4.5 Two-Part Pricing

A monopoly or firm with market power can increase profits by charging a price structure with a fixed component, or entry fee, and a variable component, or usage fee.

**Two-Part Pricing (also called Two Part Tariff)** = a form of pricing in which consumers are charged both an entry fee (fixed price) and a usage fee (per-unit price).

Examples of two-part pricing include a phone contract that charges a fixed monthly charge and a per-minute charge for use of the phone. Amusement parks often charge an admission fee and an additional price per ride. Golf clubs typically charge an initiation fee and then usage fees based on meals eaten and golf rounds played. College football tickers usually require a “donation” to the athletic department, used for scholarships, and a per-ticket charge for the tickets.

Two-part pricing is shown in Figure 4.8, where a monopoly graph is presented.

![Figure 4.8 Two-Part Pricing](Image)

Suppose that the graph represents an individual consumer’s demand. In competitive equilibrium (subscript 0), price is equal to MC, and producer and consumer surplus are given by:
PS0 = 0
CS0 = ABCDE

This is because the firm charges a price equal to the constant marginal cost (P = MC), and there is no surplus. Consumers receive the total area between the demand curve (willingness to pay) and the price line (price paid).

A profit-maximizing firm (subscript 1) that charged a single price would maximize profits by producing Q1 units of the good, and charging a price of P1. Surplus levels would be:

PS1 = CD
CS1 = AB

In this case, consumers have transferred areas C and D to producers, but still have surplus equal to area AB. Producers interested in increasing profits could devise a two-part pricing strategy that transfers more consumer surplus into producer surplus. Since CS > 0, consumers are willing to pay more than the monopoly price, and firms can extract a greater level of consumer surplus. The firm could charge an entry fee (T), and consumers would be willing to pay as long as the fee was less than their consumer surplus at the monopoly level (CS1 = AB).

Consider the following two-part pricing scheme (subscript 2):

Usage fee: P2 = MC

Entry fee: T = A+B+C+D+E  [T is set equal to CS0 = CS under competition]

PS2 = ABCDE
CS2 = 0

With a two-part pricing scheme, the firm has extracted every dollar of willingness to pay from consumers. The total amount of producer surplus under two-part pricing is given by:

PS2 = T + (P2 – MC)Q2 = ABCDE
Notice that the firm earns zero profit from the usage fee (per-unit fee), since it sets the usage fee equal to the cost of production (MC). All of the profits come from the entry fee (fixed price) in this case.

To summarize, a two-part tariff for consumers with identical demands would (1) set usage fee (price per unit) equal to MC \((P = MC)\), and (2) set a membership fee (entry fee) equal to consumer surplus at this price \((T = CS \text{ at } P = MC)\). The two-part price will result in (1) \(CS = 0\), and (2) \(PS = T + (P - MC)Q = T\).

A numerical example will further elucidate the two-part price. Assume that an individual’s inverse demand curve is given by: \(P = 20 - 2Q\), and the cost function is \(C(Q) = 2Q\). The firm seeks to find the optimal, profit-maximizing two-part tariff. The situation is shown in Figure 4.9.

![Figure 4.9 Two-Part Pricing Example](image-url)

The firm will set the usage fee (per-unit price) equal to marginal cost: \(P^* = MC = 2\). At this price, the quantity sold is found by substitution of the price into the inverse demand function: \(2 = 20 - 2Q\), or \(2Q = 18\), \(Q^* = 9\) units, as shown in Figure 4.9. Next, the firm will determine the entry fee (fixed price), by calculating the area of consumer surplus at this price: \(CS = 0.5(20 - 2)(9 - 0) = 0.5(18)(9) = 9^*9 = 81\) USD. Therefore, the firm sets the usage fee: \(T = 81\) USD. The resulting levels of surplus are \(CS = 0\) and \(PS = \ldots\)
81 USD. To summarize, the optimal two-part tariff is to set the usage fee equal to marginal cost and the entry fee equal to the level of consumer surplus at that price: \( P^* = 2 \) USD/unit, \( T^* = 81 \) USD.

In our investigation of two-part pricing, identical consumer demands have been assumed. In the real world, consumer demands may differ quite markedly across individuals. Given this possibility, the two-part pricing strategy can be summarized as follows.

1. If consumer demands are nearly identical, a two-part pricing scheme can increase profits by charging a price close to marginal cost and an entry fee.

2. If consumer demands are different, a two-part pricing scheme or a single price scheme can be utilized by setting a price well above marginal cost and a lower entry fee to capture all consumers. Or, set a single price.

In the next section, commodity bundling will be explained and explored.