOS. Microsoft faced a conflict of interest. To keep MS-DOS competitive, Microsoft worked on the OS/2 for IBM and at the same time poured its resources into the main improvement to MS-DOS, to be known as "**Windows**". Windows was introduced in 1990 and was immediately the industry success. The decision not to use Windows was another major business mistake by IBM. IBM responded by



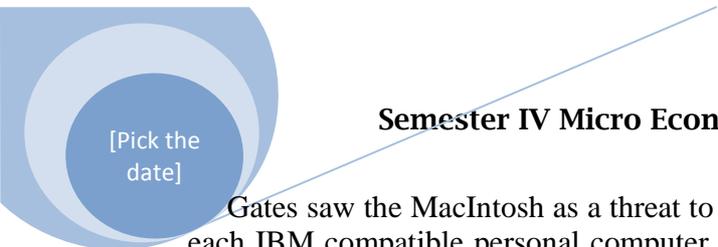
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breaking off its relationship with Microsoft. In doing so, IBM became an also-ran in the personal computer business. IBM returned to its origins --- being a profitable and dominant producer of mainframe computers. In 1980, the share value of IBM stock was over 3,000 times that of Microsoft. Today, the share value of Microsoft is greater. The key to the success of Microsoft came from its ability to exploit opportunities (some would say ruthlessly). Microsoft had not invented MS-DOS; however, it profited the most from it. And Microsoft did not invest nor develop Windows. That story takes us back to Apple.

Actually, that story begins in 1971 with Xerox. Fearing that the computer would create a “paperless office” and hurt its business in photocopying, Xerox created the **Palo Alto Research Center (PARC)** near Stanford University, hiring 58 of the best people in the country in the area of computers and giving them complete freedom to develop computer applications for the future. Most of the functions that computer users today take for granted were developed at Xerox PARC. However, the Xerox Corporation did not see any business benefit to them and therefore did not develop them into products. Had it done so, Xerox could have dominated the entire personal computer industry and been at least ten times its current size. Instead, many of the researchers at Xerox PARC patented their applications and formed their own businesses to develop them. They are now multi-millionaires. One person who visited Xerox PARC and saw the immediate benefit was Steven Jobs of Apple. He was most interested in the Graphical User Interface (GUI) which had been developed there. This is the system which allows the users to tell the computer what to do by clicking a mouse (which had actually been invented in the 1960s) on representational figures on the screen. Apple had been hurt by the IBM personal computer (it lost market share, even though its sales of computers rose). The IBM used software that did not run on Apple computers. Apple had tried to improve on the Apple II, but its computers either were too expensive or did not work well enough. Apple would now risk the company on a new computer incorporating the Graphical User Interface --- the MacIntosh. It would also hire as its Chief Executive Officer (CEO) John Scully, formerly CEO at Pepsi-Cola, to help promote sales of Apple computers to businesses. To make the MacIntosh successful, Jobs needed applications that would be popular. For this, he turned to Bill Gates at Microsoft. Until this time, Microsoft had not produced applications. The new MacIntosh, with Microsoft applications such as Word and Excel 1-2-3 included, was launched with great fanfare in 1984. Initially, sales were very low. The applications were not as numerous as those for the IBM and the price was much too high (more than twice the price of the IBM). MacIntosh needed a market niche.

One of the problems with computers at the time was that the Dot Matrix printer could not print exactly what was on the screen. One of the researchers at Xerox PARC had developed a laser printer and printer software that could print exactly what was on the screen. He started a company to market this product, called “Adobe”. Apple then bought almost 20% of the stock of Adobe in a deal that allowed Apple to use the software. Apple had found its niche in the market --- desktop publishing. MacIntosh would become the computer of choice for almost any creative business. The result was a large increase in the demand for MacIntosh computers. By 1987, Apple was selling one million MacIntosh computers per year. Apple saw itself as a “monopoly”; it assumed that its product was so good that buyers would pay a premium price. Apple believed that there was no good substitute. Of the high price of \$2,000 that Apple charged, about \$1,000 was pure economic profit. Given that MacIntosh was so much better than the other personal computers of the time, it should have come to dominate the market. But it failed to realize that high economic profits will always invite competition. That competition was to come from Bill Gates at Microsoft.



[Pick the date]

Semester IV Micro Economics II Monopolistic Competition

Gates saw the MacIntosh as a threat to his “cash cow”: the MS-DOS that was included with each IBM compatible personal computer (the clones). To defend the market position of MS-DOS, he launched Windows 1.0 (which worked on top of MS-DOS). This was gradually improved until Windows 3.0 was launched in 1990. Windows 3.0 made the IBM personal computer almost as easy to use as the MacIntosh. It sold 30 million copies in just one year. Apple believed that Microsoft had been copying features of the MacIntosh and sued in court. The case lasted six years. Eventually, Apple lost its case. After losing the case, Apple struggled to maintain profitability for several years. Gates went on to launch the next version of Windows --- Windows 95 --- in 1995, combining the operating system and the graphical user interface into one package. **Windows 95** was a major success in the marketplace and Microsoft is an extremely profitable company. A slight improvement, **Windows 98**, came out in 1998. Then came Windows 2000 and Windows XP and so forth.

The difference in the competitive strategies of the companies shows the nature of competition under monopolistic competition. **Apple chose to keep the design of the MacIntosh to itself, refusing to license the technology to others.** It feared licensing its technology to a cheaper producer because the MacIntosh had a gross markup of 55%. In effect, Apple was greedy. It paid dearly for this. Apple was vertically integrated, meaning that it produced the computer and the software. Microsoft was not. Microsoft’s strategy was to link itself to the main hardware producers --- IBM and also Apple. In each case, it sought to carve out a dominant market share for its product. In the case of operating systems, its product became the industry standard (see Chapter 19). Software applications were largely written for MS-DOS and then for Windows. This made computer buyers more likely to buy the computers that had these operating systems. (*Path dependence* is described in Chapter 19.) Since IBM compatible computers had these operating systems and sold large numbers of computers, software manufacturers desired to write applications for them --- a virtuous circle for Microsoft. *Microsoft cannot be credited with developing original ideas or even particularly good products. However, Microsoft was better than anyone in recent memory at exploiting the ideas of others.* Therein lies the key to the success of one of the greatest stories in American business history.

The case of the personal computer industry also illustrates *the drive to continually improve products that is the hallmark of monopolistic competition.* In recent years, **Microsoft** developed a World Wide Web browser (Internet Explorer) to compete with the industry leader, Netscape. It entered the entertainment business by joining into alliances with Steven Spielberg in a movie studio (Dreamworks) and with NBC in a cable television station (MSNBC). Steven Jobs, after being forced from **Apple**, sold his Apple stock and used the money to fund a successful movie animation studio (Next). Apple itself was a company in trouble; it is tried to restore itself to profitability through an alliance with IBM (called Taligent) to develop a more advanced operating system and through an alliance with IBM and Motorola to develop the Power PC. In 1996, Apple bought Next and brought back Steven Jobs. Apple's profitability returned in 1998 with the introduction of the iMac. **IBM** restructured itself into thirteen autonomous divisions which make components. These divisions often sell the components on the open market, a radical departure from the methods of IBM in previous years. **Workstations** (personal computers linked together in a network, first developed by Sun Microsystems) allow companies to replace their mainframe computers with personal computers and thereby save large amounts of money. Laptop computers today contain the processing power that required mainframe computers a generation ago. And many others are presently developing new innovations for the coming world of the information superhighway. Entrepreneurial drive has led not only to better

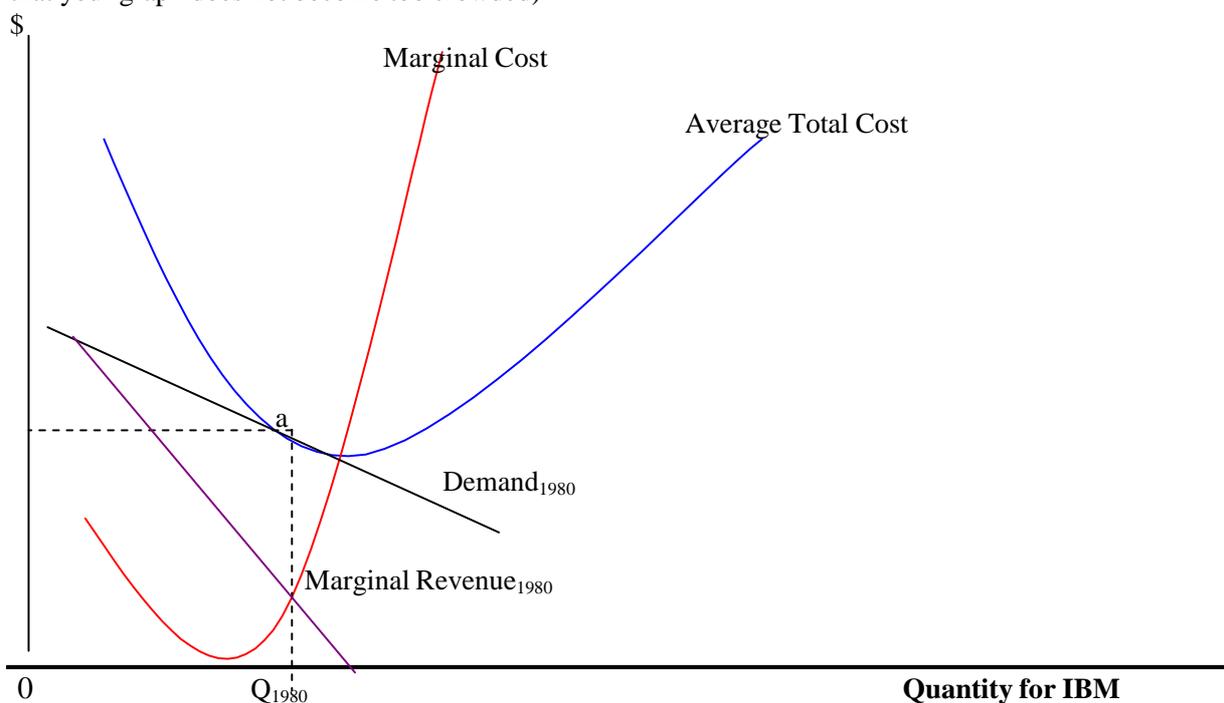
[Pick the date]

Semester IV Micro Economics II Monopolistic Competition

products but also to lower prices. Over the period of the 1980s and early 1990s, personal computer prices fell at a rate of 32% annually. In no industry has the assault of “creative destruction” been more evident.

Test Your Understanding

In the chapter, the history of the personal computer industry is developed as an example of monopolistic competition. In the graph below, depict the history of IBM as related in the chapter. Assume that the personal computer industry is monopolistic competition. The graph below shows the situation as of 1980. It assumes that the company is in long-run equilibrium, with economic profits of zero. Go through the chapter and **show on the graph all of the events that relate to IBM. Consider the decision to enter the personal computer industry, the entry of the “clones”, the development of the OS/2, the development of Microsoft Windows, and the alliances with Apple. In each case, explain why you made the changes that you did and also what resulted for the company.** (You may need to redraw the graph so that your graph does not become too crowded)



Internet Assignment

1. The personal computer industry is a monopolistically competitive industry. Find the homepages of some of the leading companies in this industry. You may focus on any aspect of this industry that you wish. Go to the web pages of any of the large number of companies that produce either hardware or software. Discuss some of the ways that these companies attempt to differentiate their products. Is the product differentiation real or imagined?
2. The text considers the computer industry up to about 1995. The text says that, in monopolistic competition, there should be a continual effort to “improve” the product and to lower the costs of production. From your perusal of the homepages, find examples of “improving” the product (and also of lowering the costs of production, if you can) that occurred from 1996 to 2004.

[Pick the date]

Semester IV Micro Economics II Monopolistic Competition

Case: Experience Goods

In Chapter 1, it was stated that modern economic thinking begins with the assumption that people are rational. I know what is best for me and you know what is best for you. This knowledge then determines our buying decisions. But for certain goods or services, this assumption has to be modified. These are called “*experience goods*” because people must experience them first before knowing whether they want them or not. Do you want today’s edition of the Wall Street Journal? If you have not seen the edition, you really have no way of knowing. It may contain articles you don’t care at all about. Or it may provide exactly the information you need to become financially secure for the rest of your life. Only when you know what the edition contains, when you have experienced it, can you decide if you want it or not. Until 1990, I could not figure out why I would ever spend thousands of dollars for a computer. What would I do with it that I really wanted to do? Now, I have three computers and cannot figure out how I ever lived without one.

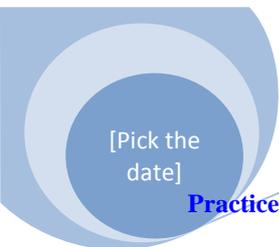
There are many examples of “experience goods”. **Most entertainment products are experience goods. Most new products are experience goods.** And, as the example of the Wall Street Journal illustrates, **most information goods are experience goods.** *The problem with experience goods is that people will be very reluctant to buy the product until they know what it is but will not know what it is until they buy it.* This has presented a problem for the sellers of these products.

The sellers’ responses have depended on the type of product they produce. Those companies that produce physical products have long responded to this problem by giving away free samples. Those sellers that produce popular music have put the music on radio. Hearing a new song allows you to know if you like it. But it is not convenient to wait until the radio DJ decides to play it. If you like it, you will want the CD for yourself. An interesting example concerns a former teacher. In the late 1980s, she created shows with Barney the Dinosaur as her main character. She could produce the shows easily and get the tapes to stores on consignment. But her problem was how to get people to buy them? Her response was to send free videos to day care centers and preschools. The kids liked Barney and wanted to see Barney at home. As they say, the rest is history. The purple dinosaur is now a major part of American life.

Similar behaviors have been common for software products. McAfee Associates was a company selling a program to detect and fix computer viruses. It offered its product free over the World Wide Web. Its revenues came from upgrades and additional services. In less than ten years, it became a multi-billion dollar company. Adobe offers its pdf reader free over the Internet. Once many people have downloaded it, Adobe makes its revenue by selling programs that provide the ability to write in the pdf format. Netscape gave away its World Wide Web browser, Navigator, for free over the Internet. When you go to Netscape Navigator, you are taken to the company’s Netcenter. The company earns revenue by selling advertising on Netcenter. The search engines, Yahoo and Google, operates in the same manner.

Test Your Understanding

1. The Grateful Dead were a band who made most of their money from touring, rather than from selling records or CDs. While most performers prevent anyone from taping their live performances, the Grateful Dead encouraged people to tape their concerts. Explain why it would be beneficial for them to encourage fans to tape their live performances.
2. Linux is an operating system that is a competitor to Windows. The code for Windows is a very closely guarded secret. But the code for Linux is available over the Internet free to anyone who wants it. Explain why Linux would give away its product.



[Pick the date]

Semester IV Micro Economics II Monopolistic Competition

Practice Quiz

- Which of the following is a characteristic of **monopolistic competition**?
a. many close substitutes b. good information c. low barriers to entry d. all of the above
- Which of the following will result in **monopolistic competition** in the long-run?
a. excess capacity c. zero economic profits
b. allocative inefficiency d. all of the above
- If a company in monopolistic competition is earning **economic profits in the short run**,
a. new sellers will enter, reducing the demand for this company's product
b. sellers will leave, raising the demand for this company's product
c. new sellers will enter, decreasing the marginal cost
d. new sellers will enter raising the demand for this company's product
- Assume a company in monopolistic competition begins in long-run equilibrium. Then, there is a **decrease in demand for the product**. Which of the following will occur in **the short-run**?
a. the quantity sold will rise b. profits will fall c. the price will rise d. all of the above
- Taking the situation in the previous question, what will result in **the long-run**?
a. sellers will leave the industry c. economic profits will fall below zero
b. the price charged will fall d. all of the above
- Assume a company in monopolistic competition begins in long-run equilibrium. Then, there is a **decrease in a fixed cost of production**. Which of the following will occur in **the short-run**?
a. the quantity sold will rise b. profits will rise c. the price will rise d. all of the above
- Taking the situation in the previous question, what will result in **the long-run**?
a. sellers will enter the industry c. economic profits will fall to zero
b. the price charged will fall d. all of the above
- Assume a company in monopolistic competition begins in long-run equilibrium. Then, there is a **decrease in a variable cost of production**. Which of the following will occur in **the short-run**?
a. the quantity sold will rise b. profits will rise c. the price will fall d. all of the above
- Taking the situation in the previous question, what will result in **the long-run**?
a. sellers will enter the industry c. economic profits will fall to zero
b. the price charged will fall d. all of the above
- The constant drive to improve products in order to gain short-run profits is called
a. creative destruction b. allocative efficiency c. excess capacity d. rents

Answers: 1. D 2. D 3. A 4. B 5. A 6. B 7. D 8. D 9. D 10. A