

**ESTIMATION OF A HEDONIC PRICE EQUATION
FOR AIRLINES**



NAT-RADA NGAMPRONG

**A THEMATIC PAPER SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION
(BUSINESS MODELING AND ANALYSIS)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY**

2010

COPYRIGHT OF MAHIDOL UNIVERSITY

Thematic
entitled
**ESTIMATION OF A HEDONIC PRICE EQUATION
FOR AIRLINES**

Ms. Nat-rada Ngamprong
Candidate

Asst. Prof. Yingyot Chiaravutthi, Ph.D.
Major advisor

Lect. Malinvisa Sakdiyakorn, Ph.D
Co-adviser

Prof. Banchong Mahaisavariya,
M.D., Dip Thai Board of Orthopedics
Dean
Faculty of Graduate Studies
Mahidol University

Asst. Prof. Yingyot Chiaravutthi,
Program Director
Master of Business Administration
Program in Business Modeling and
Analysis
International College, Mahidol University

Thematic
entitled
**ESTIMATION OF A HEDONIC PRICE EQUATION
FOR AIRLINES**

was submitted to the Faculty of Graduate Studies, Mahidol University for the degree
of Master of Business Administration (Business Modeling and Analysis)

on
August 28, 2010

Ms. Nat-rada Ngamprong
Candidate

Asst. Prof. Sittisak Leelahanon, Ph.D
Chair

Lect. Malinvisa Sakdiyakorn, Ph.D
Member

Asst. Prof. Yingyot Chiaravutthi, Ph.D.
Member

Prof. Banchong Mahaisavariya,
M.D., Dip Thai Board of Orthopedics
Dean
Faculty of Graduate Studies
Mahidol University

Assoc. Prof. Rassamidara Hoonsawat, Ph.D.
Dean
International College, Mahidol University

ACKNOWLEDGEMENTS

The success of this thematic paper can be succeeded by the attentive from many people without whom this completion would not have happened.

First, I am heartily thankful to my advisor, Asst. Prof. Dr. Yingyot Chiaravutthi, whose invaluable guidance and generous support and encouragement since the beginning until now. Without him, my graduation would not be happened. I would like to extend my gratitude to my co-advisor, Dr. Malinvisa Sakdiyakorn for her fruitful questions and constructive comments for these useful remarks, questions and observations, helping improving my work.

I also like to make a special reference to any staff at all ministry who provided those relevant data. Without their unexpectedly well cooperation I could not have gotten such numerical data for the first and the third chapters of this paper. Teacher Donna, thanks, God I found you! I'm really appreciated for spending your time with my paper.

In addition, special thanks go to all my friends who have been encouraged and supported me in every ways especially Apple, and Jan, for their motivation, inspiration and all that open-minded talking and advices. Aom and Bell, we are on the same boat and again thanks for everything. Natchaphol, you're my one and only Microsoft Word's editor. Thanks!

Lastly, I offer my regards and blessings to my most beloved persons, mom and dad. I love you with all my life and owe you with the rest of it with my deepest gratitude.

Any shortcoming in any aspect of this thematic paper is solely my own responsibility. All comments and suggestions are more than welcomed.

Nat-rada Ngamprong

ESTIMATION OF A HEDONIC PRICE EQUATION FOR AIRLINES

NAT-RADA NGAMPRONG 5038689 ICMA/M

M.B.A. (BUSINESS MODELING AND ANALYSIS)

THEMATIC PAPER ADVISORY COMMITTEE: YINGYOT CHIARAVUTTHI,
Ph.D. (ECONOMICS), MALINVISA SAKDIYAKORN, Ph.D. (PUBLIC
ADMINISTRATION)

ABSTRACT

This study examined the value of airlines' brands by using the Hedonic Price model. The paper specifies a Hedonic Price function, and measures the passengers' willingness to pay for airfares and airlines' attributes. The results indicated that the variation in the airfares depended upon the total destination flight time, total return flight time, and the day-time arrival periods from 4 p.m. to 8 p.m. and 6 p.m. until midnight. For the brand valuation, the value of Bangkok Airways' brand ranked at the top and was followed by Cathay Pacific, Thai Airways, and Emirates airlines, respectively.

Based on the results of this paper, it is expected that the value of brands of airlines can be increased as evidenced by the success of Bangkok Airways' new campaign. Thus, it is important for airlines' management to build up sustained competitive advantages and attempt to differentiate themselves against competitors in order to secure a solid foothold in the ever-changing air travel industry.

KEY WORDS: HEDONIC PRICE MODEL / BRAND VALUATION /
AIRLINES / PRICE PREMIUM / BRAND LOYALTY

27 pages

การประเมินราคาของสายการบินด้วยวิธีสมการเฮโดนิค

ESTIMATION OF A HEDONIC PRICE EQUATION FOR AIRLINES

ณัฐรดา งามโปร่ง, 5038689 ICMA/M

บช.ม. (การวิเคราะห์และการสร้างตัวแบบธุรกิจ)

คณะกรรมการที่ปรึกษาสารนิพนธ์: ยິงยศ เกียรติวุฒิติ Ph.D. (ECONOMICS) มาลินวิษา ศักดิยการ Ph.D. (PUBLIC ADMINISTRATION)

บทคัดย่อ

งานวิจัยฉบับนี้ได้ทำการศึกษามูลค่าตราสินค้าของแต่ละสายการบินด้วยวิธีสมการเฮโดนิค โดยมีการกำหนดสมการเฮโดนิคให้เป็นการวัดความเต็มใจจ่ายของผู้โดยสารต่อราคาค่าโดยสารเครื่องบินซึ่งความเต็มใจนี้จะถูกกำหนดจากตราสินค้าและปัจจัยอื่นๆ ที่มีผลต่อการเดินทาง

ผลการศึกษาระบุว่าความแตกต่างของราคาค่าโดยสารเครื่องบินขึ้นอยู่กับเวลาที่ใช้ทั้งหมดในการเดินทางและเวลาที่มาถึงประเทศไทย ในส่วนของการวัดมูลค่าตราสินค้าของสายการบินนั้นพบว่าสายการบินบางกอกแอร์เวย์มีมูลค่าของตราสินค้าสูงสุด ในขณะที่สายการบินคาร์เทย์แปซิฟิก การบินไทย และสายการบินเอมิเรตมีมูลค่าลดลงตามลำดับ

นัยสำคัญอีกประการคือมูลค่าตราสินค้าของสายการบินสามารถทำให้สูงขึ้นได้ดังตัวอย่างความสำเร็จของสายการบินบางกอกแอร์เวย์ ดังนั้นผู้บริหารสายการบินต้องให้ความสำคัญโดยพยายามเพิ่มมูลค่าตราสินค้าของตนโดยการสร้างความได้เปรียบเชิงเปรียบเทียบที่ยั่งยืน สร้างความแตกต่างที่โดดเด่นให้กับสายการบินของตนเพื่อรักษาจุดยืนให้มั่นคงในธุรกิจการบินที่มีการเปลี่ยนแปลงอยู่ตลอดเวลา

27 หน้า

CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
ABSTRACT (ENGLISH)	iv
ABSTRACT (THAI)	v
LIST OF TABLES	vii
CHAPTER I INTRODUCTION	1
CHAPTER II LITERATURE REVIEW	9
CHAPTER III METHODOLOGY AND DATA	12
CHAPTER IV RESULTS AND ANALYSIS	16
CHAPTER V CONCLUSION	19
BIBLIOGRAPHY	23
BIOGRAPHY	27

LIST OF TABLES

Table	Page
1.1 Number of aircraft movements and passenger volume of the six international airports in Thailand	2
1.2 Growth of airline industry and Thai airways and Thai airways market shares for fiscal year 2003 – 2008	4
3.1 Attributes, explanations, variables, and descriptive statistics of airfares	15
4.1 The results from the Hedonic models of airfares	16
4.2 Brand valuations on the price premiums of airlines	18
5.1 The world's top 10 airlines in the year 2010	27

CHAPTER I

INTRODUCTION

Between the third quarter of 2008 and 2009, the impact of the world rapid economic recession, and the effects of the influenza A (H1N1) outbreak have caused a negative trend in international tourism. International tourist arrivals worldwide were forecasted to decline by 7 percent during the first half of 2009 when compared with the same period last year. This negative trend also applied to the Thai tourist industry (Office of Tourism Development, 2010).

In absolute terms, the numbers for international tourist arrivals worldwide were up to 500 million between January and July of 2009, this was lower than for the same period of the previous year where numbers were better, at 540 million. In 2009, numbers for international tourist arrivals were currently between the levels of 2006 and 2007. The first seven months of 2009 generally account for roughly 57 percent of the total annual number of tourist arrivals worldwide (World Tourism Organization, 2010).

At the beginning of 2008, airline passenger numbers were growing strongly throughout the world. By the end of the year, they were shrinking according to the negative trend for the international tourism (European Travel Commission, April 2009).

However, The Airports Council International (ACI) predicted that the growth rate of worldwide passengers in the next 20 years (2008-2027) would be 4.2% per annum on average resulting from the development of air transportation for example, technical innovations related to new aircraft, such as the A380. This will help to increase air transport system's efficiency by reducing its capital and decreasing flight times. An additional factor contributing to this trend was the expansion of low cost carriers that accessed to the both domestic and international markets. All those factors lead to new routes and more competition in order to increase volume of flights and passengers.

The increased volume of passengers and air traffic was a result of several factors for example, government policy. To emphasize the development of airports, Suvarnabhumi, Bangkok's new international airport, become a hub for the Southeast Asia region of air transportation. This established Thailand as the main gateway for tourism in terms of marketing, transportation, investment and management. In addition, the Association of Southeast Asian Nations or ASEAN countries mutually agreed upon flexibility of rules and regulations concerning air transportation.

However, in 2009, the volume of Thai air traffic and passengers decreased in all airports because of the global economic slowdown and the H1N1 influenza 2009 pandemic. The total number of flights at Suvarnabhumi Airport was 241,962 flights which is a 5.53% decrease from 2008 and handled only 37,051,203 passengers which is 10.03% decrease from the previous 2008 as described by the Table 1.1.

Table 1.1: Number of aircraft movements and passenger volume of the six International airports in Thailand.

	Aircraft Movements (No. of Flights)			Passenger Volume (No. of person)		
	2008	2009	%	2008	2009	%
Suvarnabhumi	256,118	241,962	-5.53	41,180,456	37,051,203	-10.03
Don Mueng	55,317	31,110	-43.76	5,751,662	2,783,737	-51.6
Chiang Mai	25,400	22,882	-9.91	3,276,309	2,872,346	-12.33
Hat Yai	10,270	9,043	-11.95	1,380,086	1,283,172	-7.02
Phuket	40,218	35,995	-10.5	5,943,468	5,441,585	-8.44
Chiang Rai	6,734	5,546	-17.64	772,286	648,783	-15.99
Total	394,057	346,538	-12.06	58,304,267	50,080,826	-14.1

Source: Airports of Thailand Public Company Limited's 2009 Annual report

For the Kingdom of Thailand, the single national carrier is called "Thai Airways International Public Company Limited (THAI) which was founded in 1960 as a joint venture between Thailand's domestic carrier, Thai Airways Company (TAC) and Scandinavian Airlines System (SAS). SAS provided a 30 % share of the initial two million Baht capital and operations, managerial as well as marketing expertise in order to build a fully independent national airline within the shortest possible time. After 17 years for this partnership, on April 1, 1977, the Thai Government bought out

all SAS remaining capital and THAI (or Thai Airways International at that time). Presently these assets are completely owned by the Thai people.

In 1960, all THAI flights that originated from Bangkok provided service to only 9 overseas destinations within Asia. International flights were inaugurated to Australia, Europe, and North America in 1971, 1972, and 1980 respectively. The growth of THAI was massively accelerated on April, 1998 when they merged with the Thai Airways Company (TAC), a domestic airline. THAI share capital raised from 1,400 million to 2,230 million Baht. From the authority of the Cabinet at the time which was lead led by Prime Minister General Prem Tinsulanonda, THAI would be responsible for both international and domestic commercial aviation for Thailand or THAI which is rightfully now named as Thailand's only national carrier.

On June 25, 1991, THAI received an approval from the Cabinet to list its stocks on the Stock Exchange of Thailand (SET) in order to raise additional funds and offer its shares to the public. The funds would encourage THAI to attain a competitive edge in the international commercial aviation market. People in the general public and THAI employees are allowed to become shareholders of Thailand's flag carrier as well. The resolutions for the listing shares in SET at that time were, first, converting 10.77 billion Baht of retained earnings into capital and second, increasing the capital by 3 billion Baht in a first issue of 100 million shares. Of those 100 million shares, the first 5,000,000 shares were reserved for employees at 10 Baht of the par value and the other 95,000,000 shares were offered to the public.

As the national flag carrier for the Kingdom, THAI is 53.77 % owned by the Ministry of Finance of the Thai Government and paid up capital share amounts of 16,988,765,500 Baht (On May 9, 2005). As of the third quarter for 2004, the consolidated total assets of THAI were 193,211 million Baht in total. (Thaiairways, 2010)

From September 9-11th, 2009 THAI presentation in New York, USA reported a growth for THAI and the airline industry. For the fiscal year 2003 – 2008 trends followed the same pattern except during the fiscal year 2003-2004 when THAI had 44.7% share of total passengers when a minus growth occurred to the whole industry (-6.2%). However, there was a negative trend for the THAI market share due to the fast growth of the low cost carriers and other international airlines. THAI was

left with only 39.8% of the market share during the fiscal year 2007 – 2008. A range of between 8.3% and 50.3% were given to the low cost carriers and other international airlines accordingly. (Table 1.2)

Table 1.2: Growth of Airline Industry and Thai Airways and Thai Airways Market shares for Fiscal year 2003 – 2008.

Fiscal Year	2003/2004	2004/2005	2005/2006	2006/2007	2007/2008
Growth of Industry (%)	-6.2	22.4	4.6	19.6	6.2
Growth of THAI (%)	-6.2	17.8	-1.9	16.4	8.3
Other carriers share (%)	53.7	52.8	53.3	50.2	50.9
Low cost carriers share (%)	1.6	3.8	5.4	8.9	9.3
THAI share (%)	44.7	43	40.2	39.2	39.8

Source: ThaiAirways, (2009)

As the national air carrier, Thai Airways International (TG) had the most flight routes, market shares which were approximately 40 % over the five most recent years and most frequent outbound flights, followed by other carriers as Thai AirAsia (FD), Bangkok Airways (PG), Emirates (EK), Cathy Pacific Airways (CX), China Airlines (CI), Malaysia Airlines (MH), Japan Airlines (JL), Lao Airlines (QV), and Air Asia (AK) accordingly.

An examination of air carriers' market shares by number of outbound flights from Suvarnabhumi Airport on January 2010 identified the following data (aviation, 2010).

The top 5 airlines that operate in Thailand each have their own uniqueness which is stated in the following summary.



THAI

“World Class, High Trust, and Thai Touch” represents the company’s philosophy and is the overall objective for the branding process of the company. THAI enhances this corporate philosophy by celebrating “Thai touches” of modern, innovation and especially the warm hospitality of Thai people and the culture of the Kingdom which make Thailand different from the others. (Thaiairways, 2010)

With the co-operation of the other four international leading airlines which are United Airlines, Scandinavian Airlines System, Lufthansa German Airlines, and Air Canada, THAI officially announced the "Star Alliance" formation, with the objective to be an integrated worldwide air transport network.

On October 26, 1997, the Star Alliance network welcomed a newest member, Varig Brazilian Airlines and became the strongest commercial aviation alliance in history. As a result of forming this alliance, six airlines can now cover all major destinations over six continents (StarAlliance, 2010).

Thai AirAsia

Thai AirAsia

In December 2001, AirAsia introduced the concept of a low fare and no frills airline and positioned itself as a low-cost carrier. At this time the airline provides flying routes to over 60 destinations in Thailand, Vietnam, Philippines, Brunei, Malaysia, Singapore, China, Indonesia, Cambodia, Laos, and Myanmar. "Thai AirAsia" and "Indonesia AirAsia" are two successful joint ventures which were formed in order to expand the fleet and provide air travel among those countries by offering very low fares via various innovative sale channels and incentives.

'Now everyone can fly' is the company tagline which aims to make "travel by jet" affordable for everyone. The other purposes of AirAsia are to make air travel more fun, convenient and, easy for every passenger. Many rewards from different institutes were given to the airline such as the award-winning airline by Centre for Asia Pacific Aviation (CAPA), AirAsia & AirAsia X awarded Asia's leading low-cost carrier by TTG Travel Awards 2009 and World's best Low Cost Airline by Skytrax (airasia, 2010).



Bangkok Airways

“Sahakol Air” was established in 1968 as the first private aviation company in Thailand and later became re-branded as “Bangkok Airways” in 1989.

In 2004, the airline celebrated its 36th anniversary and promoted a new campaign, “Asia’s Boutique Airline; Exclusive Service to Exotic Gems” in order to strengthen the company’s goals and clearly identify the pillars of the brand. Bangkok Airways positioned itself as a credible airline whilst maintaining a modern boutique-like style.

Various rewards were given to the airline, for example Best Regional Airline - Southeast Asia" and "Best Regional Airline - Asia" of 2007 from Skytrax. (Bangkokair 2010).



Emirates

Emirates was established on October, 25th 1985 as the official international airline of the United Arab Emirates with the aim of quality, not just quantity. Although initially owned by Dubai’s government, Emirates has still grown not as a result of government protection but by competition. The airline has been growing as a result of competition among the ever-growing number of several international air carriers that take advantage of Dubai’s open-skies policy.

After providing the airline’s initial start-up outlay, the government agreed to set Emirates free, and now today Emirates is fully independent an independent business entity. Its growth has never been above 20 per cent, and the airline records a profit in every year.

Various awards were given to Emirates over the last two decades for example, Outstanding Food Service by a Carrier Middle East 2009 from Pax International Magazine Readership Awards, Longhaul Airline of the Year - Nonstop by Annual Travel Star Awards, Montreux , Best Inflight Entertainment by Skytrax, and Best Regional Airline by Business Traveller Middle East Awards 2009 (Emirates 2010).



Cathay Pacific Airways

Cathay Pacific was founded in Hong Kong in 1946 but became more prosperous in late 1950s by acquiring its archrival, Hong Kong Airways. In 1990, Swire Pacific, the parent company, and Cathay Pacific acquired a significant portion of Dragon Air's shareholders and gained 75 percent of Air Hong Kong, the cargo airline's holdings in 1994. Nevertheless, in the first quarter of 2009, the airline reported a annual loss of 8.56 billion Hong Kong dollars for last year. This was the first air carrier to be established since the Asian Financial crisis in 1997. The loss was caused from losing from the fuel-hedging and fine charging for fixing prices in the U.S.

"It's the little things that move you" was the first airline's campaign which focused on the passenger of the airline. Their most recent campaign slogan is "Great Service. Great People. Great Fares".

Various awards were given to this airline for example, Best First Class Airline by Skytrax World Airline Awards, Best Airline Business Class by Travel Trade Gazette Travel Awards, or Best Frequent Flyer Program by Business Traveler Asia Pacific (Cathaypacific 2010).

Objectives of the study

This paper aims to study two purposes which are to quantify the brand value of airlines that operate in Thailand, and to determine what attributes are important to Thai passengers' decisions making.

Benefits of the study

This study has the potential to be beneficial to airline operators which plan to operate or are already operating in Thailand. As a result, airline operators might apply the findings as guidelines for evaluating their brands against other operators as a way to grasp better understandings about what attributes that are significant to Thai flyers. Hence, airline operators might be helped to develop effective strategies that would productively match the flyers' needs and increase their own revenue.

Scopes of the study

This study focuses on Thai passengers who flew with the top 5 airline operators who operated in Thailand between the five most popular destinations during 2009. The data in this study was retrieved from the Amadeus software on March 25th, 2010.

Limitation of the study

Not all airline goes to all destinations.

CHAPTER II

LITERATURE REVIEW

There is no doubt that brand plays a significant role in creating and sustaining the financial performance of a business. Well-known or strong brands can differentiate themselves from their competitors, satisfy customers' needs by increasing their trust in products or services and contribute to the long-term profitability of the business. However, several concepts of "brand" are defined differently depending on one's perspective. For example, Kotler (1991; p.442) defined a brand as "a name, term, sign, symbol, or design, or combination of them which is intended to identify the good and service of one seller or group of sellers and to differentiate them from those of competitors".

There are two questions to answer concerning brand valuation. They are what is being valued and what is purpose of the valuation(Haigh, 2007). Thus, two major approaches are created to value the brand (Motameni & Shahrokhi, 1998; Haigh, 2007; Lassar et al,1995).

Haigh (2007) stated two important questions in this paper which are:

1. What is being valued? Trademarks, the brand or branded business?
2. What is the purpose of the valuation?

He concluded that value is a function of three primary variables – profitability (level of free cash flow), growth (the prospects for increasing those cash flows) and risk (the volatility of these cash flows).

In addition, we should not over look the reality of international business and "globalization" when evaluating the brand (Motameni & Shahrokhi, 1998). Thus, the global brand equity valuation model which is a combination of various models was proposed to support their argument and overcome some criticism of other models.

The first approach of the brand valuation has been utilized for the marketing decision-making purpose or when the goal is to improve the efficiency of the market process.

Aaker (1996) has provided the very comprehensive definition of brand equity as “*A set of brand assets and liabilities linked to a brand, its name and symbol that add to or detracts from the value provided by a product or service to a firm and/or to the firm’s customers*”.

He suggested using a brand-earning multiplier which is calculated by the weighing average of five key components of the brand equity. Those five keys are awareness, associations, perceived quality, loyalty, and other proprietary assets such as patents and trademarks.

The equity of the brand also depends on the number of customers who purchase that brand regularly. Thus, brand managers should consider the concept of brand loyalty as an important component of brand equity.

Shocker (1993) argued that the brand assets for example trademarks or patents are widely accepted on their face correctness’ validation. Moreover, only a little attempt is made to prove their interrelationship or their relative significance. Similar to Aaker, Shocker believed that the more brand awareness, perceived quality, and brand loyalty, the more success of creating and maintaining brand equity. However, tradeoffs among the models’ factors are not discussed. The meaning for measuring a brand’s value is to identify the sources of the value which are largely interesting to marketers.

Myers (2003) exhibited that some intangible attributes such as the bias on customer preference for the top brands of nine national soft drinks might contribute more to brand equity. Also, attribute knowledge might result in more influence on brand equity than just the customer preference alone. Moreover, both tangible and intangible aspects of attributes are found to be important to brand equity and brand choice as well.

Myers identified a strong relationship between each of the preference measures and brand equity. The brand with the higher market share gave considerably higher levels of brand equity and vice versa.

The research findings stated that it was necessary to understand not only the difference in impact upon intangible and tangible attributes but also their contribution to brand equity and brand preference.

The second approach to value the brand equity is financially based. The brand equity is defined in term of the incremental discounted cash flow that accrue from brand product revenue, over the revenue that would occur if the same product did not have the brand name.

Stock prices are believed to reflect the brand's prospects since they are the adjustors of the price for the firm. Hence, Simon and Sullivan (1993) used their movements to capture the dynamic nature of brand equity in their study.

On the same approach, Wentz and Martin (1989) and Kapferer (1992), used a brand-earnings multiplier which is considering calculated by weightings among historical data and consumer's judgments while considering other factors for example, brand stability, overseas reputations or even the stability of product category to calculate brand equity

Keller (1993) identifies two general motivators which arise when we study brand equity. First, is the motivation which benefits for finance or for accounting purposes such as merger and acquisition (M&A), or divestiture purposes. The second motivation is called a strategy-based motivation. The major purpose of this motivation is to improve the productivity of the firm's marketing. Brand managers or any other marketers need to understand customer behaviors more precisely in order to plan the best fit for their brand strategies or brand tactics in order to capture or gain the highest portion of market shares.

CHAPTER III

METHODOLOGY AND DATA

Hedonic Price analysis has been in existence since 1928 when Waugh examined the pricing of asparagus (Waugh, 1928). In more recent time, hedonic price analysis has been applied to many different products and services (Brynjolfsson & Kemerer, 1996) such as wine (e.g., Combris, et al., 2000; Haeger & Storchmann, 2006; Nerlove, 1995), newspaper (Thompson, 1988), internet information (Lee et al, 2003), islands (Bonnetain, 2003), urban green areas (Morancho, 2003), housing market segmentation (Goodman & Thibodeau, 2003) and modern technology products – personal digital assistants (PDAs) (Chwelos, Berndt, & Cockburn, 2006).

This paper uses an extension of the Hedonic Price model. This model could be applied to determine the current price premium of a particular branded product relative to other brands or non-branded products. The starting hypothesis is that goods are formed by a heterogeneous set of attributes or characteristics. Therefore, when acquiring a good, consumers can consider the total price as the sum of the price to be paid for each one of its attributes (Morancho (2003)). Generally, the hedonic function has the willingness to pay (WTP) on the left-hand side, whilst variables that affect the WTP are on the right-hand side of the function. However, researcher uses an extension of the Hedonic Price model which has the brand dummy that also affects the consumers' WTP and can simply be added to the right-hand side of the equation as shown in equation (1) below

$$P = f(a_{1i}, a_{2i}, \dots, a_{ji}, b_{1i}, b_{2i}, \dots, b_{ki}) \quad (1)$$

where P is the listed price or market price that represents the consumers' WTP, and a_1, a_2, \dots, a_j are the attributes it embodies of product i while b_1, b_2, \dots, b_k represent dummies of different brands from 1 to k .

The Hedonic Pricing method is relatively straightforward to apply because it is based on actual market prices and fairly easily measured data. The method relies on secondary data which are readily available and inexpensive to apply. Nevertheless, there are some issues and limitations of this method. The method will only capture

consumers' willingness to pay for perceived differences in any attributes, and their direct consequences. Thus, if customers are not aware of the linkages between the attribute and benefits to them, the value will not be reflected for their WTP but rather will reflect the firm's strategies. Then, the "true" function is statistically unknown. Another problem involves the large amount of data that must be gathered.

For this research paper, the prices and their attributes were retrieved from the Amadeus software. The program is a operative project between four universities in the Netherlands which are: University of Amsterdam, University of Utrecht, Delft University of Technology and Eindhoven University of Technology and primarily received financial support from the Dutch Scientific Foundation. The aim of the Amadeus software is to develop theories, models and systems for assessing Multimodal transportation systems on activity and destination choices in Urban Systems which can be affected by the move of time. (based on the online source: onderzoekinformatie.nl).

Today, over 66,000 travel's agencies located worldwide and more than 10,000 airline sales offices or around 330,000 points of sale are using this program as their main processing system because they trust in the program and are sure of its comprehensive data (based on the online source: thaiamadeus.com).

However, this study collected the prices of airfares for the destinations under consideration and selected airlines which are Thailand's leading 5 airlines which are determined in the report only.

Destinations under consideration for the study were Malaysia, Laos, China, Singapore, and Japan which are the top 5 most popular destinations for Thai travelers who took outbound flights from Suvarnabhumi Airport in 2009 ("Outgoing Thai" in 2009). The data was obtained from '2009 Outgoing Thai Nationals by Country of Destination' which provided by Immigration Bureau, Police Department. The data contains the country of destination divided by regions and countries, number of outgoing Thai travelers, percentage share and percentage change for the period 2008 to 2009.

The prices for airfares in this study were based on the prices for an Economy class, a round-trip, one adult traveler (age 18-64), leaving from Suvarnabhumi Airport, Bangkok exactly on Friday, March 19, 2010 and returning

exactly on Friday, March 26, 2010 at Suvarnabhumi Airport, Bangkok. Moreover, the prices are not restricted to any flight references such as specific time period, nearby airports at the destination, vegetarian food or non-stop flight. All data points were retrieved from the Amadeus program on the same day so the researcher could control as many variables as possible.

Unfortunately, some attributes offer insufficient brands and prices to allow the Hedonic Price model to be applied, and several attributes such as types of aircraft (Boeing or Airbus) or delivery carriers (same as their outgoing carriers or not for example, passengers specify to fly with Thai Airways for their outgoing and incoming flights to Suvarnabhumi Airport or not) are excessive attributes relative to the numbers of airfares offered. They are too massive to apply to the Hedonic Price model and proved to be statistically insufficient and were removed from the equation and they do not affect the findings.

Table 3.1 shows prices and brands, along with explanations of the important attributes of airfares. For example, the round-trip price which included tax and fee from Bangkok to Singapore was 31,670.00 baht (Price). This flight was serviced by Thai Airways (Thai brand = 1, others = 0) departed Bangkok at 9:05a.m. (D12a9a = 1, others = 0) and made 1 stop (Dstop = 1) in Phuket at 10:35a.m. with the total time of 1 hour 30 minutes or 90 minutes. Then, transferred from Phuket to Singapore at 1:30p.m. by Singapore Airline. The flight would arrive in Singapore at 4:25p.m. with total flight time of 1 hour 55 minutes or 115 minutes. Therefore, the total time spent for this departure including the transit period is 6 hour 20 minutes or 380 minutes (Dtotal = 380 minutes).

On the way back to Bangkok, only Cathay Pacific represented the carrier who able to serve passengers with a flight direct from Singapore to Bangkok (Astop = 0). The plane departed Singapore at 1.30pm and then arrived in Bangkok around 2.55pm (Anoon5pm = 1, others = 0) with the total arrival time spending of 2 hour 25 minutes or 145 minutes (Atotal = 145 minutes)

Table 3.1: Attributes, explanations, variables, and descriptive statistics of airfares

Variable	Mean	Std Dev	Explanation
Thai	0.45	0.50	Thai brand = 1, others = 0
Bangkok Airways	0.01	0.12	Bangkok Airways brand = 1, others = 0
Emirates	0.03	0.16	Emirates brand = 1, others = 0
Cathay	0.51	0.50	Cathay Pacific brand = 1, others = 0
Price	35,700.55	14,096.57	Prices in Baht
Dtotal	408.24	234.70	Total departure time in minutes
D12a9a	0.26	0.44	Departure time between 12am-9am = 1, others = 0
D6noon	0.67	0.47	Departure time between 6am-12pm = 1, others = 0
D10a2p	0.47	0.50	Departure time between 10am-2pm = 1, others = 0
D4p8p	0.24	0.43	Departure time between 4pm-8pm = 1, others = 0
D6p12a	0.20	0.40	Departure time between 6pm-12am = 1, others = 0
Dstop	0.72	0.58	Number of stop since departed Bangkok
Atotal	422.47	270.43	Total arrival time in minutes
A12a9a	0.16	0.37	Arrival time between 12am-9am = 1, others = 0
A6noon	0.13	0.34	Arrival time between 6am-12pm = 1, others = 0
A10a2p	0.07	0.25	Arrival time between 10am-2pm = 1, others = 0
A4p8p	0.24	0.43	Arrival time between 4pm-8pm = 1, others = 0
A6p12a	0.35	0.48	Arrival time between 6pm-12am = 1, others = 0
Astop	0.71	0.49	Number of stop until arrived Bangkok

Note: The criteria for selecting the above important attributes was obtained from the following online sources: Orbitz.com (<http://www.orbitz.com>), Pricelines.com (<http://www.pricelines.com>), Amadeus Global Distribution (<http://www.thaiamadeus.com>). The 'class' attribute has been excluded since all prices are for Economy class.

CHAPTER IV

RESULTS AND ANALYSIS

Table 4.1 presents the results from the Hedonic Price models applied to airfares.

Table 4.1: Results from the Hedonic Models for Airfares

Variable	PriceR	Log(PriceR)
Thai	6107.92 (2.02)**	0.166 (1.75)*
Bangkok Airways	7826.46 (2.32)**	0.206 (2.06)**
Cathay	6796.84 (2.12)**	0.148 (1.55)
Dtotal	30.62 (4.64)**	0.001 (4.64)**
D12a9a	-10843.75 (-1.57)	-0.237 (-1.62)
D6noon	1307.32 (0.52)	0.029 (0.49)
D10a2p	-13264.83 (-1.93)*	-0.298 (-2.03)**
D4p8p	-30449.44 (-4.83)**	-0.708 (-5.60)**
D6p12a	5765.33 (1.63)	0.077 (0.86)
Dstop	-624.53 (-0.22)	-0.010 (-0.13)
Atotal	8.67 (2.47)**	0.000 (1.81)*
A12a9a	625.93 (0.35)	-0.008 (-0.16)
A6noon	-4911.10 (-2.61)**	-0.124 (-2.36)**
A10a2p	-385.50 (-0.22)*	-0.037 (-0.76)
A4p8p	8949.35 (5.83)**	0.169 (4.44)**
A6p12a	3904.64 (2.87)**	0.062 (1.92)*
Astop	-2907.43 (-1.25)	0.012 (0.21)
N	424	424
Adjusted R ²	0.762	0.777
Durbin-Watson	1.583	1.588
F-statistic	22.369	23.670

Note: Reference choice is Emirates brand. Numbers in parentheses are White heteroskedasticity-consistent t-statistics. ** P-value < 0.05 and * P-value < 0.10.

The results from the Hedonic Price model indicate that there is a relationship between brands of the airline and price premium. The price of the airfare included tax and fee also depends on the total travel time between taking off the origin and landing at the destination and the duration of flight time for both departure and arrival other than the brand attributes.

The brands of Thai Airways, Cathay Pacific, and Bangkok Airways were valued at 6,107.92, 6,796.84, 7,826.46 Baht respectively compared to the Emirates brand which is the reference brand. Bangkok Airways was ranked at the top because

of the success of its brand new campaign, “Asia’s Boutique Airline; Fly different, Feel Extraordinary” which aims to define the pillars of its brand and clearly position itself as a trustworthy airline, while maintaining a trendy boutique-like character (based on the online source: Bangkokair.com) For the other two brands, Thai Airways and Cathay Pacific, the strategy of distinguishing the brand remaining unclear when compared to the Asia’s Boutique Airline of Bangkok Airways.

The total departure and arrival times are priced at 30.62 and 8.67 Baht per minute. Long flying hours are usually more expensive than short flying hours since several variable costs are increased, for example, fuel surcharge or cabin crews’ expenses and premiums or the “per diem” charges.

Passengers pay more attention to the arrival time as this is rather more expensive when compared with the departure time. Most people prefer to stay a bit longer at their destination in order to spend more time traveling or shopping before they leave. The finding in this paper also supports this statement. The afternoon arrival or the time during 4 p.m. until midnight is more favored by Thai passengers, especially, the 4 p.m. to 8 p.m. arrival time. It is valued at 8,949.35 Baht and stronger than the 6 p.m. to midnight arrival time which is priced relatively high at 3,904.64 Baht.

Whilst, the morning arrival time (6 a.m. to noon) is discounted for 4,911.10 Baht, it shows as insignificant for the early morning arrival (midnight to 9a.m.). A couple possible reasons excepted needing to spend more time might be the “jetlag” which is the curse of modern jet travel, resulting in loss of working efficiency and holiday enjoyment, often for days after arrival (based on the online source: Nojetlag.com) and an inconvenience which may occur for example, lack of easy transportation or unsafe conditions if they arrive in Thailand too early.

Nevertheless, the number of stops for the round-trip proves surprisingly insignificant, and is similar to the night-departed time which many people prefer when they process their online bookings (based on the online source: Orbitz.com). This can be caused by the collected price data represented only for the short-distance destinations such as Malaysia or Laos. Then the number of stops and the night-departure time were unnecessary or unimportant for passengers’ decision making. The log price model also provides the same results.

Table 4.2 Brand Valuations on the Price Premiums of airlines

Brand	Brand Value in baht (Absolute)	Brand Value in baht (Relative)
Emirates	30,299.54	0.00
Thai	36,407.46	6,107.92
Cathay Pacific	37,096.28	6,796.84
Bangkok Airways	38,126.00	7,826.46

Table 4.2 illustrates the inclusion of the constants from the Hedonic Pricing model into the calculations. A constant of positive 30,299.54 represents the premium for the reference brand, which is Emirates. As a result, three brands, Bangkok Airways, Cathay Pacific, and Thai, contain higher premiums relative to Emirates which were ranked the lowest for 7,826.46 Baht, 6,796.84 Baht, and 6,107.92 Baht respectively. Bangkok Airways commands the highest premium of 38,126.28 Baht. One sensible explanation could be the successful implementation of Asia's Boutique Airline campaign which has previously been stated.

CHAPTER V

CONCLUSIONS

The Hedonic Price model has been proven to be an effective tool in evaluating brands of airlines and price premiums. All brand dummies were statistically significant, with Bangkok Airways at the top, Cathay Pacific second and Thai Airways in third position. This shows that these brands are linked to the consumers' willingness to pay.

However, some brands for example Thai Airways were insignificant when applied to the log price model, this suggests that brands are undoubtedly important, but other attributes show higher value to passengers. This does not necessarily mean that brands can no longer be part of the competitive advantage. Rather, the implication can be that brand premium is not strong enough for Thai Airways. It can be stated that the prices of airfare are elastic or they have the availability of other airlines that can be substituted for the same routes.

In the year 2000, the World Airline Star Rating® program was introduced by SKYTRAX which was founded in 1989, in London, United Kingdom (UK) as a research specialist in the air transport industry. This program is the Quality Analysis system that professionally ranks airline product and service standards by airline audit specialists, thus the World Airline Star Rating® program reflects the reality of passenger delivery of product and service. Since SKYTRAX is interested only in "Front-line" product and service to customers, other commercial factors such as fares, schedules, rewards, or promotion are not included in this ranking program. As this time, the World Airline Star Rating® program is recognized worldwide and has become a symbol of airline product and service standards assessment. (based on the online source: Airlinequality.com).

Table 5.1 display The World's Top 10 airlines in the year 2010 for the five stars airlines which are ranked by SKYTRAX institution.

Table 5.1: The World's Top 10 airlines in the year 2010

Ranking	Airlines name
The winner	Asiana Airlines
The 2 nd	Singapore Airlines
The 3 rd	Qatar Airways
The 4 th	Cathay Pacific
The 5 th	Air New Zealand
The 6 th	Etihad Airways
The 7 th	Qantas Airways
The 8 th	Emirates
The 9 th	Thai Airways
The 10 th	Malaysia Airlines

Source: Airlinequality, (2010)

For the World's Top 10 Airlines Awards in 2010, Cathay Pacific was ranked at 4th in the SKYTRAX awards which is lower than last year which ranked at the top. Emirates, whom were named winner of Best Airline In-flight Entertainment - for the 6th time in ten years, was ranked at 8th or higher than Thai Airways which ranked at 9th and was honored as the Best First Class Lounge because of its full range of service at Royal Orchid Spa, for example, Traditional Thai massage and foot-massage.

This information may differ from the finding that Emirates brand was valued lower than Thai Airways for 6,170.92 Baht. It was because not only was Hedonic Price model based on the prices and their attributes as the passengers' willingness to pay, but also the star ranking method did not include the airfares or commercial factors but the airline's Product and Service standards over 800 different areas by SKYTRAX

only. (For more details of World Airline Star Rating® please refer to the webmaster of Airlinequality.com)

Moreover, the difference can result from the pricing strategy and market power of each airline. The airline's managers have to know how to use their market power effectively and how to set prices to maximize their profits. Thai Airways was the only Thai national carrier that provided more destinations and had more market power in Thai's airline business than other carriers. Thai Airways is better informed about information of Thai passengers' demand, thus Thai Airways can design their price strategy in more complicated ways for example, charging different prices to different passengers or capturing more consumer surplus.

By the early 1990s, Emirates was one of the fastest growing airlines because of its consistent profitability and service excellence. Using their slogan made Emirates not only a trendsetter in the global aviation industry, but also strengthened their brand name as well. Recently, Emirates changed the slogan from *Fly Emirates. Keep Discovering* to *Fly Emirates. Meet Dubai* to promote Dubai. Still, there are some competitors that had accused Emirates of taking advantage of Dubai's open-skies policy by starting a price war which become an act of competitive price reduction between two or more businesses. The results is that competitors sell the same products using strategic pricing that is meant to win over the business of the average consumer.

It is doubtful that the winner in this paper, Bangkok Airways, was not found in the top 10 award's list because Bangkok Airways is categorized as the Regional Airline and of course, enjoyed the further success of winning the 2009 award as the Best Regional Airline in Asia as a result from developing such a great campaign: "Asia's Boutique Airline; Fly different, Feel Extraordinary".

According to the findings in chapter IV, it provides an implication on branding strategies for airlines' brand managers to build up their sustained competitive advantages or gain a better understanding of passengers' perception on brand differentiation. That is what many airlines are attempting to differentiate themselves, as they work against competitors in order to secure a solid foothold in the ever-changing air industry. The new campaigns initiate and expand for example, dumping their prices or creating various promotions such as reducing the prices for the some

routes, offering special packages or joining new or their business partners to achieve deeper penetration to attract new passengers or new markets.

As for new entrants in the Thai airlines business which mostly are low-cost carriers, for example, ThaiAirAsia, they are very well known, fast-growing, and have been boosting their own profits during the last decade. More options can be offered and passengers can design their own preferences but the price has to be kept lower than the normal airlines. Presently, Thai passengers are more accepting, accustomed to low-cost carriers' processes and low-price carriers continue to pave the way for low-cost aviation through their innovative solutions, efficient processes and a passionate approach to airline business.

Even though the Hedonic Price model can be utilized in order to quantify the current value of the brand, based on the consumers' perspective, this study has some limitations. First, the identified destinations and selected airlines are scoped only Top-five destinations and airlines for Thai residents. This may cause a bias on the usage of specific information. Thus, in a future study, more destinations and airlines should be examined. Another is an identification of the functional form, which has often been criticized in previous Hedonic Price studies.

BIBLIOGRAPHY

- Aaker, D.A. (1991). *Managing Brand Equity: Capitalizing on the value of a Brand Name*, The Free Press New York, NY.
- Abramowitz, A.D. and Stephen B.M. (1993). "Market Share and Price Determination in the Contemporary Airline Industry", *Review of Industrial Organization*, Vol. 8, pp. 419-433.
- Airlinequality (2010), Retrieved May 19, 2010, from http://www.airlinequality.com/StarRanking/rank_review.htm
- AMADEUS Global Distribution (2010). Retrieved February, 2010, from http://www.thaiamadeus.com/about_us_en.html
- Bangkok Airways (2010). Retrieved January 22, 2010, from <http://www.bangkokair.com/company/index.php?lang=en>
- Bangkok Airways (2010). Retrieved January 22, 2010, from http://en.wikipedia.org/wiki/Bangkok_Airways
- Bonnetain, P. (2003). "A Hedonic Price Model for islands", *Journal of Urban Economics*, Vol. 54, pp. 368-377
- Cathay Pacific (2010). Retrieved January 22, 2010, from http://www.cathaypacific.com/cpa/en_TH/homepage
- Cathay Pacific (2010). Retrieved January 22, 2010, from http://en.wikipedia.org/wiki/Cathay_Pacific
- Chen, C. and Chang, Y. (2008). "Airline brand equity, brand preference, and purchase intentions—The moderating effects of switching costs", *Journal of Air Transport Management*, Vol. 14, pp. 40-42
- Dewenter, R., Haucap, J., Luther, R., and Rotzel, P. (2006). "Hedonic Prices in The German Market for Mobile Phones", Institute for Economic Policy, Hamburg: Germany.
- Emirates (2010). Retrieved January 22, 2010, from www.emirates.com

- Emirates (2010). Retrieved January 22, 2010, from <http://en.wikipedia.org/wiki/Emirates>
- Goodman, A.C. and Thibodeau T.G. (2003). "Housing Market Segmentation and hedonic prediction accuracy", *Journal of Housing Economics*, Vol. 12, pp. 181-201.
- Government Policy (2010). Retrieved January 29, 2010, from http://thaiembdc.org/politics/govtment/policy/54thpolicy/policy_e.html
- Government Policy (2010). Retrieved January 29, 2010, from http://www.thailandoutlook.com/NR/rdonlyres/B61C5456-0AFA-4CDD-A63E-8EC9174A1742/0/policy_eng.pdf
- Government Policy (2010). Retrieved January 29, 2010, from <http://www.ethailand.com>
- Government Policy about Tourism industry (2010). Retrieved January 29, 2010, http://asiamuseum.co.th/upload/forum/transportation_and_traffic_integrated_development_plan
- Haigh, D. (2010). 'Brand Valuation: What it means and why it matters'. *Brands in the Boardroom IAM supplement No. 1*. Retrieved February 9, 2010, from <http://www.brandfinance.com/indez.asp>
- Kim, H., Kim, W., and An, J. (2003). "The Effect of Consumer-based Brand Equity on Firms' Financial Performance", *Journal of Consumer Marketing*, Vol. 20, No. 4 2003, pp. 335-351.
- Hopper, P. (2005). "The environment for Southeast Asia's new and evolving airlines", *Journal of Air Transport Management*, Vol. 11, pp. 335-347
- Kamakura, W. and Russell, G. (1993). "Measuring brand value with scanner data", *International Journal of Research in Marketing*, Vol. 10, March, pp. 9-22.
- Keller, K. L. (1993). Conceptualizing, measuring, and managing customer-based brand equity. *Journal of Marketing*, 57(1), pp. 1-22.
- Kotler, P. and Keller, K.L. (2009). *Marketing management*. New Jersey: Prentice Hall.
- Kim, H.B., Kim, W.B. and An, J.A. (2003). The effect of consumer-based brand equity on firms' financial performance. *Journal of Consumer Marketing*, 20(4), 335-351.

- Lee, H.S., Park, K., and Kim, S.Y. (2002). "Estimation of Information Value on the Internet: Application of Hedonic Price Model", Business School, Korea University, Seoul: South Korea.
- Ministry of Foreign Affairs, Kingdom of Thailand. (2010), Retrieved January 29, 2010, from <http://www.mfa.go.th/web/1622.php?id=5389>
- Morancho, A.B. (2003). "A Hedonic Valuation of Urban Green Areas", Department of Economic, Castellon: Spain.
- Motameni, R. and Shahrokhi, M. (1998). "Brand Equity Valuation: a Global Perspective", Journal of Product & Brand Management, Vol. 7 No.4 1998, pp. 275-290.
- Myers, C. (2003). "Managing brand Equity: a look at the impact of attributes", Journal of Product & Brand Management, Vol. 12No.1 2003, pp. 39-51.
- Nojetlag (2010), Retrieved May 15, 2010, from <http://www.nojetlag.com>
- Number of services at Thailand international airports (2010). Retrieved January 29, 2010, from <http://vigportal.mot.go.th/portal/site/PortalMOT/stat/index33URL/> (Thailand Transport Portal)
- Number of Civil Aviation (2010), Retrieved January 29, 2010, from http://www.news.mot.go.th/motc/portal/graph/index_doa4.html
- Onderzoekinformatie (2010), Retrieved May 24, 2010, from <http://www.onderzoekinformatie.nl/en/oi/nod/onderzoek/OND1259426/>
- Office of Tourism Development (2010), Retrieved January 29, 2010, from http://www2.tat.or.th/stat/web/static_index.php
- Orbitz (2010), Retrieved May 15, 2010, from <http://www.nojetlag.com>
- Outgoing Thai Nationals by country of destination of 2006-2009 by Immigration Bureau, Police Department (2010), Retrieved January 29, 2010, from <http://www.immigration.go.th>
- Simon, C.J. and Sullivan, M.W. (1993). "The Measurement and Determinants of Brand Equity: a Financial Approach", Marketing Science, Winter, pp. 28-52.

- Srinivasan, V., Park, C., and Chang, C. (2005). "An Approach to the Measurement, Analysis, and Prediction of Brand Equity and Its Sources", Research Paper Series, Stanford Graduate School of Business.
- StarAlliance (2010), Retrieved January 18, 2010, from
<http://www.staralliance.com/en/>
- Suvarnabhumi Airport Free Zone (2010). Retrieved January 18, 2010, from
<http://www.freezonethaiairport.com/index.php>
- Thai Demography (2010). Retrieved January 29, 2010, from
http://www.news.mot.go.th/motc/portal/graph/index_doa4.html
- Thai Air Asia (2010). Retrieved January 22, 2010, from
<http://www.airasia.com/site/th/en/page.jsp;jsessionid=EE03AA4790A44569F2AC7305639D4697?name=Company+Profile&id=211d3229-ac1e00ae-166aab60-c0654ec9&nav=5-0>
- Thai Airways (2010). Retrieved January 22, 2010, from
<http://www.thaiair.com/about-thai/company-profile/en/history.htm>
- Thai Airways (2010). Retrieved January 22, 2010, from
http://en.wikipedia.org/wiki/Thai_Airways_International_destinations
- Thanasuta, K., Patoomsuwan, T., Chaimahawong, V., Chiaravutthi, Y. (2009). "Brand and Country of Origin Valuations of Automobiles", Asia Pacific Journal of Marketing and Logistics, Vol.21 No.3, pp. 335-375
- World Tourism Organization (2010), Retrieved January 29, 2010, from
<http://www.unwto.org/index.php>

BIOGRAPHY

NAME Nat-rada Ngamprong

DATE OF BIRTH 6 August 1983

PLACE OF BIRTH Lopburi, Thailand

INSTITUTIONS ATTENDED Thammasat University, 2002-2005
Bachelor of Economics
Mahidol University International College,
2008-2010
Master of Business Administration
(Business Modeling and Analysis)

HOME ADDRESS 116/210 Tiwanon Road, Tasai, Muang,
Nonthaburi, Thailand 11000
Tel. 02-962-4650, 081-349-9942
E-mail : note_note_p@hotmail.com

EMPLOYMENT ADDRESS 54 Harindorn building Floor 17, North
Sathorn Road, Silom, Bangrak, Bangkok
Thaniland 10500
Tel. 02-352-7434
E-mail : th-nrd@exxonmobil.com