

EIA3005: GRADUATION EXERCISE

**DETERMINANTS OF TOURISM DEMAND IN MALAYSIA: EVIDENCE FROM
SELECTED ASIAN COUNTRIES**

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ABSTRACT

Tourism brings numerous benefits to Malaysia by filling up the spreads demand from tourists. Aware of the comparative advantage in tourism from the Malaysian government, the tourism industry is treated as an essential factor in boosting the Malaysian economy. This paper investigates the determinants of tourism demand in Malaysia by tourists from selected Asian countries – Singapore, Indonesia, China and Thailand using quarterly data from 2008 through 2018. Panel data technique is employed to analyze the effect of macroeconomic variables such as real GDP per capita, real exchange rate and trade openness on tourist arrivals in Malaysia. The empirical results show that real GDP per capita and trade openness positively affect tourism demand in Malaysia, while the real exchange rate is negatively correlated with the tourism demand. Lastly, the findings of this study provide corresponding policy recommendations to welcome more international tourists and improve the Malaysian tourism sector.

Keywords: Malaysia, panel data, real exchange rate, real GDP per capita, tourism demand, trade openness

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LIST OF ABBREVIATIONS

ASEAN = Association of Southeast Asian Nations
CPI = Consumer Price Indices
FEM = Fixed Effects Model
GDP = Gross Domestic Product
LM = Lagrange Multiplier
LSDV = Least Squares Dummy Variables
OECD = Organisation for Economic Co-operation and Development
OLS = Ordinary Least Squares
REM = Random Effects Model
VMY = Visit Malaysia Year

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Chapter 1

Introduction

1.1 Background of Study

The World Tourism Organization (UNWTO) defines tourism in a general term as people travel to places outside their usual circumstances for various purposes, staying no more than 1 year and no less than 24 hours. It is not only limited to holiday activity in the literal sense. Tourism brings numerous benefits and advantages to any host country by filling the spread of tourists' demand through tourism activity and consumption. However, the most crucial effect of tourism is on the world economy. In 2018, the global Travel & Tourism industry was expanding at a rate of 3.9%, above the global economic growth of 2.5%, and contributing \$8.8 trillion revenues and 319 million jobs to the world economy in that year (WTTC, 2019).

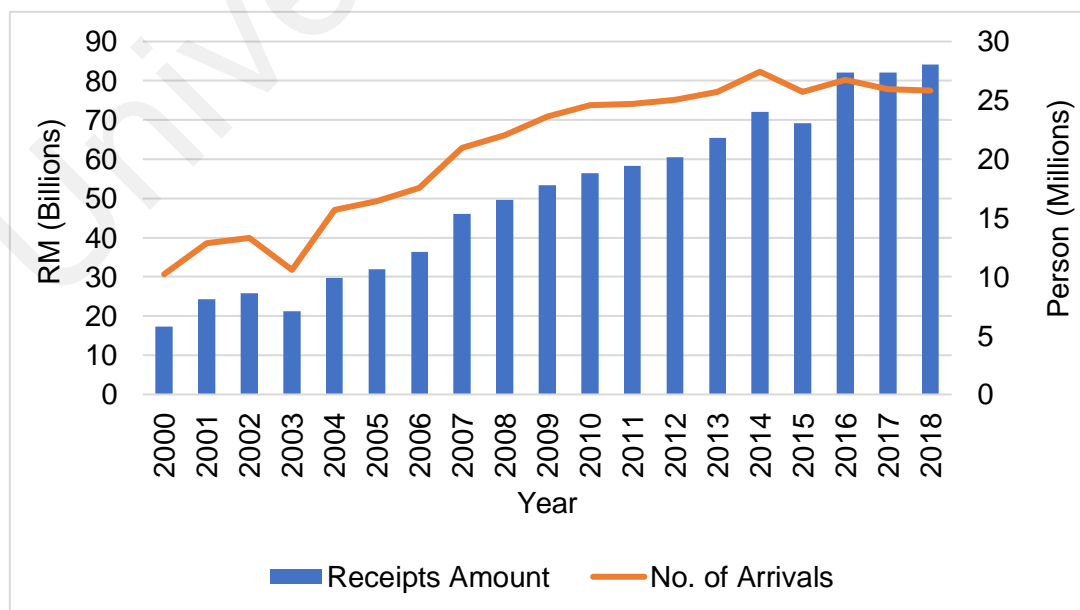
In recent years, tourism can be domestic or international and there has been a considerable change in the global tourism industry. The primary purpose of traveling at home countries is for holidays, visiting friends and relatives, and business. While with more affordable international airfare prices, technological progress and greater visa access globally, there has been a remarkable growth in the international tourism. As for those travelling abroad, Chuck (1997) states that they have a strong interest in the international tourism mainly for economic reasons. Besides that, international tourism plays a considerable role in trade and currency flows between countries. Changes in the international travel market will also influence domestic travel demand, as consumers can switch their traveling plans between international destinations and domestic destinations.

Tourism industry has also become an important sector in Malaysia over the past decades. Malaysia is ranked 9th in the world for tourist arrivals in the UNWTO's list, by hosting 24.6 million international tourists in 2010. Initially, the development of tourism industry is to diversify Malaysian economy and reduces its reliance on exports. Thus, tourism industry is increasingly important in Malaysia and now it has become the third largest source of foreign exchange, as shown in the Tourism in Malaysia. In recent years, the government has spared no efforts to develop tourism sector to boost the economy. Shown in the Ministry of Tourism Malaysia (2019), the main objective is to explore more potential tourist destinations in Malaysia and the ultimate goal is to welcome more international tourists to visit Malaysia. Tourism has also been a boon

to this country's economy. The Malaysian economy has received a boost throughout 2018, with a total of RM84.1 billion in tourism revenue from the expenditures of 25,832,354 foreign tourists who coming to Malaysia. Nowadays, the Malaysian economy depends heavily on service-based economic activities, rather than merely rely on manufacturing sectors since the Malaysia's independence day in the mid-1980s. Aware of the comparative advantage in tourism, the Malaysian government expects that the international tourism industry will make more contributions for this country in the future.

Figure 1 shows the amount of tourism receipts and the number of tourist arrivals in Malaysia from 2010 to 2018. As illustrated in Figure 1, except for a slight decrease in 2003 and 2015, the total tourism receipts and tourist arrivals have increased significantly since 2000. For 2003, the outbreak of SARS causes the turbulence of global tourist flows, especially the outbound tourists into Asian regions. While, the drop in 2015 is mainly because of the airline disasters. Taking the number of Chinese tourists as an example. Compared with the value in 2014Q1, the number of Chinese tourists decreases by 27% in 2015Q1, indicating that Chinese tourists are still reluctant to visit Malaysia after the disappearance of Malaysia Airlines Flight MH370 in March 2014 (Surendra, 2015). Generally, the overall prosperity of Malaysia's international tourism will continue in the future, implying that the Malaysian government should place more attention on the tourism industry.

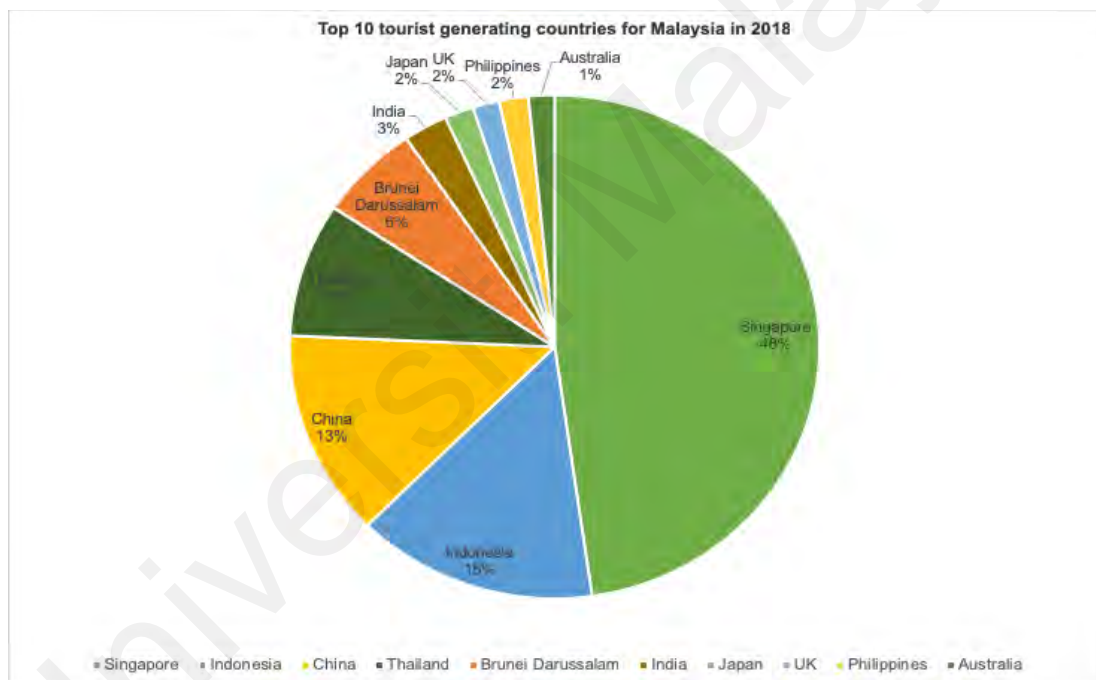
Figure 1: Tourism receipts and tourist arrivals in Malaysia from 2000 to 2018



Source: Tourism Malaysia (2019)

Figure 2 shows the top 10 tourist generating countries for foreign tourists coming to Malaysia in 2018. Singapore contributes to the largest share, with approximately half percent (48%) of the total international arrivals in Malaysia. Then, followed by Indonesia (15%), China (13%), Thailand (8%), Brunei Darussalam (6%), India (3%), Japan (2%), UK (2%), Philippines (2%) and Australia (1%). Among the top 10 tourist generating countries, Singapore, Indonesia, China, and Thailand are selected as the representative countries in this study to analyze the determinants of tourism demand in Malaysia, as these four countries represent the largest proportions (more than 80 per cent) of international visitors and thus more accurately reflect the findings.

Figure 2: Top 10 tourist generating countries for Malaysia in 2018



Source: Tourism Malaysia (2019)

1.2 Problem Statement

The study of tourism demand is an important subject of the economic development of a country today and it is the same for Malaysia. Visit Malaysia Year (VMY) begins with the theme "Fascinating Malaysia. Year of Festivals" in 1990. It is a great achievement, with the number of passengers entering Malaysia increasing by 2.6 million that year. This success spurs the second VMY in 1994 to generate more exciting things and events in Malaysia. The third one in 2007 marks the 50th

anniversary of Malaysia's independence and the fourth Visit Malaysia Year in 2014 aims to reflect the diversity of solidarity among all Malaysians. The next Visit Malaysia 2020 has been supported and recognized by the Prime Minister of Malaysia. However, with the emergency of the Covid-19, the Ministry of Tourism will launch a new campaign to replace VM2020. This long-term campaign will use the "Malaysia, Truly Asia" brand to highlight the country's unique experiences. The problem is that despite the vital role of tourism in Malaysia's economic development, relatively little is known about the factors influencing the international travel demand in Malaysia. Meanwhile, Malaysia's tourism industry is facing the worst case of the coronavirus crisis in 2020 and how to recover the tourism sector should be a priority. Thus, intending to strengthen the Malaysian tourism industry, there is a great need to explore the factors driving tourism demand growth.

Most papers investigate the significant impact of selected factors on tourism demand in Malaysia by travellers from OECD countries, ASEAN countries and China separately. According to the data in Tourism Malaysia, Singapore, Indonesia, China and Thailand are the top four contributors to Malaysia's tourist arrivals, occupying over eighty percent of the total. However, previous studies have not selected the combined effect of international tourism demand in Malaysia from these countries. Besides, the primary purpose of many tourism-related studies is to analyze the impact of tourism on the economy. However, relatively little research will put great importance on the decisive factors of international tourism, with tourism demand as the dependent variable in the analysis.

1.3 Research Questions

The research questions seek to improve this topic's knowledge and help address the research problems as an iterative process. Based on the problem statement above, this study will find the possible answers to the following questions:

1. What is the trend of tourism demand in Malaysia?
2. What are the possible determinants of tourism demand in Malaysia?

1.4 Research Objectives

The general objective is to examine the relationship between tourism demand and the independent variables such as real Gross Domestic Product per capita, real

exchange rate, and trade openness. The goal of this study can be achieved by gradually addressing the research objectives and the specific objectives are listed below:

1. To study the trend of tourism demand in Malaysia.
2. To examine the possible determinants of tourism demand in Malaysia.

1.5 Significance of Study

The literature on tourism demand in Malaysia mostly focuses on tourists from ASEAN and OECD countries. However, in this study, the countries selected are Malaysia's top four tourist generating markets - Singapore, Indonesia, China, and Thailand, with a combined share of 84.3% from the total tourist arrivals in 2018. Thus the evidence from these countries could be more appropriate in generating the results for analyzing tourism demand in Malaysia. Furthermore, the results of this study are useful for Malaysian policymakers as they can set out the main policy implication through the development of tourism and therefore enhance Malaysian economy. Also, this study brings help to other countries or related organizations that have failed in international tourism development.

1.6 Scope of Study

This study is about the possible determinants on inbound tourism demand in Malaysia. Secondary data will be employed in this study, with a special focus on top four tourist generating countries, namely Singapore, Indonesia, China and Thailand between the period of 2008Q1 and 2018Q4.

1.7 Organization of Chapter

There are total of five chapters in this study and the structure of this study is organized as follows:

1. Chapter 1 is the general background and research problems of this study, with research questions and objectives to guide the research process. The significance and scope of study are discussed at the end of this chapter.

2. Chapter 2 gives the literature review of the past studies about the determinants of tourism demand, including the cases for Malaysia and other countries.
3. Chapter 3 is the overview of methodology that is employed in this study, including the research design, data source and collection, hypothesis, and data analysis techniques.
4. Chapter 4 is divided into two parts, including a brief description of the variables as the first part, and the results and findings of this study as the second part.
5. Chapter 5 presents the summary and conclusion of all the chapters above, with respective policy implications. Also, some recommendations for future studies are provided based on the limitations of this study.

Chapter 2

Literature Review

2.1 Introduction

Tourism demand has a broad meaning based on different types and motives. According to Song, Witt and Fei (2010), it can be described as the classic definition of economic demand, as the willingness and ability to pay for the commodities or services. Generally, there are three types of tourism demand - inbound, outbound and domestic tourism demand. The literature review of the tourism demand economic model shows that there is no standard method for measuring tourism flow. It can be measured by taking into account four main factors: people (the arrival of visitors), money (expenditure by tourists or income for host countries), time (time spent staying and traveling), and lastly space (distance, length of travel).

This chapter will examine the previous research about the possible factors influencing tourism demand. The first part is the review of theories about tourism demand, and the second part is the possible determinants used by previous researchers in establishing their tourism demand models.

2.2 Review of Theories

As described in Morley (1992), the theoretical model often used in the literature to support tourism demand was commonly based on consumer theory. It assumed that the individual utility had various outcomes for different consumers and many factors were causing such differences, such as the diverse travel destinations and consumption types. Also, in the background of recreational need, site qualities were usually taken as part of the utility function. Morley, Rosselló and Santana-Gallego (2014) applied the consumer theory to the gravity models to study the critical drivers for international tourism flows. They took logarithms of the data in their analysis model and assumed that the push-pull factors were equivalent to motivational and budgetary constraints. The final description of the gravity model was very similar to the demand function based on the consumer theory within the traditional aggregation model.

Tourism demand was the result of contingent factors related to the behavior of tourists' choice. Travel requirements were described as the total of actual intentions

to visit a particular place, with people's beliefs and impressions about that area. However, Goh (2012) held different views. He pointed out that under the traditional economic framework, the theory of consumer choice behavior related to the consumption of simple goods and services. The characteristics of these products were widespread, and to a certain extent, there was little or no variation in quality. Thus, it was not applicable in tourism-related commodities and services as there were a variety of dimensions and characteristics for tourists to choose from.

International trade was usually designed to describe the transactions related to goods and services. The tourism flow was a transactional movement of humans, different from trade in terms of mechanism and pattern. Therefore, the study on whether international tourism flow could be applied to international trade theory had aroused the interest of some researchers. Paci and Marrocu (2013) argued that it was necessary to consider factors related to suppliers and destinations by describing tourism flow as a trade in services. They also mentioned that the economic and trade theory should be applied in the analysis of factors for developing tourism. A study conducted by Keum (2008) tested whether the two typical international trade theories, namely gravity model and Linder hypothesis were sufficient to explain tourism flows. The empirical results supported the applicability and robustness of the gravity model in trade and tourism flow. International tourism flows, including outbound and inbound tourism flows, provided sufficient proof for the validity and applicability of gravity theory to tourism flows and trade flows. However, the Linder hypothesis failed to produce the same result.

2.3 Determinants of Tourism Demand

2.3.1 Real GDP Per Capita

Real GDP per capita was an indicator of a country's total economic output divided by population size and adjusted for inflation. Ibrahim (2011) explored the critical factors of international tourism flows to Egypt from 1990 to 2008. In his study, the quantity of the tourist arrivals from the selected nations was used as the dependent variable together with three main independent variables, namely income, price and trade openness. Income measure selected in his study was the real GDP in per capita terms of the country of origin, which was collected from the World Bank Indicator. Fixed Effects panel estimation showed that the lagged real GDP per capita (0.51) was statistically significant at 1% level, as every 1 percent increase in real GDP

per capita would generate 0.51% more international tourists to Egypt. Besides, foreign tourists to Egypt were so price-sensitive that the estimated value for Egypt's price elasticity of demand was -1.96, implying that price would adversely affected the tourist arrivals in Egypt. However, trade liberalization directly impacted on tourism demand in his research at 5% significance level.

Habibi (2016) investigated the tourist flows from 33 countries to Malaysia from 2000 to 2012. He chose the GDP per capita of each source country to represent the tourists' income level. The estimated parameter revealed that income had directly affected Malaysia's tourism demand, but the degrees of the effects varied across different countries. The growth of income would attract more tourists, including those with low-income groups who want to travel. The generalized method of moment results indicated that there was a tendency for Malaysia to host tourists from relatively low-income countries (ASEAN) compared to higher-income markets (European countries), regardless of the distance between these countries and Malaysia. Simultaneously, the result showed that natural disaster and political stability could affect the tourist arrivals in Malaysia by taking the case of SARS in 2013 and Visit Malaysia Year in 2007.

According to Narayan (2019), the per capita real GDP was expected to have a positive impact on the visitor arrivals in Fiji from three countries (Australia, New Zealand and the United States) as consistent with economic theory. In the short run, the per capita real GDP was only significant among tourists from Australia. However in the long term, it was found to be a significant factor affecting the travel demand of tourists from all three countries to Fiji. The long-run impact suggested that the growth in income of foreign tourists of Fiji would increase their desire to visit this country. In testing the stationary of the data, the ADF statistics for real per capita GDP, visitor arrivals, transportation costs, relative/substitute prices did not exceed the critical values, implying that these variables were non-stationary in the level and had a unit root. Thus, they took the first difference to make each series stationary with the ADF unit test at 5% significance level.

Garín-Muñoz and Montero-Martín (2007) applied a dynamic model for international demand in the Balearic Islands in the Mediterranean Sea. The panel data estimated the number of tourist arrivals from 14 important generating countries with possible explanatory variables between the period of 1991-2003. They employed GDP expressed in per capita terms as a proxy for discretionary tourist income. They

found that the GDP variable had the expected sign. Based on the absolute value (0.92) in the short run, tourism in the Balearic Islands was regarded as a non-luxury service by foreigners. However, the effect varied in the long run, as the elasticity of 2.02 suggested that tourism depended on the income level of the generating countries heavily. Therefore, for countries that were expected to increase tourism revenues continually and promote the development of the tourism sector, there was a great need for them to diversify their tourism to the whole world. Such a measure would limit the fragility of the development of the single market economy.

The significance of traditional economic variables in analyzing domestic tourist flows was recognized for each country. However, the actual choices of tourists also seemed to be influenced by more substantial regional differences. Massidda and Etzo (2012) studied the determinants of Italian domestic tourism for the two traditional macro-regions of the country, namely North and South. Per capita GDP was used to test whether wealth could have a positive impact on tourism in a specific area or not. The result of the estimations confirmed the hypothesis and the elasticity showed the difference between these two regions. The growth in per capita GDP in the southern area had generated nearly four times as much as tourism demand in the northern area. Besides that, the relative price showed a significantly negative relationship between inbound tourism demand in Italy at 0.1% level, where the coefficients for South and North were -7.46 and -9.00 respectively. Thus, the economic inequality was shown by the effect of income on tourism flows, with southern tourists more sensitive to per capita GDP. Whereas, Northern tourists showed their relatively higher sensitivity to price differences.

2.3.2 Real Exchange Rate

Most tourism demand analysis models applied the real exchange rate because the changes in the exchange rates would impact the price of tourism in domestic currency and thus affect international tourism demand. Shafiullah, Okafor and Khalid (2019) studied the factors affecting the international tourism demand from the evidence of Australia's states and territories. In their study, the real exchange rate was employed to represent the cost of living for tourists, taking control of relative price differences between Australia and the origin countries. However, the result varied in different areas. They found that the real exchange rate adversely affected the overseas visitors in states such as New South Wales, South Australia, Western Australia as well as the Northern Territory, especially in the short run. By contrast, the

Federal Capital Territory of Australia showed the opposite case. They summarized that the appreciation of the real exchange rate weakened the international appeal of price-sensitive tourists in some areas because visitors tended to be budget-conscious. However, most tourists visiting the Federal Capital Region might not be too sensitive to prices.

Vita and Kyaw (2013) used the number of quarterly tourists from Germany to Turkey in the period of 1996-2009 to deal with the two main issues in the role of exchange rate on tourism demand. First, whether the two variables (relative prices and the exchange rate) should be studied separately. Second, whether the exchange rate and inflation were used as separate regressions or combined into one ER adjusted effective price variable in the analysis. The results were as follows: it was not appropriate to study the relative prices and the exchange rate separately. When the ER level variable was used, the results were insignificant. Whereas, the ER adjusted price variable had a significantly negative coefficient. Hence, the ER adjusted effective price variable was more suitable in the analysis and it was expected to be used in future analysis. Also, the findings were further confirmed by Dogru, Turk and Crouch (2017). They pointed out that the high correlation between the exchange rate and relative prices would produce multicollinearity and the result might be biased. It was possible to drop one of the collinear variables or use the combined effects of these two variables in order to obtain accuracy. The findings were sufficient in proving that the real exchange rate was an essential determinant in affecting international tourism demand.

According to Othman et al. (2018), the combination of micro-level data such as survey data and macro-level data would produce more accurate results than studies based solely on macro data. Their study used Least Squares Dummy Variables (LSDV) and examined the interactions between Malaysia's tourism demand and six variables (GDP per capita, exchange rate, population, common border, Organization of Islamic Countries and accommodation capacity). From the hypothesis, the depreciation in tourist currency was expected to suppress people's enthusiasm for traveling. However, they revealed that the exchange rate between Malaysia RM and the US Dollar was insignificant in the results of OLS, Random Effects and Fixed Effects Models. Nevertheless, the population size of the country of origin, GDP per capita and Organisation of Islamic Cooperation (OIC) country were the crucial contributors that would increase international tourist arrivals. Besides that, they used the number of hotel rooms available as a proxy variable for accommodation capacity

and suggested that accommodation capacity as a micro variable was also crucial in enhancing the tourism sector.

Yazdi and Khanalizadeh (2016) used the gravity framework to study the factors influencing travel demand in the United States from 1995 to 2014. The total number of flights at each country's international airport was chosen as the dependent variable to measure travel demand in 14 major origin countries. Based on the result of their study, the real exchange rate selected as a proxy for destination prices had a significantly negative relation to travel demand. If US dollars devalued or foreign currency appreciated, international tourism became less expensive and would boost the travel flow to the USA. They concluded that the income elasticity (0.33) was relatively low and suggested that tourism was non-luxury goods. They also included transportation infrastructure in their analysis and they supposed that it would play an important role. However, the airport infrastructure was not observed to affect the tourism generation for USA destinations.

2.3.3 Trade Openness

Based on the tourism model, Kang (2016) examined the influencing factors of Chinese tourism demand for South Korea over the annual period 1984 to 2014. He used total trade volume between China and South Korea as the independent variable and found out that the long-run relationship existed, as the trade factor was significant at 1% level. In recent years, the increase in the trade volume had widely promoted Chinese travel to South Korea. Apart from trade, income and the relative price of tourism were also the main determinants of Chinese tourism demand in South Korea. Of equal importance, the empirical results indicated that the estimated coefficient of the lagged variable was significant, implying that word of mouth in determining tourist demand was also a key factor. Chinese tourists who were satisfied with the traveling experience in South Korea would share their feelings with their friends and relatives, encouraging them to go to this country.

Chaisumpunsakul and Pholphiru (2018) focused on the effect of international trade in Thailand's 207 trading partner countries on Thailand's tourism demand. In their research, the ratio of Thailand's international trade value to GDP, import value to GDP, and export value to GDP were used as independent variables to measure the effect in the flows of its inbound tourists. Generally, imports could result in a loss of Thailand's trade balance and import variable was expected to give a negative sign.

However, they found that import variables placed a direct effect on the arrivals of tourists and such effect was more significant in the long run than in the short run, leaving a positive effect in welcoming more tourist arrivals. However, there was no significant relationship between Thailand's exports and the number of inbound tourists. The overall effect of international trade positively affected the number of inbound tourists, combining the impact of import and export variables.

Leitão (2010) took Portugal as an example and put the results from the gravity model, Tobit model and dynamic model to support bilateral trade positively impacted the share of tourism demand. He concluded that trade partners from the European Union were an essential vehicle for Portugal to expand tourism demand and suggested that Portugal should vigorously promote international trade to welcome more foreign tourists to Portugal. Some works studying the same issue were conducted by Hafiz et al. (2011) for the Malaysia's case. The research identified that bilateral trade between Malaysia and the other Asian countries was the primary determinant of tourism, showing the positive relationship between trade and tourism demand. Also, Gross Domestic Product and population were crucial factors to boost tourism demand in Malaysia, while relative price and distance showed negative signs.

Wong and Tang (2010) investigated tourism and trade openness in Singapore using aggregated variables at the country level. Trade components were composed of merchandise and services trade, and the top five trading partners of Singapore were selected for analysis. From the Granger non-causality results, there was a bidirectional causal relationship between openness to merchandise trade and visitor arrivals in Singapore. Besides, increased openness to services trade would lead to further liberalization in merchandise trade. However, the causal direction of these variables did not apply to all countries. They concluded that greater openness in trade with Singapore's major trading partners might not necessarily mean that the number of visitors from these countries would increase. Nevertheless, the fact was that trade openness could be treated as an essential catalyst for the growth and development of tourism in an economy. The high degree of trade liberalization improved market access for the tourism sector, as the tourism sector largely depended on diverse supporting industries.

Most researchers principally analyzed this issue from a macroeconomic perspective to identify the factors in explaining tourism demand. Pua, Huan and Thien (2018) studied the macroeconomic determinants between Malaysia and China

to measure the Chinese tourism demand in Malaysia. Trade openness was measured by the difference between exports and imports over the Chinese GDP and the result showed a direct relationship with tourism demand. Due to the similarities in language and culture between these two countries, Chinese businesses were familiarized with the situation in Malaysia and eager to trade with Malaysian companies. The increasing amount of business trips to Malaysia would generate more Chinese tourists to visit Malaysia. Besides that, there was a negative correlation between real travel cost and Chinese tourism demand in Malaysia, which implied that Malaysia should monitor and control the changes of crude oil price as a proxy for travel costs, whereas real income showed a significant positive impact on Chinese tourism demand in Malaysia.

2.3.4 Other Economic and Non-economic Variables

Hwang, Kim and Yu (2018) studied Japanese tourism demand in Korea by focusing on climate. Climate was excellent at creating tourism, but also one of the factors which could affect the tourism experience. Thus, they focused on climate volatility's effect on tourism demand, and found that the increase in climate change would lead to a reduction in tourism demand. Specifically, climate change weakened the satisfaction of tourists, leading to the negative impact on tourism demand.

As posited by Khandaker and Islam (2017), the global financial crisis at the beginning of the twenty-first century inhibited the development of international tourism and severely impacted the tourism industry, especially with a long-term adverse effect on the overall development of the Asian economy. They also revealed that political stability had a direct impact on tourism demand. The higher the level of political stability, the more revenue tourism generated. Therefore, they suggested that good macroeconomic policies and management mechanisms were essential for tourism-based economic growth.

In a study about the international tourism demand in Indonesia by Nahar et al. (2019), a visa-free policy was used to observe its impact on Indonesia's tourism demand. The results showed that the visa-free policy had a significant impact after the policy was issued. Such a policy could maintain strong economic growth because it attracted people to travel to Indonesia and encouraged more people to invest in Indonesia, especially younger generations. They also summarized that it was a good policy to increase the number of tourists by removing the boundary obstacle, which helped to reduce cost and time. Also, they suggested that the government should

vigorously increase the number of countries which were granted visa-free status in Indonesia, in order to welcome more international tourists.

Kuo et al. (2008) focused on the impact of infectious diseases, including Avian Flu and SARS on the number of international tourists entering Asia regions by using an autoregressive moving average model. The empirical results showed that the number of infected cases harmed the affected regions, and the effect of SARS was more significant than that from Avian Flu. However, the potential harm caused by Avian Flu was far higher than that caused by SARS. Thus, it was necessary to take precautions to prevent the spread of the disease. Another case of the outbreak of SARS in 2003 was conducted by Kusni, Kadir and Nayan (2013). In analyzing tourism demand in Malaysia by tourists from OECD countries, they found that SARS (2003) had caused the number of international arrivals in Malaysia to decline by 5 percent, and they concluded that tourists from these countries were susceptible to the presence of any spread of infection within the region, for health and safety issues.

Chapter 3

Methodology

3.1 Introduction

This chapter outlines the research methods that are used in the study. There are six sections, including selection of the variables, research design of the model, data source, data description about the specification of measurements for variables, hypothesis, and together with data analysis techniques for analyzing the relationship between tourism demand in Malaysia and three independent variables, namely real GDP per capita, real exchange rate and trade openness.

3.2 Selection of the Variables

3.2.1 Tourist Arrivals

There are four main methods for measuring tourism demand, including people (the arrival of visitors), money (expenditure by tourists or income for host countries), time (time spent staying and traveling), and lastly space (distance, length of travel). Song and Witt (2006) state that due to the availability of data, the number of tourist arrivals in the host country are mostly used in tourism demand analysis, followed by tourist expenditure.

Most studies have used the number of tourist arrivals as the proxy for tourism demand (for example, Puah, Huan and Thien, 2018; Wim and Andrea, 2005; Ibrahim, 2011; Narayan, 2019; and Kang, 2016). Thus, the number of tourist arrivals is employed as the dependent variable as an appropriate alternative for tourism demand in this study.

3.2.2 Real GDP Per Capita

Real GDP per capita as a measure of economic condition to analyze travel demand has been quite important in recent tourism studies. It is a general indication of average living standards and a proxy variable for income. Also, the effect of different standard of living between each country over time can be considered by using real terms rather than nominal terms. In a study about the Romanian international tourism demand, Surugiu et al. (2011) summarize that real GDP per

capita is the greatest determinant of Romanian tourist arrivals, and it is necessary to include it as an explanatory variable to study international tourist flows.

Foreign tourists are easily constrained by their economic circumstances, since international travel requires more quantity of money than domestic travel on average. People with higher income are more likely to afford the cost of travelling abroad. Some examples of studies that use real GDP per capita as a factor in tourism demand analysis include those of Ibrahim (2011) and Kang (2016). Thus, real GDP per capita term is employed in this study.

3.2.3 Real Exchange Rate

Two popular methods for measuring tourism prices are relative nominal exchange rate and relative real exchange rate, whereas the latter better accounts for the changes in actual cost of living in both countries, especially for outbound travels. Instead of using the nominal one, the real exchange rate adjusted by CPI gives a more accurate result. Thus, the real exchange rate is used in this study. As posited by Culiuc (2014), he finds that the real exchange rate has a strong effect on both extensive (tourist arrivals) and intensive (duration of stay) margins. Thus, the real appreciation in the destination country is associated with both fewer tourists and shorter stays. Published articles in the tourism literature point out that the real exchange rate can be an appropriate indicator of price, including Eilat and Einav (2004), and Vita and Kyaw (2013).

Ongan, Isik and Özdemir (2017) explain that real exchange rate is a significant factor for tourist arrivals, and the usage of real exchange rate is the main contribution to their study of international tourism demand from some EU countries to the United States. Tourists are even more sensitive to the changes in the real exchange rate than to the changes in GDP. In addition, at the end of their article, the authors call for more future studies to focus on this particular variable, which is enough to prove its importance.

3.2.4 Trade Openness

Tourism is part of the service industry, and the role of tourism is even more significant recently. The expected increase in the quantity of business travel will boost the international tourism, especially for a country with high volume of trade activities

with its economic partners. Trade creates a network effect and encourages travel and exchange between countries. The inclusion of trade openness in tourism demand analysis is in line with that of Chaisumpunsakul and Pholphiru (2018), where a direct correlation between the degree of trade openness and international tourism demand exists by using a data set of Thailand's 207 trading partner countries. Also, studies done by Puah, Huan and Thien (2018), Surugiu, Leitão and Surugiu (2011), Wong and Tang (2010), and Zhang and Jensen (2007) have employed trade openness in their tourism demand analysis.

It is worthy to analyze the effect of trade openness on travel demand, especially for Malaysia with large export revenues, as international arrivals depend largely on the level of business activity between Malaysia and other countries. Hafiz et al. (2011) reveal that trade openness between Malaysia and other Asian countries is the major determinant of tourism demand in their study. They find that the increase in trade openness can help to reduce transaction costs of international travel for foreign tourists with travel discounts, and lastly bring about word-of-mouth effects.

3.3 Research Design

This study aims to explore the relationship between international tourism demand in Malaysia and its explanatory variables. Based on the selection of variables, the number of tourist arrivals (from Singapore, Indonesia, China and Thailand) entering Malaysia will be used as the dependent variable as a proxy for tourism demand. Real GDP per capita, real exchange rate and trade openness will be used as independent variables. The empirical model of this study is as follows:

$$\ln TA_{i,t} = \beta_0 + \beta_1 \ln RGDP_{i,t} + \beta_2 \ln RER_{i,t} + \beta_3 \ln TO_{i,t} + \varepsilon_{i,t}$$

Where,

$\ln TA_{i,t}$ = Log of the number of tourist arrivals from country of origin i to Malaysia at time t .

$\ln RGDP_{i,t}$ = Log of the real GDP per capita of country of origin i at time t .

$\ln RER_{i,t}$ = Log of the real exchange rate of country of origin i at time t .

$\ln TO_{i,t}$ = Log of the trade openness between Malaysia and country of origin i at time t .

$\varepsilon_{i,t}$ = The stochastic error term.

3.4 Data Source

Secondary data from 2008Q1 to 2018Q4 is employed in this study to perform a quantitative analysis. For the dependent variable, the quarterly number of tourist arrivals in Malaysia is taken from Tourism Malaysia. Real GDP per capita, real exchange rate and trade openness are computed using the data from CEIC, Federal Reserve Bank of ST. Louis and International Financial Statistics under IMF Data. The unit for real GDP per capita is in current US dollars.

Table 1: Data collection summary

Variables	Description	Proxy	Source
TA	Tourist arrivals	Tourism demand	Tourism Malaysia
RGDP	Real GDP per capita	Income	CEIC, St. Louis Fed
RER	Real exchange rate	Price	St. Louis Fed
TO	Trade openness	Trade	IMF

3.5 Data Description

Tourism demand refers to the desire that people plan to buy tourism products with adequate purchasing power and leisure time to support their travel demands. The number of tourist arrivals from Singapore, Indonesia, China and Thailand is used as the dependent variable to measure the tourism demand in Malaysia, for data availability and quality reasons. This data is collected from Tourism Malaysia.

The first independent variable is real GDP per capita, which is the ratio of real GDP and the total population. It consists of two parts, including real GDP (GDP with a constant price) and per capita (per person). It is used to compare the standard living between different countries and over time, taking the effect of respective population sizes. Using real GDP of constant prices instead of nominal one can isolate the effect of price changes. $GDP_{i,t}$ (constant 2010 US\$) and $Population_{i,t}$ is for the origin country at time t . The unit for real GDP per capita is in US Dollars (USD) and it is estimated as:

$$RGDP_{i,t} = \frac{Real\ GDP_{i,t}}{Population_{i,t}}$$

The second independent variable is the real exchange rate. This study will use the product of the nominal exchange rate and the ratio of prices between Malaysia and country of origin. Many people know the nominal exchange rate, as the relative price of currency between countries, but little about the real one. The real exchange rate is more applicable in this regression analysis, as it can exclude the impact of inflation on the purchasing power of currencies of each country. For data collection, the nominal term is obtained from the Federal Reserve Bank of ST. Louis and Consumer Price Index (CPI) as a proxy for price level is from the CEIC dataset. Hence, the real exchange rate is the value of Singaporean, Indonesian, Chinese and Thailand's currency per Malaysian currency after considering the price levels. The real exchange rate is estimated as:

$$RER_{i,t} = e_{i,t} \times \frac{P_{Malaysia,t}}{P_{i,t}}$$

The last independent variable is trade openness. It is computed by taking the total bilateral trade volume of export and import between Malaysia and the origin country over Malaysian GDP. Generally, trade is an essential aspect of the service sector in tourism demand. Because of globalization and trade liberalization, the value of trade openness has increased for most trading countries with Malaysia. The trade-to-GDP is an indicator of the relative importance of international trade in a country's economy. In this study, trade openness is estimated as:

$$TO_{i,t} = \frac{X_{Malaysia-i,t} + M_{Malaysia-i,t}}{GDP_{Malaysia,t}}$$

Travel costs and relative prices are used as control variables initially based on previous studies. Travel cost is the combination of moving expenses and other non-labour associated expenses. The increase or decrease in tourism costs will reduce or expand tourism demand, which will place an inverse effect on tourism demand theoretically. The variable used to calculate travel costs for the country of origin was the kilometer distance between Kuala Lumpur and the capitals of all tourists generating countries. However, there is little variation in this variable and not appropriate for panel analysis. The next variable is relative price, referring to the ratio of the average CPI among competing destinations that offer similar travel products. Most studies show that travellers are easily influenced by price levels and relative price is an essential factor to affect travel demand. However, the combination of

exchange rates and relative prices would create multicollinearity and the result could be biased. Also, the usage of random effects estimation requires that the number of cross sections is larger than the number of coefficients for between estimator in estimating random effects innovation variance. Thus, travel costs and relative prices are omitted, and only three independent variables are used in this study.

3.6 Hypothesis

A research hypothesis is a speculative statement and hypothetical explanation made by researchers. It is a tentative theory preconceived before the research. In short, it is a tentative answer to the research question. The general null hypothesis is that the overall relationship between the response variable and three explanatory variables is insignificant. Whereas, the alternative hypothesis is that at least one group violates the previous assumption.

As income increases, tourists are more likely to afford travel expenses, resulting in the growth of tourism demand. Thus, the expected sign of real GDP per capita of foreign tourists is positive. Next, the negative sign of the real exchange rate is predicted, as the lower cost of travel expenses in a tourist destination relative to the source country will boost the international tourism demand, and vice versa. Lastly, the increase in trade openness is accompanied by more international business trips, which will promote an increase in international tourism. So, trade openness will place a positive impact on tourism demand.

3.7 Data Analysis Techniques

Panel data analysis is employed in this study to estimate Malaysian international tourism demand, by applying econometric models with techniques based on the Pooled Ordinary Least Square (OLS) method that compromises the Random Effects Model (REM) and Fixed Effects Model (FEM). By ignoring the panel nature of the data, Pooled OLS method will be firstly used to estimate the model. Secondly, the Lagrange Multiplier (LM) Test is performed to discriminate between the Pooled model and the REM. Next, REM is performed with the Hausman Test to distinguish between FEM and REM. LSDV model with Wald Test is used to confirm the selection of fixed effect formulation. Combining the results of the LM Test, Hausman Test and Wald Test, the best model can be selected to fit the data.

3.7.1 Lagrange Multiplier Test

Lagrange Multiplier Test is a general principle for testing parameter assumptions under the likelihood framework. The most popular random effects test (the Breusch and Pagan's (1980) LM test) is used in this study. Breusch-Pagan LM Test for REM in a linear model is based on pooled OLS residuals. The presence of the individual-specific term distinguishes the REM from the Pooled one. If there is no autocorrelation, OLS will be best linear unbiased estimator, otherwise the REM is more appropriate. For decision, LM is distributed as chi-squared with one degree of freedom under the null hypothesis. The large LM or small p-value indicates that the random effect estimator should be used. The null hypothesis and alternative hypothesis for Breusch-Pagan LM Test are stated below:

$$H_0: \sigma_\lambda^2 = 0$$

$$H_1: \sigma_\lambda^2 \neq 0$$

3.7.2 Hausman Test

The Hausman specification test is used to evaluate the consistency between an estimator and an alternative estimator with lower efficiency. In panel data, it can be used to distinguish between FEM and REM. Under the null hypothesis, it is more likely to choose the REM since the individual effect is more efficient than the explanatory variable, while the alternative hypothesis shows the opposite and FEM is preferred. Hausman statistic will have an asymptotic chi-squared distribution with k degrees of freedom and a large value of this statistic indicating that the fixed effect estimator should be used. The null hypothesis and alternative hypothesis for Hausman Test are stated below:

$$H_0: \text{No correlation between } \lambda_i \text{ and } X_{it} \text{ (REM)}$$

$$H_1: \text{Correlation between } \lambda_i \text{ and } X_{it} \text{ (FEM)}$$

3.7.3 Wald Test

Least squares dummy variables (LSDV) Fixed Effect Model with Wald Test is used to confirm the selection of fixed effect formulation to model the dependent variable or not. LSDV Model includes indicator variables for each panel-unit. The

usage of dummy variables for each cross section can compare the intercepts between the reference group, and help to make a decision. It aims to discriminate the Pooled OLS Model and FEM. In this section, Singapore is selected as the reference group, and other three countries are entered as dummy variables.

After performing the LSDV Model, the Wald Test is employed to test for common intercept. If the selection of fixed effect formulation is confirmed, the slope of coefficient for each independent variable (except for dummy variables) in LSDV Model is the same as the one in the FEM. Based on the result of the Wald Test, a large value of F -statistic indicating that the fixed effect estimator should be used. The null hypothesis and alternative hypothesis for Wald Test are stated below:

H_0 : Intercept is the same (Pooled Model)

H_1 : Intercept is not the same (FEM)

3.7.4 Regression Analysis

Panel data regression analysis is a data structure of panel data. It is a combination of time series and cross-sectional data. Using panel data can control for individual heterogeneity and obtain more information for datasets, by allowing larger sample size to increase variability and decrease collinearity. However, the basic issue in panel data analysis is how to model the error term. There are three competing formulations, including Pooled Model, REM and FEM. The Pooled Model essentially postulates that both the intercept and the slope are the same across units and time to treat the error term as identically and independently distributed disturbances that are uncorrelated with X . Whereas, REM and FEM allow for different intercepts, assuming that each of the unit has their own intercepts, while restricting the slope to be homogeneous. Random effects assume the individual effects are drawn independent from some probability distribution, and fixed effects assume that they are constants for each individual. After conducting the Breusch-Pagan LM Test, Hausman Test and Wald Test, the best model can be selected. Next, in this regression analysis, magnitude and sign of the coefficients, R^2 , and Adjusted R^2 will be included for interpretation.

Chapter 4

Result and Discussion

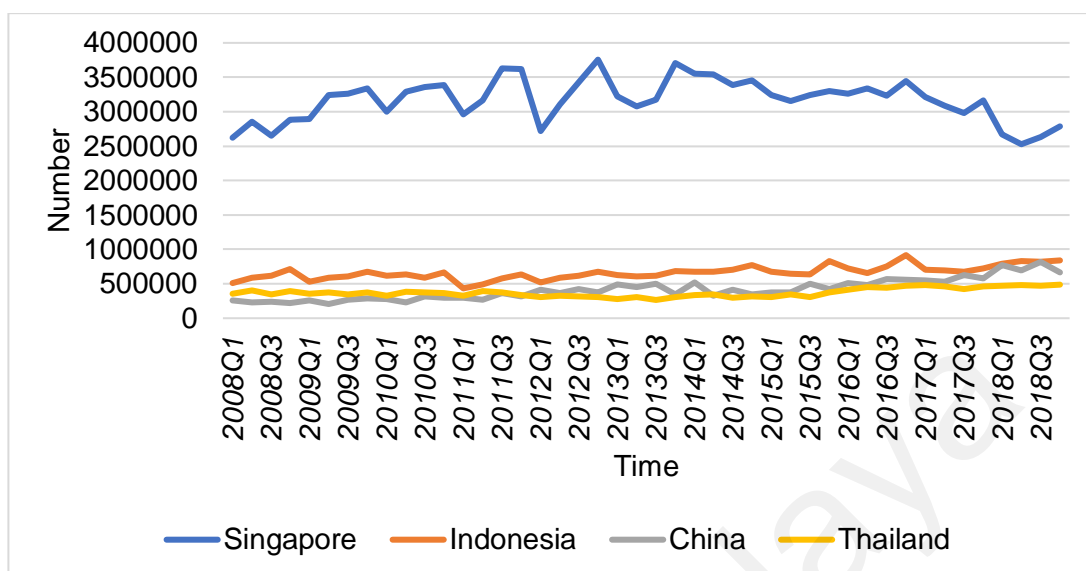
4.1 Introduction

This chapter gives an analysis of the tourism demand in Malaysia from 2008 to 2018 at quarterly frequency. The result and interpretation focus on the relationship between tourism demand and its three determinants, namely real GDP per capita, real exchange rate and trade openness in Singapore, Indonesia, China and Thailand. The first part is the summary statistics to obtain general information about all the variables. Following the data analysis techniques in chapter 3, Pooled OLS model will be firstly used to carry out estimation. Secondly, the LM Test is performed to discriminate between the Pooled Model and the REM. Next, REM is performed with the Hausman Test to distinguish between FEM and REM. Thirdly, LSDV Model is performed with Wald Test to confirm the selection of fixed effect formulation. Lastly, combining the results of the LM Test, Hausman Test and Wald Test, the best model can be selected to fit the datasets.

4.2 Summary Statistics for Panel Data

As shown in Figure 3, there is a considerable gap between the number of tourist arrivals in Singapore and the other three countries. Tourists from Singapore are the primary source of inbound tourist arrivals for Malaysia. There is a significant increasing trend for Indonesia, China and Thailand, whereas it is not apparent for Singapore. There are more fluctuations in the case of Singapore in the sample period and the number of tourist arrivals starts to decrease since the first quarter of 2014. However, the overall increasing trend of the combined effects of these four countries exists from 2008Q1 to 2018Q4.

Figure 3: Tourist arrivals in Malaysia from 2008Q1 to 2018Q4, from Singapore, Indonesia, China and Thailand



Source: Tourism Malaysia (2019)

The characteristic of the descriptive statistics for Singapore is shown in Table 2. As the largest proportion of Malaysian international tourists, the average number of tourist arrivals from Singapore between this sample period is 3171333, with the maximum of 3756681 and minimum of 2527758. The fluctuation of TA_t is the greatest among all the variables, for the value of standard deviations is 307541.6000.

Table 2: Descriptive statistics for Singapore, 2008Q1-2018Q4

Variables	TA_t	$RGDP_t$	RER_t	TO_t
Observations	44	44	44	44
Mean	3171333	12417.8700	0.423242	0.1992
Standard Deviations	307541.6000	1243.6610	0.0163	0.0120
Minimum	2527758	9706.1890	0.3950	0.1748
Maximum	3756681	14237.6900	0.4540	0.2183
Variables	$\ln TA_t$	$\ln RGDP_t$	$\ln RER_t$	$\ln TO_t$
Observations	44	44	44	44
Mean	14.9649	9.4218	-0.8605	-1.6154
Standard Deviations	0.0993	0.1032	0.0382	0.0606
Minimum	14.7428	9.1805	-0.9289	-1.7443
Maximum	15.1391	9.5636	-0.7896	-1.5219

The next table (Table 3) is the descriptive statistics for Indonesia, from the period of 2008Q1 to 2018Q4. The average value of real GDP per capita for Indonesia is the lowest among the four countries, with the value of \$863.5312. Also, Indonesia has the lowest value of trade openness among these four countries, with the average of only 0.0610. However, the value of real exchange rate is the large for Indonesia, with the mean value of 2700.1670.

Table 3: Descriptive statistics for Indonesia, 2008Q1-2018Q4

Variables	TA_t	RGDP_t	RER_t	TO_t
Observations	44	44	44	44
Mean	662684.4000	863.5312	2700.1670	0.0610
Standard Deviations	98685.7800	108.9090	402.3055	0.0108
Minimum	433683.0000	682.8429	2357.6760	0.0372
Maximum	917412.0000	1059.9360	3822.8530	0.0782
Variables	lnTA_t	lnRGDP_t	lnRER_t	lnTO_t
Observations	44	44	44	44
Mean	13.3931	6.7532	7.8915	-2.8128
Standard Deviations	0.1503	0.1269	0.1356	0.1883
Minimum	12.9801	6.5263	7.7654	-3.2917
Maximum	13.7293	6.9660	8.2488	-2.5480

The table below (Table 4) shows the descriptive statistics for China within 2008 to 2018 at quarterly frequency. Among the four variables, the fluctuation for the number of tourist arrivals is the largest, for the value of standard deviations is 152629.3000, while the lowest value goes to trade openness (0.0292). There is a large gap between the minimum value and maximum value of $RGDP_t$, indicating that the Chinese economy is changing rapidly during these forty-four quarters.

Table 4: Descriptive statistics for China, 2008Q1-2018Q4

Variables	TA_t	$RGDP_t$	RER_t	TO_t
Observations	44	44	44	44
Mean	417418.6000	1375.5900	1.6088	0.2281
Standard Deviations	152629.3000	304.1752	40.2344	0.0292
Minimum	206602.0000	888.8631	1.2395	0.1458
Maximum	818241.0000	1904.4980	2.2716	0.2826
Variables	$\ln TA_t$	$\ln RGDP_t$	$\ln RER_t$	$\ln TO_t$
Observations	44	44	44	44
Mean	12.8786	7.2018	0.4649	-1.4866
Standard Deviations	0.3590	0.2279	0.1482	0.1372
Minimum	12.2386	6.7899	0.2147	-1.9255
Maximum	13.6150	7.5520	0.8205	-1.2636

The characteristics of descriptive statistics for Thailand from 2008Q1 to 2018Q4 is illustrated in Table 5. There is no missing value before and after transforming into logarithms form, as the number of observations for each is still 44. The fluctuation of TA_t for Thailand is the smallest (63007.7700) compared with other three countries, and the gap between the minimum value and the maximum value is the lowest (222523). Besides, there is little fluctuation of TO_t for Thailand, as the value of it is also the smallest (0.0096) among these selected countries.

Table 5: Descriptive statistics for Thailand, 2008Q1-2018Q4

Variables	TA_t	$RGDP_t$	RER_t	TO_t
Observations	44	44	44	44
Mean	373594.0000	1336.0460	9.5094	0.0856
Standard Deviations	63007.7700	126.6252	0.9304	0.0096
Minimum	265484.0000	1107.5230	7.9378	0.0667
Maximum	488007.0000	1563.6980	10.8251	0.0994
Variables	$\ln TA_t$	$\ln RGDP_t$	$\ln RER_t$	$\ln TO_t$
Observations	44	44	44	44
Mean	12.8173	7.1931	2.2474	-2.4640
Standard Deviations	0.1664	0.0952	0.1009	0.11379
Minimum	12.4893	7.0099	2.0716	-2.7072
Maximum	13.0981	7.3548	2.3819	-2.3090

4.3 Regression Analysis

Results of Pooled OLS and REM are presented in Table 6. Column (2) refers to Pooled OLS Model, meanwhile column (3) refers to REM. Firstly, Pooled Model is performed to obtain the basic estimation. In order to confirm whether REM is more favourable than the Pooled Model, the LM Test has been applied. Based on the result of Breusch-Pagan LM Test in Table 6, the Chi-squared value is 1.9696 with p -value of 0.1605, indicating that REM is not appropriate for this study. However, it is not suitable to straightly conclude the usage of Pooled OLS Model. It is better to perform another tests as well, since the variance of lambda for fixed effect is also quite small. Thus, the following tests will be performed for accuracy.

Table 6: Estimates of Pooled OLS & REM, and LM Test

Variable	Pooled OLS	Random Effect
Constant	5.5881 (43.2639)***	5.5881 (49.9811)***
$\ln RGDP_{i,t}$	1.0919 (77.1486)***	1.0919 (89.1267)***
$\ln RER_{i,t}$	0.2144 (29.3320)***	0.2144 (33.8861)***
$\ln TO_{i,t}$	0.4495 (12.0286)***	0.4495 (13.8962)***
R^2	0.9754	0.9754
Adjusted R^2	0.9750	0.9750
Breusch-Pagan LM Test	$\chi^2 = 1.9696$ $p\text{-value} = 0.1605$	

Note: *, ** and *** indicate the respective 10%, 5% and 1% significance level. Figures in the parentheses are t-statistics.

Table 7 shows the estimates of REM and FEM. Column (2) refers to REM, meanwhile column (3) refers to FEM. REM is performed first, then the Hausman Test can be used to check whether the FEM is more favourable than the REM. The Hausman statistic is 60.5558 with a significant p -value (0.0000), implying that individual effect is correlated with the regressor. Hence, FEM is more appropriate to suit the dataset. In addition to Breusch-Pagan LM Test and Hausman Test, the common intercept test on the FEM can be used. The objective of this test is to determine whether Pooled Model or FEM should be used. Thus, the following test (Wald Test) is conducted to confirm the selection of fixed effect formulation to model this dataset.

To avoid dummy variable trap, Singapore is selected as the reference group and the other three countries (Indonesia, China and Thailand) are entered as dummy variables in this model. To test for common intercept, the Wald Test is employed based on the results of LSDV estimations. The F -statistic for Wald Test is 20.1853, with p -value of 0.0000. Thus, the test result rejects the null hypothesis and suggests that individual effects are different from one another to confirm the usage of fixed effect formulation. The slope coefficients for real GDP per capita, real exchange rate and trade openness in LSDV Model is the same as the ones in FEM, while the only difference is the intercept. In LSDV Model, the intercept for Singapore is the same as the value of the constant, and the intercepts for the other three countries are the sum of the constant and its regression coefficient respectively. The constant in FEM is the average of intercepts for total four countries in the LSDV Model.

Table 7: Estimates of REM & FEM, Hausman Test, and Wald Test

Variable	Random Effect	Fixed Effect
Constant	5.5881 (49.9811)***	8.6389 (13.2542)***
$\ln RGDP_{i,t}$	1.0919 (89.1267)***	0.8872 (12.7565)***
$\ln RER_{i,t}$	0.2144 (33.8861)***	-0.5573 (-5.5498)***
$\ln TO_{i,t}$	0.4495 (13.8962)***	0.2618 (3.3200)***
R^2	0.9754	0.9819
Adjusted R^2	0.9750	0.9813
Hausman Test	$\chi^2 = 60.5558$ $p\text{-value} = 0.0000$	
Wald Test	$F = 20.1853$ $p\text{-value} = 0.0000$	

Note: *, ** and *** indicate the respective 10%, 5% and 1% significance level. Figures in the parentheses are t-statistics.

Overall, the LM Test accepts the null hypothesis and suggest that there is no random effect. Whereas, the Hausman Test rejects the null hypothesis and the FEM is chosen to fit the model. Lastly, the Wald Test confirms the selection of fixed effect formulation, since individual effects are different from one another. Therefore, FEM is used in this study to conduct analysis, instead of Pooled OLS Model.

Based on the results from the Fixed Effects Model in Table 7, the equation can be written as:

$$\ln TA_{i,t} = 8.6389 + 0.8872 \ln RGDP_{i,t} - 0.5573 \ln RER_{i,t} + 0.2618 TO_{i,t}$$

First is the interpretation of parameters based on FEM. All the variables are significant at 1% significance level and worthy for analysis. For the constant term, the log geometric mean of tourist arrivals is 8.6389, by assuming that the logarithms value of all the other variables are zero.

For independent variables, the result shows that there is a positive relationship between tourist arrivals and real GDP per capita. The 1% increase in real GDP per capita in the country of origin, the number of international tourist arrivals in Malaysia will increase by 0.8872% on average, holding other variables constant. Rising income is a crucial driver to generate more international tourists. The relationship between real GDP per capita and the number of tourist arrivals is consistent with the findings in the previous researches by Garín-Muñoz and Montero-Martín (2007), Habibi (2016), Ibrahim (2011), Massidda and Etzo (2012), and Narayan (2019).

However, one percent increase in real exchange rate is associated with a 0.5573% average decrease in the number of tourist arrivals in Malaysia, holding the other variables constant. The real exchange rate will adversely affect the demand of overseas visitors coming to Malaysia. If the value of real exchange rate decreases, foreign tourists pay less to exchange for one ringgit. Thus, international tourism becomes less expensive and will boost their travel flow to Malaysia. The result confirms the studies conducted by Dogru, Turk and Crouch (2017), Shafiullah, Okafor and Khalid (2019), Vita and Kyaw (2013), and Yazdi and Khanalizadeh (2016). However, the finding is different with Othman et al. (2018) that they find the exchange rate between Malaysia RM and US Dollar insignificantly affects tourism demand.

In the empirical result of this research, there is enough evidence to state that the relationship between trade openness and tourism demand is significantly positive. One percent increase in trade openness is associated with a 0.2618 percent increase in tourist arrivals in Malaysia on average. Trade partners from foreign countries are essential agents for Malaysia to expand tourism. Also, trade liberalization can attract more overseas visitors further. The positive result is highly supported to the findings of Chaisumpunsakul and Pholphiru (2018), Hafiz et al. (2011), Kang (2016), Leitão (2010), and Puah, Huan and Thien (2018). Nevertheless, the relationship is not always applicable to all countries, as shown in the research by Wong and Tang (2010).

Next, to determine how many percent of the variation in the number of tourist arrivals in Malaysia can be explained by the variation in all the three independent variables of the regression model, R^2 can be employed in the analysis. The value of R-squared lies between zero and positive one. The higher the explanatory power of the model, the higher the accuracy. Based on the result above in Table 7, the value of R^2 is 0.9819, indicating that 98.19% of the total variation in tourist arrivals in Malaysia can be explained by real GDP per capita, real exchange rate and trade

openness. Besides that, adjusted R^2 can also be included to measure the goodness of fit for the model. The adjusted one produces smaller value than R^2 and it is useful for making comparisons between different models. Table 7 shows that the value for adjusted R^2 is 0.9812, taking into account the number of explanatory variables and sample size. However, the results may be due to the presence of trend in the series employed in the study.

Universiti Malaya

Chapter 5

Conclusion

5.1 Introduction

This chapter will summarize the main findings and provide corresponding policy recommendations on the determinants of Malaysian tourism demand. Furthermore, the limitations of this study will be sorted out to provide recommendations for future research.

5.2 Conclusion of Overall Findings

In the context of globalization, how to formulate effective policies to develop Malaysian international tourism, and improve the competitiveness of the Malaysian tourism industry in the global market is one of the issues that the Malaysian government needs to face directly. In this study, empirical analysis is carried out based on the inbound tourists from Singapore, Indonesia, China and Thailand, covering the sample period of 2008Q1 to 2018Q4.

First of all, the number of tourist arrivals in Malaysia shows an overall upward trend with the combined effects of the four generating countries. However, there was a drop in the first quarter of 2014. One possible reason is the airline disasters that the disappearance of Malaysia Airlines Flight MH370 has a significant impact on outbound tourists from Asian countries into Malaysia.

Next, through empirical analysis, real GDP per capita as a proxy variable for income has a positive impact on Malaysian tourism demand. The higher the economic development of the tourist generating country, the more people will choose outbound tourism. Thus, by taking advantage of rising income of foreign travellers, Malaysia can welcome more international tourists and stimulate the development of Malaysian international tourism. Trade openness also positively impacts Malaysian tourism demand, as economic activities between countries can promote international tourism and meet people's ever-changing and growing desire to travel. However, the real exchange rate negatively influences the international tourism demand in Malaysia. The increase in the real exchange rate will reduce Malaysian international tourism demand because the travel cost for foreign travellers will be higher, holding other conditions constant.

5.3 Policy Recommendations

Tourism brings numerous benefits to the host country by filling the demand of tourists, from tourism activity and consumption. Thus, the Malaysian government needs to be aware of the comparative advantage of international tourism. To make some contributions in the future from the tourism sector, here are some suggestions for policymakers.

For international marketing strategy, the main focus should be on countries with higher economic development levels, as people from these countries are more economically capable of traveling abroad. Clear identification of the target market, to a certain extent, can improve the efficiency to promote international tourism for the Malaysian government. When the economic performance of some countries is strong, the Malaysian government should promptly promote tourism and advertise in these countries to attract more tourists to Malaysia. Generally, the tourism sector should pay close attention to the economic performance of other countries.

The practical needs of expanding imports and exports should be recognized by the government, as the higher degree of trade openness between Malaysia and other countries will increase the number of tourists from these countries to Malaysia, especially for business travel. The Malaysian government should also attach great importance to the role of trade in promoting tourism in the coordinated development plans and policies to increase national revenues. It is worth noting that trade protectionism will hinder the development of tourism.

Changes in the real exchange rates will directly affect tourism demand and tourists often choose countries with relatively low and stable exchange rates as their travel destinations. The appreciation of the currency in the destination country negatively affects the tourism demand, because the travel cost is higher for foreign travellers. However, lowering the exchange rate is not a viable-term decision for Malaysia, as it will have a negative impact on imports. Therefore, the Malaysian government should implement macro-control policies in time to respond to the changes in the exchange rates. Also, they have to standardize the price of tourism products and make the price more reasonable.

5.4 Limitations and Suggestions

The sample period is from 2008Q1 to 2018Q4. Thus it is hard to use the outbreak of SARS (2003) as a similar case to analyze the effect of the Covid-19 on tourism demand. Besides, some studies on tourism demand are conducted through questionnaires. This type of primary data can better understand the psychological needs of foreign tourists. Also, micro-level data can help to increase tourism demand from different aspects, especially to meet individual needs. Meanwhile, due to the limitation of the research topic, there is little discussion on the Malaysian international tourism policy and its related content.

After recognizing the limitations of this study, there are few suggestions for future study. First, future researchers are recommended to study the impact of Covid-19 on Malaysian tourism demand to cope with this emergency and test whether the solutions of SARS (2003) are equally applicable or not. Second, future researchers can carry out sample surveys based on primary data. It can clearly understand the specific information from an individual perspective, instead of on the national level. Third, future researchers are suggested to study the international tourism-related policies of Malaysia through specific cases, enriching the research content of Malaysia's tourism demand.

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