Chapter 5

Determinants of international tourists traveling to major tourist provinces in Thailand with panel data analysis

Tourists of Thailand could divided into 2 groups (1) Thai tourist group and (2) foreigner tourist group from several countries. Bangkok are the most favorite destination for all tourists. Three popular and attractive destinations for foreigner tourist groups were Pattaya, Phuket, and Chiang Mai, respectively.

Due to a unique life-style of Thai traditional culture and modernization of people in central part of the Kingdom of Thailand, Bangkok is considered to be one of the most attractive capital cities for all tourists around the world. Many tourist-attractive places were constructed in Bangkok which served as gate for airway transportation and international communication. Most of the international tourists travel to Bangkok for business and get entertainments from daytime to night without interruption by seasonal effects.

Chiang Mai is one of the most famous and attractive city in northern part of Thailand. Culture of northern Thai people is world renowned. Regarding the purpose for the trip, foreign tourists came to Chiang Mai for vacation, visiting cultural centers, and ecotourism. Phuket province is an attractive place on a large island surrounded by white sand on the beach of Andaman Sea. Most of tourists from European countries, Americans, and Asian countries know the name of this province as a pearl of Andaman Sea. Good impression of modern accommodations, favorite foods and

drinks in Thai or European and American-styles, beautiful sun, white sand on beach of Andaman Sea for all seasons enhanced foreign tourists frequently visit Phuket.

Pattaya became the most popular beach for Thai people who worked and stayed in Bangkok. Many foreign tourists enjoy staying in Pattaya too. TAT reported 5,338,000 visitors to Pattaya for the year 2005 which increased 6.5 % from the year 2004. Most of the visitors were foreigners, two-third of them expected to enjoy their exciting sea beach activities.

There is few research in Thailand applying econometric model forecasting for international tourist demand, especially in solution with method panel data for different or unique region (Bangkok, Pattaya, Chiang Mai and Phuket) which will be useful for policy making decision in a different strategy for raising economics of each of unique region from tourism. These findings help marketers and tourism authorities to identify their promotion and positioning strategies to the right target market.

To measure and detect the most significant factors affecting the flow of international tourists by country of origin tourist arrival patterns of major countries in the four main tourist regions in Thailand: Bangkok, Chonburi (Pattaya), Phuket, and Chiang Mai using fixed and random effects for long run static models , and including short-run relationship estimate dynamic panel adopted the generalized method of moments (GMM).

This chapter is a revised version from the original paper presented at the third Conference of The Thailand Econometric Society, Chiang Mai, Thailand in Appendix C. in 7 – 8 January 2010

ABSTRACT

Thailand had been ranked among the twenty most popular tourist destinations in the world. The income received from international tourists has accounted for 6.23% of the GDP. The major international tourists regions in Thailand are Bangkok, Chiang Mai, Chonburi (Pattaya), and Phuket. Econometric model for international tourist demand with panel data for the period of January 1992 to December 2006, using fixed effect and random effect estimators in different or unique regions, will be useful for policy decision-making with different strategies for raising the economies of each unique region.

Consider the ten major source countries of tourists to Bangkok, Chiang Mai, Chonburi (Pattaya), and Phuket. In Bangkok, the estimated value of the income from the original countries have positive inelasticity in the long run and are highly effective in a negative relative price, with nominal exchange rate, but little effect positively in total cost from the original countries has been found. In Chiang Mai, the estimated value of the income shows high positive elasticity and little positive effect in relative price for numbers of international tourists. In Pattaya the estimated values of the income has positive inelasticity and the result still shows high effects in negative nominal exchange rate, but little positive effect in total cost. In Phuket, the estimated values of the income has high positive elasticity and the result also shows rather high effects in positive relatively to tourism demand to Phuket, but rather low negative effect in total cost and negative inelasticity effect in nominal exchange rate. It is important for policymakers to closely monitor the economic cycles in the economies of the original countries that send tourists to Chiang Mai and Phuket. Suppliers in

Bangkok must be careful with prices in order to maintain the competitiveness of their products, and for nominal exchange rate in Bangkok and Pattaya shoould also be closely watched to diversify risks by trying to encourage promotional activities.

Keywords: Thailand, tourism demand, test, long-run relationship, fixed effect, dynamic effect

5.1. Introduction

International tourism is a fast growing industry generating half a trillion dollars in annual revenues and accounting for almost 10% of total international trade, and almost half of total trade in services. International tourism is the world's largest export earner. Moreover, it is a labour-intensive industry, employing an estimated 100 million people around the world. Tourism has an important role in stimulating investments in new infrastructure, as well as in generating government revenues through various taxes and fees. The tourism industry has had a major role in the economic development of Thailand over the past 40 years. Thailand had been placed among the top 20 most popular tourist destinations in the world. International tourists to Thailand increased from 3.48 million in 1987 to 13.82 million in 2006. The income received from international tourists accounted for 6.23% of GDP in 2006, while ranking of international tourists in Asia (2007) coming to travel to Thailand (8%) was ranked fourth behind China (33%), Hong Kong (10%), and Malaysia (12%) in the tourism market. (Figure 1)

Figure 5.1 Market share of international tourists in Asia
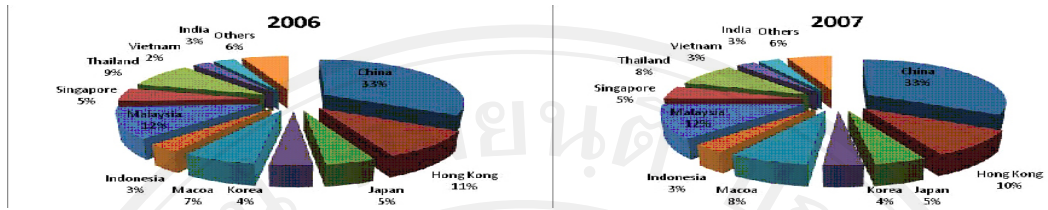
Source: Tourism Authority of Thailand (2007)

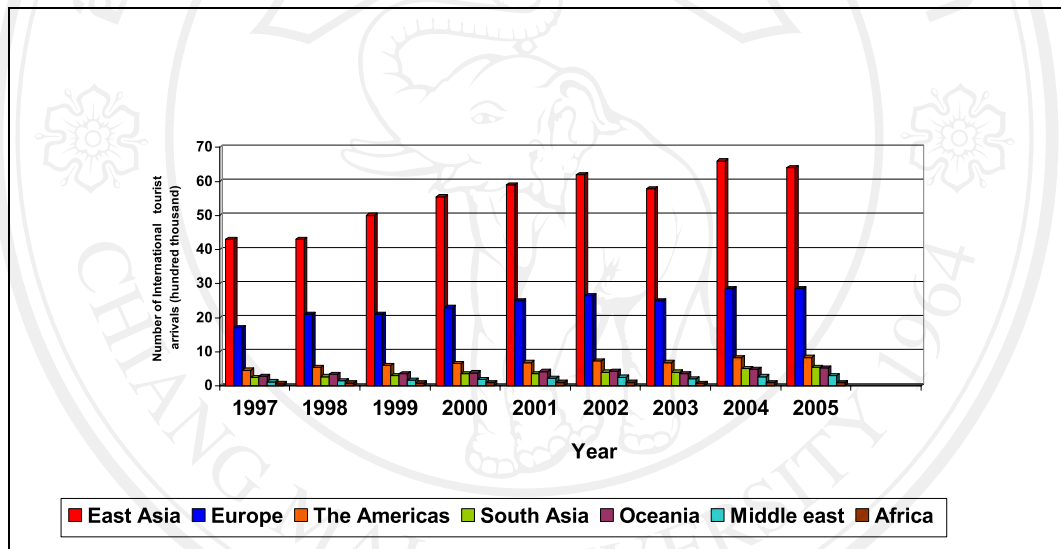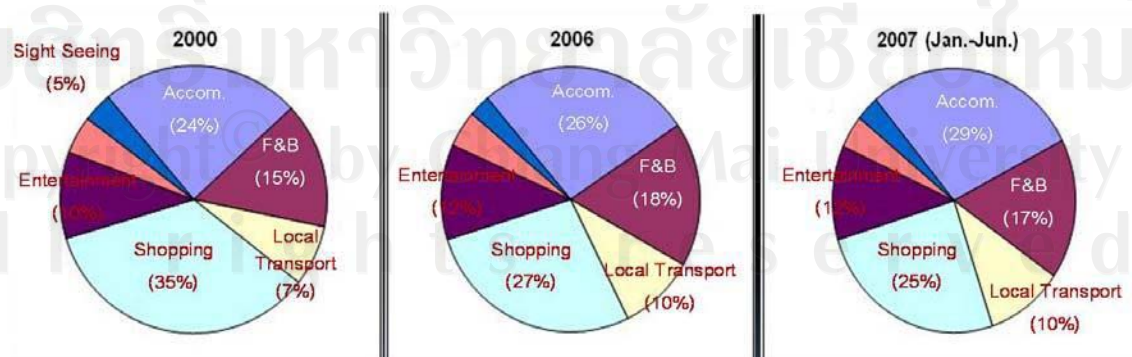Figure 5.2 International Tourist Arrivals to Thailand by Nationality

Figure 5.3 Tourist expenditure proportions in Thailand

Source: Tourism Authority of Thailand (2007)

Grouping of international tourists of Thailand by nationality for the year 2007 shows international tourists from East Asia (56.29%), Europe (24.87%), the United States of America (7.44%), South Asia (4.36%), Oceania (4.18%), Middle East (2.10%), and Africa (0.76%), respectively. (Figure 2) When looking at tourist nationality breakdown, all along, more than 50 percent of international tourist arrivals are intra-region tourists. The number shows that there are markets where effort is needed to be focused. Europe and the American continent are two areas where people have high disposable incomes to use for traveling. Especially America, which shows only a 7.44 percent contribution to the total tourist revenue for the years 1977 to 2005. Tourist expenditure proportions in Thailand has the highest proportion for shopping (25-35%), second proportion in accommodation (24-29%), and food and beverage come third (15-18%). (Figure 3) International tourists to Thailand could be divided into two groups: (1) Thai tourist groups and (2) foreigner tourist groups from several different countries. The potential of Thai tourism relies on the advantage of having resources, including natural resources. These include beaches, islands, tropical forests, coral reefs, farms, and the tropical climate. Thailand has been one of the top destinations for nature-seeking international tourists for the past years. Each part of Thailand has its own unique cultures and traditions which help spread out the spectrum of tourists' experiences when coming to the country. A long national history and its location has created many historical and archeological sites, which interest visitors with both educational information and stunning beauty. Thai food is one of the most popular cuisines around the world. Each part of the country has its own special dishes, which visitors can explore as part of their adventurous journey. For other interests (shopping, food, MICE, golf, wellness and spas), the major provinces

in Thailand that seem to meet these requirement for most international tourists are Bangkok, Chiang Mai, Chonburi (Pattaya), and Phuket.

There is a small amount of research in Thailand applying econometric models for international tourist demand, especially in solutions with method panel data used for different or unique regions (Bangkok, Pattaya, Chiang Mai and Phuket) which will be useful for policy decision-making in different strategies for raising the economies for tourism of each of unique region. These findings help marketers and tourism authorities to identify their promotion and positioning strategies to the right target market.

The purpose of this paper is to measure tourist arrival patterns of major countries to Thailand in the four main tourist regions in Thailand: Bangkok, Chonburi (Pattaya), Phuket, and Chiang Mai, and to detect the most significant factors affecting the flow of international tourists by country of origin to make strategic recommendations for government policy and tourist sector strategies. In order to investigate the determinants of international tourism demand to Thailand, static panel data models using fixed effect and random effect estimators were implemented. These findings help marketers and tourism authorities to focus their promotions and position strategies to the right target markets. The remainder of the paper is organized as follows: Section 2 introduces the data set and the econometric approach to be followed, while the results of empirical estimation are presented in Section 3. Policy implications and some concluding remarks are given in Section 4.

5.2. Data and empirical methodology

5.2.1. Data

This paper uses time series data from January 1992 to December 2006 for the top ten source countries of international tourists to four major tourist regions in Thailand: Bangkok, Chonburi (Pattaya), Phuket, and Chiang Mai. We use the number of foreign visitors, namely international tourist arrivals, to estimate international tourism demand to the four major tourist regions in Thailand. Monthly data for international tourist arrivals collected from statistical data sets for each country have been obtained from the World Tourism Organization or Tourism Authority of Thailand (TAT). The sample period is from January 1992 to December 2006. The panel models are estimated by using fixed effects or random effect for static models.

The primary purpose of this paper is to detect the most significant factors affecting the flow of international tourists by country of origin. Panel data models were constructed by using yearly data corresponding to the top ten countries sending international tourists to Thailand. The use of this type of data enables a relatively large number of observations to be made, and a concomitant increase in the degrees of freedom, thereby reducing collinearity and improving the efficiency of the estimates (Song and Witt, 2000). In this paper, balanced panel data sets are used. The model to be estimated as a Static model is given as:

$$\ln DT_{it} = a_i + y_1 \ln Y_{it} + y_2 \ln RP_{it} + y_3 \ln ER_{it} + y_4 \ln TC_{it} + \lambda_{it} + \mu_{it} + \varepsilon_{it}$$

(Eq.1)

With panel data, the issue is whether to use a random-effects or fixed-effects estimation approach. The random effects approach to estimating y exploits the correlation in the composite error in equation (6), $vjt = cit + \varepsilon_{it}$, $cit = \lambda_{it} + \mu_{it}$. The approach puts ci in the error term assuming that ci is orthogonal to xjt and use a Generalised Least Squares (GLS) estimator to take into account serial correlation in the composite error vjt. There can, however, be many instances where this assumption is violated. Specifically, cj can be correlated with xjt in the present model if the cj influences the price, exchange rate and income variables. In such a case, the fixed-effects estimator may be more appropriate to use. Wooldridge (2001:266) shows that a fixed effect estimator is more robust than a random effects estimator. A shortcoming of the approach is, however, that time-constant factors, such as geographical factors, cannot be included in xjt, otherwise there would be no way to distinguish the effects of these variables from the effects of the unobservable cj. Another shortcoming of the fixed effects estimator is that it is less efficient than the random effects estimator – it has less degree of freedom and takes into calculation only the variation "within" units, and not between units. Accordingly, to determine which of these estimators are more appropriate to use in the present case, both a fixed effects (FE) and random effects (RE) estimator were initially used to estimate equation and the Hausman specification test done to evaluate the assumption in the random effects model that cj is orthogonal to xjt. Rejection of the null hypothesis would lead to rejection of the random effects estimator

Data variable

Y_{it} = GDP per capita in country of origin. *Disposable tourism income of individuals coming from origin country*. This variable is approximated income with origins' per capita GDP at constant prices. Data are taken from GDP per Cap from United States Department of Agriculture, Economic Research Service, international macroeconomic data set.

RP_{it} = CPI Thailand / CPI origin country. Data from IMF and BOT (Bank of Thailand)

ER_{it} = nominal exchange rate of original country to Thai Baht per dollar . Exchange rate from United States Department of Agriculture, Economic Research Service. International macroeconomic data set.

TC_{it} = transportation costs from origin country i to Thailand *or* transport costs to reach Thailand by individuals coming from their original country. Since information on bilateral transport costs was unavailable, this variable is approximated with Jet Fuel (Dollar)/CPI origin. Data has been taken from the United States Energy Information Administration (2007) Rotterdam (ARA) Kerosene-Type Jet Fuel Spot and Distance from capital of original country to capital of Thailand Indian Industry Directory of Indian Suppliers air distance calculator. From http:// www. indianindustry.com/travel-tools/air-distance-calulator.html (Sources: United States Energy Information Administration (2007) Rotterdam (ARA) Kerosene-Type Jet Fuel Spot Price FOB. (Note: 1 gallon = 3.785 liters. Total Jet oil per person in Air Bus 380

= 3 liter/100 km/person, TC = (Jet Fuel(Dollar)/CPI origin)/ person * Distance (km)
from capital of original country to capital of Thailand)

5.2.2.   Empirical Methodology

For the purpose to measure and predict tourist arrival pattern of
major countries to the four main tourist regions in Thailand : Bangkok, Pattaya,
Phuket and Chiang Mai This paper will analyst with fix effect ,random effect.from
the equation (2) , equation (3) , equation (4) and equation (5)   as follow.

$$BKT_{it} = f (BK_{it-1} , Y_{it} , RP_{it} , ER_{it} , TC_{it}) \qquad (Eq. 2)$$

BKT_{it} =   the number of tourist arrivals in original country to Bangkok

i = original country (i = 1,2,……,10)

t = monthly data   1992-2007

1. Malaysia 2.Japan 3.Korea 4. UK   5. U.S.A   6. Germany   7. Chaina

8. Taiwan   9. Australia   10. Singapore

$$PAT_{it} = f (PAT_{it-1} , Y_{it} , RP_{it} , ER_{it} , TC_{it}) \qquad (Eq.3)$$

PAT_{it} =   the number of tourist arrivals in original country to Pataya.

i = original country (i = 1,2,......,10)

t = monthly data 1992-2007

1. Taiwan 2. U.K 3.Hongkong 4. Japan 5. Korea 6. U.S.A 7. Singapore 8.Australia 9. Malaysia 10. German

$$CM_{it} = f(CM_{it-1}, Y_{it}, RP_{it}, ER_{it}, TC_{it}) \qquad (Eq.4)$$

CM_{it} = the number of tourist arrivals in original country to Chiang Mai.

i = original country (i = 1,2,......,10)

t = monthly data 1992-2007

1. U.S.A. 2. France 3. Japan 4. Germany 5. UK 6. Netherlands

7. singapore 8. Malaysia 9. Taiwan 10. Australia

$$PK_{it} = f(PK_{it-1}, Y_{it}, RP_{it}, ER_{it}, TC_{it}) \qquad (Eq.5)$$

PK_{it} = the number of tourist arrivals in original country to, Phuket .

i = original country (i = 1,2,......,10)

t = monthly data 1992-2007

1.Germany 2.Taiwan 3.U.K 4.Sweden 5.Japan 6.Switzerland 7.Italy 8.Korea 9.Hongkong 10. France 11.U.S.A

Y_{it} = GDP per capita in country of origin.

RP_{it} = CPI Thailand / CPI origin country.

ER_{it} = nominal exchange rate defined as the currency of Thailand per currency of original country :ER(Baht/Origin).

TC_{it} = transportation costs from origin country i to Thailand

After that the Equation (1) ,equation (2) , equation (3) and equation (4) are specified in log form in Equation (6) ,equation (7) , equation (8) and equation (9) and analyst with fix effect ,random effect to compare the best result.

$$\ln BK_{it} = a_i + y_1 \ln Y_{it} + y_2 \ln RP_{it} + y_3 \ln ER_{it} + y_4 \ln TC_{it} + u_{jt} \qquad (Eq.6)$$

$$\ln PAT_{it} = a_i + y_1 \ln Y_{it} + y_2 \ln RP_{it} + y_3 \ln ER_{it} + y_4 \ln TC_{it} + u_{jt} \qquad (Eq.7)$$

$$\ln CM_{it} = a_i + y_1 \ln Y_{it} + y_2 \ln RP_{it} + y_3 \ln ER_{it} + y_4 \ln TC_{it} + u_{jt} \qquad (Eq.8)$$

$$\ln PK_{it} = a_i + y_1 \ln Y_{it} + y_2 \ln RP_{it} + y_3 \ln ER_{it} + y_4 \ln TC_{it} + u_{jt} \qquad (Eq.9)$$

5.3.   Analysis of major original tourism to four main tourist regions in Thailand

Bangkok is the most popular destination for all international tourists. Three other popular and attractive destinations for foreign tourist groups are Pattaya, Phuket, and Chiang Mai, respectively. Tourism Authority of Thailand (TAT) reported in 2002 that percentage divided by international tourists and Thai international tourists in Bangkok is about 63.3% to 36.7%, in Chiang Mai it is about 29.2% to 70.8%, in

Chonburi (Pattaya) it is about 31.2% to 68.8%, in Phuket it is about 53.5% to 46.5%. Average period of international tourists' stay in Bangkok is 2.84 days, in Chiang Mai 5.43 days, in Pattaya 4.21 days, and in Phuket 4.21 days. During January 1992 to December 2006, international tourists arrival to Bangkok continuously increased (Figures 4, 5), and major countries sending tourists were Malaysia, Japan, South Korea, U.K., U.S.A., Germany, Taiwan, Australia, Singapore, and Hong Kong with the average total number around 40,000 and 60,000 per month. (Figure 6) Singapore (12.86%) is the first, and the second and third are U.K. (12.16%) and Australia (11.84%). (Figure 7) Considering seasonal distribution of international tourist arrivals to Bangkok from January to December 2006, most come in January, March, July, November, and December.

Due to the unique lifestyle of Thai traditional cultures and the modernization of people in the central part of the Kingdom of Thailand, Bangkok is considered to be one of the most attractive capital cities for all international tourists around the world. Many tourist-attractive places were constructed in Bangkok which serves as gateway for airway transportation and international communication. Most of the international tourists travel to Bangkok for business and get entertainment from daytime to night without interruption by seasonal effects.

Figure 5.4 Total Number of top ten international tourist source countries arrivals (DT)

to Bangkok, Thailand from January 1992 to December 2006
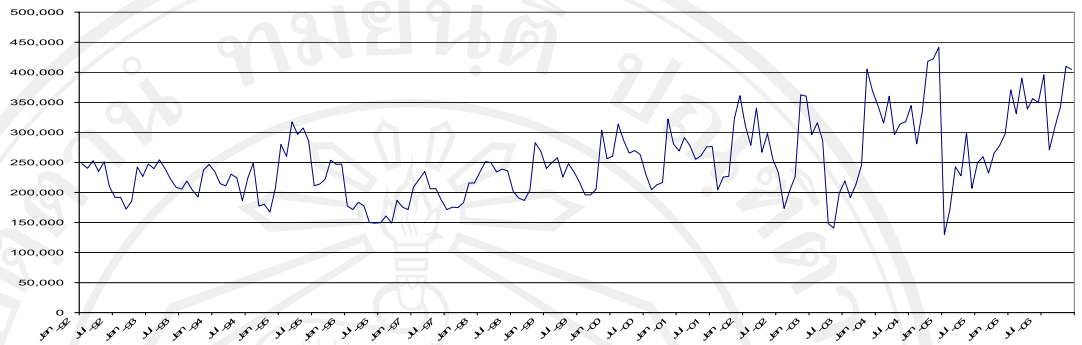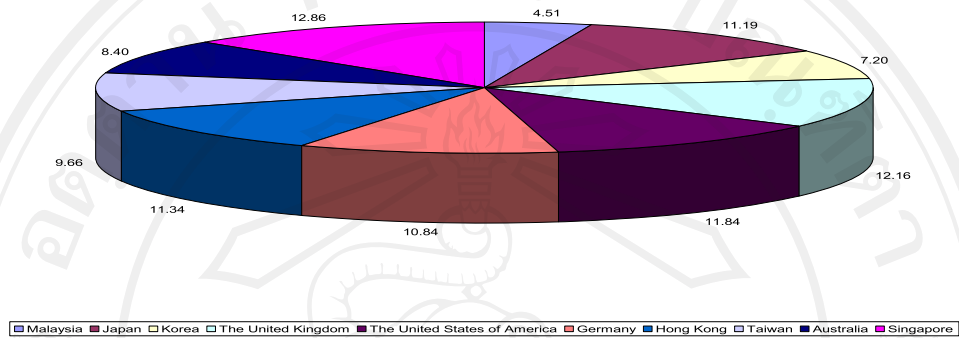

From: computed

Figure 5.5 Number of top ten international tourist source countries arrivals (DT) to

Bangkok, Thailand from January 1992 to December 2006
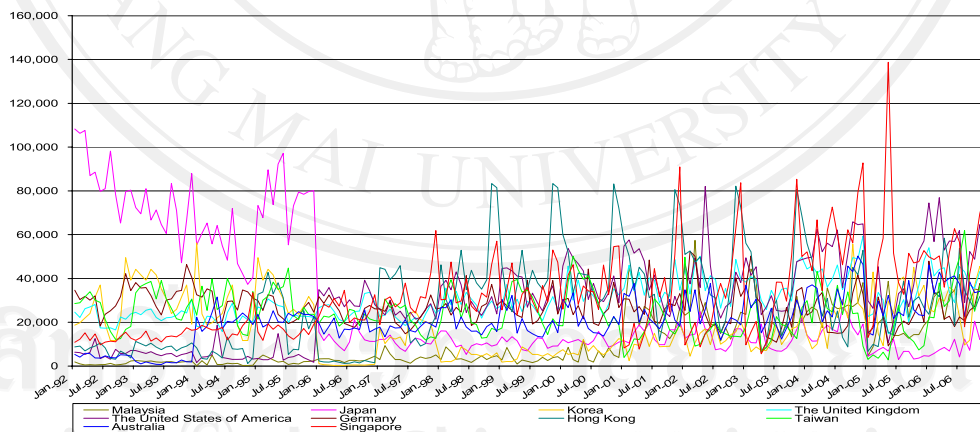
From: computed

Figure 5.6 Percentage of original top ten international tourist source countries arrivals

(DT) to Bangkok, Thailand from 1992 to 2006.

From: computed

Figure 5.7   Seasonal distribution of original top ten international tourist source

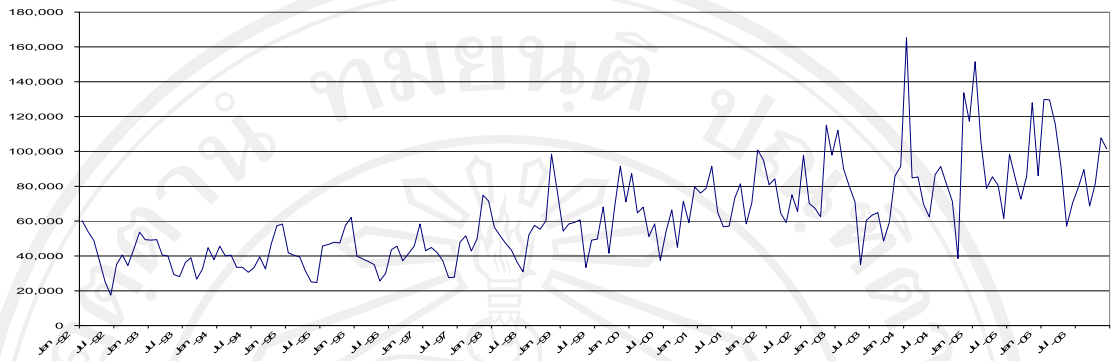countries arrival (DT) to Bangkok, Thailand from January to December
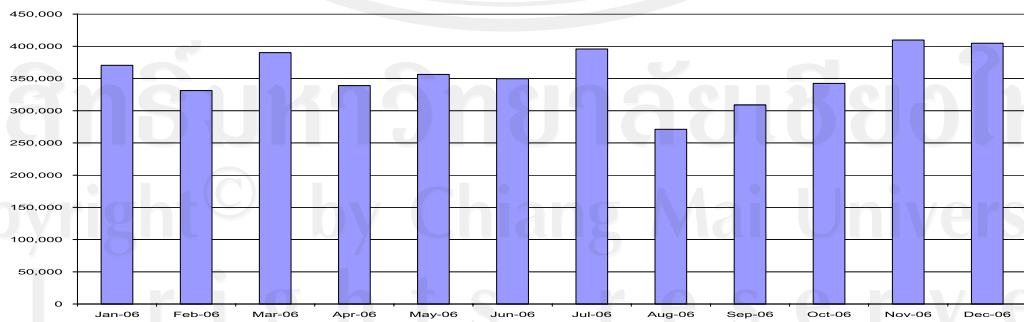
2006

From: computed

During January 1992 to December 2006, international tourists arriving to Chiang Mai continuously increased (Figure 8,9), and major countries sending tourists were U.S.A., France, Japan, Germany, U.K., Netherlands, Malaysia, Singapore, and Taiwan, with average total international tourist numbers around 10,000 and 20,000 per month. (Figure 10) U.S.A. (16.91%) is the first, and the second and third are Germany (13.11%) and Australia (11.84%). (Figure 11) Considering seasonal distribution of major tourist source countries arriving to Chiang Mai from January to December 2006, most came in January, Febuary, March, November and December.

Chiang Mai is one of the most famous and attractive cities in the northern part of Thailand. The culture of northern Thai people is world-renowned. Mountainous forests, waterfalls, botanical gardens, museums, palaces, Buddhist temples, Doi Suthep mountain, golden pagodas, elephant farms, a national zoo, orchid gardens, a night bazaar, modern shopping centers, silk, umbrella, and wood-carving factories, and historical places of hill tribes are attractive spots for visitors from abroad. Also, some senior Japanese pensioners plan to settle in Chiang Mai city for the long-term. Regarding the purposes for the trips, foreign international tourists came to Chiang Mai for vacations, to visit cultural centers, and for ecotourism. Many international tourists enjoy shopping because of their high purchasing power from their income from abroad. Backpacking international tourists with low expenses also enjoy their vacations. Thai New Year festival in April, the Full Moon Festival in November, and the Chinese New Year festival in February are the most popular festivals for international tourists while visiting Chiang Mai.

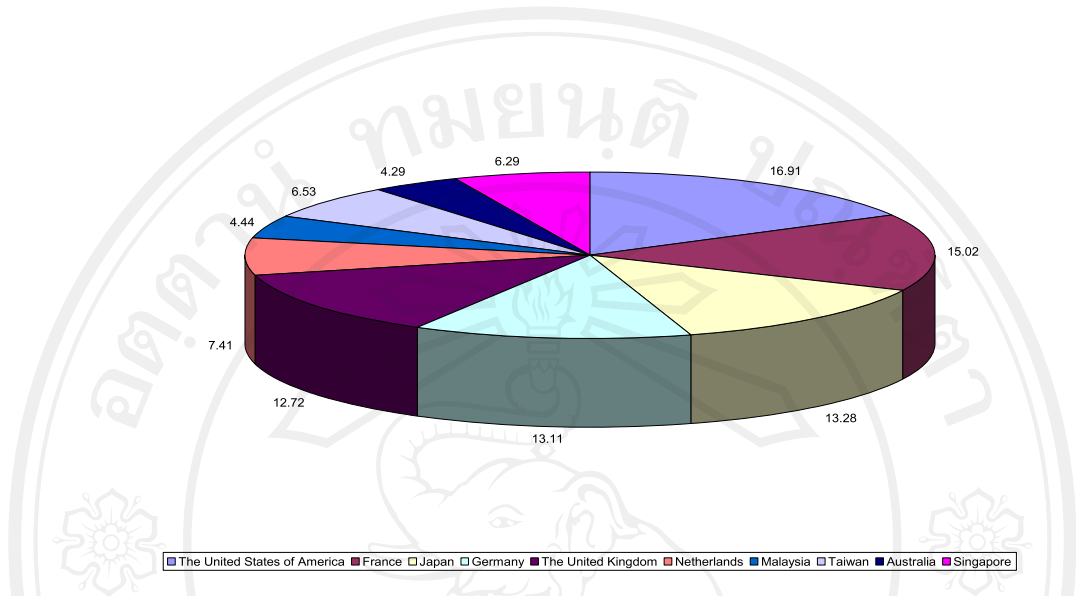Figure 5.8 Total number of tourists arrivals (DT) to Chiang Mai, Thailand from January 1992 to December 2006

From: computed

Figure 5.9 Number of tourists from source countries arriving (DT) to Chiang Mai, Thailand from January 1992 to December 2006
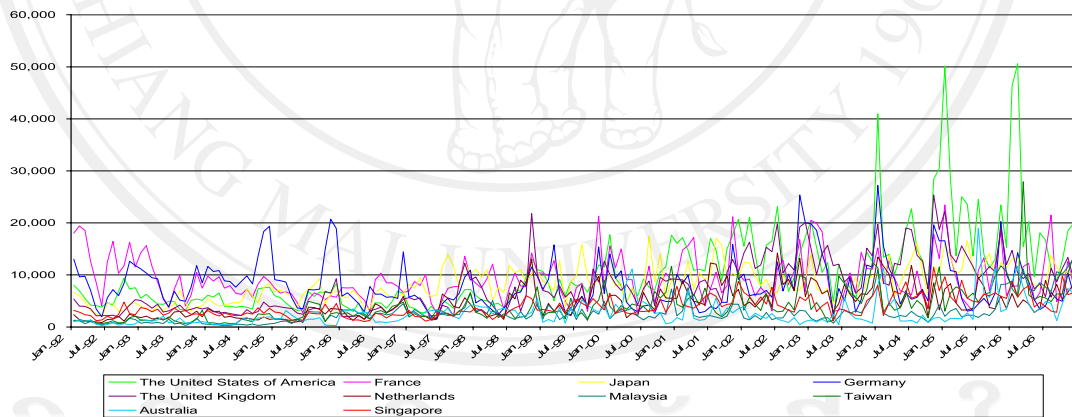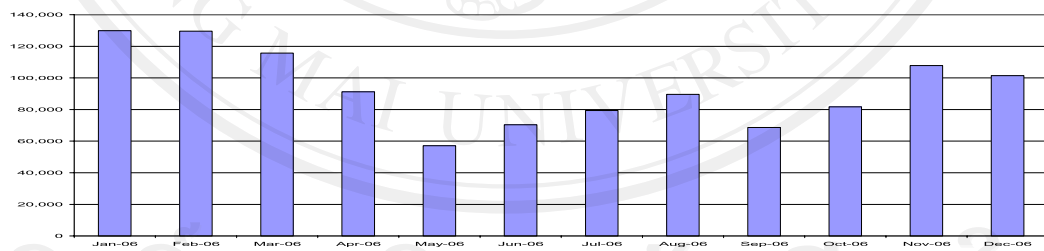

From: computed

Figure 5.10 Percentage of international tourists from source countries arriving (DT)
to Chiang Mai, Thailand from 1992 to 2006

From: computed

Figure 5.11 Seasonal distribution of tourist arrivals (DT) to Chiang Mai, Thailand,
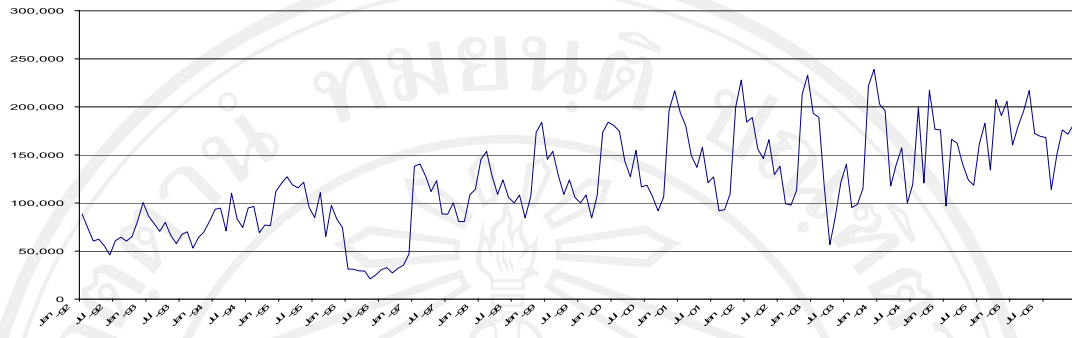from top ten international source countries, January to December 2006

From: computed

From January 1992 to December 2006, international tourists arrivals to Pattaya continuously increased (Figure 12,13). The major source countries were Taiwan, U.K., Hong Kong, Japan, South Korea, U.S.A., Singapore, Malaysia, Germany, and France, with average total international tourists numbering around 20,000 to 50,000 per month. (Figure 14) China (23.82%) is the first, the second is

Germany (13.60%), and the others are The United Kingdom (11.52%), Taiwan (11.22%), and Hong Kong (10.89%). (Figure 15) Considering the seasonal distribution of tourist arrivals to Pattaya from January to December 2006, most tourists come in January, Febuary, March, April, and December.

Pattaya is one of a nearest cities to Bangkok with sea-shore that can easily be reached by international tourists. International tourists can visit Pattaya by service of public bus or private cars from Bangkok (140 kms) on a highway within two hours. Pattaya has become the most popular beach resort for Thai people who work and stay in Bangkok. Many foreign international tourists enjoy staying in Pattaya too. Millions of Bangkok residents go to Pattaya every year to take a rest and enjoy the beach environment for the weekend. Most visitors are foreigners. Two-thirds of them expect to enjoy their exciting sea activities. International tourists to Pattaya hope to enjoy food and drinks in their favorite bars, nightclubs, and restaurants located near Pattaya beach. Fresh air and blue sky on Pattaya beach creates a good impression for all international tourists and frequently brings back the visitors to visit these favorite places again. Some businessmen who travel to the Far East or Australia chose to extend their trips with a stop-over in Pattaya.

Figure 5.12 Total Number of tourists from source countries arriving (DT) to Pattaya,Thailand from January 1992 to December 2006
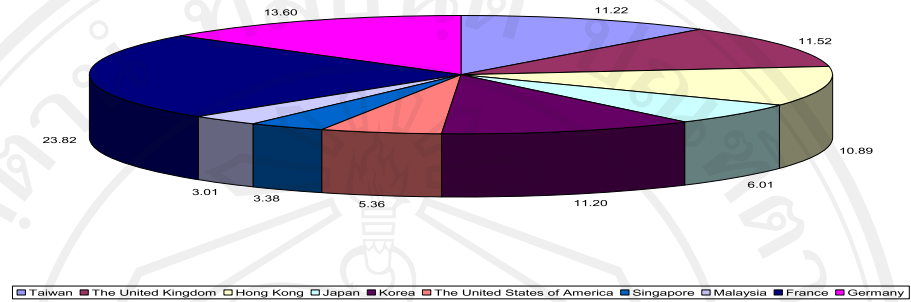

From: computed

Figure 5.13 Number of tourists from the top ten source countries arriving (DT) to Pattaya, Thailand from January 1992 to December 2006
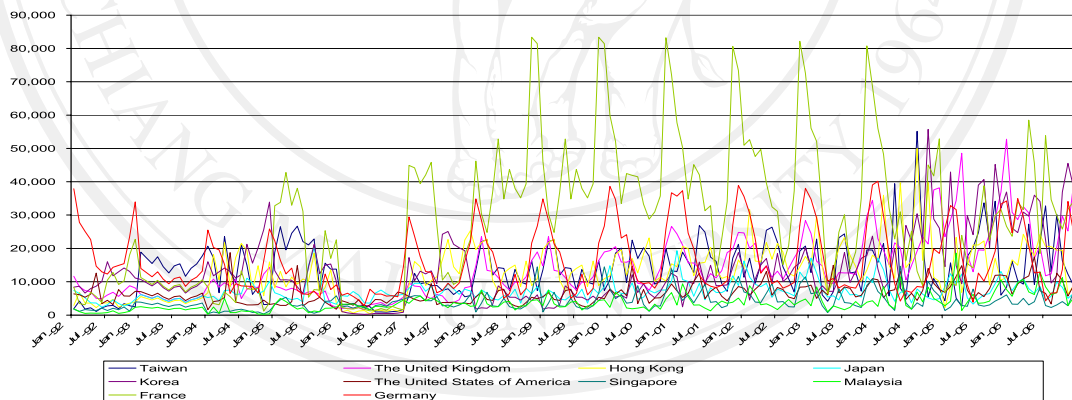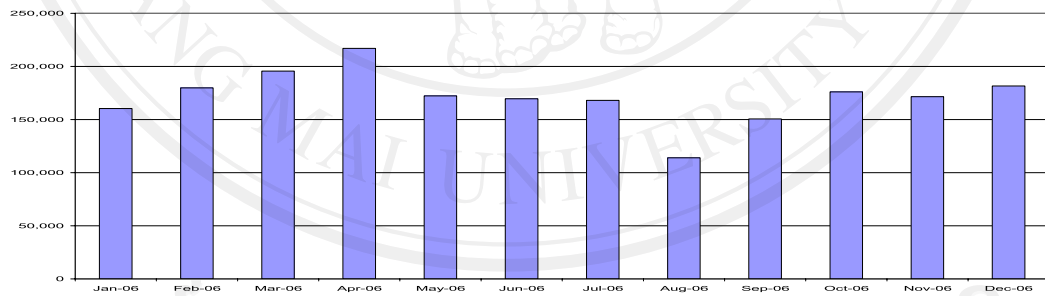

From: computed

Figure 5.14   Percentage of tourist arrivals from the top ten source countries arriving

(DT) to Pattaya, Thailand from 1992 to 2006

From : computed

Figure 5.15   Seasonal distribution of tourist arrivals (DT) to Pattaya, Thailand, from

Top ten international source countries, January to December 2006

From: computed

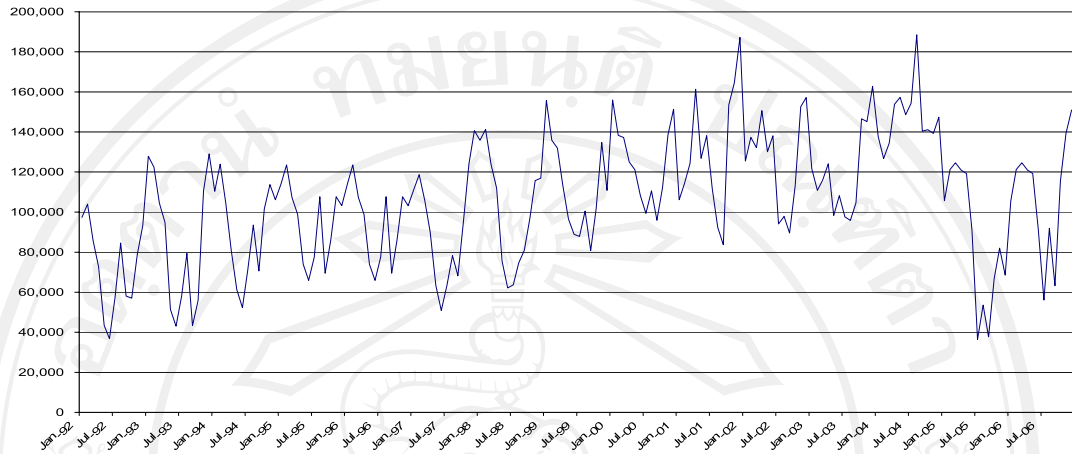From January 1992 to December 2006, international tourists arrivals to Phuket

continuously increase, but dropped down in 2005 because of effects from the 24

December 2004 tsunami, and grew up again in 2006. (Figure 16,17) Major countries

sending tourists were Germany, Taiwan, U.K., Sweden, Japan, Switzerland, Italy,

Korea, Hong Kong, and France with an average total of international tourists

numbering between 10,000 and 30,000 every month. (Figure 18) Taiwan (18.04%) is the first and the second is Germany (14.93%). Third and fourth are The United Kingdom (12.96%), and Japan (11.14%).(Figure 19) Considering the seasonal distribution of tourist arrivals to Phuket from January to December 2006, most come in January, Febuary, March, November, and December.

Phuket province is an attractive place on a large island surrounded by white sand on the beach of the Andaman Sea. Most international tourists coming from European countries, America, and Asian countries know the name of this province as the "Pearl of the Andaman Sea". During December and January, many international tourists from Europe and America can travel from their home countries by direct flights to Phuket. To escape from frozen temperature of the winter season in Europe and America, many international tourists occasionally migrate for extended stays in Phuket. Good impressions from modern accommodations, favorite foods and drinks in Thai or European and American styles, beautiful sun, and white sand on the beach of the Andaman Sea for all seasons enhance foreign international tourists' impressions and they frequently visit Phuket.

Figure 5.16 Total Number of tourists from top ten source countries arriving (DT) to
Phuket, Thailand from January 1992 to December 2006

From: computed

Figure 5.17 Number of tourists from top ten source countries arriving (DT) to Phuket,
Thailand from January 1992 to December 2006
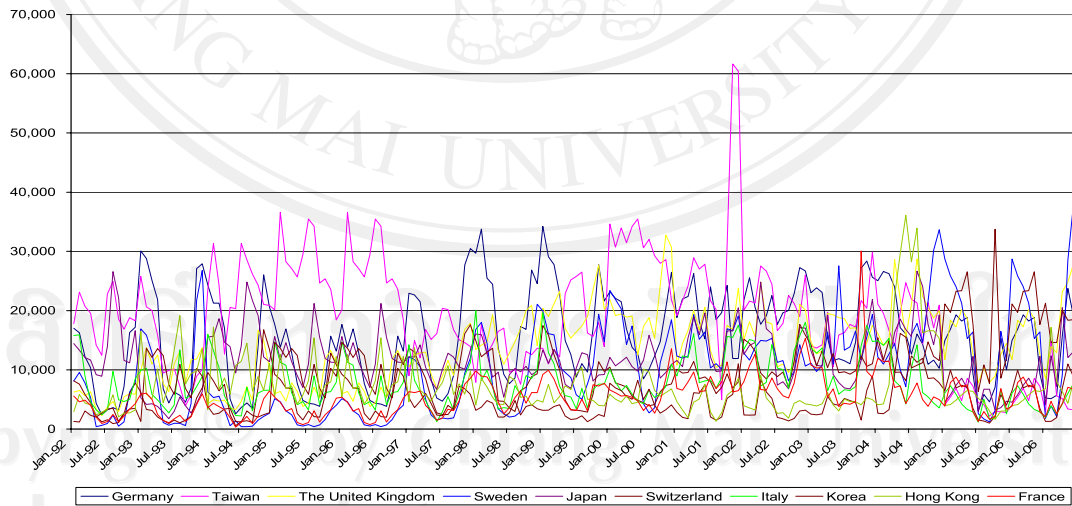
From: computed

Figure 5.18   Percentage of tourists arrivals (DT) from top ten source countries to Phuket, Thailand from 1992 to 2006
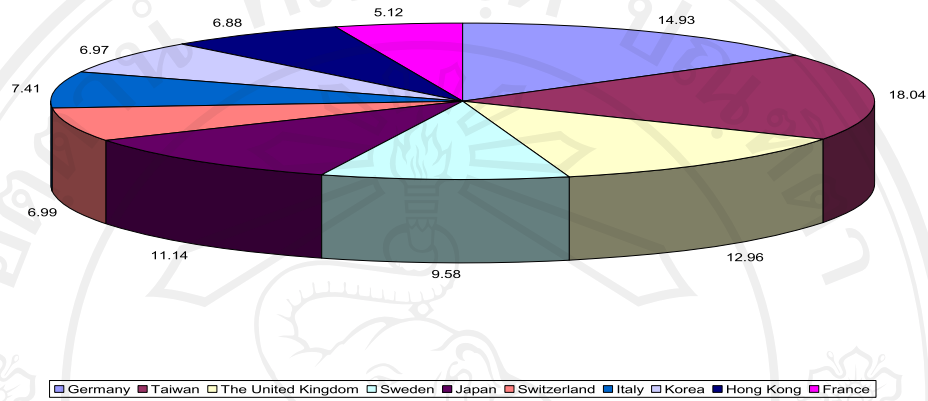
From: computed

Figure 5.19   Seasonal distribution of tourist arrivals (DT) to Phuket, Thailand from top ten source countries from January to December 2006
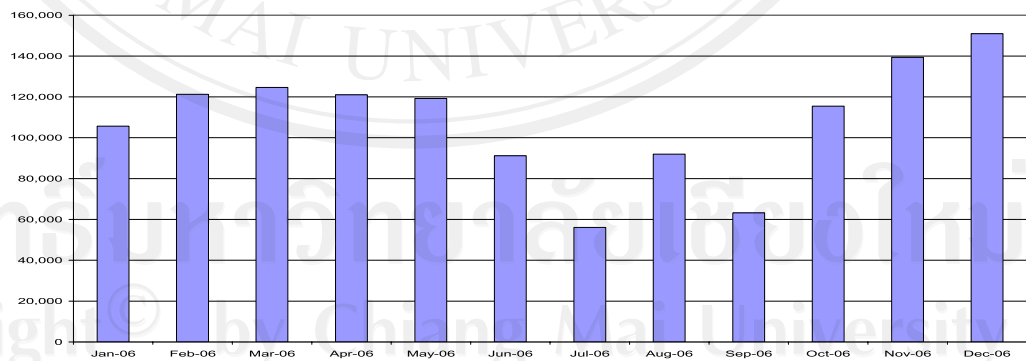
From   :   computed

5.4. Empirical Results

This section presents the results of the statistics from investigating the effects of factors affecting the flow of international tourist arrivals by country of origin in the

four main tourist regions in Thailand: Bangkok, Chonburi (Pattaya), Phuket, and Chiang Mai. We present the estimates of the static linear fixed effects model and random effect model and then present the estimates of the difference after adjusting from seasonal static linear fixed effects model and random effect model. Initially, a static version of the model is estimated, that is, a model without the second term in equation (1). Table 2 shows the results of a static panel model for investigating the effects of factors affecting the flow of international tourists by country of origin to Thailand. The presence of cross-section and period-specific effects terms λ_{it} and μ_{it} may be handled using fixed or random effects methods. If the data is balanced so that every cross-section has the same set of observations, random effects for which the random effect specifications assume that the corresponding effects λ_{it} and μ_{it} are realizations of independent random variables with mean zero and finite variance. Most importantly, the random effects specification assumes that the effect is uncorrelated with the idiosyncratic residual.

The results of the static fixed and random effect model in the four main tourist regions in Thailand (Bangkok, Chiang Mai, Chonburi (Pattaya) and Phuket) are presented in Table 1–Table 4 and are discussed in sub-section 3.1-3.4.

5.4.1. The results of the static for investigating the effects of factors affecting the flow of international tourists by country of origin in Bangkok

For the total number of tourist arrivals from the top ten source countries (Malaysia, Japan, Korea, United Kingdom (U.K.), United States Of America (U.S.A.), Germany, Taiwan, Australia, Singapore, and Hong Kong) to Bangkok,

Thailand, with Log linear static panel data Fixed Effects estimator assuming cross-section fixed (dummy variables) all variable coefficients seem significant but present unexpected signs in total cost and nominal exchange rate of original countries to baht per dollars. A 1% increase in origins' real per capita from ten countries GDP leads to a 0.38% increase in total number of tourist arrivals in original ten countries to Bangkok Thailand, on average a *ceteris paribus*. A 1% increase in total cost origins' ten countries leads to a 0.32% increase in total number of tourist arrivals in original ten countries to Thailand, on average a ceteris paribus. A 1% increase in relative price from origins' ten countries leads to a 2.35% decrease in total number of tourist arrivals from the original ten countries to Bangkok, on average a *ceteris paribus*. A 1% increase in nominal exchange rate of original ten countries leads

Table 5.1 The results of Log Linear Static panel data in dependency upon the total
number of tourist arrivals from top ten source countries to Bangkok,
Thailand

From: computed

Variable	Cross-section fixed	Cross-section random	SCross-section fixed	SCross-section random
Constant	4.40***	5.38***	4.37***	5.35***
	(9.42)	(11.94)	(9.43)	(11.93)
LNY	0.38***	0.36***	0.38***	0.36***
	(5.53)	(5.60)	(5.56)	(5.63)
LNTC	0.32***	0.38***	0.33***	0.39***
	(6.36)	(7.82)	(6.54)	(7.98)
LNRP	-2.35***	-1.40***	-2.34***	-1.40***
	(-7.93)	(-5.38)	(-7.93)	(-5.40)
LNER	-0.85***	-0.25***	-0.84***	-0.25***
	(-7.53)	(-4.18)	(-7.51)	(-4.17)
Sum squared resid	1179.04	1213.92	1166.59	1201.00
Adjusted R-squared	0.31	0.09	0.31	0.09
Durbin-Watson stat	0.37	0.36	0.37	0.35
F-statistic	63.00	44.45	63.84	45.61

Note: T- ratios are in parentheses. A * denotes statistical significance at the 10 percent level. **
denotes statistical significance at the 5 percent level, and *** denotes statistical significance at the 1
percent level.to a 0.85% decrease in total number of tourist arrivals from original countries to Bangkok,
on average a *ceteris paribus*

For the total number of tourist arrivals from the original countries to
Bangkok with Log linear static panel data and Fixed Effects estimator assuming
cross-section random all variable coefficients seem significant but present unexpected

signs in total cost and nominal exchange rate of original countries to baht per dollars. A 1% increase in origins' real per capita from ten countries GDP leads to a 0.36% increase in the total number of tourist arrivals from the original ten countries to Bangkok, on average a *ceteris paribus*. A 1% increase in total cost origins' ten countries leads to a 0.38% increase in the total number of tourist arrivals from the ten countries to Bangkok, on average a *ceteris paribus*. A 1% increase in relative price from origins' ten countries leads to a 1.40% decrease in the total number of tourist arrivals from the original countries to Bangkok, on average a *ceteris paribus*. A 1% increase in nominal exchange rate of original from ten countries leads to a 0.25% decrease in the total number of tourist arrivals from the original countries to Thailand, on average a *ceteris paribus*.

For the total number of tourist arrivals from the original top ten countries to Bangkok, Thailand, with Log linear adjustment seasonal static panel data Fixed Effects estimator assuming cross-section fixed but period random all variable coefficients seem significant but present unexpected signs in total cost and nominal exchange rate of original countries to baht per dollars. A 1% increase in origins' real per capita from ten countries' GDP leads to a 0.38% increase in the total number of tourist arrivals from the original countries to Bangkok, Thailand, on average a *ceteris paribus*. A 1% increase in total cost origins' ten countries leads to a 0.33% increase in total number of tourist arrivals from the original ten countries to Thailand, on average a *ceteris paribus*. A 1% increase in relative price from origins' ten countries leads to a 2.34% decrease in the total number of tourist arrivals from the original ten countries to Bangkok, Thailand, on average a *ceteris paribus*. A 1% increase in the nominal

exchange rate of the original ten countries leads to a 0.84% decrease in the total number of tourist arrivals from the ten countries to Bangkok, Thailand, on average a *ceteris paribus*.

For the total number of tourist arrivals from the original top ten countries to Bangkok, Thailand, with Log linear adjustment seasonal static panel data Fixed Effects estimator assuming cross-section random, all variable coefficients seem significant but present unexpected signs in total cost and nominal exchange rate of original countries to baht per dollars. A 1% increase in origins' real per capita from ten countries GDP leads to a 0.36% increase in total number of tourist arrivals from the original ten countries to Bangkok, on average a *ceteris paribus*. A 1% increase in total cost origins' ten countries leads to a 0.39% increase in the total number of tourist arrivals from the original ten countries to Bangkok, on average a *ceteris paribus*. A 1% increase in relative price from origins' ten countries leads to a 1.40% decrease in the total number of tourist arrivals from the original ten countries to Bangkok, on average a *ceteris paribus*. A 1% increase in nominal exchange rate of the ten countries leads to a 0.25% decrease in the total number of tourist arrivals from the original ten countries to Bangkok, on average a *ceteris paribus*.

5.4.2   Results of the static for investigating the effects of factors affecting the flow of international tourists by country of origin to Chiang Mai

For the total number of tourist arrivals from the original top ten countries (U.S.A., France, Japan, Germany, U.K., Netherlands, Malaysia, Singapore, Taiwan, and Australia) to Chiang Mai, Thailand, with Log linear static panel data Fixed Effects estimator assuming cross-section fixed (dummy variables) only real per

capita GDP coefficients seem significant and present expected signs. A 1% increase in origins' real per capita from the ten countries GDP leads to a 3.71% increase in total number of tourist arrivals from the original ten source countries to Chiang Mai, Thailand, on average a *ceteris paribus*.

For the total number of tourist arrivals from the original top ten source countries to Chiang Mai with Log linear static panel data Fixed Effects estimator assuming cross-section random, most variable coefficients seem significant except in nominal exchange rate of original ten countries but present unexpected signs in total cost and relative price. A 1% increase in origins' real per capita from ten countries GDP leads to a 2.54% increase in the total number of tourist arrivals from the original ten countries to Chiang Mai, on average a *ceteris paribus*. A 1% increase in total cost origins' ten countries leads to a 0.10% increase in the total number of tourist arrivals from original ten countries to Chiang Mai, on average a *ceteris paribus*. A 1%

Table 5.2 The results of Log linear Static panel data in dependency on the total number of tourist arrivals from the top ten source countries to Chiang Mai, Thailand

From: computed

Variable	Cross-section fixe	Cross-section random	SCross-section fixed	SCross-section random
Constant	-18.84*** (-13.86)	-10.61*** (-9.63)	-19.21*** (-15.09)	-11.54*** (12.42)
LNY	3.71*** (19.16)	2.54*** (16.28)	3.76*** (20.76)	2.68*** (17.90)
LNTC	19.16 (0.44)	0.10*** (2.77)	0.007 (0.22)	0.09*** (2.58)
LNRP	-0.08 (-0.37)	0.70*** (3.42)	-0.12 (-0.57)	0.61*** (3.17)
LNER	0.03 (0.82)	0.01 (0.30)	0.034 (1.03)	0.02 (0.53)
Sum squared resid	469.55	498.32	405.80	432.59
AdjustedR-squared	0.63	0.33	0.66	0.36
Durbin-Watson stat	0.96	0.90	0.98	0.92
F-statistic	235.40	220.25	272.44	255.38

Note: T- ratios are in parenthesis. A * denotes statistical significance at the 10 percent level. ** denotes statistical significance at the 5 percent level, and *** denotes statistical significance at the 1 percent level.

increase in relative price from origins' ten countries leads to a 0.70% decrease in the total number of tourist arrivals from the original ten countries to Chiang Mai, on average a *ceteris paribus*.

For the total number of tourist arrivals from the original top ten countries to Chiang Mai with Log linear adjust seasonal static panel data Fixed Effects estimator assuming cross-section fixed, all variable coefficients seem significant but present unexpected signs except in origins' real per capita from ten countries' GDP. A 1% increase in origins' real per capita from ten countries GDP leads to a 0.43% increase in the total number of tourist arrivals from the original ten countries to Chiang Mai, on average a *ceteris paribus*. A 1% increase in total cost origins' ten countries leads to a 0.32% increase in the total number of tourist arrivals from the original ten countries to Chiang Mai, on average a *ceteris paribus*. A 1% increase in relative price from origins' ten countries leads to a 1.87% increase in the total number of tourist arrivals from the original ten countries to Chiang Mai, on average a *ceteris paribus*. A 1% increase in nominal exchange rate of original from ten countries leads to a 0.006% decrease in the total number of tourist arrivals from the original ten countries to Chiang Mai, on average a *ceteris paribus*

For the total number of tourist arrivals from the original top ten countries to Chiang Mai with Log linear adjustment for seasonal static panel data Fixed Effects estimator assuming cross-section random, most variable coefficients seem significant except in nominal exchange rate of the ten source countries, but present unexpected signs except in origins' real per capita from the ten countries' GDP. A 1% increase in the origins' real per capita from the country's GDP leads to a 2.68% increase in the

total number of tourist arrivals from the original countries to Chiang Mai, on average a *ceteris paribus*. A 1% increase in total cost of origins' countries leads to a 0.09% increase in the total number of tourist arrivals from the ten countries to Chiang Mai, on average a *ceteris paribus*. A 1% increase in relative price from origins' ten countries leads to a 0.61% increase in the total number of tourist arrivals from the ten countries to Chiang Mai, on average a *ceteris paribus*.

5.4.3 The results of the static for investigating the effects of factors affecting the flow of international tourists by country of origin to Pattaya

Table 5.3 The results of Log linear Static panel data in dependency on the total number of tourist arrivals from original top ten countries to Pattaya

From: computed

Variable	Cross-section fixed	Cross-section random	SCross-section fixed	SCross-section random
Constant	4.15*** (-9.75)	5.09*** (11.78)	4.10*** (9.85)	5.01*** (11.78)
LNY	0.30*** (5.06)	0.26*** (4.63)	0.30*** (5.19)	0.26*** (4.76)
LNTC	0.23** (4.99)	0.24*** (5.53)	0.24*** (5.46)	0.26*** (5.98)
LNRP	-0.43* (-1.77)	0.18*** (0.80)	-0.42* (-1.76)	0.17 (0.78)
LNER	-0.85*** (-10.62)	-0.53 (-8.12)	-0.83*** (-10.70)	-0.53*** (-8.23)
Sum squared resid	867.53	898.99	831.90	862.07
Adjusted R-squared	0.47	0.14	0.48	0.15
Durbin-Watson stat	0.67	0.64	0.67	0.64
F-statistic	123.00	74.10	128.81	79.54

Note: T- ratios are in parenthesis. A * denotes statistical significance at the 10 percent level. ** denotes statistical significance at the 5 percent level and *** denotes statistical significance at the 1 percent level.

For the total number of tourist arrivals from the top ten source countries (Taiwan, U.K., Hong Kong, Japan, South Korea, U.S.A., Singapore, Malaysia, Germany, and France) to Pattaya, Thailand, with Log linear static panel data Fixed Effects estimator assuming cross-section fixed (dummy variables), all variable coefficients seem significant but present unexpected signs in total cost and nominal exchange rate of original countries to baht per dollars . A 1% increase in origins' real per capita from the ten countries' GDP leads to a 0.30% increase in the total number of tourist arrivals from the ten source countries to Pattaya, on average a *ceteris paribus*. A 1% increase in total cost of the ten countries leads to a 0.23% increase in the total number of tourist arrivals from the countries to Pattaya, on average a *ceteris paribus*. A 1% increase in relative price from origins' ten countries leads to a 0.43% decrease in the total number of tourist arrivals from the original ten countries to Pattaya, on average a *ceteris paribus*. A 1% increase in the nominal exchange rate of the ten countries leads to a 0.85% decrease in the total number of tourist arrivals from the original ten countries to Pattaya, on average a *ceteris paribus*.

For the total number of tourist arrivals from the original top ten countries to Pattaya with Log linear static panel data Fixed Effects estimator assuming cross-section random, almost variable coefficients seem significant except in nominal exchange rate of the ten source countries, but present unexpected signs in total cost, in relative price, and in nominal exchange rate of original countries to baht per dollars. A 1% increase in origins' real per capita from the ten countries' GDP leads to a 0.26% increase in the total number of tourist arrivals from the original ten countries to Pattaya, on average a *ceteris paribus*. A 1% increase in total cost of the ten countries

leads to a 0.24% increase in the total number of tourist arrivals from the ten source countries to Pattaya, on average a *ceteris paribus*. A 1% increase in relative price from the ten countries leads to a 0.18% decrease in the total number of tourist arrivals from the ten source countries to Pattaya, on average a *ceteris paribus*.

For the total number of tourist arrivals from the top ten source countries to Pattaya with Log linear adjustment for seasonal static panel data and Fixed Effects estimator assuming cross-section fixed, all variable coefficients seem significant but present unexpected signs in total cost and nominal exchange rate of original countries to baht per dollars. A 1% increase in the origin countries' real per capita leads to a 0.21% increase in the total number of tourist arrivals from the ten countries to Pattaya, on average a *ceteris paribus*. A 1% increase in total cost in the ten source countries leads to a 0.42% increase in the total number of tourist arrivals from the ten countries to Pattaya, on average a *ceteris paribus*. A 1% increase in relative price from the original ten countries leads to a 1.05% decrease in the total number of tourist arrivals from the ten countries to Pattaya, on average a *ceteris paribus*. A1% increase in the nominal exchange rate of the ten countries leads to a 0.49% decrease in the total number of tourist arrivals from the source countries to Pattaya, on average a *ceteris paribus*.

For the total number of tourist arrivals from the original top ten source countries to Pattaya with Log linear adjustment for seasonal static panel data and Fixed Effects estimator assuming cross-section random, most variable coefficients seem significant except in relative price from the ten countries, but present unexpected signs in total cost, in relative price, and in nominal exchange rate of

original countries to baht per dollars. A 1% increase in origins' real per capita from the ten countries' GDP leads to a 0.26% increase in the total number of tourist arrivals from the ten countries to Pattaya, on average a *ceteris paribus*. A 1% increase in total cost in the ten countries leads to a 0.26% increase in the total number of tourist arrivals from the ten countries to Pattaya, on average a *ceteris paribus*. A 1% increase in nominal exchange rate of the original ten countries leads to a 0.53% decrease in the total number of tourist arrivals from the ten countries to Pattaya, on average a *ceteris paribus*.

5.4.4 Results of the static for investigating the effects of factors affecting the flow of international tourists by country of origin to Phuket

Table 5.4 The results of Log linear Static panel data in dependency on the total number of tourist arrivals from top ten source countries to Phuket, Thailand

From: computed

Variable	Cross-section fixed	Cross-section random	SCross-section fixed	SCross-section random
Constant	-5.06***	-2.65***	-4.36***	-2.31***
	(-3.20)	(-1.82)	(-2.95)	(-1.68)
LNY	2.04**	1.70***	1.94***	1.64***
	(9.13	(8.30)	(9.22)	(8.48)
LNTC	-0.31***	-0.27***	-0.29***	-0.25***
	(-6.17)	(-5.45)	(-5.97)	(-5.30)
LNRP	0.72***	0.85***	0.78***	0.89***
	(3.23)	(3.89)	(3.75)	(4.35)
LNER	-0.04***	-0.03**	-0.03**	-0.03***
	(-2.72)	(-2.59)	(-2.80)	(-2.67)
Sum squared resid	841.58	851.03	731.77	739.45
Adjusted R-squared	0.32	0.07	0.35	0.08
Durbin-Watson stat	0.49	0.48	0.47	0.46
F-statistic	65.42	37.37	74.80	42.48

Note: T- ratios are in parenthesis. A * denotes statistical significance at the 10 percent level. ** denotes statistical significance at the 5 percent level and *** denotes statistical significance at the 1 percent level.

For the total number of tourist arrivals from the top ten source countries (Germany, Taiwan, U.K., Sweden, Japan, Switzerland, Italy, South Korea, Hong Kong, and France) to Phuket, Thailand, with Log linear static panel data and Fixed Effects estimator assuming cross-section fixed (dummy variables), all variable coefficients seem significant but present unexpected signs in the origin countries real per capita, relative price, and nominal exchange rate of original countries to baht per dollars. A 1% increase in the origin countries' real per capita from GDP leads to a 2.04% decrease in the total number of tourist arrivals from the ten countries to Phuket, Thailand, on average a *ceteris paribus*. A 1% increase in total costs in the origin countries leads to a 0.31% increase in the total number of tourist arrivals from the ten countries to Phuket, on average a *ceteris paribus*. A 1% increase in relative price from the ten countries leads to a 0.72% increase in the total number of tourist arrivals from the ten source countries to Phuket, on average a *ceteris paribus*. A 1% increase in the nominal exchange rate of the original ten countries leads to a 0.04% decrease in the total number of tourist arrivals from the ten countries to Phuket, on average a *ceteris paribus*.

For the total number of tourist arrivals from the top ten source countries to Phuket with Log linear adjustment for seasonal static panel data and Fixed Effects estimator assuming cross-section random, all variable coefficients seem significant, but present unexpected signs in total cost and nominal exchange rate of the original countries' to Baht per dollars . A 1% increase in the origins' real per capita from ten countries' GDP leads to a 0.27% decrease in the total number of tourist arrivals from the original ten countries to Phuket, on average a *ceteris paribus*. A 1% increase in

total cost in the ten countries leads to a 0.27% decrease in the total number of tourist arrivals from the ten countries to Phuket, on average a *ceteris paribus*. A 1% increase in relative price from origins' ten countries, leads to a 0.85% increase in the total number of tourist arrivals from the original ten countries to Phuket, on average a *ceteris paribus*. A 1% increase in the nominal exchange rate of the original ten countries leads to a 0.03% decrease in the total number of tourist arrivals from the ten source countries to Phuket, on average a *ceteris paribus*.

For the total number of tourist arrivals from the original top ten countries to Phuket with Log linear adjustment for seasonal static panel data and Fixed Effects estimator assuming cross-section fixed, most of the variable coefficients seem significant except in nominal exchange rate of the from ten countries, but present unexpected signs in relative price from the ten origin countries . A 1% increase in the origins' real per capita GDP leads to a 1.94% increase in the total number of tourist arrivals from the ten countries to Phuket, on average a *ceteris paribus*. A 1% increase in the total cost origins' ten countries leads to a 0.29% decrease in the total number of tourist arrivals from the ten countries to Phuket, on average a *ceteris paribus*. A 1% increase in the relative price from the original countries leads to a 0.78% increase in the total number of tourist arrivals from the original ten countries to Phuket, on average a *ceteris paribus*.

For the total number of tourist arrivals from the top ten source countries to Phuket, Thailand with Log linear adjustment for seasonal static panel data and Fixed Effects estimator assuming cross-section random, all variable coefficients seem significant but present unexpected signs in relative price and nominal exchange rate of

the original countries' currencty to Baht per dollars. A 1% increase in the origins' real per capita from ten countries' GDP leads to a 1.64% increase in the total number of tourist arrivals from the ten countries to Phuket, on average a *ceteris paribus*. A 1% increase in total cost in the ten countries leads to a 0.25% decrease in the total number of tourist arrivals from the ten countries to Phuket, on average a *ceteris paribus*. A 1% increase in the relative price from origins' ten countries leads to a 0.89% increase in the total number of tourist arrivals from the ten countries to Phuket, on average a *ceteris paribus*. A 1% increase in the nominal exchange rate of the ten source countries leads to a 0.03% decrease in the total number of tourist arrivals to Phuket, on average a *ceteris paribus*.

5.5.   Conclusion of Research and Policy Recommendations

There are important conclusions and recommendations that emerge from the empirical analysis of the research. When considering the ten major international source countries (Malaysia (4.51%), Japan (11.19%), South Korea (7.20%). U.K. (12.16%), U.S.A. (11.84%), Germany (10.84%), Taiwan (9.66%), Australia (8.40%), Singapore (12.86%), and Hong Kong (11.34%)) to Bangkok in the long run with fixed effect and random effect and fixed effect and in random effect after adjusting for seasonal effect, the estimated values of the income positive inelasticity (0.38,0.36) suggests that the economic conditions of international tourists who visit Bangkok have a low effect in determining tourism demand to Bangkok. They still consider tourism in Bangkok as a normal good, but the results show high effects in negative relatively price (-2.35, 1.40, - 2.34). That is, lower prices in the ten origin countries have much more effect in decreasing the number of tourists to Bangkok, and there

still are rather high negative effects at the nominal exchange rate (-0.85, -0.25), which means an increase in nominal exchange rate in the ten countries has rather high effects to reduce international tourist numbers to Bangkok, but an increase in the total cost leads to little effect to increase international tourist numbers (0.32, 0.38, 0.33, 0.40) to Bangkok.

Considering the ten major international countries sending tourists to Chiang Mai (U.S.A. (16.91%), France (15.02%), Japan (13.28%), Germany (13.11%), U.K. (12.72%), Netherlands (7.41%), Malaysia (4.44%), Singapore (6.29%), Taiwan (6.53%), and Australia (4.29%)), in the long run with fixed and in random effect and fixed effect and in random effect after adjusting for seasonal effect, the estimated values of the income positive elasticity (3.70, 2.54, 3.76, 2.67) suggest that the economic conditions of international tourists who visit Thailand are highly affected in determining tourism demand in Chiang Mai and still consider tourism in Chiang Mai as luxury goods. The different result in random effect significant variables compare to the result with fixed effect are total cost (0.09) and relative price (0.69, 0.61) which means that even though there still is an increase in total cost and relative price from the original ten countries, these effects are still incapable to cause a decrease in tourist numbers in Chiang Mai.

Considering the ten major countries sending tourists to Pattaya (Taiwan (11.22%), U.K. (11.52%), Hong Kong (10.89%), Japan (6.01%), South Korea (11.20%), U.S.A. (5.36%), Singapore (3.38%), Malaysia (3.01%), Germany (13.60%), and France (23.82%)) in the long run with fixed effect and in random effect and fixed effect and in random effect after adjusting for seasonal effect, the estimated

values of the income positive inelasticity (0.30, 0.26) suggest that the economic conditions of international tourists who visit Pattaya are not affected much in determining tourism demand in Pattaya, and they still consider tourism in Pattaya as normal goods. The result still shows high effects in negative nominal exchange rate for tourism demand to Pattaya (-0.86, -0.53, -0.83) which means an increase in the nominal exchange rate in the ten original source countries rather highly affects a reduction in tourist numbers to Pattaya, but an increase in total cost (0.23, 0.24, 0.26) in the ten countries leads to little effect to increase tourist numbers to Pattaya.

Considering the ten major source countries for tourists to Phuket (Germany (14.93%), Taiwan (18.04%), U.K. (12.96%), Sweden (9.58%), Japan (11.14%), Switzerland (6.99%), Italy (7.41%), South Korea (6.97%), Hong Kong (6.88%), and France (5.12%)), in the long run with fixed effect and in random effect and fixed effect and in random effect after adjust seasonal effect, the estimated values of the income positive elasticity (2.04, 1.70, 1.93, 1.64) suggests that the economic conditions of tourists who visit Phuket are highly influential in determining tourism demand to Phuket as they still consider tourism to Phuket as luxury goods. The result also shows rather high effect in positive relatively price to tourism demand to Phuket (0.72, 0.85, 0.79, 0.89) that even though there is lower price in original ten countries compared to Thailand, it still does not effect increasing number of tourists from the ten countries to Phuket. The result still be rather low negative effect in total cost (-0.31, -0.27,-0.29,-0.25) for tourism demand from original ten countries which mean increase in total cost lead to low decrease international tourists number to Phuket. The result still show negative inelasticity effect in nominal exchange rate (-0.04, -

0.03,) for tourism demand which means an increase in nominal exchange rate in the ten countries has rather limited effects to reduce tourist numbers to Phuket.

The estimated values of the income positive elasticity suggest that the economic conditions of the ten major source countries are a very important factor in determining tourism demand in Chiang Mai and Phuket. Therefore, it is important for policymakers to closely monitor the economic cycles in the original countries that send tourists to Chiang Mai and Phuket. It would also be very advisable to diversify risks by trying to capture potential international tourists from other markets. The ten major source countries to Bangkok are very sensitive to prices. According to the selected model, the estimated values for relative price in long-run elasticities are-2.35, -1.40, and -2.34, respectively. Thus, suppliers must be careful with prices in order to maintain the competitiveness of their products.

The ten major source countries to Bangkok and Pattaya are also very sensitive to nominal exchange rate. According to the selected model, the estimated values for nominal exchange rate in long-run elasticities in Bangkok are -0.85, -0.25, and in Pattaya are -0.86, -0.53, -0.83, respectively. According to Thailand adopting a floating exchange rate, it would also be wise to look to diversify risks by trying promotional activities that encourage tourists from source countries to Bangkok and Pattaya. Promotional activities during the low season should be focused and tailored to targeted groups of international tourists.This includes the study of international tourists' consumer behavior as compared to what each of the provinces can offer. Even though the result in total cost from original major countries is still not

decreasing major tourist numbers to Bangkok, Chiang Mai, and Pattaya, the estimated values for total cost should still be rather negative low effect in long run total cost

-0.31, -0.27,-0.29,and -0.25 in Phuket. Attempts to increase revenue from the tourism industry in the four major provinces should not only come from the number of visitors, but there is a need to reposition the provinces as quality destinations by diversifying the market, quality improvement of the tourism products, and lengthening of the tourist season. The other avenue to increase revenue from the tourism industry is to link the tourism industry to the other economic sectors, such as agricultural sector by creating value added to agricultural products. There is a need to support tourism education and public awareness of the social and economic benefits, as well as the negative impacts from tourism in the four major provinces. Promotional efforts should use "Pull Strategy", with focused target international tourists, and be tailored to suit them. The four major provinces should be more proactive in anticipating the demand, and more aggressive in taking actions. Co-operation with surrounding tourism destinations in Thailand and neighboring countries would also be beneficial.

The conclusion drawn is that elasticities, over time, change with changes in incomes, prices, total cost and nominal exchange rate, with the consequences that tourism demand models that assume constant elasticities are misspecified, and that elasticities need to be updated regularly as outdated elasticities may mislead policy and marketing decision-makers.

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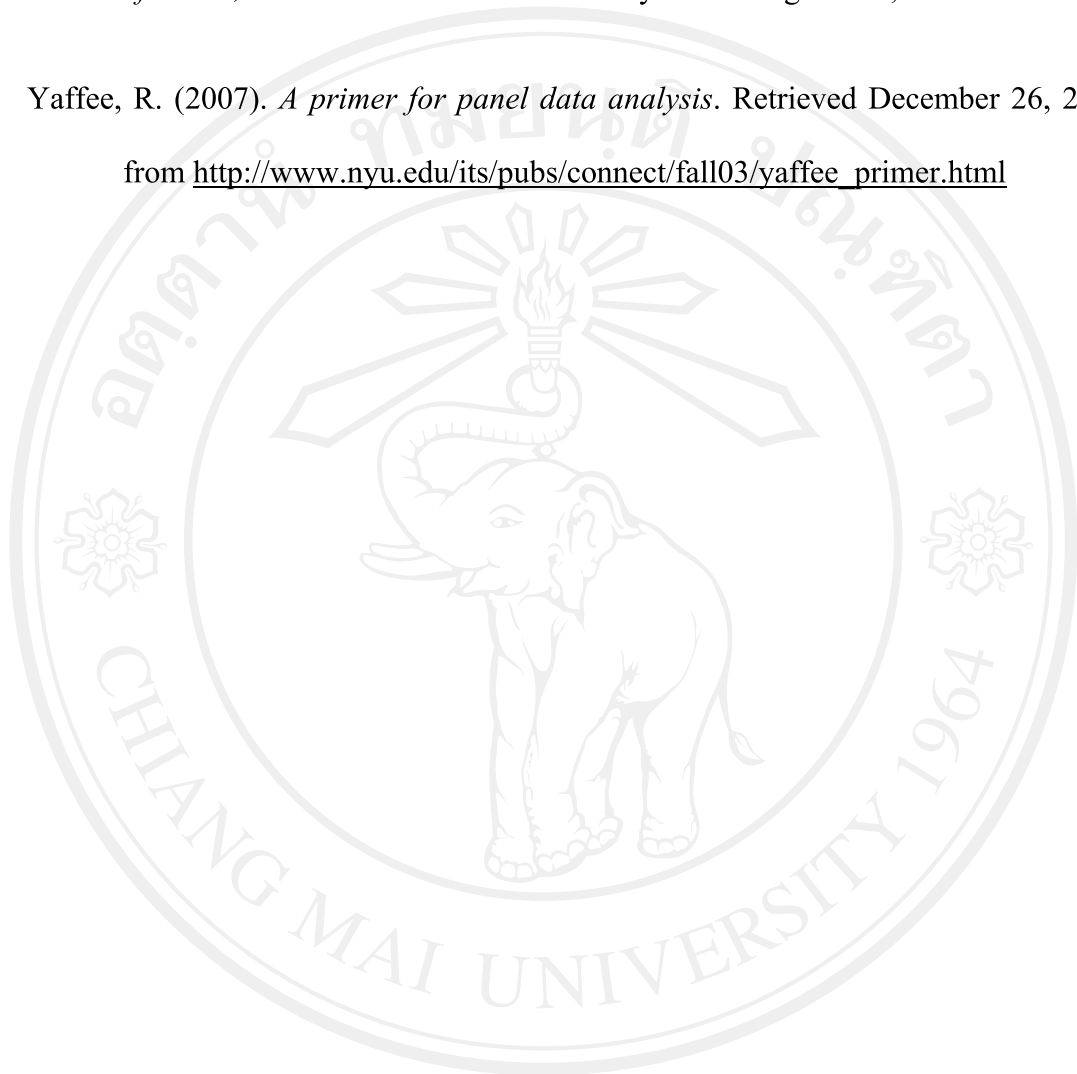
Redundant Fixed Effects Tests Table 5.5. Bangkok

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	54.783436	(9,1786)	0.0000
Cross-section Chi-square	438.805101	9	0.0000

Hausman Test   Table 5.6 Bangkok

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	47.839213	4	0.0000
Cross-section random effects test comparisons:			
Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(Y)	0.384304	0.355748	0.000798	0.3122
LOG(TC)	0.321143	0.378945	0.000199	0.0000
LOG(RP)	-2.353520	-1.400680	0.020272	0.0000
LOG(ER)	-0.849183	-0.251605	0.009086	0.0000

Redundant Fixed Effects seasonal Tests Table 5.7. Bangkok

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	55.434153	(9,1786)	0.0000
Cross-section Chi-square	443.424613	9	0.0000

Hausman seasonal Test   Table 5.8   Bangkok

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	47.683341	4	0.0000
Cross-section random effects test comparisons:			
Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(YSA)	0.384513	0.355814	0.000780	0.3043
LOG(TCSA)	0.329869	0.386663	0.000197	0.0001
LOG(RPSA)	-2.342864	-1.399091	0.019998	0.0000
LOG(ERSA)	-0.842225	-0.250984	0.008962	0.0000

Redundant Fixed Effects Tests Table 5.9 Chiang Mai,

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Cross-section F	114.160677	(9,1786)	0.0000
Cross-section Chi-square	817.976912	9	0.0000

Hausman Test   Table 5.10   Chiang Mai,

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		104.409585	4	0.0000
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(Y)	3.707559	2.542060	0.013060	0.0000
LOG(TC)	0.016300	0.098670	0.000080	0.0000
LOG(RP)	-0.081261	0.697186	0.007295	0.0000
LOG(ER)	0.028785	0.010008	0.000152	0.1281

Redundant Fixed Effects seasonal Tests Table5.11 Chiang Mai,

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	132.842850	(9,1786)	0.0000
Cross-section Chi-square	922.458195	9	0.0000

Hausman seasonal Test   Table 5.12   Chiang Mai,

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		112.927735	4	0.0000
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(YSA)	3.764142	2.677536	0.010497	0.0000
LOG(TCSA)	0.007533	0.086363	0.000066	0.0000
LOG(RPSA)	-0.117564	0.608752	0.005834	0.0000
LOG(ERSA)	0.033694	0.016448	0.000116	0.1091

Redundant Fixed Effects Tests Table 5.13 Pattaya.

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	108.745522	(9,1786)	0.0000
Cross-section Chi-square	786.522877	9	0.0000

Hausman Test   Table 5.14 Pattaya.

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		59.768896	4	0.0000
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(Y)	0.303313	0.260639	0.000424	0.0383
LOG(TC)	0.225360	0.243971	0.000085	0.0438
LOG(RP)	-0.433567	0.184015	0.007552	0.0000
LOG(ER)	-0.845974	-0.526688	0.002131	0.0000

Redundant Fixed Effects seasonal Tests Table5.16 Pattaya

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	113.028815	(9,1786)	0.0000
Cross-section Chi-square	811.447753	9	0.0000

Hausman seasonal Test   Table 5.17 Pattaya

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		59.782885	4	0.0000
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(YSA)	0.304512	0.263367	0.000392	0.0378
LOG(TCSA)	0.242085	0.259368	0.000080	0.0529
LOG(RPSA)	-0.423050	0.174336	0.007041	0.0000
LOG(ERSA)	-0.834796	-0.526901	0.001990	0.0000

Redundant Fixed Effects Tests Table 5.18 Phuket.

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	83.175051	(9,1786)	0.0000
Cross-section Chi-square	630.085806	9	0.0000

Hausman Test   Table 5.19 Phuket.

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary	Chi-Sq. Statistic		Chi-Sq. d.f.	Prob.
Cross-section random	15.053594		4	0.0046
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(Y)	2.044621	1.698072	0.008296	0.0001
LOG(TC)	-0.313795	-0.268272	0.000160	0.0003
LOG(RP)	0.718466	0.849536	0.001722	0.0016
LOG(ER)	-0.036158	-0.034017	0.000004	0.2542

Redundant Fixed Effects seasonal Tests Table 5.20 Phuket.

Redundant Fixed Effects Tests			
Equation: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	94.098858	(9,1786)	0.0000
Cross-section Chi-square	698.586324	9	0.0000

Hausman seasonal Test   Table 4 Phuket.

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		13.751007	4	0.0081
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(YSA)	1.936408	1.641981	0.006549	0.0003
LOG(TCSA)	-0.285512	-0.246457	0.000128	0.0006
LOG(RPSA)	0.778534	0.890488	0.001347	0.0023
LOG(ERSA)	-0.034699	-0.032857	0.000003	0.2612

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