How Price Discrimination Will Be Different in the Online World

Introduction

Price discrimination is the practice of charging different consumers different prices for the same good, where the price difference cannot be accounted for by differences in cost. The ability to price discriminate enables a seller to charge buyers prices that more closely approximate their willingness-to-pay for the item. By price discriminating, sellers are able not only to maximize their own profits, but also to benefit consumers by offering more goods to more people (goods that otherwise may not be profitable to produce, and people that otherwise may not have been able to afford the items).

Price discrimination is illegal only in situations where the customers are in competition with each other. For example, a consumer goods manufacturer cannot offer trade discounts to one retailer that it does not offer to all retailers. Such practices are considered to be monopolistic, anti-competitive behavior. Price discrimination of end consumers, however, is perfectly legal and prevalent in virtually every marketplace.

The most common taxonomy of price discrimination defines three distinct types: first-, second-, and third-degree price discrimination [1]. The three types are used in situations that differ in how much information the seller has about the buyer. By distinguishing among the three types of price discrimination it is possible to gain a much clearer view of how price discrimination will be different in the online world because some incarnations of price discrimination are much more viable on the Internet than others.

First-degree price discrimination

First-degree price discrimination occurs when a different price is charge for each and every unit offered for sale [1]. The seller is able to charge the customer precisely his willingness-to-pay for the item. If cost effective, first-degree is the most efficient form of price discrimination, in that it maximizes utility (profits for sellers, variety of goods for consumers). To practice first-degree price discrimination, however, sellers must have a great deal of information about the buyer.

In the offline world, first-degree price discrimination is most commonly found in situations that involve lengthy interaction between the buyer and seller and some amount of price negotiation, such as car and insurance sales. The seller, through the one-to-one contact, has the ability to “size up” the buyer and make a reasonable estimate of willingness-to-pay. Then, through the negotiations, the seller can adjust his estimate accordingly.

Online incarnations of first-degree price discrimination have a different flavor. Currently there is a high degree of anonymity associated with the Internet, creating distance between buyer and seller and making interaction- and negotiation-based sales difficult. It is possible that as streaming media becomes more common, negotiations via video conferencing may become more common, but we’re not there yet. However, first-degree price discrimination has found a place on the Internet in the form of reverse auctions. In a reverse auction, a customer names the price he is willing to pay, and the seller decides whether or not to offer him that price. Customers are restricted from bidding on the same item multiple times within a certain amount of time, eliminating their ability to start out low and increase the bid until it is accepted. Priceline is the most commonly cited example of a reverse auction. Reverse auctions are first-degree price
discrimination in its purest form – customers pay precisely what they are willing to pay for an item. The problem with this type of price discrimination, however, is that customers often do not know what their willingness to pay is, or how to determine it. They are used to simply seeing a price and either accepting or declining the offer. As a result, consumers often get confused and frustrated with reverse auctions and take their money elsewhere.

Recent improvements in information gathering and analysis practices have begun to enable first-degree price discrimination in situations where previously it was not cost effective. For example, the retail food industry has begun to offer individually tailored discount coupons at the checkout counter [2]. Frequent shopper cards are used to track customer purchases, which are then utilized to create reasonably accurate estimates of demand at the household level. These demand curves indicate consumers’ price sensitivities to certain items, which can be translated into coupon offerings. Mrs. Smith, who has indicated through her prior purchases that she is a very price sensitive consumer, may be offered a $2.00 rebate on her next purchase of beef tenderloin. Mrs. Jones, on the other hand, a less price sensitive consumer, may only be offered $0.50 off, or no rebate at all. Mrs. Jones probably would have bought the tenderloin whether or not she got the coupon, so she is not affected by the price discrimination. Mrs. Smith, on the other hand, probably would not have bought the tenderloin without the coupon, so she gets the benefit of a wider array of purchase options, while the producer of the beef tenderloin gets a marginal increase in profits (assuming the $2.00 rebate doesn’t put the price of the meat below cost).

The ability to record and analyze volumes of consumer purchase information is increasing both online and offline, so first-degree price discrimination enabled by this information is likely to become increasingly prevalent in both the bricks-and-mortar and Internet spaces.

**Second-degree price discrimination**

Second-degree price discrimination occurs when, through any one of a variety of pricing schemes, a seller is able to induce consumers that place a higher value on a product to pay more for that product [1]. The pricing schemes cause customers to voluntarily self-select into groups based on their willingness to pay. The primary distinction between first- and second-degree price discrimination is the depth of information about the consumer that the seller requires. Second-degree price discriminators need only understand what attributes or benefits of the product are the sources of the different valuations placed on their products by different consumers. The seller can then vary prices based on these product characteristics. The seller need not know the willingness to pay of any individual consumer, or even any characteristics of the groups of consumers with different valuations. Second-degree price discrimination focuses on the characteristics of the product, not the consumer.

The most common forms of second-degree price discrimination are quantity discounts, quality choices, two-part tariffs, and bundling [1]. In the case of quantity discounts, consumers are discriminated based on the value they place on the availability of the product. Customers that use a product frequently are probably more likely to be price sensitive, but also are more likely to place a high value on having the product on hand. Therefore, they are offered volume discounts in the form of multi-packs. The infrequent user has no use for the multi-pack – the extra units would just go to waste – so they get charged a higher per-unit price for a single unit, consistent with their higher willingness to pay. Quantity discounts can be used for price discrimination in the online world just as easily and frequently as they are used offline.
Quality choices are different products with slightly different attributes offered at a price
differential greater than the cost differential between the products. A frequently cited example of
second-degree price discrimination based on product quality is a software package that comes in
two versions that are marginally different in functionality: a high-priced “professional” version
offered to price-insensitive business users, and a low-priced “educational” version offered to
price-sensitive students. Software manufacturers may even permit limited piracy of their
software in the spirit of quality-based price discrimination [3]. It can be argued that the pirate,
who has low willingness to pay anyway, receives a lower-quality product (one with a higher
likelihood of bugs, no technical support, etc.) and may end up actually increasing demand for the
product (through word of mouth, requesting that the software be purchased at work, etc.). Like
quantity discounts, there are no characteristics of quality choice-based price discrimination that
suggest that it will be more prevalent online than offline or vice versa.

Two-part tariffs are situations in which the price of a product is split into two pieces: an up-front
lump sum and a per-unit charge. Different pricing choices that vary in their weightings of the two
pieces are offered, and the consumer self-selects the pricing choice that is most consistent with
his usage patterns of the product (and therefore his willingness to pay). Long distance and mobile
phone service are classic examples of two-part tariffs in the offline world. The consumer must
choose among a variety of calling plans, each with different per base minute and per additional
minute (in excess of the base) prices. Two-part tariffs are particularly useful for products that do
not involve physical goods, like content services such as cable television – you can order the
movie channels or you can pay-per-view. Because of this characteristic, two-part tariffs are likely
to be used extensively for price discrimination on the Internet (assuming that advertising-based
revenue models will not be viable for the majority of websites and they will have to start charging
users for access to content). Two-part tariff-based pricing may also be the future of music and
books. In fact, two-part tariffs on the Internet may provide music and book sellers with a better
opportunity to discriminate among customers than they had in the offline world, where pricing
was much less flexible; each physical object was stamped with a price tag.

Bundling occurs when multiple products are offered together at a total price that differs from the
sum of the per-unit prices. Consumers that purchase the bundle are charged different average
prices for the products than consumers that purchased the products individually. Bundling can be
leverage in price discrimination practices in two ways. First, bundling can be used to separate
users with differing price sensitivities based on their affinity for complementary products. An
unusual example of bundling-based price discrimination occurs in movie theaters [4]. An
argument can be made that the high prices movies theaters charge for popcorn and candy inside
the theater is not monopolistic price gouging, but instead is a form of price discrimination.
Supposedly, the moviegoers that buy snacks at the theater are also the moviegoers that are more
willing to pay a higher ticket price for the movie. Rather than attempt to charge the two groups of
moviegoers different prices at the door, the theater charges high prices for the food, inducing the
less price sensitive moviegoer to buy a premium-priced bundle made up of a ticket and popcorn.
This type of bundling-based price discrimination will occur with comparable frequency in the
online and offline world.

Bundling can also be used to simplify the price discrimination process. Rather than attempt to
identify what customers are purchasing which products for which reasons, and differentiate the
products based on these reasons, a group of products is simply offered together for one price that
is lower than the sum of the individual prices. The bundle appeals to a broad group of customers
who place different values on the individual products within the bundle, but the sum of whose
product valuations are the same. This type of bundling is particularly useful in the pricing of
information goods because content has no physical substance and negligible marginal cost of
production [5]. Therefore, additional items can be placed in a bundle at no expense to the seller, and no increased hassle to the buyer (to transport, store, or dispose of the item). The Internet is an ideal medium for the distribution of information goods, so this type of bundling is likely to appear with increased frequency in the online world.

**Third-degree price discrimination**

Third-degree price discrimination is based on characteristics of the consumer or group of consumers [1]. A consumer somehow indicates that he or she has a particular characteristic, and is charged a particular price as a result. Unlike first-degree price discrimination, consumers are dealt with as groups, rather than individuals. Unlike second-degree price discrimination, willingness to pay is connected with a characteristic of the consumer, rather than the product. For third-degree price discrimination to be effective there must be a strong correlation between willingness to pay and an easily identifiable consumer characteristic, and the seller must know what these correlations are.

Instances of third-degree price discrimination can be separated into two broad types: those in which the characteristics used for discrimination are demographic, and those in which the characteristics used for discrimination are related to buying behavior. Demographic variables often used for price discrimination include age, location, and income level. Senior citizen and student discounts are frequently cited examples of age-based demographic discrimination. It is very common for prices of goods (e.g., gasoline) to vary based on the type of community the stores are located in. It has been argued that financial aid programs at colleges are simply a form of price discrimination based on income level [6].

There is danger related to demographics-based price discrimination, however, because price discrimination based on race, gender, or other variables cited in equal rights law is illegal. A bank in Nebraska eventually settled a lawsuit filed by local American Indians who claimed that they were charged higher prices for loans [7]. To the end, however, the bank claimed that it was not price discriminating at all; it claimed that the higher priced loans were given to customers with lower credit ratings. Unfortunately, the customers with low credit ratings all happened to be American Indians.

Third-degree price discrimination based on consumer buying behavior is effective when willingness to pay correlates closely with a particular purchase pattern. Intertemporal price discrimination (prices that vary based on the time at which a product was purchased) is a form of buying behavior-based price discrimination. Low prices on airline tickets purchased well in advance of the flight fall into this category; consumers who buy early are also generally more price sensitive. Similarly, periodic sales on consumer goods are methods of providing low prices to consumers who are willing to store excess product in their homes (e.g., large families). Another instance of buying behavior-based price discrimination is coupons; lower prices are provided to consumers who are willing to take the time to clip, sort, and save. Loyalty is a consumer buying behavior that can be a double-edged sword for price discriminators. Increased loyalty generally correlates with increased willingness to pay, but consumers will generally be outraged if they find that they are being penalized for being loyal, as Amazon recently discovered [8]. This problem can potentially be circumvented through the use of introductory discounts; instead of raising list prices as loyalty increases, retailers can maintain list prices at a constant high level and offer instantly-applicable discounts to first-time users.
It is likely that third-degree price discrimination based on demographic variables will diminish in the online world. Demographic variables are more difficult to identify and verify on the Internet; a consumer is simply a consumer, unless he chooses to fill out a customer information form and provide his demographics. On the other hand, third-degree price discrimination based on consumer buying behavior is likely to become more prevalent. Customer purchase patterns can easily be tracked on the web, and therefore can easily be used to group consumers by their willingness-to-pay. A consumer that has a click stream that indicates that he has been shopping around and comparing prices may be offered a special discount not offered to a consumer that comes straight to a site.

**Conclusion**

Price discrimination will be just as prevalent in the on-line world as in the off-line world, but its flavor will be different. There will probably be more reverse-auction-based and less negotiation-based first-degree price discrimination. In fact, some transactions that traditionally involved negotiations may be done online using auction processes. Second-degree price discrimination in the form of volume discounts and quality choices will appear online the same way they appear off-line. Two-tier pricing and bundling will become commonplace on the Internet because both are havens for information goods. Third-degree price discrimination, perhaps the most common type, will probably be just as common, but will change in flavor from being based on demographic variables to being based on buying behavior.

**References**


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