4. PRICE DISCRIMINATION

LEARNING OBJECTIVES

1. **Do monopolies charge different consumers different prices?**
2. **Why and how much?**

Pharmaceutical drugs for sale in Mexico are generally priced substantially below their U.S. counterparts. Pharmaceutical drugs in Europe are also cheaper than in the U.S., although not as inexpensive as in Mexico, with Canadian prices usually falling between the U.S. and European prices. (The comparison is between identical drugs produced by the same manufacturer.)

Pharmaceutical drugs differ in price from country to country primarily because demand conditions vary. The formula $p(q_m) = \frac{\varepsilon}{\varepsilon - 1} c'(q_m)$ shows that a monopoly seller would like to charge a higher markup over marginal cost to customers with less elastic demand than to customers with more elastic demand because $\frac{\varepsilon}{\varepsilon - 1}$ is a decreasing function of ε, for $\varepsilon > 1$. Charging different prices for the same product to different customers is known as **price discrimination**. In business settings, it is sometimes known as value-based pricing, which is a more palatable term to relay to customers.

Price discrimination (Value-based pricing)

Charging distinct customers different prices for the same good.

Computer software vendors often sell a "student" version of their software, usually at substantially reduced prices, but require proof of student status to qualify for the lower price. Such student discounts are examples of price discrimination, and students have more elastic demand than business users. Similarly, the student and senior citizen discounts at movies and other venues sell the same thing—a ticket to the show—for different prices, and thus qualify as price discrimination.

- In order for a seller to price discriminate, the seller must be able to
    - identify (approximately) the demand of groups of customers, and
    - prevent arbitrage.

Arbitrage is also known as "buying low and selling high," and represents the act of being an intermediary. Since price discrimination requires charging one group a higher price than another, there is potentially an opportunity for arbitrage, arising from members of the low-price group buying at the low price and selling at the high price. If the seller can't prevent arbitrage, arbitrage essentially converts a two-price system to sales at the low price.

Why offer student discounts at the movies? You already know the answer to this: Students have lower incomes on average than others, and lower incomes translate into a lower willingness to pay for normal goods. Consequently, a discount to a student makes sense from a demand perspective. It is relatively simple to prevent arbitrage by requiring that a student identification card be presented. Senior citizen discounts are a bit subtler. Generally senior citizens aren't poorer than other groups of customers (in the United States, at least). However, seniors have more free time and therefore are able to substitute to matinee showings[4] or to drive to more distant locations should those offer discounts. Thus seniors have relatively elastic demand, more because of their ability to substitute than because of their income.

Airlines commonly price discriminate, using "Saturday night stay overs" and other devices. To see that such charges represent price discrimination, consider a passenger who lives in Dallas but needs to spend Monday through Thursday in Los Angeles for two weeks in a row. This passenger could buy two roundtrip tickets:

Trip One:
First Monday: Dallas → Los Angeles
First Friday: Los Angeles → Dallas
Trip Two:

Second Monday: Dallas → Los Angeles
Second Friday: Los Angeles → Dallas

At the time of this writing, the approximate combined cost of these two flights was US$2,000. In contrast, another way of arranging exactly the same travel is to have two roundtrips, one of which originates in Dallas, while the other originates in Los Angeles:

Trip One:
First Monday: Dallas → Los Angeles
Second Friday: Los Angeles → Dallas
Trip Two:
First Friday: Los Angeles → Dallas
Second Monday: Dallas → Los Angeles

This pair of roundtrips involves exactly the same travel as the first pair, but costs less than $500 for both (at the time of this writing). The difference is that the second pair involves staying over Saturday night for both legs, and that leads to a major discount for most U.S. airlines. (American Airlines quoted the fares.)

How can airlines price discriminate? There are two major groups of customers: Business travelers and leisure travelers. Business travelers have the higher willingness to pay overall, and the nature of their trips tends to be that they come home for the weekend. In contrast, leisure travelers usually want to be away for a weekend, so a weekend stay over is an indicator of a leisure traveler. It doesn't work perfectly as an indicator—some business travelers must be away for the weekend—but it is sufficiently correlated with leisure travel that it is profitable for the airlines to price discriminate.

Direct price discrimination

Charging customers based on their identity.

Indirect price discrimination

Offering a menu or set of prices and permitting customers to choose distinct prices.

These examples illustrate an important distinction. Senior citizen and student discounts are based on the identity of the buyer, and qualifying for the discount requires that one show an identity card. In contrast, airline price discrimination is not based on the identity of the buyer but rather on the choices made by the buyer. Charging customers based on identity is known as **direct price discrimination**, while offering a menu or set of prices and permitting customers to choose distinct prices is known as **indirect price discrimination**.[5]

Two common examples of indirect price discrimination are coupons and quantity discounts. Coupons offer discounts for products and are especially common in grocery stores, where they are usually provided in a free newspaper section at the front of the store. Coupons discriminate on the basis of the cost of time. It takes time to find the coupons for the products that one is interested in buying. Thus, those with a high value of time won't find it worth their while to spend 20 minutes to save $5 (effectively a $15 per hour return), while those with a low value of time will find that return worthwhile. Since those with a low value of time tend to be more price-sensitive (more elastic demand), coupons offer a discount that is available to all but used primarily by customers with a more elastic demand, and thus increase the profits of the seller.

Quantity discounts are discounts for buying more. Thus, the large size of milk, laundry detergent, and other items often cost less per unit than smaller sizes, and the difference is greater than the savings on packaging costs. In some cases, the larger sizes entail greater packaging costs; some manufacturers "band together" individual units, incurring additional costs to create a larger size that is then discounted. Thus, the "24–pack" of paper towels sells for less per roll than the individual rolls; such large volumes appeal primarily to large families, who are more price-sensitive on average.

KEY TAKEAWAYS

- A monopoly seller would like to charge a higher markup over marginal cost to customers with less elastic demand than to customers with more elastic demand.
- In order for a seller to price discriminate, the seller must be able to
- identify (approximately) the demand of groups of customers, and
- prevent arbitrage.
- Since price discrimination requires charging one group a higher price than another, there is potentially an opportunity for arbitrage.
- Airlines commonly price discriminate, using "Saturday night stay overs" and other devices.
- Direct price discrimination is based upon the identity of the buyer, while indirect price discrimination involves several offers and achieves price discrimination through customer choices.
- Two common examples of indirect price discrimination are coupons and quantity discounts.