

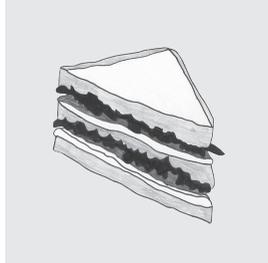
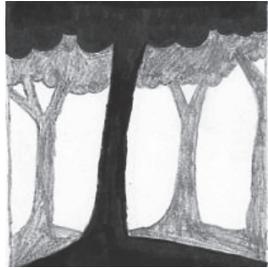
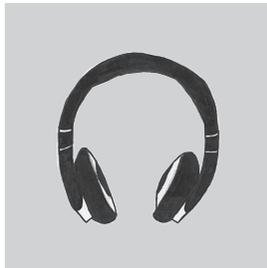
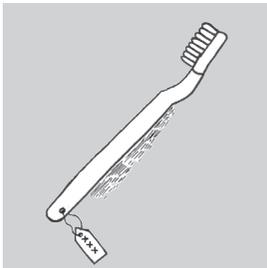
# Why do we pay more than others?

The Cases of Price Discrimination



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Yingyot Chiaravutthi.

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## PREFACE



I have been teaching economics for more than 20 years. Based on students' feedbacks, I have come to a realization that many economics and business students do not appreciate the applications of the subject. It is understandable when textbooks contain many mathematical models, with little real-world connection. The trees have blocked the forest when students cannot see the forest of applications, and when the trees of formulas and graphs hide the broader perspective from their sight.

Price discrimination is one of the topics in "Industrial Organization", that I particularly favor, since there are varieties of perspective to explore namely, strategy, efficiency, and ethics. Although this topic has always been presented as sellers' pricing strategy, this book challenges readers to assume the buyers' role instead.

My aim is to minimize the theoretical aspect, but include as many real-world cases as possible. The book is written as a required text for a general education class that shares the book title, but it could also serve as supplementary reading in microeconomics, industrial organization, marketing, or pricing courses. The contents are assessable to general readers without any economic or business background.

Yingyot Chiaravutthi, Ph.D.

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# CHAPTER 1

## INTRODUCTION



### Objective

Readers are expected to recognize that buyers do not pay the same price for the same product or service; acquire basic understanding of different degrees of price discrimination, and conditions of successful price discrimination.

### 1.1 Same price for everyone?

Imagine yourself deciding to buy a new toothbrush at the usual convenience store near your house. You walk into the store, looking for the aisle that has different brands of toothbrushes. Among all the varieties of toothbrush, you already know which brand, which model, and which color that you want. It is the same one that you have been using for years. You see a price tag of 120 Baht which does not surprise you. So you decide to buy it.

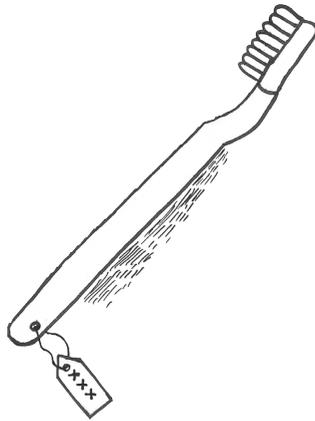


Figure 1.1 Does everyone pay the same price for this toothbrush?

Obviously, if you and other buyers prefer dissimilar brands or models of toothbrush, prices could be different among buyers. But have you ever asked whether the 120 Baht price for that specific toothbrush is applied to everyone? In another word, do you think other buyers are paying exactly the same price as you for exactly the same product?

Or next time, you decide to shop for weekly groceries through an online supermarket; and that specific brand and model of toothbrush is in your virtual shopping cart. How certain are you that others are paying the exact same price for the toothbrush, or even for all the items in the cart? Is it possible that others are paying less than you? And when the answer is yes, a more important question is



...why do we pay more than others?

You are a true fan of superhero movies, and you also like to spend your Saturday afternoon at the theatre. You cannot miss the release of a new superhero movie, even for one more week. The ticket costs you 200 Baht for the Saturday afternoon show. With some popcorn and soda, the experience has satisfied you that you never bother to ask yourself whether others are paying the same price as you. Or when the pandemic has prevented you from visiting a theatre, you decide to kill your Saturday afternoon by subscribing to the streaming service instead. Although the 100 Baht/month is affordable to you, do you think everyone is paying the annual 1,200 Baht subscription rate?

For simplicity, we will focus only on the interaction between sellers and buyers, without distinguishing among manufacturer, producer, and seller. In another word, manufacturers produce and sell their products directly to consumers. In addition, we rely on simple meanings of revenue, cost, and profit, as shown in the following equations:



$$\text{Revenue} - \text{Cost} = \text{Profit}$$

$$\text{Price per unit} - \text{Cost per unit} = \text{Profit per unit}$$

This book is not about why and how prices are set. Those questions are beyond the scope of this book. We ask a different question here. For a specific brand and model of a product, setting only one price for everyone (i.e. uniform pricing) is not the only possibility. In many cases, sellers set different prices for different buyers; as such, some of us pay more and some pay less. In economics, this is called “price discrimination”.

## 1.2 The Motive of Price Discrimination

For illustration, assume that there is no cost of producing and selling a product. There are two buyers who demand this same product; but they have different valuations regarding how much they are willing to pay (WTP), as follows:

Table 1.1 Uniform price and decision to buy

	<u>Buyer A's WTP</u>	<u>Buyer B's WTP</u>
	50 Baht	120 Baht
Price 50 Baht to both	Buy	Buy
Price 120 Baht to both	Not buy	Buy



As long as the price is not greater than the buyer's WTP, buyers will purchase. As a result, if the seller employs a uniform price, the seller has to choose between either 50 Baht or 120 Baht. If 50 Baht is chosen, both buyers will buy and the seller will receive Baht 100. However, this low pricing implies that the seller will lose the opportunity to sell to Buyer B at a higher price.

Another choice is to set the price to be 120 Baht. With this high price, Buyer B will pay; but Buyer A will not purchase and the seller will eventually sell only one unit. After comparing the revenues of 100 Baht and 120 Baht, the seller is better off by setting the price at 120 Baht. With the cost of 0 Baht, the seller has maximized profit from this pricing. Or has she (or he)?

Under price discrimination, the seller sets the price of 50 Baht for Buyer A and the price of 120 Baht for Buyer B. With this, both buyers will demand. The seller now earns 170 Baht profit, which is more than the profit from uniform pricing.

Table 1.2 Price discrimination and decision to buy

	<u>Buyer A's WTP</u>	<u>Buyer B's WTP</u>
	50 Baht	120 Baht
Price 50 Baht to A	Buy	-
Price 120 Baht to B	-	Buy



It should be noted that the terms “demand” and “WTP” are used interchangeably here; although technically they convey different meanings, since “demand” requires both the willingness and the ability to pay.

### 1.3 Justification of Price Discrimination

Price discrimination happens when a seller sets different prices for “similar” products to different buyers when such differences cannot be explained or justified by cost differences. For readers with a microeconomics background, comparison between price and marginal cost is required (Stigler, 1987).

Understandably, if a product costs more to produce, a higher price is justified and it is not a price discrimination; see CASE 1 for example. CASE 2 happens when products are identical, but the seller charges different prices to different buyers. And since price differences cannot be justified, it is a price discrimination.

Table 1.3 Cost justification or price discrimination

		Price Discrimination?
CASE 1	Cost 50 Baht → Price 100 Baht = Profit 100% Cost 100 Baht → Price 200 Baht = Profit 100%	No
CASE 2	Cost 100 Baht → Price 150 Baht = Profit 50% Cost 100 Baht → Price 200 Baht = Profit 100%	Yes



Table 1.3 Cost justification or price discrimination (Continue)

	Price Discrimination?
CASE 3 Cost 50 Baht $\rightarrow$ Price 100 Baht = Profit 100%	Yes
Cost 100 Baht $\rightarrow$ Price 500 Baht = Profit 500%	

CASE 3 is not simple to reach a conclusion since both costs and prices are different. However, though the seller offers two “similar” products to attract two groups of buyers, profits from the 100 Baht price (100%) and the 500 Baht price (500%) are not proportionately equal. This case is a price discrimination, even though the products are not necessarily identical. Thus “similar” products can be a part of sellers’ deliberation, which requires more discussions and examples in later chapters.

## 1.4 Degrees of Price Discrimination

In economics, there are three degrees of price discrimination (Pigou, 1932). For the *first-degree price discrimination*, a seller sets different prices to different individual buyers based on each and everyone’s maximum WTP, see Table 1.4. Undoubtedly, this degree of price discrimination is not practical unless sellers have information about buyers’ WTP. Without any formal proof, readers should expect that a seller that practices this pricing scheme will eventually make a lot of profits.



Table 1.4 Example of first-degree price discrimination

	Price
Buyer X's WTP = 200 Baht	200 Baht
Buyer Y's WTP = 180 Baht	180 Baht
Buyer Z's WTP = 160 Baht	160 Baht
...	...

The first-degree price discrimination has been rare in the real world until recently; but with e-commerce and the sellers' ability to utilize buyers' personal data, personalized pricing or individualized pricing is now more easily accomplished.

In the *second-degree price discrimination*, prices depend on how many units you purchase. The more you purchase, the cheaper the price per unit is. Under this degree, information about buyers' WTP is not required. As such, a seller could offer different prices for different quantities, and let buyers select by themselves. Based on the following example presented in Table 1.5, it is a price discrimination since a buyer who chooses a 1-kg. bag of rice pays 50 Baht /kg. while those who pick the 5-kg. bag will end up paying 40 Baht /kg.



Table 1.5 Example of second-degree price discrimination

Choices	Price/kg.
1 kilogram of rice → Price 50 Baht	50 Baht
5 kilograms of rice → Price 200 Baht	40 Baht
...	

Sellers employ different prices to different groups of buyers, under the *third-degree price discrimination*. In this case, sellers classify buyers into different groups or types, and apply different prices to them; for example, a higher price is applied to the high-WTP group and a lower price is applied to the low-WTP group. Unlike the first-degree price discrimination, information about individual buyer's WTP is not needed in this third degree.

Technically, the classifications of buyers are based on their *price elasticity*, or price sensitivity. Buyers who are inelastic or insensitive in terms of price, generally have a higher WTP; while buyers with a higher price elasticity or sensitivity have a lower WTP. Price elasticities can easily be figured out by mathematical formula in textbooks, but are not a simple task in the real world. In addition, breaking down consumers into two groups is an easy way to teach and learn price discrimination, but sellers are definitely not constrained by “two” groups in reality.



It should be noted that the terms group pricing, segment pricing, or dynamic pricing convey similar meanings to the third-degree price discrimination.

## 1.5 Conditions of Price Discrimination

Although price discrimination could potentially give sellers more profits, it is not easily implemented. To successfully implement the price discrimination strategy, three conditions have to be met (Varian, 1989).

First, a seller needs to have some *market power*. Imagine that there are several sellers selling exactly the same product to buyers, and you are one of those buyers. If you realize that one seller has practiced the third-degree price discrimination, by charging you a higher price than other buyers because you have higher WTP. What would you do? Since there are many other sellers of the same product, you will definitely go to other sellers instead. Consequently, price discrimination will not be a success.

Market power is the reason why buyers purchase from a particular seller, rather than its competitors. The power is derived from lack of competition in the market, sellers' product differentiation, or buyers' incomplete information about seller's pricing strategy; to name a few of the relevant factors. For example, if you prefer a particular brand of toothbrush because of its unique features, you will not buy from other sellers even if their prices are cheaper.



Second, there must be *no resale* among buyers. When buyers with lower WTP purchase more units than what they actually need and resell those to higher-WTP buyers, price discrimination ceases to exist. From the earlier example, buyer A could purchase two units at the price of 50 Baht, and resell one unit to buyer B at a price higher than 50 Baht but lower than 120 Baht. Buyer B will purchase from buyer A, rather than directly from the seller. This prevents the seller from selling to a higher WTP buyer.

Up to this point, this book does not distinguish between sellers selling physical products and sellers providing services to consumers; and the term “product” actually includes both. But since it is easier to resell physical products than services, price discrimination has a higher chance to be successful for service providers. Consider the following price list for dental services in Figure 1.2. Children do pay a cheaper price for cleaning, but can an adult ask for the children’s price?

Dental Service Price	
■ Extraction	400 Baht
■ Cleaning - Adult	400 Baht
■ Cleaning - Child	250 Baht
■ ....	

Figure 1.2 Can an adult pay the children’s price?



The third condition is the sellers' *ability to identify buyers' WTPs*. Not all buyers have the same WTP and sellers may be able take advantage of that difference. For the first-degree price discrimination, the seller's challenge is how to access every individual's WTP.

As for the third-degree price discrimination, the objective is to classify consumers into high WTP and low WTP groups. Buyers will never reveal that they are willing to pay more; and hence, paying an expensive price. Most of the time, buyers themselves do not even know which group they belong to.

Sellers, on the other hand, need to rely on various explicit factors, hidden cues; and sometimes, devise certain tools to separate consumers into different groups. The main content of this book focuses on these factors, clues, and tools.

## 1.6 Model of Price Discrimination

There are several approaches that price discrimination is conducted. Such approaches can be classified based on buyers' awareness and sellers' action, as presented in Figure 1.3. In case that the seller's price discrimination is obvious, buyers are aware of such action and it is considered "uncovered". Buyers' awareness is "covered" when the seller' action is hidden and not obvious to buyers. In many cases, price discrimination can be an "end" strategy, which does not require any product adjustment. In other

cases, sellers have to construct a “means” in order to eventually price discriminate; such “means” could be a bait, an additional product or service, or an integration of several products or services.

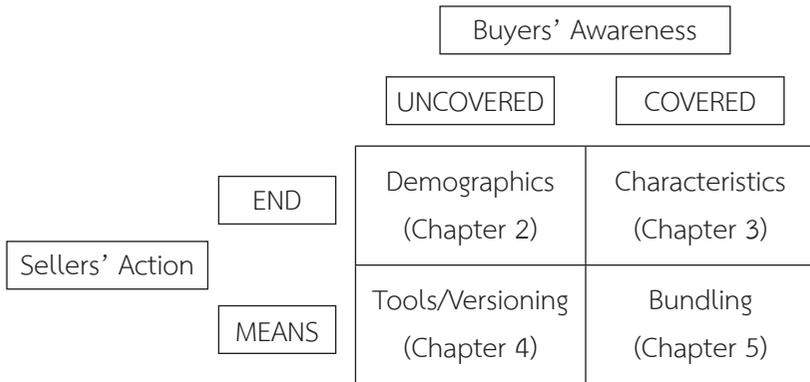


Figure 1.3 Model of Third-Degree Price Discrimination

**Chapter 2** presents examples of how sellers divide buyers into groups based on demographic factors. This is obvious to buyers and does not require sellers’ adjustment of their existing product or service. **Chapter 3** discusses varieties of individuals’ characteristics and personalities which can be used for the purpose of buyers’ classification. Since buyers’ characteristics are not directly observable, price discrimination is covered.

Beside stated behavioral factors, many sellers rely on certain implicit or hidden cues in determining buyers’ WTPs. In such cases, sellers cannot directly price discriminate, but have to



monitor and interpret buyers' signs or signals. In addition, sellers could simultaneously offer "similar" products or several versions of the same product, albeit targeting buyers with different WTPs. Sellers reveal all versions to buyers, and buyers ultimately choose what version is suitable for them. Those tools including the versioning strategy are discussed in **Chapter 4**. **Chapter 5** points out how a bundle of two or more related products is considered price discrimination. Since all buyers end up paying the same price for the bundle, buyers are not aware that there exists price discrimination in such bundling. Sellers could also hide the second-degree price discrimination through their tie-in tactic.

**Chapter 6** debates the ethicality of price discrimination in terms of consumers' dissatisfaction and societal welfare. The rise of first-degree price discrimination in the digital world and its criticism is presented. **Chapter 7** offers answers to frequently asked questions about price discrimination, including whether governments price discriminate. Lastly **Chapter 8** provides a summary of the book's contents.

All in all, Chapters 2 to 8 are a compilation of real-world cases of price discrimination from various products and services, particularly examples from Thailand. Readers will realize that price discrimination is not just a theory in textbooks; rather, it is applicable to our daily life. At the end, these examples remind readers that sellers do not need to set a single price for everyone, so we do not pay the same price as others.



## Summary

Sellers price discriminate in order to maximize their profits. The consequence is that buyers do not end up paying the same price for the same product or service. Under the third-degree price discrimination, sellers break down buyers into different groups based on their willingness to pay (WTP). Price discrimination is conditional on sellers' market power, sellers' ability to identify buyers' WTP, and no resale of product and service among buyers.

## Discussions

- ❖ Based on your own experience, pick one product AND one service that you think the sellers have been price discriminating. Are you the one who pays less or more than others?
- ❖ If you pay less than others, what is "unique" about you? But if you pay more, are you angry?



# CHAPTER 2

## PRICE DISCRIMINATION BASED ON DEMOGRAPHICS



### Objective

Readers understand how sellers employ various demographic factors in price discrimination. Examples help readers recognize such practices in daily life.

The simplest way to divide buyers into different groups is to use demographic factors. Many readers probably consider income level as the most important factor, since it is related to ability to pay and WTP. The issue is that sellers usually do not know buyers' income level, and buyers do not easily accept higher price because they are richer. If sellers do not know how rich each individual buyer is, other demographic factors have to be used instead.



Table 2.1 Demographic factors for price discrimination

Nationality	Case 2.1: Why did you turn off the meter? Case 2.2: Two-tiered pricing Case 2.3: Price of education Case 2.4: Just across the border Case 2.5: Streaming, everywhere
Gender	Case 2.6: Short hair doesn't help Case 2.7: Ladies night means Men night Case 2.8: Pink, an expensive color
Age	Case 2.9: The "benefit" of being jobless Case 2.10: The age of dating
Having Children	Case 2.11: "Tea" time Case 2.12: Poor parents
Location	Case 2.13: The cost of living here

## Case 2.1

### Why did you turn off the meter?

When foreign tourists arrived at Samui Island and witnessed the following fare chart, they complained to the local authority. Although it appeared that both Americans and Europeans were charged equally; with stronger Euro in 2018, European tourists essentially had to pay more.