Faculty of Economics and Business

THE RELATIONSHIP BETWEEN TOURISM EXPANSION AND ECONOMIC GROWTH: THE CASE OF JAPAN, MALAYSIA, AND THAILAND

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STATEMENT OF ORIGINALITY

The word described in this Final Year Project, entitled **"The relationship between tourism expansion and economic growth: The case of Japan, Malaysia, and Thailand"** is to the best of the author's knowledge that of the author except where due reference is made.

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ABSTRACT

THE RELATIONSHIP BETWEEN TOURISM EXPANSION AND ECONOMIC GROWTH: THE CASE OF JAPAN, MALAYSIA, AND THAILAND

BY

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Asia Pacific region is strong performer in the tourism sector in 2018. In this study, Japan (1971 to 2018), Malaysia (1981 to 2018), and Thailand (1971 to 2018) have chosen to examine the relationship between tourism expansion and economic growth. The study has used the growth theory to build the model and include the variable of economic growth (GDP), number of tourist arrivals (TOUA), real exchange rate (RER), international trade (TRADE), and capital investment (CI). To fully answer the objective of the study, the study has employed the Augmented Dickey-Fuller unit root test and Phillips-Perron unit root test, Johansen-Juselius cointegration tests, Granger causality test based on vector error correction model, impulse response, and variance decompositions. From the cointegration test, the result suggested the existence of cointegration among the variables in the model in Japan, Malaysia, and Thailand. By using the Granger causality test, Japan supported the hypothesis of economic driven tourism in short run and long run. Malaysia and Thailand only indicated the economic driven tourism hypothesis in long run. In future, government in Japan, Malaysia, and Thailand can allocate more budgets towards the tourism sector so they can enjoy the return from the tourism sector and boost up the economic growth.

ABSTRAK

HUBUNGAN ANTARA PENGEMBANGAN PELANCONGAN DAN PERTUMBUHAN EKONOMI: KAJIAN DI JEPUN, MALAYSIA, DAN THAILAND

OLEH

LOW CHOON SHENG

Rantau Asia Pasifik merupakan penghibur kuat dalam sektor pelancongan pada tahun 2018. Dalam kajian ini, Jepun (1971 hingga 2018), Malaysia (1981 hingga 2018), dan Thailand (1971 hingga 2018) telah memilih untuk mengkaji hubungan antara pengembangan pelancongan dan pertumbuhan ekonomi. Kajian ini telah menggunakan teori pertumbuhan untuk membina model dan merangkumi pemboleh ubah pertumbuhan ekonomi (GDP), bilangan ketibaan pelancong (TOUA), kadar pertukaran tanah (RER), perdagangan antarabangsa (TRADE), dan pelaburan modal (CI). Untuk menjawab sepenuhnya objektif kajian ini, kajian telah menggunakan ujian akar unit Augmented Dickey-Fuller dan ujian akar unit Phillips-Perron, Johansen-Juselius ujian cointegrasi, ujian pematapi penyebab yang berdasarkan model pembetulan ralat vektor, tindak balas gerak hati, dan varians pengurat. Dari ujian cointegrasi, hasilnya mencadangkan kewujudan cointegrasi di antara pembolehubah dalam model di Jepun, Malaysia, dan Thailand. Dengan menggunakan ujian penyebab Granger, Jepun menyokong hipotesis pelancongan yang didorong oleh ekonomi dalam jangka pendek dan jangka panjang. Malaysia dan Thailand hanya menunjukkan hipotesis pelancongan yang didorong oleh ekonomi dalam jangka masa panjang. Pada masa akan datang, kerajaan di Jepun, Malaysia, dan Thailand dapat memperuntukkan lebih banyak belanjawan ke arah sektor pelancongan supaya mereka dapat menikmati pulangan daripada sektor pelancongan dan meningkatkan pertumbuhan ekonomi.

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LIST OF ABBREVIATIONS

TLGH	=	Tourism Led Growth Hypothesis
EDTH	=	Economic Driven Tourism Hypothesis
AIGH	=	Agriculture Induced Growth Hypothesis
GDP	=	Gross Domestic Product
TOUA	=	Number of Tourist Arrivals

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

The tertiary sector is the most welcoming sector in the 21st century especially the tourism sector. The high potential contributor from the tourism sector towards the country's economic has been proven by Mansfeld and Winckler (2008). In 2018, the top contributor for the world Gross Domestic Product (GDP) is manufacturing sector followed by tourism sector (World Travel and Tourism Council, 2019). The contribution from tourism sector accounted 10.4% of global GDP in 2018 and 3.9% for direct Travel and Tourism GDP growth.

Tourism sector has provided a lot of benefits towards the country like stimulated the country's economic, promote the local culture, etc. One of the benefits towards the country's economic is the multiplier effect. The parameter of the multiplier effect is totally depend on the tourism activity in the country (Balaguer & Cantavella-Jordá, 2002). Other benefit towards the country's economic is the job creation. The more job opportunities will be created by the tourisms sector when the number of tourists' arrivals increased in the country. In 2018, tourism sector has created 319 million jobs for the people or 10% of global employment from the report of World Travel and Tourism Council (2019). The third benefit is the country's GDP will increase by the demand of foreign exchange which is under the categories of export. In another word, the foreign tourists need to purchase the local currency to spend in their trip. To make the tourists to spend more in the country, one of the efficient ways is to various the tourism activity in the country. For example, China government has increased the tourists' experience in China by investing the new tourist spot in Zhangjiajie which is build glass bridge (Zhangjiajie Grand Canyon Glass Bridge).

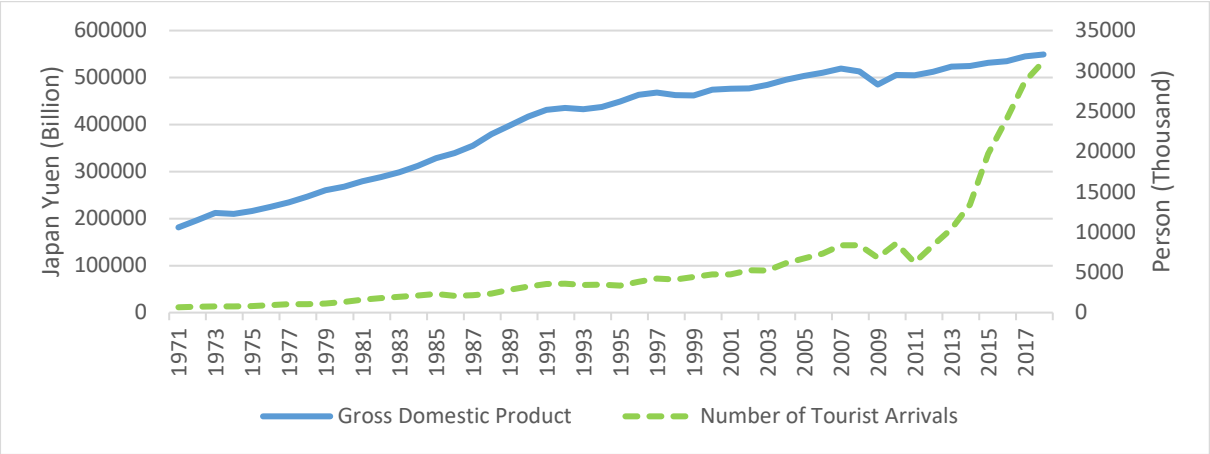
The performance of the tourism sector in the Asia Pacific countries still remain the strong among the world in 2018 (World Travel and Tourism Council, 2019). Therefore, the study has selected the three countries among the Asia Pacific which is Japan, Malaysia, and Thailand. The topic will be focused targeted on the examination of the connection between the tourism expansion and local economy in Japan, Malaysia, and Thailand.

1.1 Background of the Study

1.1.1 Japan

Japan government has a vision to engage 10 million tourists to visit Japan in 2010. With the vision, Japan government has introduced the campaign theme with "Yokoso Japan" in 2003 (Uzama, 2009). The theme of the campaign means Welcome to Japan. In the past, Japan has been perceived as the world of the largest manufacturing country, so Japan has earned more income from the export of manufacturing goods. Simultaneously, the contribution from tourism area also considered one of their vital income sources in Japan. In 2018, Japan has been recorded USD 367.7 billion in the contribution of tourism sector towards the GDP or growth 3.6% (World Travel & Tourism Council, 2019a). The tourism sector also created 4,608,500 jobs for the local people in 2018 and expected increase to 5,016,100 jobs in 2029. The tourism receipts in 2018 is USD 43.2 billion or 4.7% of total exports in Japan. In 2018, the top three visitor arrivals are China (26%), South Korea (22%), and Taiwan (17%).

Figure 1: Japan's Gross Domestic Product and Number of Tourist Arrivals, 1971-2018



Source: CEIC Data, 2019.

Both of trends for GDP and TOUA in Figure 1 shows upwards trend over the period of 1971 to 2018 in Japan. Overall, the GDP in Japan was constantly increased. But in 1998 and 2009, the GDP in Japan become dropped by the reason of the Asian Financial crisis and Subprime Mortgage crisis. Therefore, the GDP in Japan during 1998 and 2009 have been fell 1.13% and 5.42% respectively as shown in Figure 1. In 2009, Japan has get hit so much because of Japan exported a lot of high-end elastic industrial supplies, capital goods, and consumer goods to destination like United States and much of the European countries (Sommer, 2009). During the Subprime Mortgage crisis, the demand of the imported goods from United States and much of the European countries were reduced, so Japan has experienced a hard hit from it.

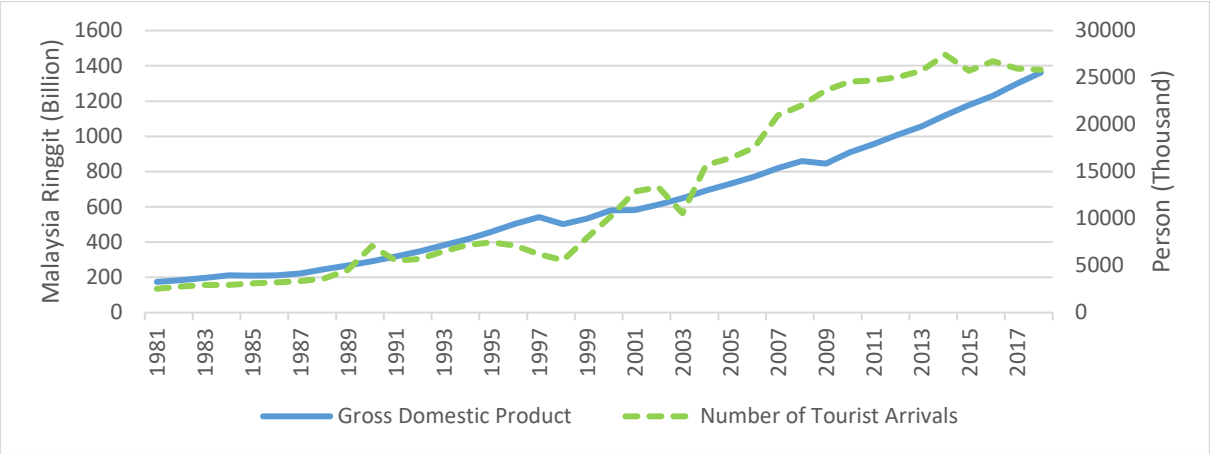
The tourism sector has experienced some dropped point in 1998, 2009, and 2011. After 2011, the number of tourist arrivals in Japan was starting booming and increase over the period. In 1998, the tourism sector has been affected by cause of the Asian Financial crisis. Japan has experienced doubled hit during 2009 because of Subprime Mortgage crisis and sharp increasing of pandemic H1N1 influenza in Japan (World Health Organization, 2010). In such a way, the tourism area has been overwhelmed. Unfortunately, a big disaster has visited Japan again in 2011 which is Fukushima nuclear accident due to the tsunami damaged the backup generators

at the Fukushima Daiichi plant and Fukushima has been exposed of the nuclear (Acton & Hibbs, 2012). The number of tourist arrivals have fell more in 2011 compared to 2009 which is 27.78% and 18.69% respectively. Japan government has realized the importance of the tourism sector as the contributor towards the country's economy. Therefore, Japan government has made a policy which was depreciated the currency to attract more foreign tourists. According to Bank of Japan (2019), the official exchange rate in 2012 was ¥ 79.79 per USD and depreciated into ¥ 97.60 per USD in 2013 and finally depreciated until ¥ 112.17 per USD in 2017. The policy is succeeded to attract the tourists which is from 8,358,105 persons in 2012 to 28,691,073 persons in 2017 which is increase 243.27%.

1.1.2 Malaysia

Malaysia is a country with diversified economy structure which is consisted of manufacturing sector, mining sector especially in gas and petroleum, service sector, etc. Malaysia government has started to promote the tourism sector by launched the campaign in 1990. The theme of the campaign was "Fascinating Malaysia. Year of Festivals" (Tourism Malaysia Official Website, 2019). Malaysia government has continued to organize the campaign called "Visit Malaysia Year" in 1994, 2000, 2007, 2014, and coming soon in 2020. According to World Travel & Tourism Council (2019b), 13.3% of total GDP in Malaysia or USD 47.2 billion has contributed by the tourism sector in 2018. The tourism receipts are USD 19.7 billion or 7.9% of total exports in 2018. The job creation by tourism sector is 1,766,700 jobs or 11.9% of total employment in 2018. The number of job creation expected increase to 2,401,300 jobs in 2029. Foreign tourists from Singapore (49%), Indonesia (11%), and China (8%) are the top three visitor arrivals in 2018.

Figure 2: Malaysia's Gross Domestic Product and Number of Tourist Arrivals, 1981-2018



Source: CEIC Data, 2019.

The trend of TOUA shows inconsistent while the trend of GDP shows the upward over the period of 1981 to 2018 in Malaysia as shown in Figure 2. Malaysia has been getting more hit throughout the time of Asian Financial disaster in 1998 which is the GDP fell 7.36% as compared to the Subprime Mortgage disaster only affected with the drop point of 1.51% in 2009. During the Asian Financial crisis, Malaysia has been impacted so much because of the collapse of Thai baht in Thailand (Sundaram, 2006). Before the crisis, Malaysia having the trade imbalance and appeal to abundant of the foreign investors to come in Malaysia to boost up the local economy. During the crisis, the collapse of Thai baht in Thailand has been impacted the investors in Malaysia to lose the confident to invest in Malaysia and they have decided to shut down the firm in Malaysia. Therefore, Malaysia was experienced the hard hit during the Asian Financial crisis.

According to Tourism Malaysia Official Website (2019), Malaysia government has launched a campaign theme with "Fascinating Malaysia. Year of Festivals" in 1990 and successfully make a growth of 9.34% for the number of tourist arrivals. The main visitors of Malaysia are coming from area of Asian like Indonesia, Singapore, and Thailand. Most of the Asian countries has been included in the Asian Financial crisis. Therefore, the tourism area in

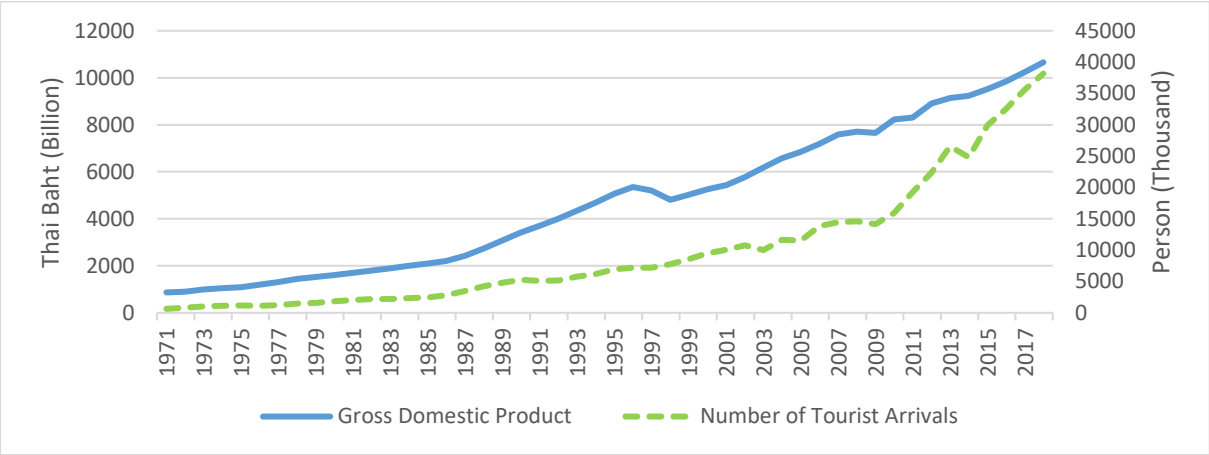
Malaysia has been distressed in 1998 by virtue of Asian Financial crisis. In 2003, Malaysia has experienced a big dropped in the number of tourist arrivals because of the SARS illness. The Asian countries like Hong Kong, Thailand, and Malaysia have been frequently reported the happening of SARS illness (Ayob & Masron, 2014). The SARS illness is the highly damaged illness and many countries are stopped their citizen to visit the high-risk countries. At the same time, Malaysia has experienced the drop point of 20.56% in the number of tourist arrivals. Malaysia government has launched the campaign theme "Visit Malaysia Year" in 2014 and the campaign successfully make the growth of 6.7%. Through the campaign, the government has promoted the local culture towards the world and the new experience of the local culture has succeed to attract the tourists to visit Malaysia. In 2015, the tourism sector has been troubled and experienced a drop point of 6.25% by cause of MH 370. China's tourists are one of the main tourists for Malaysia and the main passengers in the MH 370 are the citizen of China. Due to the issue of MH 370, Chinese tourists have lost the confident to travel Malaysia during that period.

1.1.3 Thailand

In the past, Thailand is the agricultural based economy and now Thailand has been transformed into more industrialized and service based economy (Koonnathamdee, 2013). The economic activity of tourism is one of the major revenue in Thailand (Kerdpitak, 2017). Thailand government has continually support and promote the tourism sector to the world for attracting more foreign tourists. Thailand can be succeeding in the tourism sector is because they provide a lot of tourism activity like the cultural tourism, animal tourism, and sex tourism (Iverson, 2017). In Thailand, there have a lot of temple because Thailand is a Buddhist country and the temple can attract more foreign Buddhist to visit it. In 2018, Thailand has accounted 21.6% out of total GDP or USD 109.5 billion from the tourism sector or growth 6.0% (World

Travel & Tourism Council, 2019c). The job creation in Thailand from the tourism sector has been created 5,990,600 jobs in 2018 and expected increase to 8,230,900 jobs in 2029. The top three visitor arrivals are China (27%), Malaysia (10%), and South Korea (5%) in 2018.

Figure 3: Thailand's Gross Domestic Product and Number of Tourist Arrivals, 1971-2018



Source: CEIC Data, 2019.

Figure 3 shows the upward trend for GDP and TOUA in Thailand from 1971 to 2018. Thailand also experienced the same crisis with Japan and Malaysia in 1998 and 2009. Thailand is a main role in the Asian Financial disaster which is the crash of Thai baht (Sundaram, 2006). As mentioned by Elangkovan and Said (2013), Thailand has attracted more capital inflow from other countries to expand the local economy in the early 1990s. The report from Bank of Thailand (1999) shows Thailand had experienced the imbalance of trade from other country, the policy of impractical international currency, and invest in the ineffective business sector during the time of 1990s. Hence, the collapse of Thai Baht has made the investors lose the confident to stay in Thailand, so they have transferred out the capital of investment and left the country. Thailand government do not have enough reserve to help the crisis. Therefore, Asian Financial crisis has given the hard hit to Thailand compared to the Subprime Mortgage crisis in 2009 which is fell 7.63% and 0.69% respectively.

Tourism sector is the focusing sector on Thailand and Thailand government has created a lot of tourism activities to attract more foreign tourists. Unfortunately, Thailand has experienced the SARS illness in 2003. The SARS illness is active in the Asian countries, many countries were restricted their citizen to visit the high-risk countries to avoid the infection from the virus. In 2009, Thailand has facing another drop point which is 2.98% due to the political instability. Thailand's citizen will always protest when they felt not satisfied on their performance of government. In 2014, the issue of political instability in Thailand happened again so the tourism sector has been affected. After a year, the tourism sector in Thailand has been recovered and the number of tourist arrivals increased again after that.

1.2 Problem Statement

Solow Growth model has mentioned the accumulation of the productivity growth and technical change in the long run will determine the country rich or poor. Therefore, the developing countries can move faster than the developing countries because the developing countries haven't reached steady state level due to the lag of diffusion on knowledge (Solow, 1956). Most of the Asia Pacific countries were under categories of developing country and the tourism study in Japan and Thailand are still lack. Therefore, the study has been selected a developed country (Japan) and two developing countries (Malaysia and Thailand) among the Asia Pacific countries to study the connection between tourism expansion and economic growth.

Most of the researchers were used bi-variate model or tri-variate model and included the variables like gross domestic product (GDP), real effective exchange rate (REER) / real exchange rate (RER), and tourism receipts (TOUR) / number of tourist arrivals (TOUA) to conduct the tourism study. Therefore, their result has been biased due to the factor of omitted variables. As mentioned by Shan and Wilson (2001), the study will be biased if the variable of

international trade (TRADE) was excluded. The variable of TRADE is important because the tourists will buy the consumer goods when travelling and the sales of consumer goods will be accounted to the total of exports. The variable of RER is suggested by Balaguer and Cantavella-Jordá (2002) to deal with the issue of omitted variable. The variable of capital investment (CI) also cannot be ignored because the demand of tourism will stimulate the investment in the local (Liu & Chen, 2016). Some of the research questions has been listed as below:

1. Is the tourism sector being the important sector to contribute the economic growth towards Japan, Malaysia, and Thailand?
2. How does the tourism sector helps to stimulate the economic growth in Japan, Malaysia, and Thailand?

1.3 Objectives of the study

1.3.1 General Objectives

To investigate the relationship between the tourism expansion and economic growth in Japan, Malaysia, and Thailand is the general objective of the study.

1.3.2 Specific Objectives

The specific objectives of the study are stated as below:

I. To examine the long run relationship between the tourism expansion, real exchange rate, international trade, capital investment, and economic growth in Japan, Malaysia, and Thailand.

II. To investigate the short run causal relationship and long run causal relationship between the tourism expansion, real exchange rate, international trade, capital investment, and economic growth in Japan, Malaysia, and Thailand.

III. To study the shock adjustments between the tourism expansion, real exchange rate, international trade, capital investment, and economic growth in Japan, Malaysia, and Thailand.

1.4 Significance of the Study

The tourism study in Japan and Thailand is still lack and the potential of tourism sector in the country maybe underestimated by their government. Through this study, the policymakers in Japan and Thailand can introduce a good policy to advertise the tourism sector in the country and benefit the local people and boost up the country's economy.

In Malaysia, a lot of the tourism study has been conducted by the researchers and the result is mixed. Meanwhile, Tang and Tan (2015) have confirm the TLGH normally happened and substantial in Malaysia. The study from Tang and Tan (2015) have not included all the omitted variables. Therefore, this study has included the omitted variable to estimate the more accurate result of findings to assist the policymakers to make a good policy. In future, the citizen of the Malaysia can be more benefit from the tourism sector through the policy implication. The further researchers can use this study as the reference to make their further research or fill up the gap of the tourism study.

1.5 Scope of the Study

Five chapter will be divided in the study. The information of the tourism expansion and economic growth in Japan, Malaysia, and Thailand will be discussed in Chapter 1. Meanwhile, the opportunity, purposes, and importance of the study will also be explained in Chapter 1. However, the study will review the theoretical model from the past study and the empirical findings from the researchers to have a proper guide to the study in Chapter 2. In Chapter 3, the study will provide the information regarded the conceptual framework of the tourism sector,

the model of the study, and the estimation methodology of the study. Once the result has been completed estimated, the findings of the study will be debated in Chapter 4. The Chapter 5 will be the last chapter in the study. The summary of the Chapter 4, policy recommendations for Japan, Malaysia, and Thailand will be discussed in Chapter 5. Additionally, the limitations of the study and further recommendations will also provide in the chapter.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Two sub-section will be discussed in the chapter. The chapter mainly review the theoretical of the model and empirical findings about tourism expansion and economic growth. Section 2.1 will be the theoretical review of the study and the empirical findings will be debated in Section 2.2. Section 2.2 consisted two sub-section which is the empirical findings according to one country (Section 2.2.1) and cross countries (Section 2.2.2).

2.1 Theoretical Review

Many researchers have used the growth model as their econometric model to explore the connection between tourism expansion and economic growth in the selected country. The study has chosen the Solow Growth Model and discussed at below:

2.1.1 Solow Growth Model

The economy growth rate can be explained by the level of saving and productivity of capital from the Harrod-Domar Model which developed by Harrod (1939) and Domar (1946). Solow Growth Model is the extension from Harrod-Domar Model which is Solow has added the variable of factor of production (labor) in 1956. According to Solow (1956), he has used the production function from Cobb-Douglas to build the model. The key components in the model are the capital accumulation, labor productivity, and technological progress. In the long run, the model is explained the only way to achieve the steady state equilibrium and permanent growth is through the technological progress (Jones, 2002). All the inputs in the model will be constant in the rich countries because they have lower population growth rate and high volume

of capital reserve due to they have make a lot of investment. Another interesting findings from Solow (1956), he has mentioned the poor countries can move faster than rich countries because the poor countries haven't reached steady state level due to the lag of diffusion on knowledge.

Figure 4: Solow Growth Model

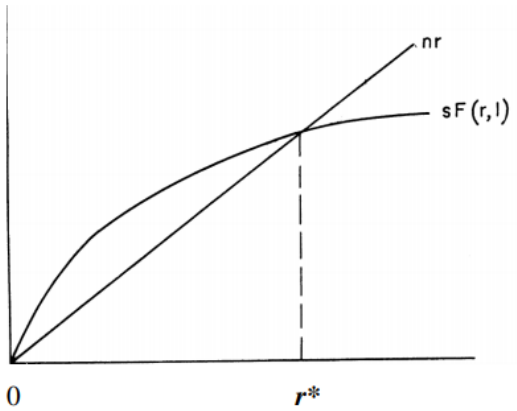


Figure 4 shows the graph of Solow Growth Model which is consist of the straight line at 45 degrees (nr) and the curve line (sF(r,l)). The capital-labor ratio (r*) will be achieved when the line of nr intersect to the line of sF(r,l). Solow (1956) has given a scenario for the Solow Growth Model which is the input of capital (K) and labor (L) can grow consequently in scale if the ratio of r* can be settled and continued. By steady returns to proportion, the real outcome (Y) will increase at the same proportion as n and the outcome per head of workforce will remained unchanged.

The early value of the ratio of r* will not have big impact towards the system because it is going to expand toward a state of equitable improvement at the usual rate. For example, the growth speed of the input of K and Y will be rapidly than the input of L until the equilibrium ratio is addressed in the case of the early capital stock is below the equilibrium ratio. However, the growth speed of the input of L will be faster than the input of K and Y if the ratio of r* is above the equilibrium ratio. The growth of Y is usually balanced between the input of K and L.

The potential of tourism sector is bigger in the developing country compare to developed country, therefore Balaguer and Cantavella-Jordá (2002) have suggested the researchers conduct more tourism research in the developing country. He also mentioned the economy will be more benefit from tourism sector because of the foreign exchange spent by the foreign tourists. Through the growth model, the researchers can include the other variable like the number of employees, capital, etc. to find the impact from tourism sector towards the country's economic. Recently, the growth model has been used by the researchers included Rout et al. (2019), Ribeiro and Wang (2020), Aliyev and Ahmadova (2020), Neuts (2020), and Pratoomchat (2020) to conduct their tourism research in the selected country..

2.2 Empirical Findings

In recent years, there was a lot of researchers have debated the capacity results of tourism development (T) towards the economic growth (GDP). From the findings through the growth model, there was four types of possibilities. First, the TLGH states the unidirectional causal relationship from T to GDP which means the local economy is boosted by the economic activity of tourism. Second, the GDP Granger causes the T asserts the EDTH. In this case, the government invested more resources in term of physical and human capital towards the tourism sector to boost up the local economy. Third, the feedback hypothesis identifies Granger causes between T and GDP. The scenario indicates the local economy can be boosted by the tourism sector and the tourism sector can make the growth to the local economy. Lastly, the neutrality hypothesis specifies no Granger causes between T and GDP. In summary, this section will discuss the empirical studies by specifying into one country and cross countries.

2.2.1 Empirical Studies of One Country

This section will discuss the empirical studies of the connection of the tourism expansion and the economic growth for one country. Table 1 shows the summary of the empirical studies of one country, the countries in the study are Barbados, Tanzania, Kenya, Lebanon, Vietnam, Malaysia, Spain, Turkey, Laos, Mauritius, Thailand, Sao Tome and Principe, Georgia, and Saint Lucia.

Lorde et al. (2011) have explored the relationship between tourism sector and economic growth by using the cointegration test and causality test in Barbados from 1974 Q1 to 2004 Q4. The have used the tri-variate model which included the variable of GDP, TOUA, and RER. The study has supported the EDTH in the short term and long term while the TLGH only in the long term.

Odhiambo (2011) has built the bi-variate model which included the variable of GDP, TOUR, and RER to review the link between the tourism expansion and economic growth in Tanzania from 1980 to 2008. By using the ARDL bound testing and causality test, the author has found the evidence to proof the TLGH in the short term and EDTH in the long term.

Kibara et al. (2012) have used the ARDL bound testing and causality test to examine the link between the tourism sector and economic growth in Kenya from 1983 to 2010. In the study, the authors have included the variable of GDP, TOUA, and T to build the model and found the TLGH existed in the long run.

Tang and Abosedra (2014) have used the ARDL bound testing and causality test to examine the availability of TLGH or EDTH in Lebanon from 1995 to 2010. In the study, the authors have employed the bi-variate model which included the variable of GDP and TOUA. From the model, they have found the evidence to proof the TLGH in the short term and long term while EDTH only in the short term.

Trang et al. (2014) have used tri-variate model included the variable of GDP, TOUE, and REER to examine the presence of TLGH or EDTH in Vietnam from 1992 to 2011. They have found the existence of TLGH in the study by using the causality test. The authors also suggest the government should invest more resource to the economic activity of tourism, so it can stimulate the local economy.

Tang and Tan (2015) have used the cointegration test and rolling Granger causality test to conduct the tourism study for the period of 1991 Q1 to 2014 Q1. They have confirmed the economic activity of tourism is important and sustain for the local economy in Malaysia. Therefore, the hypothesis of TLG has been supported by Malaysia in the long term.

Although in the past, there is a lot of study about the TLGH in Spain but most of the study has not included the period of financial crisis like 1997-1998 and 2008-2009. Perles-Ribes et al. (2017) have re-examined the existence of TLGH in Spain for the period of 1957 to 2014. Even they have included the period of financial crisis, the country of Spain still supported the TLGH which is tally with the past study.

Gül and Özer (2018) have re-examined the dynamic relationship between the tourism expansion and economic growth in Turkey by using the cointegration test and frequency domain causality approach from 2003 Q1 to 2014 Q4. They have built the tri-variate model which included the variable of GDP, RER, and TOUI. By using the model, they have supported the EDTH in short term and long term while TLGH in short term. The result is different from Harun et al. (2016) which is they only supported the TLGH in the long run.

Kyophilavong et al. (2018) have used the ARDL bound test and causality test to study the presence of TLGH or EDTH in Laos from 1992 to 2014. The authors have found not cointegrating vector among the variables in the model. Through the causality test, they have found the evidence to support the EDTH in the short run.

Solarin (2018) have re-examined the validity of TLGH or EDTH in Mauritius from 1980 to 2011. By using the causality tests, he has found out 6 out of 10 markets have supported the TLGH. In the past, the TLGH also existed in Mauritius for the period of 1952 to 1999 through the study from Durbarry (2004). The main difference between each study is Solarin (2018) has used the disaggregated data to conduct the tourism study and Durbarry (2004) has used the aggregate data to conduct the tourism study.

Jiranyakul (2019) has used the quarterly data start from 2006 Q1 to 2017 Q4 to check the availability of TLGH or EDTH in Thailand. By using the bi-variate model which include the variable of GDP and TOUR, the author found the evidence to proof the TLGH in the long run for the threshold level of the higher regime or above. Meanwhile, the TLGH also supported in the short run for the threshold level of the lower regime or below.

Ribeiro and Wang (2020) have included the variable of FDI in the model to examine the link between the tourism sector and economic growth in Sao Tome and Principe for the period of 1997 to 2018. They have found the evidence to support the TLGH in Sao Tome and Principe and there is one-way causal from the variable of FDI towards the other variables (GDP, EX, and RER) through the causality test.

Aliyev and Ahmadova (2020) have employed the ARDL bound testing to examine the connection between the economic growth and tourism expansion in Georgia from 1997 to 2018. The study proved the TLGH is existed in the short term. The authors also suggest the country of Georgia has potential to continue the economic activity of tourism in the long term.

Mangal and Liu (2020) have used the ARDL bound testing to cointegration to explore the connection between the macroeconomics variable (tourism, trade, industry, agriculture) and economic growth in Saint Lucia for the period of 1987 to 2017. They have found the evidence to support the TLGH in Saint Lucia. The authors also suggest the government should invest

more resources towards the economic activity of tourism and industry rather than other economic activities.

In conclusion, the empirical findings of one country from the above shows the economic activity of tourism is the important sector for the economic growth of the country. Most of the country included developed and developing show they are sustained the TLGH and some of them also supported the EDGH.

Table 1: Summary of Empirical Studies of One Country

Authors	Destination and Period	Methodology	Variables	Findings
Lorde, T., Francis, B., & Drakes, L. (2011)	Barbados Quarterly (1974 Q1 to 2004 Q4)	Johansen and Juselius Cointegration Test (Vector Error Correction Model) and Granger Causality Test	Real Gross Domestic Product (GDP), Number of Tourist Arrivals (TOUA) and Real Exchange Rate (RER)	Cointegration: Exist SR: GDP → TOUA LR: GDP ↔ TOUA
Odhiambo, N.M. (2011)	Tanzania Annual (1980 to 2008)	ARDL Bound Testing and Granger Causality Test (Error Correction Model)	Real Gross Domestic Product (GDP), Tourism Receipts (TOUR) and Real Exchange Rate (RER)	Cointegration: Exist SR: TOUR ↔ GDP, TOUR ↔ RER and GDP ↔ RER LR: GDP → TOUR and RER → TOUR
Kibara, O.N., Odhiambo, N.M., & Njuguna, J.M. (2012)	Kenya Annual (1983 to 2010)	ARDL Bound Testing and Granger Causality Test (Error Correction Model)	Real Gross Domestic Product (GDP), Number of Tourist Arrivals (TOUA) and Trade (Exports plus Imports) (T)	Cointegration: Exist SR: T → GDP and TOUA → T LR: TOUA → GDP, T → GDP and TOUA → T

Table 1: Summary of Empirical Studies of One Country (cont.)

Authors	Destination and Period	Methodology	Variables	Findings
Tang, C.F., & Abosedra, S. (2014)	Lebanon Annual (1995 to 2010)	ARDL Bound Testing Approach to Cointegration and Granger Causality Tests	Real Gross Domestic Product (GDP) and Number of International Tourist Arrivals (TOUA)	Cointegration: Exist SR: TOUA ↔ GDP LR: TOUA → GDP
Trang, N.H.M., Duc, N.H.C., & Dung, N.T. (2014)	Vietnam Annual (1992 to 2011)	Johansen and Juselius Cointegration Test, Granger Causality Test and Growth Decomposition	Real Gross Domestic Product (GDP), Real Tourism Earnings (TOUE) and Real Effective Exchange Rate (REER)	Tourism Led Growth: Exist
Tang, C.F., & Tan, E.C. (2015)	Malaysia Quarterly (1991 Q1 to 2014 Q1)	Johansen and Juselius Cointegration and Rolling Granger Causality Test	Real Gross Domestic Product (GDP), Real Tourism (TOUR), Real Capital (K) and Real Exports of Goods (XG) All the Variables are in term of Capita	Cointegration: Exist Tourism Led Growth: Exist
Perles-Ribes, J.F., Ramón-Rodríguez, A.B., Rubia, A., & Moreno-Izquierdo, L. (2017)	Spain Annual (1957 to 2014)	ARDL Bound Testing and Granger Causality Tests	Real Gross Domestic Product (GDP), Real International Tourism Receipts (TOUR), Number of Employees (JOB) and Real Effective Exchange Rate (REER)	Tourism Led Growth: Exist

Table 1: Summary of Empirical Studies of One Country (cont.)

Authors	Destination and Period	Methodology	Variables	Findings
Gül, H., & Özer, M. (2018)	Turkey Quarterly (2003 Q1 to 2014 Q4)	Johansen Cointegration Test and Conventional and Frequency Domain Granger Causality Test	Real Gross Domestic Product (GDP), Real Exchange Rate (RER) and Real Tourism Income (TOUI)	Cointegration: Exist SR: GDP ← TOUI LR: GDP → TOUI
Kyophilavong, P., Gallup, J.L., Charoenrat, T., & Nozaki, K. (2018)	Laos Annual (1992 to 2014)	ARDL Bound Testing Approach to Cointegration, Granger Causality Tests (Vector Error Correction Model) and Granger Causality Tests (Toda-Yamamoto)	Real Gross Domestic Product (GDP) and Number of International Tourist Arrivals (TOUA)	Cointegration: No SR: GDP → TOUA
Solarin, S.A. (2018)	10 Mauritius Tourism Markets (Australia, France, Germany, Italy, India, Seychelles, South Africa, Switzerland, United Kingdom and United States) Annual (1980 to 2011)	Causality Test (Toda and Yamamoto and Dolado and Lütkepohl)	Real Gross Domestic Product (GDP), Real Exchange Rate (EX) and Number of International Tourist Arrivals (TOUA)	Tourism Led Growth: Exist in 6 out of 10 Markets

Table 1: Summary of Empirical Studies of One Country (cont.)

Authors	Destination and Period	Methodology	Variables	Findings
Jiranyakul, K. (2019)	Thailand Quarterly (2006 Q1 to 2017 Q4)	Residual-Based Cointegration Test and Nonlinear Cointegration Tests with Asymmetric Adjustment	Real Gross Domestic Product (GDP) and Real Tourism Receipts (TOUR)	Tourism Led Growth: Exist in Short Run and Long Run
Aliyev, K., & Ahmadova, N. (2020)	Georgia Annual (1997 to 2018)	ARDL Bound Testing Approach to Cointegration	Real Gross Domestic Product (GDP), Real Effective Exchange Rate (REER) and Number of International Tourist Arrivals (TOUA)	Tourism Led Growth: Exist in Short Run
Mangal, T., & Liu, D. (2020)	Saint Lucia Annual (1987 to 2017)	ARDL Bound Testing Approach to Cointegration	Real Gross Domestic Product (GDP), Industry (I), Agriculture (A), Tourism (T) and Services (S)	I → GDP and T → GDP
Ribeiro, E.d.C., & Wang, B. (2020)	Sao Tome and Principe Annual (1997 to 2018)	Johansen Cointegration Test and Granger Causality Test	Real Gross Domestic Product (GDP), Real Exchange Rate (EX), Real Tourism Receipts (TOUR) and Foreign Direct Investment (FDI)	Cointegration: Exist TOUR → GDP, FDI → GDP, FDI → EX, FDI → TOUR

2.2.2 Empirical Studies of Cross Countries

This section will debate the empirical studies of the connection between tourism expansion and economic growth for cross countries. Table 2 shows the summary of the empirical studies of cross countries, the countries included that Taiwan and South Korea, 140 developing countries, Malaysia and Singapore, states of United Arab Emirates, Gulf Cooperation Council, 34 OECD countries, top ten destination in the world, G-7 countries, 167 countries in the world, the world of top four countries, provinces of China, states of India, 89 urban area of German, and members of the ASEAN.

Chen and Chiou-Wei (2009) have employed QGARCH-M model to examine the relationship between tourism sector and economic growth in Taiwan and South Korea from 1975 Q1 to 2007 Q1. They have built the tri-variate model which included the variable of GDP, RER, and TOUR to estimate the result. From the model, they found the TLGH is valid for Taiwan and South Korea while EDTH only valid for South Korea.

Ekanayake and Long (2012) have explore the presence of TLGH or EDTH with the panel of 140 dataset in the developing countries from 1995 to 2009. The study shows no evidence to proof the TLGH and EDTH in 140 developing countries but the elasticity of TOUR towards GDP is statistically significant in some regions. The result of FMOLS shows the positive sign from TOUR to GDP.

Lean et al. (2014) have used the annual data to investigate the potential of tourism expansion towards the economic growth in Malaysia and Singapore from 1980 to 2009. The authors have used the two similar variables (TOUA and TOUR) to enhance the model of specification. The study has evidence to proof the country of Malaysia is supported the EDTH and country of Singapore is supported the TLGH.

Alhowaish (2016) has used the panel causality analysis to investigate the availability of TLGH or EDTH in Gulf Cooperation Council (GCC) from 1995 to 2012. By using the bi-variate model which included the GDP and TOUR, the study proved the EDTH is valid for Kuwait, Saudi Arabia, Qatar, and the United Arab Emirates, while TLGH is valid for Bahrain.

Hatemi-J (2016) has studied the presence of TLGH or EDTH in the emerging market of the United Arab Emirates (UAE) for the period of 1995 to 2014. In the study, he has used the bootstrapped causality tests with leverage adjustments to estimate the results. He also built the bi-variate model which include GDP and TOUA. By using the model, he found the TLGH is supported in all the states of UAE.

Govdeli and Direkci (2017) have used the panel cointegration tests examined the sustainable relationship between tourism revenues and economic growth in 34 OECD member countries from 1997 to 2012. By using the bi-variate model, the study shows a positive relationship from TOUR towards GDP for all 34 OECD member countries in long run.

Shahzad et al. (2017) have employed the method of Quantile-on-Quantile (QQ) to estimate the validity of EDTH or TLGH in the top ten destination in the world for the period of 1990 Q1 to 2015 Q4. They have built the bi-variate model which include GDP and TOUA. By using the model, they have found the TLGH is existed among the ten countries.

Hatemi-J et al. (2018) have examined the availability of TLGH or EDTH with a panel of G-7 countries by employing the asymmetric fashion from 1995 to 2014. The finding shows the TLGH is supported in France, Germany, and the United States. Another finding is the countries included Germany, Italy, and Japan are experienced the negative tourism shocks and the countries like United Kingdom and the United States are experienced the positive tourism shock.

Tang and Tan (2018) have examined the availability of TLGH or EDTH by using the panel dataset of 167 countries from 1995 to 2013. All the 167 countries are supported the TLGH. The authors have found the low-income country is less benefits from the tourism sector compare to the high-income country.

Etokakpan et al. (2019) have examined the presence of the hypothesis of TLG, EDT, and AIG among the world of top four countries (Brazil, Russia, China, and United States) by using multivariate balanced panel framework from 1995 to 2015. The authors have found the evidence to support the hypothesis of TLG, EDT, and AIG in all the four countries.

Lin et al. (2019) have studied the sustainable of TLGH or EDTH in provinces of China from 1978 to 2013. The study has adopted the Bayesian probit models and found the TLGH is valid in 10 out of 29 regions and the EDTH is valid in 9 out of 29 regions. The authors have implied the TLGH always happened in the country with the developing economies, bigger economic scale, and covering bigger geographic areas while the EDTH only happened in the region with less developed economies.

Rout et al. (2019) have examined the link between the economic growth and economy activity of tourism in the states of India by using the panel cointegration test and panel causality test for the period of 1995 to 2016. The study shows the EDTH is valid in the short term while the TLGH is valid in the long term.

Neuts (2020) has examined the validity of TLGH in 89 urban area of German from 1995 to 2015. The Pedroni panel cointegration and panel causality have been used in the study and the author has found the existence of TLGH and EDTH in 89 urban area of German. The strong causal relationship only available in the city with the tourism intensity of high and medium.

Pratoomchat (2020) has studied the relationship between the tourism expansion and economic growth by including the variable of FDI in the tourism sector among the members of ASEAN countries. The author found the validity of TLGH among the members of ASEAN countries from 1988 to 2011. He also found the FDI in the tourism sector is important to the economic growth among the members of ASEAN countries

In conclusion, the empirical findings of cross countries from the above shows most of them have supported the TLGH in their selected countries. Some of them also supported the EDTH. Therefore, the tourism sector is a potential sector for the world to explore.

Table 2: Summary of Empirical Studies of Cross Countries

Authors	Destination and Period	Methodology	Variables	Findings
Chen, C.F., & Chiou-Wei, S.Z. (2009)	Taiwan and South Korea Quarterly (1975 Q1 to 2007 Q1)	Johansen Cointegration Test and Bivariate EGARCH-M	Real Gross Domestic Product (GDP), Real Exchange Rate (RER) and Tourism Receipts (TOUR)	Cointegration: No Tourism Led Growth: Taiwan and South Korea Economic Driven Tourism: South Korea
Ekanayake, E.M., & Long, A.E. (2012)	140 Developing Countries Annual (1995 to 2009)	Panel Cointegration Test (Pedroni), Panel Fully Modified OLS (FMOLS) and Panel Granger Causality Test (Vector Error Correction Model)	Real Gross Domestic Product (GDP), Labor Force (L), Real Gross Fixed Capital Formation (K) and Tourism Receipts (TOUR)	No Evidence to Support the Tourism Led Growth Hypothesis

Table 2: Summary of Empirical Studies of Cross Countries (cont.)

Authors	Destination and Period	Methodology	Variables	Findings
Lean, H.H., Chong, S.H., & Hooy, C.W. (2014)	Malaysia and Singapore Annual (1980 to 2009)	Johansen and Juselius Cointegration Test and Granger Causality Test (Vector Error Correction Model)	Real Gross Domestic Product (GDP), Tourist Arrivals (TOUA), Tourism Receipts (TOUR), International Trade (T) and Real Effective Exchange Rate (REER)	Cointegration: Exist SR for Malaysia: GDP → REER and T → REER LR for Malaysia: GDP → TOUA, REER → TOUA, T → TOUA, GDP → REER, TOUA → REER and T → REER TOUA and TOUR are similar results for Malaysia SR for Singapore (TOUA & TOUR): GDP → REER and T → REER LR for Singapore (TOUA): GDP → T, TOUA → T and REER → T LR for Singapore (TOUR): TOUR → GDP, REER → GDP, T → GDP, GDP → T, TOUA → T and REER → T

Table 2: Summary of Empirical Studies of Cross Countries (cont.)

Authors	Destination and Period	Methodology	Variables	Findings
Alhowaish, A.K. (2016)	Six Gulf Cooperation Council Countries Annual (1995 to 2012)	Cross-Sectional Dependence and Panel Causality Test (Dumitrescu and Hurlin)	Real Gross Domestic Product (GDP) and Real Tourism Receipts (TOUR)	Economic Driven Tourism: Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates Tourism Led Growth: Bahrain No Relationship: Oman
Hatemi-J, A. (2016)	Emerging market of UAE Annual (1995 to 2014)	Bootstrapped Causality Tests with Leverage Adjustments	Gross Domestic Product (GDP) and Number of Tourist Arrivals (TOUA)	Tourism Led Growth: Exist
Govdeli, T., & Direkci, T.B. (2017)	34 OECD Countries Annual (1997 to 2012)	Panel Cointegration Test (Pedroni and Kao) and Panel Fully Modified Ordinary Least Square	Gross Domestic Product (GDP) and Tourism Revenue (TOUR)	Tourism Led Growth: Exist in Long run
Shahzad, S.J.H., Shahbaz, M., Ferrer, R., & Kumar, R.R. (2017)	Top Ten Tourist Destinations Quarterly (1990 Q1 to 2015 Q4)	Quantile-On-Quantile (QQ) and New Index of Tourism Activity	Real Gross Domestic Product (GDP) per Capita and the Volume of International Tourism	Tourism Led Growth: Exist in Ten Countries (China, France, Germany, Italy, Mexico, Russia, Spain, Turkey, the United Kingdom, and the United States)

Table 2: Summary of Empirical Studies of Cross Countries (cont.)

Authors	Destination and Period	Methodology	Variables	Findings
Hatemi-J, A., Gupta, R., Kasongo, A., Mboweni, T., & Netshitenzhe, N. (2018)	G–7 Countries Annual (1995 to 2014)	Cross-sectional Dependence and Homogeneity and Symmetric and Asymmetric Panel Causality Tests	Real Gross Domestic Product (GDP) and Real International Tourism Receipts (TOUR)	Tourism Led Growth: France, Germany, and the United States
Tang, C.F., & Tan, E.C. (2018)	167 Countries in the World Annual (1995 to 2013)	Dynamic panel GMM	Real Gross Domestic Product (GDP) per Capita, Real Export of Goods per Capita (XG), Real Tourism Receipts per Capita (TOUR) and Real Interest Rate (R)	Tourism Led Growth: Exist in 167 countries
Etokakpan, M.U., Bekun, F.V., & Abubakar, A.M. (2019)	The World of Top Four Countries (Brazil, Russia, China, and United States) Annual (1995 to 2015)	Cross-sectional Dependency Test, Westerlund (2007) Bootstrapping Cointegration Test and Panel Causality Test	Real Gross Domestic Product (GDP), Agricultural Value Added (AVA), Effective Exchange Rate (EXR) and International Tourism Receipt (TR)	Economic Driven Tourism, Tourism Led Growth and Agriculture Induced Growth: Exist in 4 countries
Rout, H.B., Mishra, P.K., & Pradhan, B.B. (2019)	24 States of India Annual (1995 to 2016)	Panel Cointegration, Panel Causality Test and Panel FMOLS & DOLS	Real Gross Domestic Product (GDP), Number of Domestic Tourist Arrivals (DTA) and Number of Foreign Tourist Arrivals (FTA)	Economic Driven Tourism: Exist in Short Run Tourism Led Growth: Exist in Long Run

Table 2: Summary of Empirical Studies of Cross Countries (cont.)

Authors	Destination and Period	Methodology	Variables	Findings
Lin, V.S., Yang, Y., & Li, G. (2019)	29 Provincial Regions in China Annual (1978 to 2013)	Autoregressive Distribution Lags, Granger Causality Test (Toda and Yamamoto) and Bayesian Bivariate Probit Models	Real Gross Domestic Product (GDP) and Real Tourism Receipts (TOUR)	Tourism Led Growth: Guangdong, Guizhou, Hubei, Jiangxi, Shaanxi, Shanxi, Xinjiang, and Yunnan Economic Driven Tourism: Anhui, Fujian, Hainan, Henan, Jiangsu, Jilin, and Shandong Bidirectional Causal Relationship: Guangxi and Inner Mongolia
Neuts, B. (2020)	89 Urban Area of German Annual (1995 to 2015)	Pedroni Panel Cointegration and Panel Causality	Real Gross Domestic Product (GDP), Tourism (T), Local Business Tax Revenue (BTR), and Income Tax Revenue (TR)	T → BTR and TR and T ↔ GDP
Pratoomchat, P. (2020)	Members of the Association of Southeast Asian Nations (ASEAN) Annual (1988 to 2011)	Pedroni Panel Cointegration and Panel Causality	Real Gross Domestic Product (GDP), Foreign Direct Investment (FDI) in Tourism industry, Visitor Spending (VS), Human Capital (HC), Trade Openness (T), Government Spending (GOV) and Exchange Rates (EXR)	Tourism Led Growth: Exist among the Member Countries

CHAPTER THREE

RESEARCH METHODOLOGY

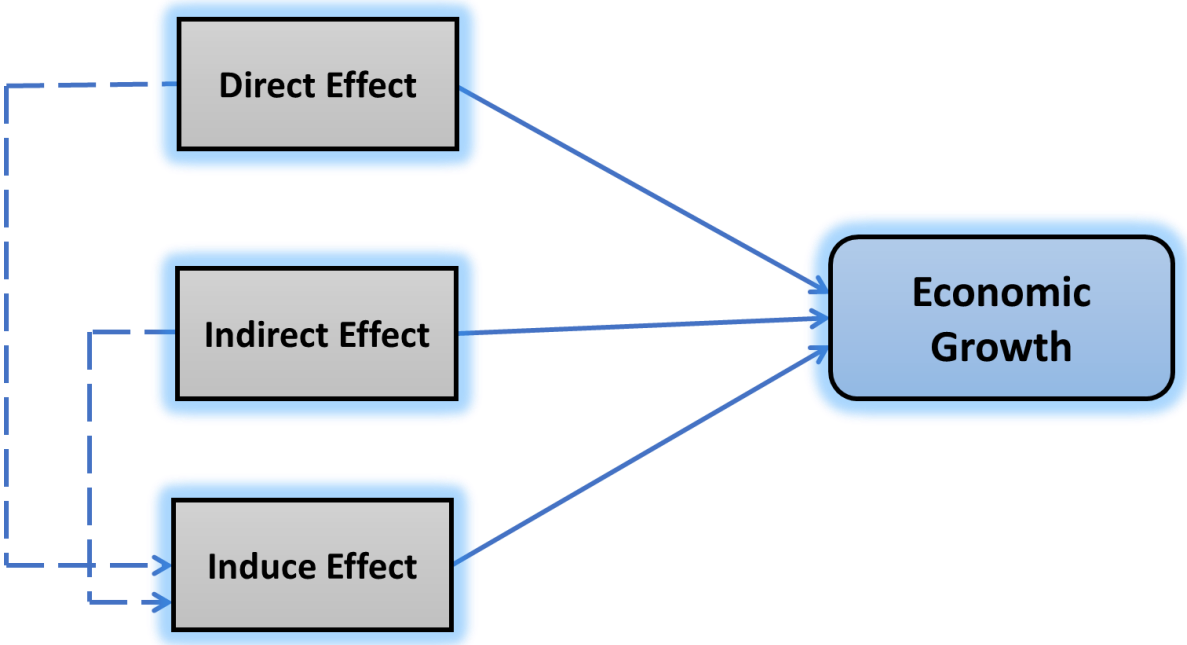
3.0 Introduction

Three sub-section will be discussed in the chapter. The section will be separated into three which are the conceptual framework of the study will be discussed in 3.1, the model specification in 3.2, and the estimation methodology will be in 3.3.

3.1 Conceptual Framework

The tourism sector will bring a lot of benefits or impacts towards the country's economy. The benefits or impacts included that multiplier effects. The model of the tourism impacts towards the economic growth is shown in Figure 5:

Figure 5: Model of the Tourism Impacts towards the Economic Growth



Source: Findings from the study of Ardahaey (2011).

In the study of Trebicka (2016), the tourism sector will generated the multiplier effect towards the country' economy. Through the multiplier effect, the local people will be benefited. Figure 5 shows three category of multiplier effect: (1) direct effects, (2) indirect effects, and (3) induce effects.

The direct effect towards the economic growth means the changes of the production will directly reflect from the changes in the demand of tourist (Ardahaey, 2011). For example, the increase in the number of tourist arrivals in the country will directly affect the demand of the hotels in the country.

Ardahaey (2011) has mentioned the indirect effect towards the economic growth means by the changes in the production will indirectly benefit the other sectors like the primary sectors and secondary sectors. For example, the increase of the number of tourist arrivals in the country will stimulate the job market for the primary sectors and secondary sectors in the country.

Lastly, the third effect shown in Figure 5 is the induce effect. As mentioned by Ardahaey (2011), the induce effects is the benefits leave by the tourism sectors towards the local economy. For example, the job opportunities for the local people will be increase if the number of tourist arrivals was increased. The people in the country has job and they can earn the money to buy what they want. Therefore, the economic growth in the country will be stimulated by the local people through the induce effects.

3.2 Model Specification

3.2.1 Empirical Model

To achieve the main objective of the study which is to check the connection between the tourism expansion and economic growth in Japan, Malaysia, and Thailand. The model has been adopted from the study of Lean et al. (2014). Thus, the model will be form as following:

$$LNGDP_{j,t} = \beta_0 + \beta_1 LNRER_{j,t} + \beta_2 LNTOUA_{j,t} + \beta_3 LNTRADE_{j,t} + \beta_4 LNCI_{j,t} + \varepsilon_t \qquad (1)$$

where LNGDP denotes as the natural logarithm of gross domestic product, LNRER represents the natural logarithm of real exchange rate, LNTOUA is the natural logarithm of the number of tourist arrivals, LNTRADE stands for the natural logarithm of international trade, and LNCI is the natural logarithm of capital investment. J and t denote as the selected country (Japan, Malaysia, and Thailand) and time respectively. β_0 represents the constant terms and ε_t denotes as the error term. β_1, β_2, β_3, and β_4 denotes as the estimated coefficients of the variable.

3.2.2 Data Description

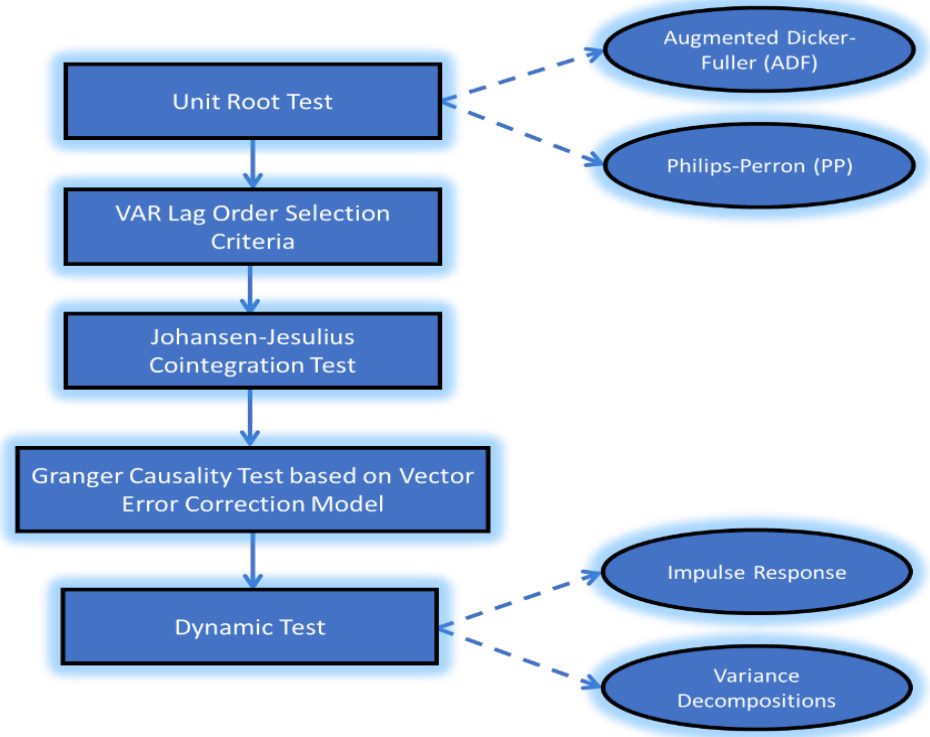
The time series for Japan and Thailand is starting from 1971 to 2018 and Malaysia is starting from 1981 to 2018. The three selected countries have different time series is because of the data availability. The study has extracted the data of the variables from CEIC database. To be more accurate to interpret the estimated coefficient, the variables need to transform into the natural logarithm (Feng et al., 2014). The study has used all the variables in the real term with the base year of 2010.

The data for the variables of RER and TRADE need to compute by ourselves. The formula of the variable of RER is computed from the official exchange rate of the country times the consumer price index of United States and divided the consumer price index of the country. The formula of the variable of TRADE is the total of import of goods and services plus the total of export of goods and services. Aside from that, the data for the variables of GDP, TOUA, and CI can direct extract from the CEIC database.

3.3 Estimation Methodology

To answer the three objectives of the study, the study should use the cointegration analysis, causality analysis, and dynamic analysis. The procedures of the analysis are shown in Figure 6. The unit root tests (3.3.1) which are Augmented Dicker-Fuller (ADF) (3.3.1.1) and Philips-Perron (PP) (3.3.1.2) needed to be employed to ensure the variable is stationarity before entering the next test. To answer the first objective, the Johansen-Jesulius cointegration test (3.3.2) is needed to be conduct. Before conducting the cointegration test, the study needs to select the optimal lag length for the selected country. The test of Granger causality test based on Vector Error Correction Model (3.3.3) will answered the second objective. Lastly, the dynamic test (3.3.4) which are impulse response (3.3.4.1) and variance decompositions (3.3.4.2) will answer the shock adjusted among the variables which is the third objective.

Figure 6: Flow Chart of the Econometric Analysis



3.3.1 Unit Root Tests

Before started to estimate the result, we need to ensure the variables of the study are stationary. There is a lot of macroeconomic data contained stochastic trends and these variables is characterized by unit root problem (Granger & Newbold, 1974). The problem of unit root in the variables may lead to the spurious regressions in the study, therefore the process of unit root tests is very important. In this study, Augmented Dicker-Fuller (ADF) and Phillips-Perron (PP) were employed and discussed below:

3.3.1.1 Augmented Dicker Fuller

The extension of the unit root test from Dickey-Fuller is called Augmented Dicker Fuller (ADF) (Dickey & Fuller, 1979, 1981). Usually, the statistic of the ADF test will showed the negative value and it is more confidence to reject the null hypothesis. ADF test also commonly used to test the bigger and more complex set of the time series model. The advantage of the ADF test is it can handle the higher order correlation which added the number of lag for the variable to the right-hand side in the model (Dickey & Fuller, 1981). The formula of the ADF test has been derived from Gujarati and Porter (2009) which shown in equation (2):

$$\Delta Y_t = \alpha_1 + \alpha_2 t + \gamma_1 Y_{t-1} + \sum_{i=1}^{p} \beta_{1i} \Delta Y_{t-1} + \varepsilon_t \qquad (2)$$

where Δ is the difference operator; Y is the variable that which to test; α_1, α_2, and β_{1i} are the estimated coefficient of the variable; ε_t proxies as the error term; and p means the lag of the variable.

$$H_0 \quad : \quad \gamma_1 = 0$$

$$H_1 \quad : \quad \gamma_1 < 0$$

Above is the hypothesis of the ADF test. The null hypothesis shows the variable is not stationary and the alternative hypothesis shows the variable is stationary. The rule of rejection for the null hypothesis of the variable is not stationary is the value of t-statistic is larger than the value of critical value (level of significance 1% and 5%). The table of the critical value is adopted from MacKinnon (1991).

3.3.1.2 Philips-Perron

Philips-Perron (PP) is the second type of the unit root test will be employed in this study. According to Phillips and Perron (1988), they have mentioned the PP test is a method of non-parametric method. By using the Newey and West (1987), PP test able to do the adjustment of the higher order serial correlation. Newey and West (1986) have mentioned the undefined of the autocorrelation and heteroscedasticity in the error can be stable by the PP test. The formula of Phillips-Perron test can be illustrate as following:

$$\Delta Y_t = \alpha_0 + \beta_0 Y_{t-1} + \varepsilon_t \tag{3}$$

where Δ is the difference operator; Y is the variable that which to test; α_0 and β_0 are the constant and slope respectively; and ε_t proxies as the error term.

$$H_0 \quad : \quad \beta_0 = 0$$

$$H_1 \quad : \quad \beta_0 < 0$$

Above is the null hypothesis and alternative hypothesis for PP test which is the variable is not stationary and the variable is stationary respectively. The alternative hypothesis will be accepted if the value of t-statistic is larger than the value of critical value at the level of significance of 1% and 5%. The table of the critical value is adopted from MacKinnon (1991).

3.3.2 Johansen-Jesulius Cointegration Test

The cointegration test is needed to perform to estimate the long-term equilibrium among the variables in the model. Cointegration analysis is important because the first difference of Vector Autoregression (VAR) model will get mis-specified if both non-stationary variables are cointegrated. Assume the cointegrating vector is existed in the model, then we need to perform the dynamic Vector Error Correcting Mechanism (VECM) and comprise residuals from the vectors (lagged one period). In this study, the cointegration approaches by Johansen and Juselius (1990) will be used. The formula of the cointegration test can be defined as follow:

$$\Delta Y_t = \mu_t + \pi Y_1 + \sum_{i=1}^{p-1} \pi_i \Delta Y_{t-i} + \varepsilon_t \tag{4}$$

where Δ is the difference operator; Y_t shows the vector of (n x 1) from I (1) variables; π and π_i represent (i = 1, 2, 3…) of a (n x n) coefficient matrixes and constant vector of (n x 1) respectively; ε proxies as the error term; p means the lag of the variable; and t as the time period. Johansen and Juselius cointegration test also provided the information about the causal relationship among the variables in the model (Johansen and Juselius, 1990). There is two types of cointegration rank under the Johansen and Juselius cointegration test which are Trace statistic developed by Johansen (1988) and the Max-Eigenvalue statistic developed by Johansen and Juselius (1990). The formula of Trace statistic will be shown in below:

$$\lambda_{trace} = -T \sum_{i=r_0+1}^{p} LN\left(1 - \hat{\lambda}_i\right) \tag{5}$$

where T equal to the total of observations; p is the optimal lag length; LN means natural logarithm; and $\hat{\lambda}_i$ is the i:th largest estimated eigenvalue.

$$H_0 \quad : \quad r \leq r_0$$

$$H_1 \quad : \quad r \geq r_{0+1}$$

Above shows the hypothesis of Trace statistics which is the null hypothesis shows there is not cointegrating vectors in the model and the alternative hypothesis shows there is cointegrating vectors in the model. The alternative hypothesis can be accepted if the value of t-statistic is larger than the value of critical value at the level of significance 1% and 5%.

The difference between the Trace statistic and Max-Eigenvalue statistic is the Max-Eigenvalue statistic has added one to restrict the cointegrating vector in the alternative hypothesis, but nothing changes at null hypothesis. Additionally, Max-Eigenvalue statistic also the advancement from the Trace statistic. According to Johansen and Juselius (1990), they have mentioned Max-Eigenvalue statistic is more powerful than the Trace statistic in their paper. The formula of the Max-Eigenvalue statistic as shown below:

$$\lambda_{max} = -\,T\,LN\left(1 - \hat{\lambda}_{r-1}\right) \tag{6}$$

where T equal to the total of observations; LN means natural logarithm; and $\hat{\lambda}_{r-1}$ is the largest predicted eigenvalue at r - 1. The hypothesis of as shown in below:

$$H_0 \quad : \quad r = r_0$$

$$H_1 \quad : \quad r = r_0 + 1$$

The rejection rule of the null hypothesis is the value of t-statistic is larger than the value of critical value at the level of significance 1% and 5%. Above shows the hypothesis for the Max-Eigenvalue statistic which are the null hypothesis is there is not cointegrating vectors in the model and the alternative hypothesis is there is cointegrating vectors in the model.

3.3.3 Granger Causality Test based on Vector Error Correction Model

Once the cointegrating vector is existed in the model, Granger causality test based on Vector Error Correction Model (VECM) is necessarily to be conducted. To avoid the misspecification problem, Granger causality test based on VECM has provided the information of the short run causal relationship and long run causal relationship between the variables in the model (Granger, 1988). The equation of Granger causality test based on VECM is shown in below:

$$\Delta LNGDP_t = \alpha_1 + \sum_{i=1}^{p} \beta_{1,i}\Delta LNGDP_{t-i} + \sum_{i=1}^{p} \beta_{2,i}\Delta LNTOUA_{t-i} + \sum_{i=1}^{p} \beta_{3,i}\Delta LNRER_{t-i} + \sum_{i=1}^{p} \beta_{4,i}\Delta LNTRADE_{t-i} + \sum_{i=1}^{p} \beta_{5,i}\Delta LNCI_{t-i} + \mu_1 ECT_{t-1} + \varepsilon_{1t} \quad (7)$$

$$\Delta LNTOUA_t = \alpha_2 + \sum_{i=1}^{p} \gamma_{1,i}\Delta LNTOUA_{t-i} + \sum_{i=1}^{p} \gamma_{2,i}\Delta LNGDP_{t-i} + \sum_{i=1}^{p} \gamma_{3,i}\Delta LNRER_{t-i} + \sum_{i=1}^{p} \gamma_{4,i}\Delta LNTRADE_{t-i} + \sum_{i=1}^{p} \gamma_{5,i}\Delta LNCI_{t-i} + \mu_2 ECT_{t-1} + \varepsilon_{2t} \quad (8)$$

$$\Delta LNRER_t = \alpha_3 + \sum_{i=1}^{p} \delta_{1,i}\Delta LNRER_{t-i} + \sum_{i=1}^{p} \delta_{2,i}\Delta LNGDP_{t-i} + \sum_{i=1}^{p} \delta_{3,i}\Delta LNTOUA_{t-i} + \sum_{i=1}^{p} \delta_{4,i}\Delta LNTRADE_{t-i} + \sum_{i=1}^{p} \delta_{5,i}\Delta LNCI_{t-i} + \mu_3 ECT_{t-1} + \varepsilon_{3t} \quad (9)$$

$$\Delta LNTRADE_t = \alpha_4 + \sum_{i=1}^{p} \phi_{1,i}\Delta LNTRADE_{t-i} + \sum_{i=1}^{p} \phi_{2,i}\Delta LNGDP_{t-i} + \sum_{i=1}^{p} \phi_{3,i}\Delta LNTOUA_{t-i} + \sum_{i=1}^{p} \phi_{4,i}\Delta LNRER_{t-i} + \sum_{i=1}^{p} \phi_{5,i}\Delta LNCI_{t-i} + \mu_4 ECT_{t-1} + \varepsilon_{4t} \quad (10)$$

$$\Delta LNCI_t = \alpha_5 + \sum_{i=1}^{p} \psi_{1,i}\Delta LNCI_{t-i} + \sum_{i=1}^{p} \psi_{2,i}\Delta LNGDP_{t-i} + \sum_{i=1}^{p} \psi_{3,i}\Delta LNTOUA_{t-i} + \sum_{i=1}^{p} \psi_{4,i}\Delta LNRER_{t-i} + \sum_{i=1}^{p} \psi_{5,i}\Delta LNTRADE_{t-i} + \mu_5 ECT_{t-1} + \varepsilon_{5t} \quad (11)$$

where the sign of LNGDP, LNTOUA, LNRER, LNTRADE, and LNCI have mentioned in the equation (1); Δ is the difference operator; i represents as the number of lagged terms; α_i and

$\varepsilon_{i,t}$ proxy as intercepts and error term respectively; $\beta_{i,j}$, $\gamma_{i,j}$, $\delta_{i,j}$, $\phi_{i,j}$, and $\psi_{i,j}$ mean the coefficients for the variables; ECT is the error correction terms; t is the time period; μ_i means the coefficient for the ECT serves the diversion of the main variables from the long run equilibrium; and the combination of $\mu_i ECT_{t-1}$ means the speed of adjustment.

$$H_0 \quad : \quad \mu_i = 0$$

$$H_1 \quad : \quad \mu_i \neq 0$$

Above is the hypothesis for the long-term relationship or ECT. The coefficient for μ_i in the equation (7) to (11), if the value of coefficient is not equal to 0 then the variable is significant in the long run.

$$H_0 \quad : \quad \beta_{i,j} = 0$$

$$H_1 \quad : \quad \beta_{i,j} \neq 0$$

For the short run relationship or Wald test, the hypothesis is shown in above. In this case, the coefficient in the equation (7) has been selected to demonstrate at above. Assume the coefficient $\beta_{i,j}$ in the equation (7) is equal to 0, therefore the variable has not relationship to the tested variable.

3.3.4 Dynamic Test

Granger causality test only tell us about what is the causal relationship between the variables but does not tell us how long last the impact of the variables and the relative strength of the variables while the dynamic properties of the model. Therefore, the dynamic test is needed to be conduct for answering the missing part. Impulse Response Function (IRF) and Variance Decompositions (VDCs) were used.

3.3.4.1 Impulse Response Function

To answer the future response of the variables to a shock for other variables in the model, the study need to use the Impulse Response Function (IRF) introduced by Sims (1980). The IRF can be calculated by various model included the VAR, VAR/VEC model, etc. Normally, the researchers will use the graphical illustration to display the variables to portray the shock. The advantages of the IRF was it can tell the changes of the one variable towards the endogenous variables in the model for the current value or future value. The outcome of the shock is called "dynamic".

The system will be called stable if the shock is decline to zero. Meanwhile, the value of the long-term equilibrium can be converged by the values of the variable in the short term. By contrary, the shock is getting the explosive time path then the system will be called as unstable. Other word to say, the value of the long run equilibrium cannot be converged by the values of the variable in the short term.

Koop et al. (1996) and Pesaran and Shin (1998) have introduced the Generalised Impulses Responses (GIR) and the study will used it to estimate the result. The study has extracted the formula from the study by Pesaran et al. (2004) in the equation (12):

$$GI_{x:u_{il}}(n, \sqrt{\sigma_{ii,ll}}, \mathcal{J}_{t-1}) = E(x_{t+n}|u_{ilt} = \sqrt{\sigma_{ii,ll}}, \mathcal{J}_{t-1}) - E(x_{t+n}|\mathcal{J}_{t-1}) \qquad (12)$$

where x_t is the vector of k x 1 that collects the endogenous variables across all N countries within the comprehensive model; $\mathcal{J}_t = (x_t, x_{t-1}, \ldots)$ is the information set at time t – 1; n is the number of time periods; and k = $\sum_{i=1}^{N} k_i$; $\sigma_{ii,ll}$ shows the variance of the first variable in country i. u_t has a multivariate normal distribution under the assumption, it can expressed as

$$\psi_j^g(n) = \frac{1}{\sqrt{\sigma_{ii,ll}}} F^n G_0^{-1} \Sigma \zeta_j \qquad (13)$$

where ζ_j is a k x 1 selection vector with identity as its jth element which corresponding to a selected shock in a selected country and zero abroad. The response of one standard error shock to the jth equation which reciprocal to the lth variable in the ith country at time t on the expected values of x_{t+n} can be measured by the equation (13). F, G_0 and Σ have the same definitions as those in Pesaran et al. (2004).

3.4.4.2 Variance Decompositions

Another dynamic test which is Variance Decompositions (VDCs) introduced by Sims (1980). The function of the VDCs is to provide the information about the relative strength of the variables and the information of the dynamic characteristics of the model are beyond the sample. The outcome of the shocks called “innovation”. The variance of the forecast error of the determinate variable could be presented the innovation of each variable in the model including its own. The advantage of VDCs is it can determine which variable is purely endogenous or purely exogenous by its own innovation by forecast error variance (Sims, 1980).

The variable will get the excellent forecast by its own lagged value and all its forecast error variance assumed by its own shock (Sims, 1982). In this study, the Generalized Variance Decomposition (GVDC) developed by Lee and Pesaran, (1993), and Pesaran and Shin (1998) will be used. The function of GVDC is it can estimate (1) how important is the variable of X (dependent variable) to explain the variable of Y (independent variable), (2) what proportion of the variable of Y can be explained by the variable of X, and (3) which proportion should be attributed to "other factors".

CHAPTER FOUR

RESULT AND DICUSSION

4.0 Introduction

The chapter mainly discuss the empirical results computed by the E-Views version 9.5 for the topic with the connection between tourism expansion and economic growth in Japan, Malaysia, and Thailand. There is five section in the chapter included that unit root tests of Augmented Dicker-Fuller (ADF) and Phillips-Perron (PP) in 4.1.1; VAR lag order selection criteria in 4.1.2; Johansen-Juselius cointegration test in 4.1.3; Granger causality test based on Vector Error Correction Model in 4.1.4; and lastly dynamic test in 4.1.5.

4.1 Empirical Result and Discussion

4.1.1 Unit Root Tests

To check the properties of stationarity of the variables, many researchers have included the Augmented Dicker-Fuller (ADF) test and Phillips-Perron (PP) test in their study. The researchers included Durbarry (2004); Belloumi, (2010); Harun et al. (2016); and Aratuo and Etienne, (2019). The lag length selection criteria in the unit root tests will be the Akaike's Information Criteria (AIC). Below is the result of unit root test for Japan (Table 3), Malaysia (Table 4), and Thailand (Table 5):

Table 3: Results of Unit Root Test for Japan

Variables	Level (Trend and Intercept)		First Difference (Intercept)	
	ADF	PP	ADF	PP
LNGDP	- 1.491 (0)	- 1.491 (0)	- 4.613 (0) ***	- 4.620 (3) ***
LNTOUA	- 3.189 (3)	- 1.593 (3)	- 3.829 (4) ***	- 6.617 (3) ***
LNRER	- 2.545 (1)	- 2.403 (4)	- 5.152 (0) ***	- 5.035 (8) ***
LNTRADE	- 2.858 (0)	- 2.832 (1)	- 7.431 (0) ***	- 8.096 (8) ***
LNCI	- 1.068 (2)	- 1.540 (2)	- 4.393 (1) ***	- 4.117 (1) ***

Note: Asterisks (***) and (**) denoted as level of significant 1% and 5% respectively. The critical values is derived from MacKinnon (1991).

In the stage of level, both tests (ADF and PP) have not rejected the null hypothesis of the variable is not stationary as shown in Table 3. However, all the variables have rejected the null hypothesis at 1% level of significant in both tests in the level of first difference. Hence, the study indicates all the variables in Japan are integrated in order of first difference, I (1).

Table 4: Results of Unit Root Test for Malaysia

Variables	Level (Trend and Intercept)		First Difference (Intercept)	
	ADF	PP	ADF	PP
LNGDP	- 1.237 (0)	- 1.391 (2)	- 4.924 (0) ***	- 4.933 (1) ***
LNTOUA	- 2.264 (0)	- 2.368 (2)	- 6.025 (0) ***	- 6.424 (9) ***
LNRER	- 2.318 (1)	- 1.828 (0)	- 4.701 (0) ***	- 4.650 (3) ***
LNTRADE	- 0.487 (0)	- 0.487 (0)	- 4.397 (0) ***	- 4.394 (1) ***
LNCI	- 2.540 (1)	- 2.024 (1)	- 4.304 (0) ***	- 4.188 (4) ***

Note: Asterisks (***) and (**) denoted as level of significant 1% and 5% respectively. The critical values is derived from MacKinnon (1991).

Table 4 displays the results of unit root tests of both tests (ADF and PP) in Malaysia, all the variables have not rejected the null hypothesis in the stage of level. In the stage of first difference, all the variables have rejected the null hypothesis of the variable is not stationary at 1% level of significant. Thus, the study demonstrated all the variables in Malaysia are integrated in order of first difference, I (1).

Table 5: Results of Unit Root Test for Thailand

Variables	Level (Trend and Intercept)		First Difference (Intercept)	
	ADF	PP	ADF	PP
LNGDP	- 1.348 (1)	- 0.836 (3)	- 3.772 (0) ***	- 3.780 (1) ***
LNTOUA	- 1.921 (3)	- 3.303 (3)	- 5.473 (3) ***	- 7.594 (21) ***
LNRER	- 2.504 (3)	- 2.098 (3)	- 5.065 (0) ***	- 4.986 (2) ***
LNTRADE	- 1.130 (1)	- 0.528 (0)	- 5.040 (0) ***	- 5.030 (2) ***
LNCI	- 2.473 (1)	- 1.761 (2)	- 3.935 (0) ***	- 3.843 (4) ***

Note: Asterisks (***) and (**) denoted as level of significant 1% and 5% respectively. The critical values is derived from MacKinnon (1991).

In the stage of level, all the variables in Thailand have not rejected the null hypothesis of the variable is not stationary for both tests (ADF and PP). However, Table 5 indicated all the variables have significant at 1% level of significant for both tests (ADF and PP). Therefore, all the variables in Thailand has displayed integrated in order of first difference, I (1).

4.1.2 VAR Lag Order Selection Criteria

To answer the first objective of the study, cointegration test is needed to conduct. The lag length needed to be determined before estimate the cointegration test. The criteria included the Sequential Modified Likelihood Ration Test (LR), Final Predication Error (FPE), Akaike's Information Criteria (AIC), Schwarz's Information Criteria (SC), and Hannan-Quinn Information Criterion (HQ) have normally practiced to the lag length selection. A variables are considered as the endogenous variables in VAR model as constant as exogenous. Below is the result of the VAR lag order selection criteria for Japan (Table 6), Malaysia (Table 7), and Thailand (Table 8):

Table 6: VAR Lag Order Selection Criteria for Japan

Lag	LogL	LR	FPE	AIC	SC	HQ
0	110.694	-	5.64e-09	- 4.804	- 4.602	- 4.729
1	408.686	514.713	2.32e-14	- 17.213	- 15.997	- 16.762
2	456.947	72.392 *	8.44e-15 *	- 18.270	- 16.040 *	- 17.443 *
3	482.654	32.718	9.22e-15	- 18.302	- 15.059	- 17.099
4	509.524	28.092	1.08e-14	- 18.388 *	- 14.130	- 16.809

Note: * indicates lag order selected by the criterion.

Japan will determine the lag length 2 as the optimal lag length because four out of five criteria (LR, FPE, SC, and HQ) have chosen the lag length 2 as shown in Table 6. Hence, the study will employ the lag length 2 to estimate the cointegration test.

Table 7: VAR Lag Order Selection Criteria for Malaysia

Lag	LogL	LR	FPE	AIC	SC	HQ
0	44.601	-	7.16e-08	- 2.263	- 2.041	- 2.186
1	277.480	385.913	5.05e-13	- 14.142	- 12.809 *	- 13.682 *
2	308.190	42.117 *	4.00e-13	- 14.468	- 12.024	- 13.624
3	340.204	34.758	3.46e-13 *	- 14.869 *	- 11.314	- 13.642

Note: * indicates lag order selected by the criterion.

In the case of Malaysia, there is not a majority criteria to choose a proper lag length as shown in Table 7. Therefore, the study has preferred the criteria of Akaike's Information Criteria (AIC) as the lag length selection criteria because it is more suitable for the small sample and the probability of under estimation also the least among all the criteria (Liew, 2004). Hence, the optimal lag length for the study is lag length 3.

Table 8: VAR Lag Order Selection Criteria for Thailand

Lag	LogL	LR	FPE	AIC	SC	HQ
0	68.741	-	3.80e-08	- 2.897	- 2.695	- 2.822
1	367.201	515.521	1.53e-13	- 15.327	- 14.111 *	- 14.876 *
2	395.693	42.737 *	1.37e-13*	- 15.486	- 13.256	- 14.659
3	420.445	31.503	1.56e-13	- 15.475	- 12.231	- 14.272
4	447.834	28.634	1.79e-13	- 15.583 *	- 11.326	- 14.004

Note: * indicates lag order selected by the criterion.

Table 8 shows there is not a proper lag length has been chosen by all the criteria. In Thailand, the criteria of Akaike's Information Criteria (AIC) will be preferable as the lag length selection criteria because it is more suitable for the small sample and the probability of under estimation also the least among all the criteria (Liew, 2004). Hence, the lag length 4 will be the optimal lag length to estimate the cointegration test as shown in Table 8.

4.1.3 Johansen-Juselius Cointegration Test

Johansen-Juselius cointegration test can be conducted after chosen the optimal lag length. The purpose of the Johansen-Juselius cointegration test is to answer the first objective which is to determine whether the existence of the long term equilibrium among the variables in the study (Johansen & Juselius, 1990). Below is the result of the cointegration test for Japan (Table 9), Malaysia (Table 10), and Thailand (Table 11):

Table 9: Cointegration Test for Japan

Null Hypothesis	Alternative Hypothesis	Trace Statistic	Critical Value	Max-Eigenvalue Statistic	Critical Value
r = 0	**r = 1**	88.355 *	69.819	42.429 *	33.877
r ≤ 1	**r = 2**	45.926	47.856	24.767	27.584
r ≤ 2	**r = 3**	21.159	29.797	11.034	21.132
r ≤ 3	**r = 4**	10.125	15.495	10.096	14.265
r ≤ 4	**r = 5**	0.028	3.842	0.028	3.842

Note: * denotes rejection of the hypothesis at the 0.05 level. Trace test and Max-Eigenvalue test indicate a cointegrating equation. The critical values is provided by Mackinnon et al. (1999) and at 5% level of significance.

Table 9 has reported that one cointegrating vector in the model has been found through the trace statistic and max-eigenvalue statistic. The value of the trace statistic shows 88.36 and max-eigenvalue statistic shows 42.43 which are higher than the respective 95% critical value (69.82 and 33.88 respectively). Hence, the model in Japan shows there is long term equilibrium among the variables. The finding is a line to the study from Dritsakis (2004), Lorde et al. (2011), Kibara et al. (2012), Tang and Abosedra (2014), and Gül and Özer (2018).

Table 10: Cointegration Test for Malaysia

Null Hypothesis	Alternative Hypothesis	Trace Statistic	Critical Value	Max-Eigenvalue Statistic	Critical Value
r = 0	**r = 1**	99.804 *	69.819	38.569 *	33.877
r ≤ 1	**r = 2**	61.236 *	47.856	30.091 *	27.584
r ≤ 2	**r = 3**	31.145 *	29.797	19.325	21.132
r ≤ 3	**r = 4**	11.820	15.495	11.667	14.265
r ≤ 4	**r = 5**	0.153	3.841	0.153	3.842

Note: * denotes rejection of the hypothesis at the 0.05 level. Trace test and Max-Eigenvalue indicate 3 and 2 cointegrating equations respectively. The critical values is provided by Mackinnon et al. (1999) and at 5% level of significance.

In the case of Malaysia, the result of trace statistic shows 3 cointegrating vector and max-eigenvalue statistic shows 2 cointegrating vector which are not balanced to determine the cointegrating vector in the model. However, the study will use the max-eigenvalue statistic to determine the cointegrating vector in the model because it is more power than the trace statistic (Johansen & Juselius, 1990). Accordingly, Malaysia has indicated 2 cointegrating vectors and there is long term equilibrium in the model. The finding is a part a line to the past studies included that Lau et al. (2008), Tang (2011), Lean et al. (2014), and Tang and Tan (2015).

Table 11: Cointegration Test for Thailand

Null Hypothesis	Alternative Hypothesis	Trace Statistic	Critical Value	Max-Eigenvalue Statistic	Critical Value
r = 0	**r = 1**	91.428 *	69.819	46.350 *	33.877
r ≤ 1	**r = 2**	45.078	47.856	23.031	27.584
r ≤ 2	**r = 3**	22.048	29.797	13.280	21.132
r ≤ 3	**r = 4**	8.768	15.495	8.122	14.265
r ≤ 4	**r = 5**	0.645	3.841	0.645	3.842

Note: * denotes rejection of the hypothesis at the 0.05 level. Trace test and Max-Eigenvalue test indicate a cointegrating equation. The critical values is provided by Mackinnon et al. (1999) and at 5% level of significance.

Thailand has indicated the long-term equilibrium in the model which is a cointegrating vector as show in Table 11. The result of the trace statistic shows 91.43 and the max-eigenvalue statistic shows 46.35, both of their value is larger than the critical value which is the null hypothesis can be rejected at 5% level of significance. The findings also supported by Durbarry (2004), Narayan (2004), Brida et al. (2008), Jiranyakul (2019), and Ribeiro and Wang (2020).

4.1.4 Granger Causality Test based on Vector Error Correction Model

Once the cointegrating vector has been identified in the cointegration test, Granger Causality Test based on Vector Error Correction Model (VECM) will be estimated to answer the second objective in the study. To escape the misspecification problem, the VECM has given the information of Error Correction Term (ECT) and Wald Test to clarify the long run causal relationships and short run causal relationships respectively between the variables in the model (Granger, 1988). Below is the result of Granger Causality Test based on VECM for Japan (Table 12), Malaysia (Table 13), and Thailand (Table 14):

Table 12: Granger Causality Test based on Vector Error Correction Model in Japan

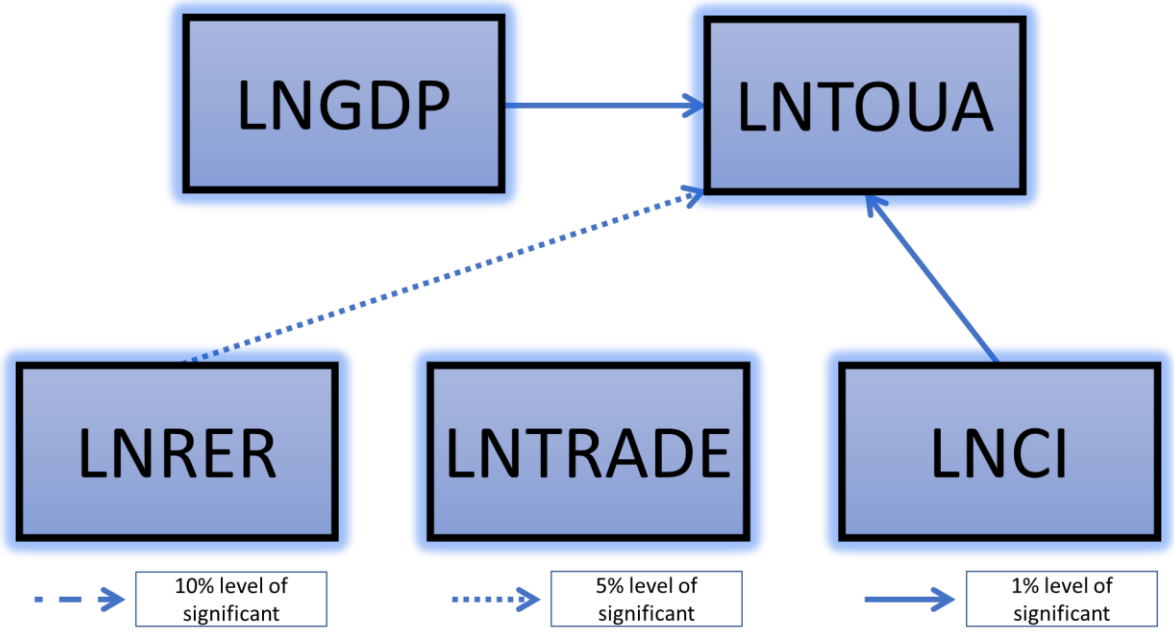
Dependent Variables	x^2 Statistics					ECT	
	Δ LNGDP	Δ LNTOUA	Δ LNRER	Δ LNTRADE	Δ LNCI	Coefficient	T-Statistic
Δ LNGDP	-	0.135	0.893	2.098	0.826	- 0.024	- 1.580
		(0.713)	(0.345)	(0.148)	(0.364)		
Δ LNTOUA	17.495 ***	-	4.419 **	0.085	28.579 ***	- 0.157 ***	- 2.327
	(0.000)		(0.036)	(0.771)	(0.000)		
Δ LNRER	1.149	0.011	-	2.391	2.247	0.085	1.21
	(0.284)	(0.918)		(0.122)	(0.134)		
Δ LNTRADE	0.652	0.058	0.506	-	0.656	0.021	0.488
	(0.420)	(0.811)	(0.477)		(0.418)		
Δ LNCI	0.550	0.144	2.259	1.754	-	0.016	0.544
	(0.458)	(0.704)	(0.133)	(0.185)			

Note: Δ is the first difference operator. Asterisks (***) and (**) indicated significance level at 1%, and 5% respectively.

In the ECT column, only the estimated coefficient of Error Correction Term (ECT) for the variable of LNTOUA is significant at the level of 1% as shown in Table 12. The variable of LNTOUA has no problem for the long run equation which is the estimated coefficient is smaller than 1, negative sign, and level of significance below 5%. The value of the speed adjustment is 0.157 or about 76 months or about 6 years for Japan to go back the equilibrium.

The variables of LNGDP, LNRER, and LNCI have a unidirectional causal relationship towards the LNTOUA in the short run as shown in Table 12 and Figure 7. Thus, Japan has supported the EDTH in short run and long run. The findings is in line to the study from Lorde et al. (2011) which they have supported the EDTH in short term and long term for the country of Barbados.

Figure 7: Causal Effect among the Variables in Japan



Source: Result from Table 12.

Table 10 shows the case in Malaysia has two cointegrating vectors, therefore the study has identified the cointegrating equation through the ECT. According to Crowder and Wohar (1998), they have mentioned the more cointegrating vectors in the model the convergence among the variables. For instance, there is two cointegrating vectors (one common trend or one-unit root) in the model with five variable which means the directions of two variables in the model has been defined but another three variables in the model still in the situation of ambiguous.

According to Belloumi (2010), t-statistic is the most important criteria in the selecting ECT even the value of coefficient is over 1 which is contrary to the theory. Table 13 shows only the variable of LNCI in the column ECT (1) is significant and the value of speed adjustment is (- 1.995). The equation of LNCI needs about 6 months or 0.5 years to go back the equilibrium. The finding is in line with the study from Puah et al. (2018) which they have found out the variable of capital investment is significant in the long run.

Table 13: Granger Causality Test based on Vector Error Correction Model in Malaysia

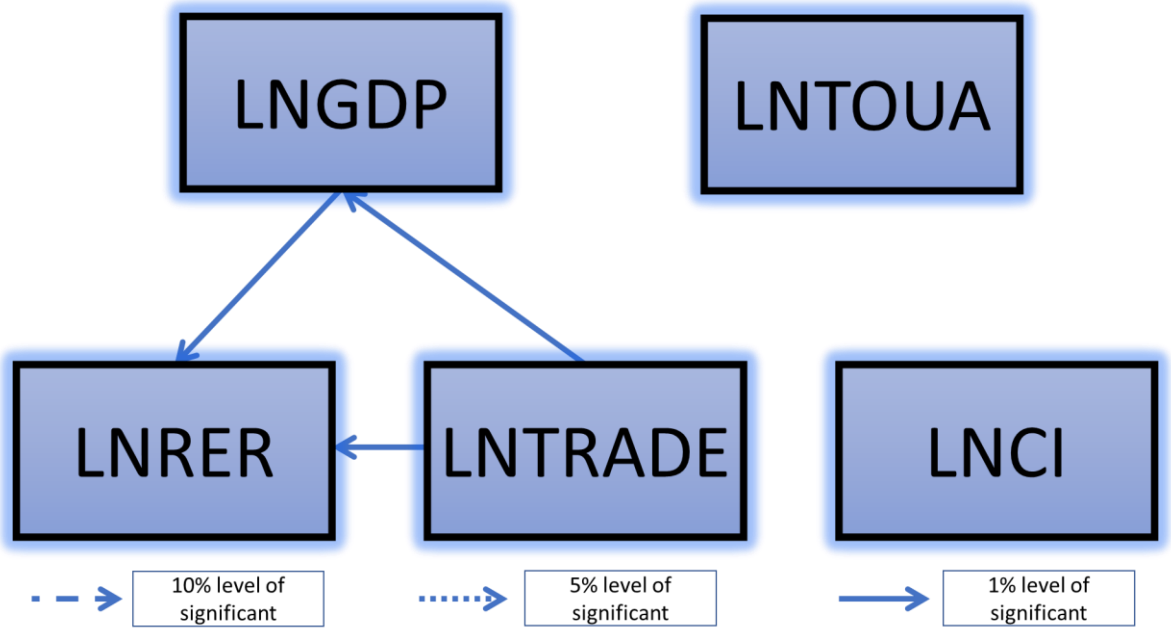
Dependent Variables	x^2 Statistics					ECT (1)		ECT (2)	
	Δ LNGDP	Δ LNTOUA	Δ LNRER	Δ LNTRADE	Δ LNCI	Coefficient	T-Statistic	Coefficient	T-Statistic
Δ LNGDP	-	3.352	0.518	9.771 ***	2.496	- 0.177	- 0.783	0.031	0.568
		(0.187)	(0.772)	(0.008)	(0.287)				
Δ LNTOUA	2.734	-	2.499	0.670	1.894	- 0.655	- 0.712	- 0.636 ***	- 2.909
	(0.255)		(0.287)	(0.715)	(0.388)				
Δ LNRER	12.224 ***	1.750	-	12.956 ***	1.378	0.103	0.257	- 0.144	- 1.512
	(0.002)	(0.417)		(0.002)	(0.502)				
Δ LNTRADE	2.531	3.199	1.416	-	2.269	0.429	0.753	0.027	0.200
	(0.282)	(0.202)	(0.493)		(0.322)				
Δ LNCI	2.943	3.468	0.289	5.191	-	- 1.995 ***	- 2.356	- 0.153	- 0.761
	(0.230)	(0.177)	(0.865)	(0.075)					

Note: Δ is the first difference operator. Asterisks (***) and (**) indicated significance level at 1%, and 5% respectively.

In the column of ECT (2), the variable of LNTOUA is significant with the value of speed adjustment (- 0.636). The variable of LNTOUA has no problem in the long run equilibrium because the estimated coefficient of LNTOUA shows the negative sign, the value of coefficient within – 1 and 1, and level of significance below 5%. The variable of LNTOUA needs about 19 months or 1.58 years to go back the equilibrium. The finding of the study is supported by Lean et al. (2014) which they also found the EDTH in Malaysia and substantial in long run.

In the short run, there is 3 unidirectional causal relationship among the variables as shown in Table 13 and Figure 8. The variable of LNTRADE has unidirectional causal relationship towards the variable of LNGDP. Another two unidirectional causal relationship is from the variable of LNGDP and LNTRADE towards the variable of LNRER. All the lines of unidirectional causal relationship are significant at 1% level of significance.

Figure 8: Causal Effect among the Variables in Malaysia



Source: Result from Table 13.

Table 14: Granger Causality Test based on Vector Error Correction Model in Thailand

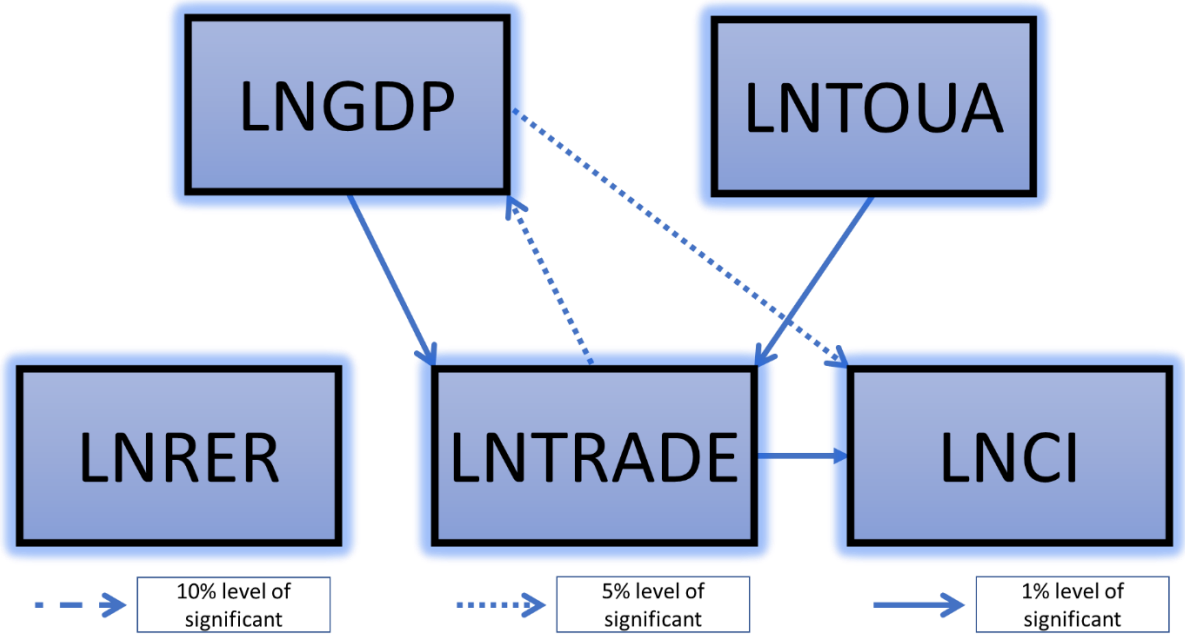
Dependent Variables	x^2 Statistics					ECT	
	Δ LNGDP	Δ LNTOUA	Δ LNRER	Δ LNTRADE	Δ LNCI	Coefficient	T-Statistic
Δ LNGDP	-	0.433	0.599	10.853 **	1.522	0.277	1.544
		(0.933)	(0.897)	(0.013)	(0.677)		
Δ LNTOUA	1.999	-	3.903	2.199	0.824	- 0.945 ***	- 2.225
	(0.573)		(0.272)	(0.532)	(0.844)		
Δ LNRER	0.340	4.676	-	1.886	2.315	- 0.716	- 1.895
	(0.952)	(0.197)		(0.596)	(0.510)		
Δ LNTRADE	20.747 ***	12.422 ***	2.346	-	4.385	1.304	3.357
	(0.000)	(0.006)	(0.504)		(0.223)		
Δ LNCI	9.039 **	3.570	5.714	12.424 ***	-	1.938	3.306
	(0.029)	(0.312)	(0.126)	(0.006)			

Note: Δ is the first difference operator. Asterisks (***) and (**) indicated significance level at 1%, and 5% respectively.

Table 14 shows the result of the Granger causality test based on Vector Error Correction Model in Thailand, there is only one ECT among the variables which is the variable of LNTOUA. The variable of LNTOUA has no problem in the long run equilibrium because it has fulfilled the criteria of the ECT. The manner of the speed adjustment for the variable of LNTOUA is 94.5% in Thailand shows the rate of convergence to the equilibrium state per year. The finding is contrast to the study from Jiranyakul (2019) which is he found the evidence to support the TLGH in long term in Thailand while this study found the evidence of EDTH in long term.

In short run, there is 5 unidirectional causal relationship among the variables in the model as shown in Table 14 and Figure 9. The variable of LNTRADE shows a unidirectional causal relationship to the variable of LNGDP. Another 2 pair of unidirectional causal relationship are from the variables of LNGDP and LNTOUA towards the variable of LNTRADE. The last 2 pair of unidirectional causal relationship are from the variables of LNGDP and LNTRADE towards the variable of LNCI.

Figure 9: Causal Effect among the Variables in Thailand



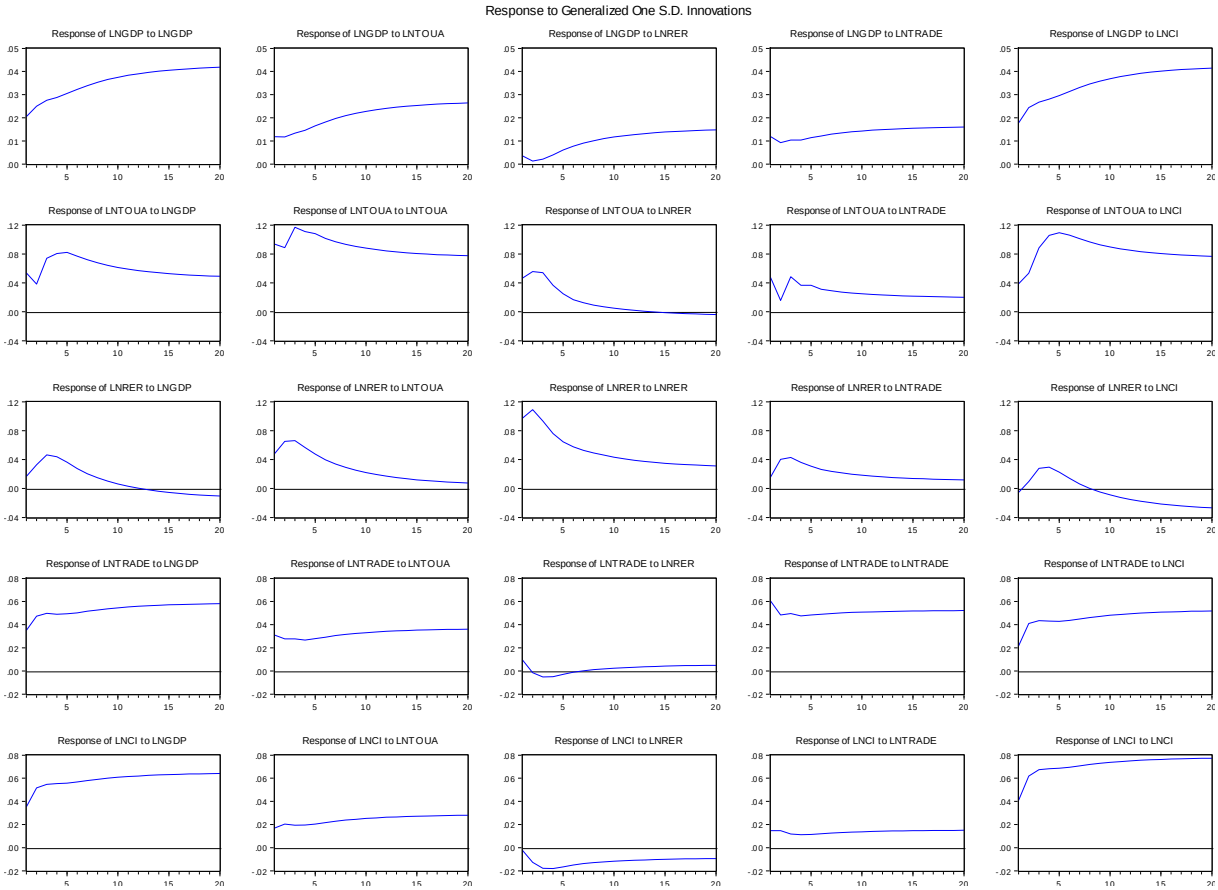
Source: Result from Table 14.

4.1.5 Dynamic Test

4.1.5.1 Impulse Response Function (IRF)

To answer the third objective in the study, the study has employed the Impulse Response Function (IRF). The IRF is to answer how a shock from one variable affects another variable and how long the effect lasts. In this study, the Generalised Impulses Responses (GIR) will be used. The graphs of GIR will illustrated for 20th period. Below is the GIR for Japan (Figure 10), Malaysia (Figure 11), and Thailand (Figure 12):

Figure 10: Impulse Response Function for Japan



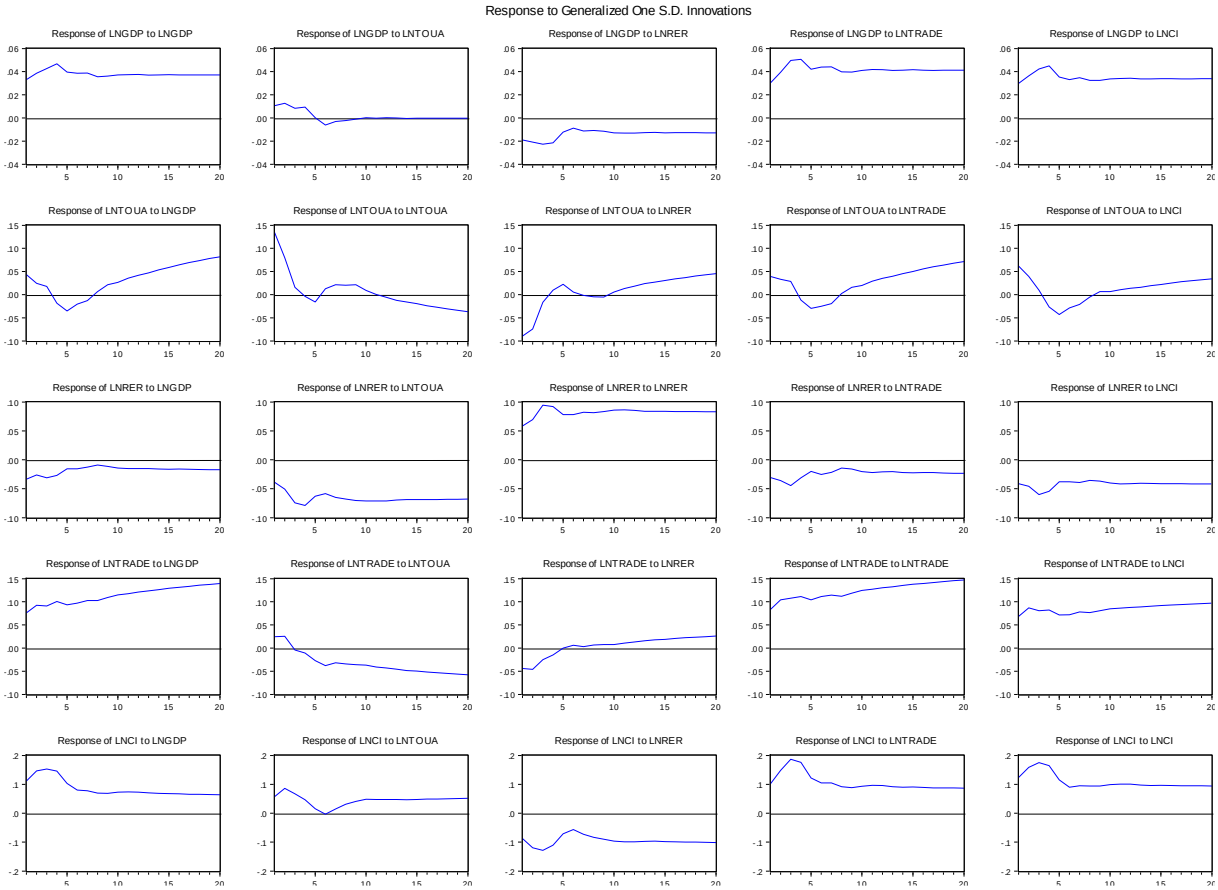
Source: Estimation from E-Views 9.5.

Figure 10 reports the Generalised Impulses Responses (GIR) for Japan, all the graphs of GIR derived from the findings of VAR/VEC model. Most of the graphs in Figure 10 has been settled before 10th period. Meanwhile, the variable of LNGDP has a similar shock which is upward trend towards all the variables. The varibales of LNTOUA and LNRER have a similar trend which is up-down trend towards the variable of LNGDP but the variable of LNRER get negative after about 10th period. The variables of LNTRADE and LNCI respond to the variable of LNGDP with the similar trend which is upward trend.

As shown in Figure 10, the variable of LNTOUA give the similar trend towards all the variables which is down-up-down trend except the variables of LNRER and LNCI. The variables of LNRER and LNCI get the unexpected shock which is up-down trend but the variable of LNRER go back the equilibrium around 10th period. The variable of LNTOUA get

the similar shock which is upward trend from all the varibales except the variable of LNRER. The variable of LNRER give the up-down trend towards the variable of LNGDP.

Figure 11: Impulse Response Function for Malaysia

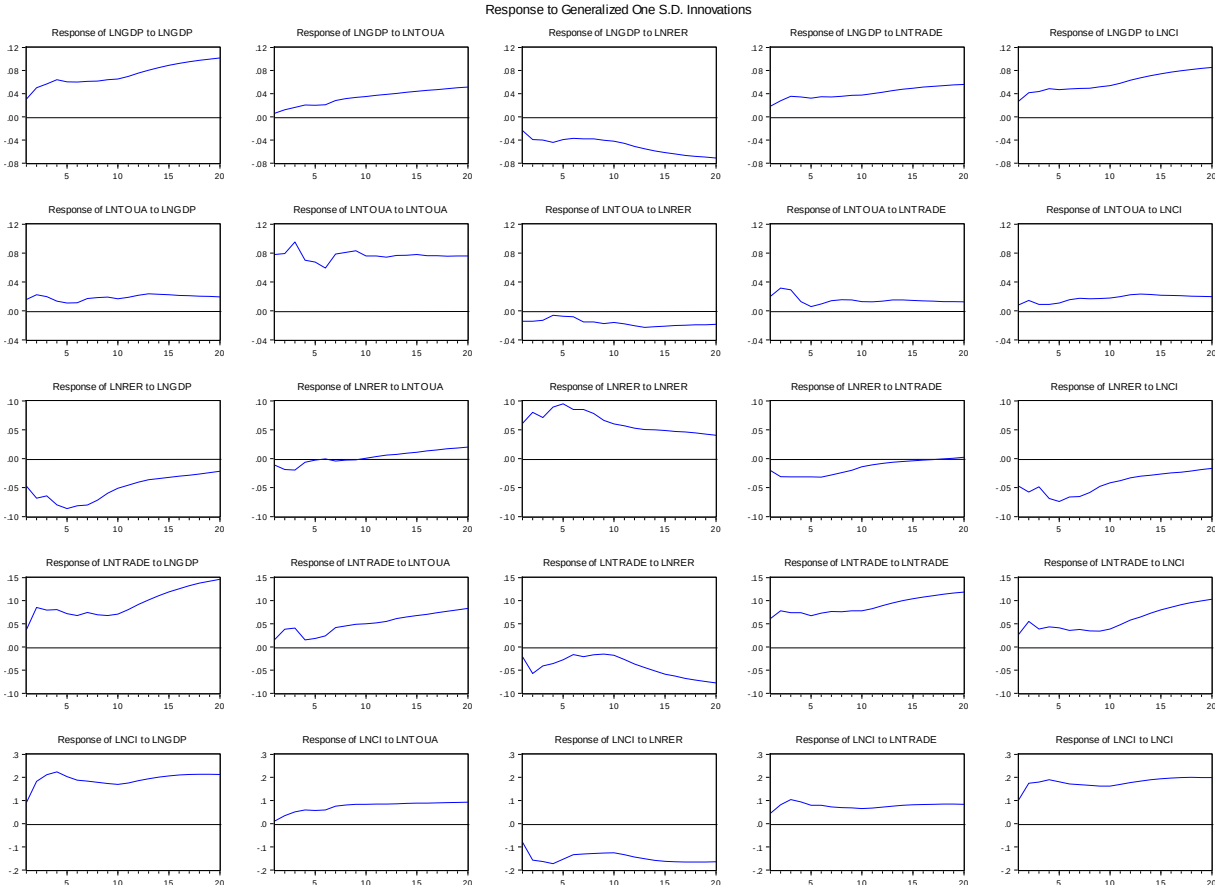


Source: Estimation from E-Views 9.5.

Most of the graphs show in the Figure 11 have settled the shock before 10th period. For the variable of LNGDP gives the similar shock (up-down trend) to all the variables except the variables of LNTOUA and LNRER which is getting the shock of down-up trend from the variable of LNGDP. While the variable of LNGDP received the unexpected shock from the variables of LNRER and LNTRADE with the upward trend. Meanwhile, the variable of LNTOUA given the down-up trend towards the variable of LNGDP and the variable of LNCI given the up-down trend towards the variable of LNGDP.

For the variable of LNTOUA given the similar shock to the variables of LNGDP, LNTRADE, and LNCI which is down-up trend while the variable of LNRER get the unexpected shock from the variable of LNTOUA which is start from negative and end up with positive. However, the variable of LNTOUA received the similar shock from all the variables but the variables of LNRER and LNTRADE end up with negative.

Figure 12: Impulse Response Function for Thailand



Source: Estimation from E-Views 9.5.

All the graphs from the Figure 12 is derived from the findings from VAR/VEC model, all the graphs have settled the shock within 10th period. For the variable of LNGDP, it gives the upward trend to all the variables except the variable of LNRER with the downward trend. Meanwhile, all the variables have given the variable of LNGDP with the upward trend and end up with positive except the variable of LNRER.

All the variables have received the similar shock from the variable of LNTOUA which is end up with positive except the variable of LNRER. At the same time, the variable of LNTOUA also received the upward trend from all the variables and all the variables end up with positive.

4.1.5.2 Variance Decompositions

To complete answer the third objective of the study, Variance Decompositions (VDCs) has been used in the study. The function of the VDCs is to answer the information about the relative strength of random shock in the system. The study will use the Generalized Variance Decomposition (GVDC), all the graphs of innovations or shocks period will only show 20th period. Below is the GVDC for Japan (Table 15), Malaysia (Table 16), and Thailand (Table 17):

Table 15: Variance Decompositions for Japan

Period	Δ LNGDP	Δ LNTOUA	Δ LNRER	Δ LNTRADE	Δ LNCI	Δ CU
Variance Decomposition of Δ LNGDP						
1	**100.000**	0.000	0.000	0.000	0.000	0.000
4	**93.247**	0.921	0.179	4.601	1.052	6.753
8	**91.226**	0.369	0.601	5.160	2.643	8.774
12	**89.286**	0.268	1.131	5.337	3.979	10.714
16	**87.963**	0.278	1.495	5.426	4.838	12.037
20	**87.087**	0.306	1.738	5.477	5.394	12.913
Variance Decomposition of Δ LNTOUA						
1	33.091	**66.909**	0.000	0.000	0.000	33.091
4	26.315	**43.577**	0.762	4.001	25.344	56.423
8	27.911	**33.397**	4.108	5.799	28.784	66.603
12	26.520	**31.200**	6.563	6.313	29.404	68.800
16	25.169	**30.306**	8.473	6.520	29.531	69.694
20	24.058	**29.818**	9.975	6.627	29.522	70.182
Variance Decomposition of Δ LNRER						
1	3.018	23.455	**73.527**	0.000	0.000	26.473
4	13.831	23.296	**59.300**	1.304	2.269	40.700
8	15.163	23.117	**58.031**	1.672	2.017	41.970
12	13.343	23.097	**58.427**	3.010	2.122	41.573
16	12.026	22.607	**57.811**	4.644	2.912	42.189
20	11.283	21.890	**56.591**	6.241	3.996	43.409

Variance Decomposition of Δ LNTRADE						
1	33.454	4.719	0.310	**61.517**	0.000	38.483
4	62.425	1.335	4.552	**31.220**	0.468	68.780
8	70.026	0.681	4.257	**24.360**	0.676	75.640
12	74.031	0.485	3.579	**20.879**	1.025	79.121
16	76.414	0.410	3.102	**18.753**	1.322	81.247
20	77.944	0.377	2.772	**17.361**	1.546	82.639
Variance Decomposition of Δ LNCI						
1	75.136	1.035	3.445	2.842	**17.542**	82.458
4	64.014	3.800	9.841	9.340	**13.005**	86.995
8	63.494	3.569	9.129	10.588	**13.220**	86.780
12	64.175	3.139	8.104	10.885	**13.697**	86.303
16	64.709	2.838	7.393	11.009	**14.050**	85.950
20	65.090	2.630	6.906	11.073	**14.300**	85.700

Note: The bold column represents the impact of own shock. S.E. proxy as standard error.

Table 15 shows the Generalized Variance Decomposition (GVDC) within 20 years in Japan. In the short run (4th period) and long run (20th period), the most endogenous variable and the most exogenous variable is the variable of LNCI and the variable of LNGDP respectively. For example, the innovation for the variable of LNGDP in the 4th period is 93.25% and the number has decreased to 87.09% in the 20th period. While the innovation for the variable of LNCI in the 4th period is 13.01% and it increased to 14.3% in the 20th period.

In the short run and long run, the variable of LNGDP shows it is the most exogenous variable and it have more than 20% of the variations to all the variables except for the variable of LNRER which is only 13.83% in the short run and 11.28% in the long run. Meanwhile, an innovation from all the variables explain the weak causal relationship towards the variable of LNGDP in the short run and long run which is all the variation of the variables is less than 6%.

The variable of LNTOUA has explained the variable of LNRER and LNTRADE have the weak causal relationship in the short run and long run which is the variations of the variable shows less than 10%. While the variable of LNGDP and LNCI shows there have normal causal relationship towards the variable of LNTOUA which is their variations shows more than 20%.

The variable of LNTOUA shows less than 3% of the variations to all the variables except the variable of LNRER which is always more than 20% over the period.

Table 16: Variance Decomposition in Malaysia

Period	Δ LNGDP	Δ LNTOUA	Δ LNRER	Δ LNTRADE	Δ LNCI	Δ CU
Variance Decomposition of LNGDP						
1	**100.000**	0.000	0.000	0.000	0.000	0.000
4	**79.974**	0.833	0.259	14.387	4.547	20.026
8	**73.153**	6.557	0.703	15.390	4.197	26.847
12	**72.335**	7.155	0.671	15.653	4.186	27.665
16	**71.838**	7.480	0.648	15.837	4.197	28.162
20	**71.529**	7.667	0.630	15.966	4.209	28.471
Variance Decomposition of LNTOUA						
1	10.329	**89.671**	0.000	0.000	0.000	10.329
4	10.596	**74.747**	3.790	6.462	4.404	25.253
8	12.982	**61.262**	3.658	6.825	15.272	38.738
12	16.794	**44.607**	13.673	5.478	19.449	55.393
16	22.724	**31.471**	25.878	3.486	16.441	68.529
20	26.590	**26.411**	32.164	2.211	12.625	73.589
Variance Decomposition of LNRER						
1	33.273	25.804	**40.923**	0.000	0.000	59.077
4	10.641	39.592	**36.059**	8.705	5.003	63.941
8	6.171	42.153	**40.958**	7.047	3.671	59.042
12	4.638	44.931	**41.621**	5.737	3.073	58.379
16	4.133	45.892	**41.882**	5.244	2.849	58.118
20	3.935	46.381	**41.972**	4.980	2.732	58.028
Variance Decomposition of LNTRADE						
1	83.889	0.000	0.000	**16.110**	0.000	83.890
4	68.498	7.029	2.650	**19.734**	2.090	80.266
8	58.683	17.964	6.587	**15.484**	1.281	84.516
12	56.013	21.438	9.140	**12.490**	0.919	87.510
16	53.958	23.804	11.066	**10.464**	0.708	89.536
20	52.483	25.380	12.473	**9.088**	0.576	90.912
Variance Decomposition of LNCI						
1	81.208	3.254	2.285	0.010	**13.243**	86.757
4	61.849	1.978	3.788	19.986	**12.399**	87.601
8	53.120	2.002	6.965	23.913	**14.001**	85.999
12	46.854	2.336	11.549	24.521	**14.739**	85.261
16	42.377	2.683	14.776	24.987	**15.176**	84.824
20	38.867	3.138	17.344	25.218	**15.433**	84.567

Note: The bold column represents the impact of own shock. S.E. proxy as standard error.

In the short run (4th period), the most endogenous variable is the variable of LNCI and the most exogenous is the variable of LNGDP as shown in Table 16. However, the most endogenous variable in the long run (20th period) has shifted to the variable of LNTRADE while the exogenous variable remaining as the variable of LNGDP.

The innovations for the variable of LNGDP has decreased from 100% in the 1st period to 71.53% in the 20th period. In the long run, all the variables show the weak causal relationship towards the variable of LNGDP because their variations are less than 20%. Meanwhile, the variable of LNGDP has the variations more than 25% towards all the variables except the variable of LNRER which is remained 3.94% in the 20th period.

As shown in Table 16, the variable of LNTOUA shows the variations more than 25% towards the variable of LNRER and LNTRADE but the variations less than 25% towards the variable of LNGDP and LNCI. At the same time, the variables of LNGDP and LNRER have normal causal relationship while the variables like LNTRADE and LNCI have weak causal relationship towards the variable of LNTOUA.

Table 17: Variance Decomposition in Thailand

Period	Δ LNGDP	Δ LNTOUA	Δ LNRER	Δ LNTRADE	Δ LNCI	Δ CU
Variance Decomposition of LNGDP						
1	**100.000**	0.000	0.000	0.000	0.000	0.000
4	**92.890**	0.724	1.273	1.033	4.080	7.110
8	**88.751**	2.986	3.864	1.935	2.465	11.249
12	**86.842**	5.660	3.909	2.140	1.450	13.158
16	**87.155**	6.568	3.153	2.196	0.929	12.845
20	**87.295**	7.078	2.692	2.280	0.655	12.705
Variance Decomposition of LNTOUA						
1	4.140	**95.860**	0.000	0.000	0.000	4.140
4	4.918	**93.448**	0.800	0.558	0.276	6.552
8	4.453	**91.344**	0.496	1.155	2.553	8.656
12	4.881	**90.326**	0.354	1.328	3.111	9.674
16	5.692	**89.275**	0.305	1.496	3.232	10.725
20	5.856	**88.853**	0.270	1.621	3.399	11.147

Variance Decomposition of LNRER						
1	60.930	0.064	**39.006**	0.000	0.000	60.994
4	67.628	0.705	**24.414**	0.262	6.991	75.586
8	69.574	1.610	**19.686**	1.041	8.090	80.314
12	66.644	2.039	**20.928**	1.337	9.052	79.072
16	61.841	3.077	**23.951**	1.361	9.769	76.049
20	56.644	4.763	**26.621**	1.300	10.673	73.379
Variance Decomposition of LNTRADE						
1	36.732	1.858	4.877	**56.532**	0.000	43.468
4	59.140	3.204	9.680	**10.062**	17.914	89.938
8	53.637	3.935	21.317	**6.851**	14.260	93.149
12	52.279	6.632	24.418	**5.747**	10.924	94.253
16	57.996	7.852	21.504	**4.214**	8.434	95.786
20	63.087	8.548	18.689	**3.000**	6.676	97.000
Variance Decomposition of LNCI						
1	78.537	0.561	2.036	0.582	**18.283**	81.717
4	93.061	0.230	0.520	3.911	**2.278**	97.722
8	89.606	1.497	0.692	6.882	**1.324**	98.676
12	86.704	3.088	0.566	8.073	**1.569**	98.431
16	86.228	3.541	0.400	8.370	**1.461**	98.539
20	86.026	3.778	0.307	8.553	**1.335**	98.665

Note: The bold column represents the impact of own shock. S.E. proxy as standard error.

Over the 20th period, average 90.49% of the variations in the variable of LNGDP can be explained by its own innovation. However, a shock in the variable of LNTOUA, LNRER, LNTRADE, and LNCI can explain 3.84%, 2.48%, 1.60%, and 1.60% respectively of the variations towards the variable of LNGDP. Among the variables in the model, the variable of LNTOUA is the weakest causal relationship towards the variable of LNGDP in the short run which only can explain 0.72% of the variation while the variable of LNTOUA has turned to the strongest causal relationship towards the variable of LNGDP in the long run which the variation has increased to 7.08%.

All the variations from the variables in the model shows the weakest variations towards the variable of LNTOUA which is always less than 6% in the short run and long run. Although the variable of LNTOUA also has the low variations which is below 10% to explain for all the

variables in the model. Over the period, the variable of LNTOUA has average 91.52% of the variations can be explained by its own innovation.

As shown in Table 17, the most endogenous variable in the short run (4th period) and long run (20th period) is the variable of LNCI. However, the most exogenous variable is the variable of LNTOUA for short run and long run. The innovation for the variable of LNCI is 18.283% in the 1st period and it remained 1.335% in the 20th period.

CHAPTER FIVE

CONCLUSION AND POLICY RECOMMEDATIONS

5.0 Introduction

Four sub-section will be discussed in the chapter. Section 5.1 will be the summary of the findings, Section 5.2 presents the policy recommendation of the study, Section 5.3 is the limitation of the study, and Section 5.4 will be the suggestion of the future research.

5.1 Summary of the Findings

The main objective of the study is to examine the relationship between tourism expansion and economic growth in Japan (1971 to 2018), Malaysia (1981 to 2018), and Thailand (1971 to 2018). The study has employed the cointegration analysis, causality analysis, and dynamic analysis. The properties of stationary for the selected three countries are integrated in I (1), so proceed to the cointegration test.

First, Johansen and Juselius cointegration test have been used in the study, the result shows in the Trace statistics and Max-Eigenvalue statistic for Japan and Thailand are one cointegrating vector while Malaysia shows two cointegrating vectors. Therefore, the cointegration test shows the selected three countries have the long run equilibrium among the variables in the model.

Second, the data of Japan shows the existence of EDTH is supported in short run and long run. Due to the two cointegrating vectors have been found out in Malaysia, so the VECM shows two ECT. The first ECT shows the variable of CI is significant in long run and the second ECT shows the EDTH is existed in long run. While there is no evidence to show the relationship between the tourism expansion and economic growth in the short run. For Thailand, there is evidence to proof the EDTH is supported in long run.

Lastly, the shock adjustment from the impulse response is supported by the findings from VAR/VEC model and all the graphs have settled the shocks within 10 years. Meanwhile, Japan has the identical responses from all the variables to respective unexpected shocks while the Malaysia and Thailand get the not identical responses from all the variables to respective unexpected shocks. While the shock adjustment from the variance decomposition shows the variable of GDP in Japan and Malaysia show the most explanatory power towards all the variable except for the variable of RER. For Thailand, the most explanatory variable is the variable of GDP also except for the variable of TOUA. However, there is still uncertainty for the endogenous responses of the variables with the model for the selected three countries.

5.2 Policy Recommendations

Tourism sector is an important sector in the world which accounted 10.4% towards the global GDP in 2018. The study has come out some policy recommendations based on the findings of Japan, Malaysia, and Thailand.

In short run, Japan government can allocate more budget to invest in the human capital investment like educate more tour guide to increase the number of tourist arrivals. Meanwhile, they can use the previous policy in 2012 which is depreciated currency to reduce the cost of travel. In long run, Japan government can diversitfied the tourism activity or enhance the infrastructure like make the railway system more complete and easy access to tourist spot in Japan. Travel tax also a burden for the tourist arrivals, so the government can reduce it and attract more foreign tourists.

Malaysia government should allocate more budget towards the infrastructure like complete the railway system to easy access tourist spot, so the convenience of travel will attract more tourists to visit Malaysia. To increase the capital investment in Malaysia, the government can attract more foreign investor like cooperate with Japan to do the technology transfer in long

run. Malaysia is famous around the world with Electrical and Electronics (E&E) industry to boost up the economic growth and level of external competitiveness, Malaysia government should promote the E&E product in the world stage like expo or conference. To increase the level of competitiveness, Malaysia government can allocate more fund to depreciate the currency and attract more foreign investors.

Thailand is a country famous with the small island, thus Thailand government can allocate more budget towards the small islands to diversify the tourism activity or hire more tour guide. The factor of environment is the important indicator for the tourists to choose the destination like eco-tourism, willingness to pay the higher premium, and more positive eco-tourism attitude on the beautiful environment (Teeroovengadum, 2019). Thailand government reduce the import or export tax to increase the volume of trade and the economic growth in the country will be stimulated in short run. Tourists is an important factor towards the volume of international trade, therefore the government can launch the tourism campaign with promote goods to stimulate the trade. To increase the volume of trade, the government should allocate more budget to build the infrastructure to boost up the economic.

5.3 Limitation of the Study

The report from World Travel and Tourism Council (2019) shows the Asia Pacific remained a strong performer in 2018 which is growth 6.4% but North Africa has growth 8.6% year on year. Although the Asia Pacific and North Africa are the strong performer in the tourism sector, but these areas are a lot of place did not be explore by the researchers to examine the potential of tourism. Therefore, the policymakers might be losing the opportunity to grab the benefits from the tourism sector.

The specifying of the macroeconomic variables is the second limitation of the study. According to Saayman and Saayman (2006), they mentioned most of the macroeconomic

variables is not specifying the income generated by the Tourism & Travel sector. For example, the income generated by Tourism & Travel sector is categorized under the service sector. Moreover, most of the past study from the researchers have only included the international tourists in the variable of the number of tourist arrivals.

The third limitation is the study is tourism activity is a behavioral activity. Different country people have different behavior, they will choose the different destination around the world which can maximize their utility. The finding from Han et al. (2016), they have found the perception of climate change and tourist experiences has effect towards the Korean tourists' environmentally responsible behavior intentions but not the Chinese tourist'. Most of the research in the past is time series, so the policymakers cannot come out a good policy to attract the tourists around the world.

5.4 Suggestion for the Future Research

The tourism research can be exploring more in the countries of Asia Pacific and North Africa to explore the tourism potential to boost up the country's economy. Meanwhile, most of the countries of Asia Pacific and North Africa are the developing country. According to the Solow Growth Model, the developing country have large potential to grow faster than the developed country.

The second suggestion is the future study can include the domestic tourists into the variable of the number of tourist arrivals. The economic impact happened by the tourism sector is contributed by the domestic and international tourists. According to Ardahaey (2011), he has mentioned three effects will happened by the tourism sector which is direct effect, indirect effect, and induce effect. The induce effect is the local people earn the money from the tourism sector and the local people spent back the money in the country. Therefore, this is the reason why the domestic tourists also important for the research study.

The last suggestion is the researchers can conduct more tourism study through the survey because the tourism is a behavioral activity. The finding from Han et al. (2016) shows the Korean tourists' more likely to prefer the environmental but not the Chinese tourists'. Thus, the policymakers can make the different policy to attract the different kind of the tourist around the world which can maximize the profit from the tourism sector.

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