CHAPTER I

INTRODUCTION

1.1 Rationale

Price dispersion of the same product has been widely accepted among buyers in Thai pharmaceutical market. This phenomenon is explained by a number of logical reasons such as the difference in volume bought among buyers, difference in bargaining power among buyers, etc.

1.1.1 Current Price Differences Situation

The compilation of a few drugs based on 2002 data of pharmaceutical product prices and quantities bought through group purchasing downloaded from http://www.dmsic.moph.go.th (Drug and Medical Supply Information Center, Ministry of Public Health (MOPH)) has confirmed evidence of price dispersion. This database has collected purchased prices and quantities of drugs from MOPH's public hospitals in provinces of which some drug items have been group purchased. Data summary illustrated in the tables 1.1-1.2 points out that the drug price of the same product is dispersed across provinces and it is related to neither quantities bought nor transportation cost. This phenomenon calls for more in-depth exploration and explanation.

Table 1.1 Quantity and purchased price by group purchasing
(Enalapril 20 mg package size 100 tablets of one manufacturer)

Province	Quantity (package)	Purchased Price (baht)
NE-2	394	110.00
E-1	456	57.00
NE-1	590	78.00
S-1	825	69.00
N-1	849	67.00
C-3	884	86.00
NE-2	1,730	85.00
S-3	1,987	128.00
C-1	2,944	57.00
S-2	4,878	70.00
C-2	4,910	71.00

Note: S = *Southern region* NE = *North-East region*
C = *Central region* N = *Northern region*
Number represents each province within the region

Table 1.2 Quantity and purchased price by group purchasing
(Diclofenac 25 mg package size 1000 tablets of one manufacturer)

Province	Quantity (package)	Purchased price (baht)
C-1	483	105.00
E-1	491	104.00
NE-1	688	100.00
S-2	730	214.00
N-1	1,131	130.00
C-2	1,500	110.00
NE-3	2,339	116.00
S-1	2,357	140.00
NE-2	2,964	105.00

Note: *S = Southern region* *NE = North-East region*
C = Central region *N = Northern region*
Number represents each province within the region

Although the existence of price variation among pharmaceutical products is generally recognized, how much and why these differences occur has not been thoroughly studied. Theoretically, price dispersion could stem from two sources: cost differences or discrimination(Borenstein & Rose, 1994). Dispersion due to cost differences seems to be justified for the market whereas discriminating-induced price dispersion needs intensive investigation and in most cases are urged for control.

1.1.2 Price Discrimination

Price discrimination is one of firm's pricing strategies that aim at maximizing their profit. It is defined as the situation where firms charge their product differently according to elasticity of demand and these charges are not related to cost difference (Denzau, 1992). The firms discriminate by charging higher to buyers who have lower elasticity of demand and charge lower in the group of higher elasticity of demand.

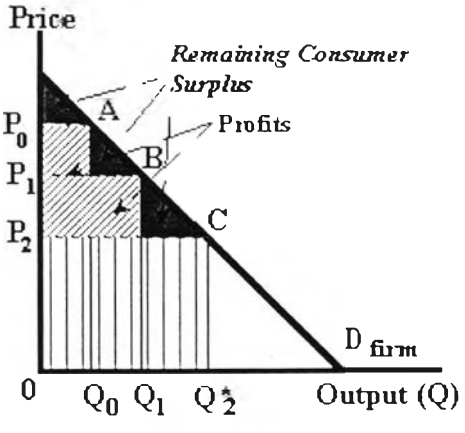

Figure 1.1 Price discrimination segmented consumers by quantity bought (Ruby, 2003)

From figure 1.1, when the firm knows exactly that consumers who buy less quantity have lower price elasticity of demand than the ones who buy more, the firm will charge consumers buying more at lower price than the ones who buy less. Moreover, they will try to extract all consumers' surplus by charging closer to consumers' willingness to pay as much as they can especially for the ones who buy less (lower price elasticity of demand).

In monopoly market, price discrimination is limited only by the diversity of the demand elasticity in the customer population and by the firm's ability to segment demand. In the standard textbook, price discrimination cannot be sustained in the perfect competition market. If one extrapolates from these polar cases the degree of observed price discrimination would be expected to decrease as more competitors enter to a market. Theoretical works by Borenstein (1985) and Holmes (1989) indicate, however, that price discrimination may increase as a market moves from monopoly to imperfect competition (Borenstein & Rose, 1994).

Price discrimination is very common in various markets. It may look fair and cause not much problems in perfect competition market where buyers make decision to buy or not to buy by themselves based on enough information, their utilities, and ability to pay.

Looking from the other extreme, in imperfect competition market like pharmaceutical market, price discrimination allows firms to maximize their profit on customer's health need. This is considered to be unfair and causes more problems since health need cannot be waited for money saving, some of them have to continuously consume the product. Ones without ability to pay have to trade off between expensive treatment and death causing low elasticity of demand of health services. Additionally, the one who consumes is not the one that makes decision, instead the providers by doctors or pharmacists have been trusted to make choices what to be used by patients. The health professionals would make decision based on their patients' health need as well as the maximization of their own benefit. Price discrimination that harmonizes with provider benefits will interfere with health professionals'

decision. In social health insurance, the situation seems to be more severe since both physicians and patients are desensitized from drug price.

There are not many studies conducted on pharmaceutical price discrimination. Most of these studies have focused on price differences among different countries than domestic price differences. Since international price difference is more serious problem in their countries, thus domestic prescription drug price was rarely brought up in the studies.

1.1.3 Thai Pharmaceutical Market

The local pharmaceutical industry in Thailand is mainly a formulating industry and does not involve much in research and development (R&D). Majority of the pharmaceutical ingredients and raw materials are imported. The 1997 data estimated that there were ten factories producing 25 different kinds of ingredients and raw materials for the pharmaceutical industry in Thailand(Tradeprot.Org, 1999).

As of the year 1997, approximately 21,000 pharmaceutical products were manufactured and sold in Thailand(Tradeprot.Org, 1999). There were 165 manufacturers and approximately 189 importers of pharmaceutical products(Sakulbumrungsilp et al., 2004). The pharmaceutical products could be divided into two major groups, generic and branded products that were either locally produced or imported. In term of volume, locally produced generic products or what was sometimes called domestic products accounted for approximately 46% of the total market while locally produced international branded products shared on the average 32% and the last 22% of market share were represented by imported products(Tradeprot.Org, 1999).

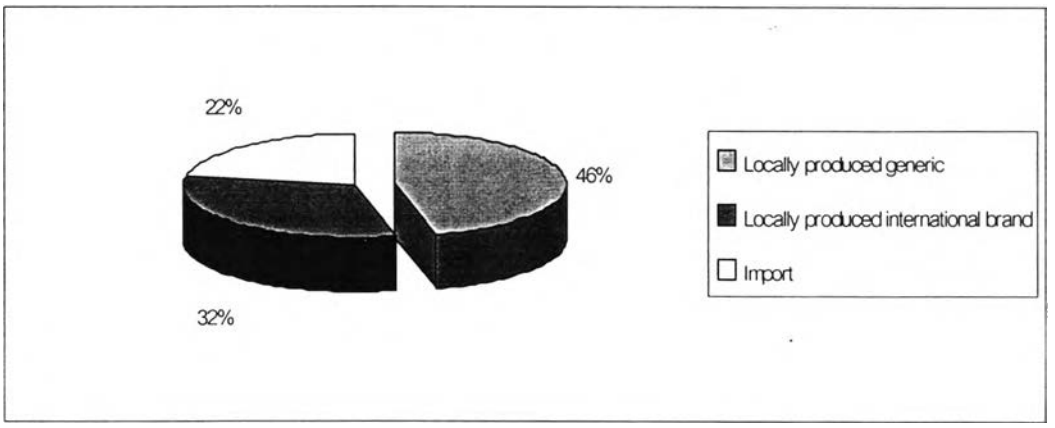

Figure 1.2 Pie chart of the component of drug types in Thai market

Government hospitals were the largest distribution channels, with each accounting for almost 40% of all sales. The secondly share of distribution channel was pharmacies and drugstores accounting for 34% followed with private hospitals, private clinics, and a small share from retail stores respectively (Gross, 1999).

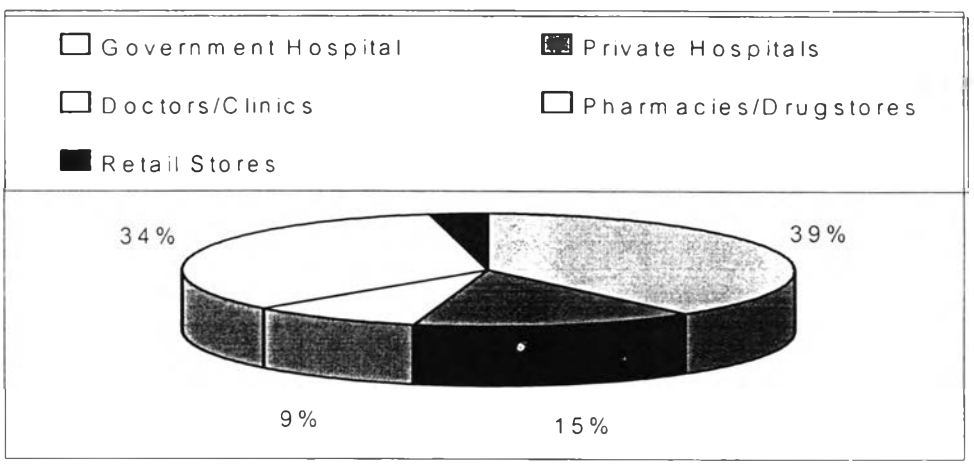

Figure 1.3 Pie chart of total pharmaceutical sales in each distribution channel

Since major distribution channel was the sector of public hospitals accounting for 39 % of all industrial value. This study was focused on this sector and selectively on hospitals under the Ministry of Public Health.

1.1.4 Pricing and Competition

Following the government regulation on drug procurement, all public hospitals are required to purchase National List of Essential Drugs (NLED) items not less than 80% of their pharmaceutical needs (Gross, 1999). This leads to high intensity of competition among locally generic brands in the market particularly public hospitals. The local generic brands in high competition market in which they could not price the product much different from competitors, tend to keep their profit level by discriminating their prices among their own buyers. At the same time, losing opportunity on promising sales, multinational pharmaceutical firms also tend to compensate their profit by price discrimination; pricing their products at much higher than locally generic and differently across buyers. Price insensitive hospitals are worse off due to higher price without higher benefits while pharmaceutical firms are better off.

These are the reasons why there have been various pharmaceutical price regulations enacted in many countries and Thailand without exception. However, lacking of the measure to detect and monitor pricing behavior, the situation will not be updated. To date, there are very few reported evidences of price discrimination in pharmaceutical industry especially in domestic market. The exploratory study of such situation will be useful for detecting and quantifying the magnitude of these circumstances.

For primarily investigation, some of drug groups have been chosen for the purpose of this study. The following section describes how the studied drug groups were chosen for comprehensive investigation in this study.

1.1.5 Choosing the studied therapeutic drug groups

The decision making process on the studied therapeutic groups has been based on the total imported and manufactured values reported by FDA. After descending ranking these values, the therapeutic groups that satisfy inclusion criteria and were accounted for high manufactured and/or imported value were then selected as the case to be studied in this research.

Table 1.3 Top 10 manufactured and imported value by therapeutic groups

Therapeutic groups	Value
CARDIOVASCULAR SYSTEM	฿2,006,553,582.33
ALIMENTARY TRACT AND METABOLISM	฿1,472,112,404.21
ANTIINFECTIVES FOR SYSTEMIC USE	฿1,357,457,335.68
NERVOUS SYSTEM	฿1,171,604,497.88
MUSCULO-SKELETAL SYSTEM	฿547,118,744.49
ANTINEOPLASTIC AND IMMUNOMODULATING AGENTS	฿303,402,828.86
ANTIPARASITIC PRODUCTS, INSECTICIDES AND REPELLENTS	฿266,358,214.01
RESPIRATORY SYSTEM	฿252,599,517.96
DERMATOLOGICALS	฿166,166,031.85
GENITO URINARY SYSTEM AND SEX HORMONES	฿99,963,874.21

After working on the reported data of manufactured and imported value, the highest value of cardiovascular system has leaded to this group selection as a studied therapeutic drug.

Finally, the 5 pharmacological groups under the cardiovascular system therapeutic category were included; calcium channel blockers, beta blocking agents, agent acting on the Renin-Angiotensin system, agent acting on the Renin-Angiotensin II system, and serum lipid reducing agent.

1.2 Research Questions

1. What are the types and extent of existed drug price discrimination?
2. What are the factors influencing the extent of pharmaceutical price discrimination?

1.3 Objectives

1. To characterize the types of discriminating induced-price dispersion
2. To assess the extent of each type of discriminating induced-price dispersion
3. To explore some market structure variables that could affect the extent of discriminating induced-price dispersion

1.4 Significant Contributions of the Study

1. Firms pricing behavior has empirically been determined and could be continuously monitored. Early detection of any irregular pricing behaviors would be possible to prevent compounding problems.
2. Policy makers can use this information as a signal to launch the right policy for the right level and at the right place.
3. Market inefficiency caused by price discrimination could be reduced.
4. The methodology used in this study could be a basis for other pricing conduct studies.
5. The Miscellaneous Acquisition Capability or, in short, MAC which is the concept and simultaneously the tool that has been originated and invented in this study could be used as an important monitoring mechanism for pharmaceutical pricing behavior as well as a feedback mechanism for self-evaluation by purchasers on their drug procurement performance. MAC could act as a resource at the policy level for problem solving and policy design. At the same time, it would be recognized as a mean for practitioners and administrators at the practice settings to use as a motivator for performance enhancement.