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A Research Paper on-Price Discrimination

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Abstract: ***Price discrimination reflects the competitive behavior of the market. The process of arbitrage finds an extension in price discrimination. Simply put, Selling the same product at different prices is price discrimination but there has always been a debate regarding the rules that are applied to the distortionary effects of multiple prices about their rational economic basis, lately, the distortionary effect of price distribution has become more prominent due to ginormous rise of e-commerce, with the widespread application of dynamic pricing models. In this paper, different types of price discrimination are studied along with some mechanisms preferred by the firms to induce the phenomena. Criteria necessary for price discrimination are listed and the application of the tool for crafting business and marketing strategies is explained. Limitations of price discrimination and case studies are discussed.***

Keywords: Price, Price discrimination, Arbitrage, Monopoly, Bundling, Price-strategy

1. Introduction

Charging different rates for the same good or service to different clients is termed price discrimination., of course, depending on what the vendor believes they can persuade the customer to accept. When a merchant uses pure price discrimination, they charge each consumer the highest price they will agree to. In more common types of price discrimination, the supplier divides customers into groups based on certain traits and charges each group a different price. The same goods can be sold by a monopolist at a variety of locations or to a variety of buyers. This is called different prices for the same thing. If the price goes up, some people will stop buying, but others will keep buying. This is because the maximum price that a consumer wants to pay varies from consumer to consumer. This highest price a consumer is willing to pay is considered the consumer's reservation price. Price discrimination is based on the fact that different customers pay different prices for reservations. The goal of different prices is to get more money from some customers. Price discrimination can only work if buyers in the cheaper market can't sell their goods to buyers in the more expensive market, or if buyers in the more expensive market can't sell their goods to buyers in the cheaper market. Buying at some market and selling at a higher price at some other market at the same time is known as **arbitrage**. when two markets are geographically separated, price discrimination is possible. A firm can sell its product in Mumbai at a lower price and in Delhi at a higher price. Of course, if it is a top-rated product with huge demand, traders may emerge. They may arbitrage and equalize the price in two markets. But for small-demand products price discrimination is possible. However, in most cases of price discrimination, the monopoly seller packages the product in such a manner that some buyers willingly pay the higher price. This is known as price discrimination by 'self-selection'.

Objective
- To study different types of price discrimination.
- To study the application of price discrimination as a marketing and business strategy tool.
- To study firm pricing problems and limitations of price discrimination
- To understand price discrimination with the help of case studies.

2. Literature Review

To define price discrimination as charging different clients different prices for the same product, it would appear necessary to define "the same product. " When two similar PCs are sold to different buyers at the same location, on the same day, with similar warranties and service agreements, it is safe to state that "the same product" has been sold. On the other hand, it is far less clear that two London-New York airline tickets for the same date, time, and aircraft, departing from and landing at the same airports, but one being for a business class seat, refundable and re-routable, and the other being for an economy-class, non-refundable and non-reroutable seat, are "the same product". For the theoretical purposes of this article, it will be better to demarcate the type of phenomenon studied not by reference to the question of when products are similar and when they are significantly different but rather, following on the footsteps of economists, by reference to the relation between the prices and costs of a similar product. In general, economists have adopted Stigler's approach to defining price discrimination as occurring when the prices of two similar products differ from the ratio of their marginal costs. By this test, it seems clear, for instance, that the price difference between the hardcover and paperback editions of the same book frequently constitutes price discrimination, as the price difference is significantly greater than the difference between the marginal costs of producing the two editions. The same test will identify whether or not price discrimination exists when an identical physical item is sold in different markets or through different channels (morris, 2015).

The contributions of von Stackelberg (second-degree discrimination) and Mrs. Robinson (third-degree discrimination) later demonstrated particular examples of a more general analytic solution whenever apparent, profit-maximizing norms of approximations are supplied. Pigou's classification system, which discriminated between first-, third-, and second-degree discrimination, was perhaps the first in history. First-degree discrimination for Pigou involved charging as many prices as there were units of the product sold, with each price representing the full reservation value to the real purchaser of the item bought. Third-degree discrimination involves recognizing that there are already two or more distinct groups of buyers with different demand elasticity at a familiar. When a seller quotes two or more amounts, but fewer than the number of units sold, each unit is sold for the highest price among those prices. This is known as second-degree discrimination. (Enke, 1964, 97)

3. Methodology

Price discrimination as an economic tool is studied in a theoretical dimension by using secondary sources like books on Microeconomics, online journal databases (JSTOR, Elsevier, Springers, etc.), informative websites, etc. The practical aspect of Price discrimination is studied by analyzing two case studies.

4. Discussion

Price discrimination definition (a selection of dimensions) criterion to perform price discrimination

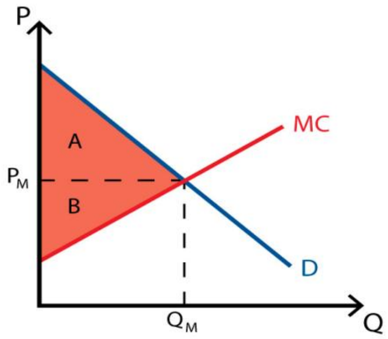
Source	Definition	Dimension
Philips (1985)	Price discrimination occurs when different consumers are charged different prices for the same good.	Economics
Bishop and Colwell (1989)	Price discrimination is one action that is consistent with maximizing profits.	Macroeconomics (Grundey, 2011)

1) For the manufacturing company to have complete control over the pricing, it must be imperfectly competitive.
2) Differences must be based on distinct factors, such as time, amount, and consumer.
The market must allow for segmentation.
4) The price elasticity of demand must vary in accordance with all bases of variation, such as changing product quantities and different clients. (Varian, 1989)

Different types of Price Discrimination
Pigou in his book distinguishes between three types of price discrimination.
1) First degree (or perfect) discrimination.
2) Second-degree price discrimination
3) Third-degree price discrimination.

First-Degree Price Discrimination
This pricing strategy is based on the assumption that a producer (a monopolist) can sell each unit of an item separately and charge the price that a consumer is willing to pay, presumably after negotiating. In this scenario, given a set average cost of the product, the producer would be able to get all of the consumer surpluses, the revenue would be the highest, and the profit would be the greatest feasible. Internet and cable subscription services are common examples of discrimination in the first degree. (Alhabeeb, 2019)

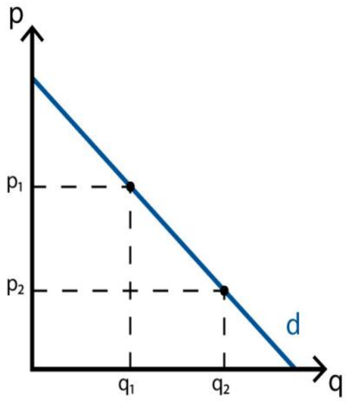
The service provider may automatically renew the contract after the first year at a higher monthly charge. Customers who raise concerns about the higher price might be given a discount to keep the service, while others who don't continue to pay the higher price. A Pareto efficient output level will always arise from this level of price discrimination because the marginal willingness to pay will always be equal to the marginal cost. Due to this, and despite the fact that monopolies are connected with this method, the output production level will be equal to that of a competitive market, eliminating the inefficiency associated with monopolies. The producer surplus is equal to the entire surplus (A+B), as seen in the adjacent figure. Even though there is no consumer surplus (A, which was extracted by the monopoly), there is no deadweight loss, and in the end, both quantity and price are identical to what would occur in a situation of perfect competition. (Datta, 2017, 217)



Source: policonomics.com

Second-degree price discrimination
Comparatively, second-degree is more prevalent than first-degree pricing discrimination. It involves determining prices based on the volume of goods purchased. Block-based differential pricing involves charging the highest price per unit for the block at the top of the demand curve and gradually lowering the price for subsequent blocks as they descend the demand curve. While a company would only extract a portion of the consumer surplus under this marketing technique, it is still a process aimed at maximizing earnings (Alhabeeb, 2019). The second-degree pricing discrimination practiced by power, gas, and water suppliers is known to offer higher block rates for a specific size of consumption but lower per-unit rates as consumption size increases.

Consider the next figure: By providing discounts for larger purchases, a monopoly can apply this kind of pricing discrimination to a specific consumer. Not the market's demand curve, but the consumer's, is what d represents. A portion of the customer surplus can be taken by the monopoly by giving a lower price, p2, for quantity q2. Like two-part tariffs, this price discrimination operates in a similar manner. However, in this instance, the monopoly will not impose an entrance fee but instead will include it in the discounted price that is provided to the customer (Gallego, 2013).



Source: policonomics. com

Third-degree price discrimination

When an imperfectly competitive corporation uses a marketing plan to clearly divide the market into various categories and charges them various rates for the same product, this sort of price discrimination takes place. Classic instances of this pricing discrimination include marketing strategies that offer apparent charitable and altruistic discounts to senior citizens, children, students, veterans, or any other market niche that is defined by an attribute like age, occupation, marital status, or the like. Each consumer will be charged a different price, but it will remain constant whatever the amount bought. This degree of discrimination is the most commonly used by firms and it includes examples such as students or third-age discounts. Each consumer will be charged a different price, but it will remain constant whatever the amount bought. This degree of discrimination is the most commonly used by firms and it includes examples such as students or third-age discounts. (Datta, 2017, 219)

By dividing the market into segments for kids, adults, and the elderly, theaters engage in third-degree price discrimination. Usually, adults pay the maximum fee, with children and the elderly receiving discounts. The main reason is that kids will almost always bring an adult. Going to the movies as an adult is more affordable overall than paying for child care. Adults profit from having to pay less to bring their kids, but the theater also gains from increased spending on peripheral products like popcorn. Simply put, by giving children lower rates, it attracts both more adults and more children (Boyce, 2020).

One of the best examples of a company adopting the pricing discrimination tactic is the Canadian entertainment company Cineplex. Tickets for the same movie are priced differently depending on the age group. Additionally, Cineplex has varied pricing depending on the day (Tuesday being the cheapest and weekends being the most expensive). Here is a diagram from Cineplex for a Monday movie screening. (*Price Discrimination-Definition, Types and Practical Example*, 2022)

	Child (3-13)	General (14-64)	Senior (65+)
General	$9.25	$13.25	$9.99
3D	$12.25	$16.25	$12.99
UltraAVX	$12.25	$16.25	$12.99
UltraAVX 3D	$14.25	$18.25	$14.99
D-BOX UltraAVX	$20.25	$24.25	$20.99
D-BOX UltraAVX 3D	$20.25	$24.25	$20.99

Source: corporatefinanceinstitute.com

Some methods of price discrimination

Intertemporal price discrimination

Utilizing time as a tool of difference is one way to differentiate prices. This practice of the monopoly firm charging different rates for the same good at various times is known as inter-temporal price discrimination. In the market, intertemporal pricing discrimination is typical. Not all customers act as quickly to purchase a new product when it enters the market. There are many consumers who are not as enthused about the new product, despite the fact that some consumers are willing to pay a premium price for it. Similar things occur when new novels are published. Many eager readers prefer not to hold off on purchasing and reading the book. Now, if the business is aware that some customers are willing to pay a high price even though they know the price may decrease in the future, it is possible to engage in intertemporal price discrimination.

Price discrimination by versioning

Another way of price discrimination is offering multiple version of a product and charging differently for each edition. Monopolists charge a greater price for versions of higher quality and a cheaper price for versions of lower quality. Versions are produced in the same quantity as the targeted market segments.

Software of many kinds is one example of versioning. The software provider offers several editions, including professional, standard, student, etc. The student edition caters to this market and has the most affordable price. The cost of the professional edition is greater. The many channel bundles offered by TV channel providers like Tata Sky and Dish TV are an example of versioning.

Price discrimination by Bundling

Bundling refers to the practice of a business offering a number of products in a single package at a set price. Consider a situation where a good is sold separately for a high price and is sold in a bundle with another good for a lesser price. The Windows operating system is a nice illustration. When a consumer purchases a laptop with the Windows operating system already installed, she must pay a substantially cheaper price. However, the cost is significantly higher if the window operating system must be purchased separately. In this instance, the business divides the market into two groups of customers: those who want to purchase the bundle and others who are content to purchase just one good. Bundling aids a firm in the following way: Consider a product where the reservation cost for a high-paying group and a low-paying group differs significantly. The pricing must remain the same as the reservation price for the low-paying group if the company wishes to offer the goods to all groups (Datta, 2017, 224). However, by providing the high-paying groups with a bundle of another product, whose price is kept high for exclusive purchase, the company can share the high reservation price of the high-paying groups. consider table-

	Product 1	Product 2
Group 1	100	20
Group 2	80	10
Group 3	75	25

If the company sells both products to every group, its revenue will be (75 x 3 + 10 x 3) = 255. By raising the cost of Product 2 to 20, the company makes (75 x 3 + 20 x 2) = 265. But let's say the company provides a bundle of the two products for a price of $100 and sets the pricing for product 1 at $80 and product 2 at $30. Groups 1 and 3 purchase the bundle, whereas Group 2 purchases just Product 1. The company made (100 2) + 80 = 280 in sales. (Datta, 2017, 224)

Business strategy of price discrimination

It is challenging to identify the high-price market segment and determine the price elasticity of demand because consumer desire to pay is unobservable. Looking at a few customer traits that are connected with the willingness to pay is one indirect technique to carry out this task. For instance, students' collective willingness to pay is low. The willingness of businesses to pay for air travel exceeds that of individuals. Older folks are frequently retired, and thus have a low desire to pay. As a result, the company can consider the consumers' ages, institutional affiliations, user status, etc. The location of the clients can also provide some information on price sensitivity. The goods sold in upscale retail establishments or exported to wealthy nations may be of high quality and cost. (Datta, 2017, 224).

Application in Marketing

Numerous empirical research has supported the usefulness and efficacy of price discrimination as a strategy to draw in more customers. Gain more clients, raise sales, and increase earnings. Numerous of these investigations discovered convincing third-and second-degree pricing discriminatory market data went on to make the unmistakable claim that the application of coupon pricing (as a type of price discrimination) by a firm increased the output of the good and enhanced welfare. Price discrimination is the practice of charging various rates for the same good or service depending on the consumer, market, quantity, and time. The pricing discrepancy must not be based on cost. Taking advantage of possibilities to boost revenue and ultimately maximize profits is the main goal of this technique. Technically speaking, it is a managerial/marketing technique to effectively extract the highest amount each customer is willing to pay in order to efficiently capture the highest of the consumer surplus. (Alhabeeb, 2019)

Market segmentation is a marketing technique that involves identifying certain customer groups in order to deliver particular goods or product lines to them in a way that appeals to their preferences., price discrimination is frequently used. Then, a distinct pricing approach is used for each segment's target market. Some businesses might geographically segment their clientele by lowering prices in areas where the average household income is lower. Customers in a submarket that is relatively inelastic pay more, whereas customers in a submarket that is relatively elastic pay less. Price discrimination allows a business seeking to increase sales to distinguish between market segments, such as home and industrial consumers, with various levels of price elasticity. Markets need to be maintained apart in terms of time, distance, and type of use. For instance, educational institutions can purchase the Microsoft Office Schools edition for less money than other customers. A company with some market dominance that offers a variety of services can set its prices to maximize profit, and as a result, its prices won't have a direct relationship (either absolute or relative) to marginal costs. The ability to charge above marginal cost is one way to exercise market power. (Anderson, 2008)

Price Discrimination and Firm Pricing Problem

Price discrimination cannot effectively address a company's pricing issues unless it satisfies these three requirements. First, the company must hold some level of market dominance. The business also needs a system for categorizing its clients. Third, the company needs to be able to stop resale.

Price discrimination naturally develops from the monopoly and oligopoly theories. There is an incentive to practice price discrimination whenever a good is sold for more than its marginal cost. Because if a price is above its marginal cost, it means that someone is ready to pay more than it would cost to produce an additional unit of the thing. While decreasing prices for all consumers might not be viable, doing it for just the marginal consumer is probably going to be. The business must have a method of sorting customers in order to cut prices exclusively for marginal customers or, more broadly, for a certain class of customers. The simplest scenario is when a company can openly group customers according to an external characteristic, like age. When the firm must price discriminate on the basis of an endogenous category, such as time of purchase, a more involved analysis is required. The monopolist here must figure out how to set his pricing so that customers "self-select" into the right categories.

The business must have the means to stop customers who buy at a discount from reselling to other customers if it is to sell at various prices to different consumers. Carlton and Perloff (forthcoming) go over a number of methods that can be used to stop reselling, including:

1) Due to their nature, some items, such as services and electricity, are difficult to resell.
2) Additional obstacles to resale include tariffs, taxes, and shipping expenses. Publishers frequently sell books at various rates in several nations, for instance, and rely on shipping expenses or tariffs to limit reselling.
3) Reselling may be legally prohibited by a company. For instance, computer makers frequently provide educational discounts combined with a legal clause that prohibits resale.
4) A company can change its product. For instance, several businesses offer software in student editions that has fewer features than ordinary versions. (varian, 1989)

Limitations of Price Discrimination

With firms practicing price discrimination, there is always a scope of unfairness on the part of customers. Economically, price discrimination fetches good returns but, administrative costs and time invested to strategise and differentiate the market need to be born. There is also a risk of reduction in consumer surplus. Adverse selection problems can always arise in price discrimination if firms lack true and wholesome knowledge about the customers. Firms undertake unethical means to gather information related to consumer taste and preferences to perform targeting and segmentation using price. Price discrimination intends to convert consumer surplus into producer surplus, thereby making it socially unjust in quite a few cases. (morris, 2015)

5. Case Study

Indian Railway as a Monopolist

Indian Railways (IR) is the nation's solely owned railroad. Increasing Returns to Scale are seen in the railway network (IRS). This suggests that as the railway industry grows, the average cost per passenger or tonnage moved decreases. Trading with the IRS is referred to as natural monopoly. Indian Railways thus controls the nation's rail transportation as a monopoly. With little over eight billion people and about 900 million tonnes of freight transported yearly, it is one of the biggest and busiest rail networks in the world. With more than 1.3 million employees, IR is the largest employer of business personnel globally. The power of Indian Railways to raise pricing is an intriguing subject that arises. The number of passengers carried by the Indian Railway has not decreased in the past. These include factors like population growth and rising affluence, both of which are likely to drive higher demand for common goods like passenger transportation. Therefore, it may be concluded that the rightward shift of the demand curve in India's population and per capita income has so far overcome the effect of price increases. However, things have changed in 2014. The passenger traffic has fallen for the first time in the history of Indian railways. As a result, despite a 20% fare increase in January 2013, the national transporter had to lower its revenue expectations from the passenger segment for 2014. The decline in passenger volume of 18 million over the first two months of the 2014 fiscal year is a mystery to the railways. The current trend worries Indian Railways because it is expected to demonstrate the significant price elasticity of the passenger segment. With an operational ratio of 90.4% (90.4% of income is spent on operating expenses), the Indian Railways' finances are now in bad shape and do not have the money to replace aging infrastructure and rolling stock. Modernization and expansion are impossible under this scenario. But why has Indian Railways' passenger volume recently decreased? We now know that demand is based on the availability of substitutes. The expansion of road connectivity and the rise in wealth levels in India have made low-cost air travel more accessible to the general public, providing an alternative to rail travel. The demand for high-class rail travel is negatively impacted by price increases for higher-class rail travel because they narrow the price gap between high-end rail and low-end air travel. These elements cause a leftward shift in the demand curve for railroad services. The limitations of monopolistic power are demonstrated by Indian Railways' experience. The monopolist is not allowed to set any price it wants. Its pricing power is reliant on the presence of alternatives. Any price increase by the monopolist reduces the demand so drastically that the market becomes price elastic when there are more substitutes accessible (own price elasticity is greater than unity). The monopolist has now established the equilibrium price and quantity and has stopped raising the price. (Datta, 2017, 215)

6. Conclusion

" Nobody spends someone else's money as wisely as he spends his own"-Milton Friedman

Price discrimination is a microeconomic tool that aims to draw as much money as possible out of the consumer's hand. It can be a serious concern if its exclusionary and exploitative effects are not curbed. However, the proper prognostic analysis should be done to restrict only such price discriminatory practices in which competition is harmed. Concepts of Price discrimination are not so clear if products are different and proper attention to privacy is necessary. The stronger the trade, technology (ICT), and arbitrage gets, the higher the chances of creating consumer benefit out of price discrimination.

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