Market Structure

Economists have found it helpful to classify markets into four broad types: perfect competition, monopoly, monopolistic competition, and oligopoly. In perfect competition and monopolistic competition there are many sellers, each of which produces only a small part of the industry’s output. In monopoly, on the other hand, the industry consists of only a single seller. Oligopoly is an intermediate case where there exist only a few interdependent sellers.

Market structures vary substantially in the extent to which an individual firm controls its price. We have learned that a firm under perfect competition has no control over price and supply and demand end up determining market prices. On the other hand, a monopolist is likely to have considerable control over price. A firm under monopolistic competition or oligopoly is likely to have less control over price than a monopolist and more control over price than a perfectly competitive firm.

Market structures also differ in the types of products various producers sell. Firms in perfectly competitive markets sell standardized products. In a monopolistically competitive industry, firms produce somewhat different products. In an oligopoly, firms sometimes, but not always, produce identical products. In a monopoly, the single firm in an industry produces a unique product.

How easily firms can enter the industry differs from one market structure to another one. In perfect competition, barriers to entry are insignificant. In a monopolistic competition there are low barriers to entry. But in oligopolies, such as steel and car industry there exist significant barriers to entry. In monopoly, entry is closed - at least temporarily.

Market structures also vary in the extent to which firms compete on the basis of differences in product attributes, advertising, distribution channels, etc., rather than price. Perfectly competitive firms compete on the basis of price only. Monopolistically competitive firms and oligopolies place considerable emphasis on non-price competition. Monopolists also engage in non-price competition (advertising, for example) with the objective of increasing their total market demand.

Monopoly

As the sole producer of a unique product the monopolist is the market and has complete control over the amount offered for sale. However, this does not mean that the monopolist can charge any price - at least not if its objective is to maximize profit. To maximize profit, the monopolist must first determine the characteristics of market demand, as well as its costs. Given this knowledge, the monopolist then chooses the output level at the point where marginal revenue equals marginal cost. In the graph below, this point occurs at output level Q’. Note that every unit of output to the right of Q’ has a marginal cost that is greater than marginal revenue; it therefore will not be produced. Every unit to the left of Q’ costs less to produce than it earns in sales; it therefore will be produced and sold. The price per unit the monopolist receives follows directly from the market demand curve (at point P’). The rectangular area P’A ATC B shows the monopolists’ profits.
A monopolist may earn positive economic profits. Other firms are prevented from entering the market to reap these profits due to the existence of barriers to entry. Thus, monopoly profits, if they exist, will persist so long as the firm maintains its monopoly power.

**Monopolistic Competition**

Monopolistic competition can be described by a large number of relatively small firms, which sell somewhat different products. Because of the differences among their products, producers have some control over their price. However, the demand for these products is fairly elastic given a large number of substitutes in the market. In addition, there are low barriers to entry in this market structure. This implies that firms will enter the market if existing firms enter positive economic profits.

The determination of the profit maximizing price and output under monopolistic competition is precisely the same as for a monopolist. The demand curve for the monopolistic competitor slopes downward due to the fact that each firm in this market structure produces a somewhat different product. That is, if the firm raises its price slightly, it will lose some, but by no means all, of its customers to other firms and vice-versa. To maximize profits, the monopolistically competitive firm produces where marginal revenue equals marginal cost and sets prices along its demand curve.

Although the basic principles of profit maximization are the same under monopolistic competition and monopoly, it is important to outline the critical differences between the two market structures. If the firm in monopolistic competition earns positive economic profits, entry will occur. The entry of new firms in the market decreases the firm’s market share by reducing the demand for its product. The opposite would happen when the firms in the industry initially are making losses. The long-run equilibrium in this market structure is shown in Figure 2 below. Because price equals average total cost, it implies that each firm earns zero economic profit. Even though the firms have some control over price, competition among them leads to a long-run situation where no firm earns more than its opportunity cost of producing.

The firms in this market structure employ a variety of strategies to convince consumers that their product is better than what the competition has to offer (in other words, to make the demand for a firm’s product less elastic). These firms spend considerable resources on advertising with the goal of differentiating their products. Additionally, new product lines, better service and longer operating hours are often introduced to differentiate what is otherwise the same product.
Price discrimination occurs when the same product is sold at more than one price and the prices in different markets are not related to differentials in production and distribution costs. For a firm to be able to engage in price discrimination two conditions are necessary. First, different price elasticities of demand must exist in various sub markets for the product. When different price elasticities exist it is generally optimal to charge the consumers whose price elasticity is lower a higher price and vice versa. Second, a firm must be able to identify sub markets and prevent the possibility of arbitrage among them. When this is not possible, any attempt to charge different prices to the sub markets will be undercut by resale across the sub markets.

First-degree price discrimination extracts the maximum price that customer is willing to pay for each unit bought. We call this maximum price the customer's reservation price. This form of price discrimination occurs seldom and is possible only when the number of consumer is very small and the firm is familiar with the customer's willingness to pay.

Second-degree price discrimination implies price discrimination according to the quantity consumed. Prices are often blocked, with a high price being charged for the first unit or block of units purchased, and lower prices charged for successive units or blocks. High-quantity users are likely to be more price sensitive than low-quantity users, and thus block pricing allows different rates to be charged to the two groups even if per unit costs are similar.
Third-degree price discrimination results when a firm separates its customers into several different groups and sets a different price for each group. For example, computer companies give educational discounts to students and airlines charge different rates based on the date of purchase and length of stay of the traveler. As illustrated in the example below, a firm that can segment its market and charge different prices in each segment can increase its total profit compared to what these would be if it charges the same price to all the customers.

**Example of Third-Degree Price Discrimination**

Consider the example of Coach Industries, Inc., which is a leading manufacturer of recreational vehicle products. Its products include travel trailers, fifth-wheel trailers (towed behind pick-up trucks), and van campers, as well as parts and accessories. Coach offers its fifth-wheel trailers to both dealers (wholesale), and retail customers. Ernie Pintos, Coach’s controller, estimates that each fifth-wheel trailer costs the company $10,000 invariable labor and material expenses. Demand and marginal revenue relations for fifth-wheel trailers are:

\[
\begin{align*}
P_W &= 15,000 - 5Q_W \quad \text{and} \quad MR_W = 15,000 - 10 Q_W \quad \text{(wholesale)}
\end{align*}
\]

\[
\begin{align*}
P_R &= 50,000 - 20Q_R \quad \text{and} \quad MR_R = 50,000 - 40 Q_R \quad \text{(retail)}
\end{align*}
\]
1. Assuming that the company can price discriminate between its two types of customers, calculate the profit-maximizing price, output, and profits.

With price discrimination, profits are maximized by setting MR = MC in each sub-market, where MC = $10,000.

<table>
<thead>
<tr>
<th>WHOLESALE</th>
<th>RETAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRₜₖₜ = MC</td>
<td>MRₜₜₜ = MC</td>
</tr>
<tr>
<td>15,000 - 10 Qₜₜₜ = 10,000</td>
<td>50,000 - 40 Qₜₜₜ = 10,000</td>
</tr>
<tr>
<td>Qₜₜₜ = 500 units</td>
<td>Qₜₜₜ = 1,000 units</td>
</tr>
<tr>
<td>Pₜₜₜ = 15,000 - 5Qₜₜₜ</td>
<td>Pₜₜₜ = 50,000 - 20Qₜₜₜ</td>
</tr>
<tr>
<td>Pₜₜₜ = $12,500</td>
<td>Pₜₜₜ = $30,000</td>
</tr>
</tbody>
</table>

The profit contribution earned by the company is:
Profit = PₜₜₜQₜₜₜ + PₜₜₜQₜₜₜ - (AVC)(Qₜₜₜ + Qₜₜₜ) =
(12,500)(500) + (30,000)(1,000) - ($10,000)(500 + 1,000) = $2,125,000.

2. Calculate point price elasticities for each customer type at the activity levels calculated in a). Are the differences in these elasticities consistent with your recommended price differences in part a)?

FIGURE 4
Third degree price discrimination

(a) Wholesale

(b) Retail
\[
\begin{array}{|l|l|}
\hline
\text{WHOLESALE} & \text{RETAIL} \\
\hline
\varepsilon_p = \left( \frac{\Delta Q_d}{\Delta P} \right) \left( \frac{P}{Q_d} \right) & \varepsilon_p = \left( \frac{\Delta Q_d}{\Delta P} \right) \left( \frac{P}{Q_d} \right) \\
\varepsilon_p = -0.2 \times (12,500/500) & \varepsilon_p = -0.05 \times (30,000/1,000) \\
\varepsilon_p = -5 & \varepsilon_p = -1.5 \\
\hline
\end{array}
\]

A higher price for retail customers is consistent with the lower degree of price elasticity observed in that market.