ECONOMIC, ENVIRONMENTAL AND SOCIAL EXTERNALITIES OF TOURISM IN SOUTHEAST ASIA

By

REZA SHERAFATIAN-JAHROMI

Thesis submitted to the school of graduate studies, Universiti Putra Malaysia, in fulfilment of the requirements for the Degree of Doctor of Philosophy

January 2016
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DEDICATIONS

To my dear Father to whom I am much indebted
And my dear Mother who devoted her life to me
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The Southeast Asian countries are highly dependable on their tourism industries and have set rising annual growths in tourist arrivals. According to World Tourist Organisation’s statistics, number of arrivals in this region in 2010 was four times higher than those in 1990. Malaysia, Indonesia, Singapore, Thailand, and Philippines are among the most important countries in this region. The positive sign of the five year average growth rate of tourist arrivals during 1981-2010, as well as the tourist receipts during 1996-2010 illustrated the importance of this sector.

It is expected that tourist arrival growths in Southeast Asia would be around 5% annually till 2030. Consequently, it is extremely important to examine all aspects of this expansion. The present study tries to analyse the Southeast Asian countries tourism industry effects on the three pillars of sustainable development. In the case of the economic impact of tourism, income inequality and tourism relationship is examined. The environmental influence of tourism is assessed by considering the CO2 emissions and tourist nexuses. Finally, the social externality of tourism is appraised by having tourism and crime relationship.

The impact of tourism on income inequality is assessed by applying the fixed effects model for static analysis as well as the dynamic fixed effect model for dynamic examination. The finding shows that tourism negatively affects the Gini index. In other words, this industry helps lower income people more than the rich and reduces the gap between the poor and the rich. Moreover, the dynamic relationship illustrates that speed of adjustment is highly significant and 67 percent of disequilibrium is corrected each year. Having the squared form of output in the model reveals the existence of Kuznets Curve in this region.

There is an increasing concern that tourism highly affects the CO2 emissions. The linear and non linear relationship between tourism and CO2 emissions is tested, using the panel cointegration and pooled mean group techniques. The result indicates that tourism and CO2 emissions are cointegrated. Besides, tourism causes CO2 emissions in this region. Our findings support Tisdell (1987) in the case of the non linear relationship between tourism and emissions. The results lead to the conclusion that
CO₂ emissions, do reduce in high levels of arrivals. Moreover, this study confirms the existence of Environmental Kuznets Curve in Southeast Asia. Finally, the empirical results show that energy consumption highly affects the emissions.

The static and dynamic relationship between tourism and crime is investigated by applying the random effects and fully modified ordinary least squares over the period 1980-2012. The long run relationship is approved by employing the unit root tests and cointegration test. The results of Hausman test revealed that random effect is preferred. The coefficient for tourist appears with the positive sign, showing that any tourism expansion increases the amount of crimes in Southeast Asia. Furthermore, the empirical results show that education and economic growth negatively affects crime. On the other side, unemployment rate and population have positively impact crime. Our dynamic examination indicates that the lagged form of crime significantly affects crime. In other words, crime is highly persistent.

In spite of the positive effect of tourist arrivals on the economy, the negative externality of tourism in society should not be ignored. The simulation for 2020 and 2030 indicates that income inequality would reduce in the long run. High negative impact of GDP follows from the effects of tourism expansion, meanwhile, investment in education improves the income distribution. The CO₂ emissions simulation shows that emissions in this region increase in 2020 and 2030, mostly because of the positive impact of energy consumption and GDP. Finally, crime simulation for 2020 and 2030 illustrates that investing more in education could cover the negative effects of tourism on crime. Overall, it can be concluded that the positive effects of tourism expansion in Southeast Asia are higher than their negative impact.


Terdapat peningkatan kebimbangan bahawa pelancongan sangat memberi kesan kepada pembebasan CO₂. Hubungan linear dan tidak linear antara pelancongan dan


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Last but not least, I would like to express my sincere gratitude and affection to my beloved parents for their endless prayers and blessing. I am truly grateful to them for their support and understanding and for giving me the inspiration to successfully complete my study.
I certify that a Thesis Examination Committee has met on 8 January 2016 to conduct the final examination of Reza Sherafatianjahromi on his thesis entitled "Economic, Environmental and Social Externalities of Tourism in Southeast Asia" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy:

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CHAPTER 1
INTRODUCTION

1.1. Background of the Study

For the past six decades, tourism has expanded continuously worldwide and it could be considered as the largest growing economic activity. All communities look at the tourism as an export industry and try to apply it to start the engine of the economic development, as its growth has had a large impact on numbers of employment (Hughes, 1982), quality of employment (Fortanier and Van Wijk, 2010) and introduction of new field of employment such as space tourism industry (Collins and Autino, 2010). In addition, it also improves the infrastructure (Pizam, 1978), tax revenues (Rothman, 1978) and the economy in general.

Before 1960s, three main important reasons for travel were knowledge acquisition by scientists, economic survival by merchants and religious piety by pilgrims (Neuts, Nijkamp, and Van Leeuwen, 2012). Nowadays, the number of tourists increases surprisingly by introducing the leisure excursion.

A number of factors have been responsible for the rise in international tourism since the last century. For instance, the advancement of travel technology is one of those reasons. Expanding railways with low fare and introducing air transports have provided the facilities for international tourism to reduce the cost and time of travel. We must mention that the gradual increase in road transportation has also had a significant impact in surging international tourism.

Rising disposable income is another reason for increasing international tourism. Industrial development has helped people to produce more commodities and services. As a result of mass production, prices of essential goods have fallen down and people have received higher income and had more available time for leisure. In addition, the number of income earners have gone up in many families and number of kids reduced to two and increased the likelihood of being visitors.

Protecting the labor right in having rest and leisure, as well as early retirement year have contributed to swelling demand of tourism. Increase in holiday entitlement, which means that when people have more holidays, it allows people to act as tourists and escape from the social pressure of work. Moreover, due to visa facilitation, overseas travel is easier.

Another reason is the quality and quantity of the accommodation sector, which has improved year by year. Furthermore, information technology had developed drastically in the last century. People could easily reserve hotels, travelling tickets, and visiting tickets, by fax, telephone and internet. Finally, the role of mass media in enhancing international tourism should not be ignored. A holiday section in newspaper, TV shows, Short Message Systems (SMS) and internet advertisements, introduced new places for visitors with reasonable price in a variety of packages based on their budgets, and encouraged them to be an international tourists.
1.2. World Tourism Pattern

Countries in the world consider the bright side of tourism for increasing employment, foreign exchange, tax revenue and economic growth. As such, tourism development has become an important target for most governments. According to the United Nations World Tourism Organization (UNWTO, 2013), it is predicted that the number of international people's movements around the world will surge to 1,360 million and 1,809 million by 2020 and 2030, respectively.

As mentioned above, tourism does not only contribute to economic development, but also affects employment and export. The UNWTO reported that out of 11 persons, one was employed in tourism related industries in 2012 globally, and 6% of the world’s export as well as exports of least developed countries belonged to this industry (UNWTO, 2013). Surprisingly, UNWTO illustrated that more than 648 million people in 1999 and 806.8 million people in 2005 travelled to a foreign country. Thus, the tourism industry was the first industry that generated revenue in terms of earning of export globally, ahead of automated products, chemical, petroleum and food (Kaplan and Çelik, 2008).

According to World Development Indicators, international tourist arrivals are referred to “the number of tourists who travel to a country other than that in which they have their usual residence, but is outside their usual environment, for a period not exceeding 12 months and whose main purpose of visiting is other than an activity remunerated from within the country visited”. Furthermore, international tourist receipts are “expenditures by international inbound visitors, including payments to national carriers for international transport. These receipts include any other prepayment made for goods or services received in the destination country. They also may include receipts from same-day visitors, except when these are important enough to justify separate classification”.

The left side of Figure 1.1 demonstrates the number of tourist arrivals globally. This figure shows that the number of arrivals has increased year by year since 1995, with the exception of 2009 when the Global Financial Crisis took place. This pattern is different when we look at the right side of the Figure 1.1 where the tourist receipts are illustrated. In this case, the upward trend has been more observable since 2003. However, tourism receipts reduced in 2009.

![Figure 1.1 International tourist arrivals (million) and receipts (billion)](source: World Tourism Organisation)
1.3. Tourism Pattern in Southeast Asia

The number of international tourist arrivals in different regions is represented in Table 1.1. It can be seen that in case of global scale, tourist arrivals increased notably since 1990. Meanwhile based on the reported statistics, tourist arrivals doubled in 20 years from 1990 to 2010 in global scale, as this increase in Southeast Asia was four folds, approximately 300 percent boosted. According to this table, advanced economies received a higher share of visitors in respect to the emerging ones. Thus, UNWTO expected that the emerging economies’ market share will reach up to 57% by 2030.

Among the regions, the highest share of arrivals in 2012 belongs to Europe followed by Asia and the Pacific and Americas. Interestingly, in the Asia and Pacific region and in case of receiving tourism, Southeast Asia was in the second place in 2012 in showing the importance of tourism in this region. Southeast Asia is composed of 11 countries. In spite of the similar climate, plant, animal life and cultural trait in this region, more than 85% of the excursionists visited Malaysia, Indonesia, Singapore, Thailand, and Philippines in 2010 (World Bank). Mentioned countries are five most important countries located in Southeast Asia and made up approximately 90% of gross domestic product (GDP) of overall GDP in this region in 2014 (World Bank). This study aims to focus on these countries to explore the impact of tourism in this region. The tourism pattern in mentioned countries will be explained one by one in following chapter.

### Table 1.1 International tourist arrivals (millions) in different region 1990-2012

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<td>807</td>
<td>949</td>
<td>995</td>
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<td>Europe</td>
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<td>305.9</td>
<td>388.0</td>
<td>448.9</td>
<td>485.5</td>
<td>516.4</td>
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<td>110.1</td>
<td>153.6</td>
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<td>41.3</td>
<td>58.3</td>
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<td>111.5</td>
<td>115.8</td>
<td>122.8</td>
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<td>Americas</td>
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(Source: World Tourism Organization)

1.4. Statement of the Problem

The word “sustainability” comes from the Latin word “susterene” which refers to a situation in which a stable manner is maintained over time. According to UNWTO, sustainability principles refer to the environmental, economic and socio-cultural aspects of tourism development. Previous studies have approved the role of tourism in generating the economic growth and development in different countries and regions, as the impact of tourism in economic, environment and socio-culture need

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to be attended more to guarantee the long-run sustainability. Thus, ignoring the externality\(^2\) of tourism could put the tourism led development at risk (Biagi, Brandono, and Detotto, 2012).

Sustainability is available by maximizing the benefits and minimizing the costs of tourism, both useful and external costs. The impact of tourism could be categorized in seven broad parts, including economic, environmental, social and cultural, crowding and congestion, services, taxes and community attitude (Kreag, 2001). Tourism might have a negative or positive influence in each category. In the first step, it is essential to know the sign and size of the impact of tourism in variables that could be included in different categories. By understanding the relationships between tourism and other variables, communities can benefit more from attracting tourists.

Apart from that, there are numerous tourism externalities. Schubert (2010) reported the positive and negative side effects of tourism as follows. For instance, “More and better leisure facilities, more beaches designated as parks, better recognition of the importance of saving historical building, ..., increasing wealth of residents, better public health system” as positive externalities and “Crowding and congestion of roads, public transportation and cities, and thus conflict between tourists and residents in using infrastructure, noise, litter, property destruction, pollution, increase in water consumption per head, CO\(_2\) emissions, ..., increased in crime” as negative externalities.

The externalities can cause market failure and reduce the welfare of communities. However, it is difficult to investigate all aspects of the tourist externalities. This is because measuring the effects of tourist in economic and non-economic is not easy, especially in case of the latter (with no market). Moreover, researchers are more eager to support the tourism sector by highlighting the positive impact of this industry on variables such as income and employment (Ap and Crompton, 1998; Schubert, 2010).

**Problem 1**

The economic impact of tourism is different in sign and size. Tourism can improve the infrastructures in the transportation sector (Belisle and Hoy, 1980). For instance, the roads, public transportation and airports condition are enhanced by tourism expansion (Albalate and Bel, 2010). In addition, the tax revenue is increased and employment is boosted (Tyrrell, 1984; Milman and Pizam, 1988). However, employment might be seasonal and affect the economy negatively. The increase in the demand of goods and commodity affects their price and would cause inflation (Xue-Pin and Jun-Yang, 2012). As poverty and income inequality are also related to tourism, thus the impact of tourism on income inequality is investigated in chapter four.

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Oh, and Hu (2008) in Sarawak, Malaysia are some studies in which the positive relationship between tourism and economic development are revealed.

\(^2\) - A consequence of an economic activity that is experienced by the third parties.
Besides that, income inequality could cause political instability (Alesina and Perotti, 1996) and corruption (Jong-Sung and Khagram, 2005), increase the inefficiency in the allocation of resources (Esteban and Ray, 2003; Ostry and Berg, 2011) and negatively affect the economic growth (World Bank). Consequently, it is highly important to reduce income inequality to prevent the harmful effects of it.

Other than that, income inequality in Southeast Asia is highly compared to the more equal countries like Japan, Slovenia, and Ukraine (World Bank). Although these countries are successful in alleviating the poverty, income distribution is not in a good condition (Zhuang, Kanbur, and Rhee, 2014). Thus, the highest income inequality in this region belongs to the Philippines (ATUC, 2013). The Gini index in Singapore has increased marvelously since 2002 (Benner, 2013), while Thailand and Malaysia are planning to reduce their income inequality and prevent their rising trend. On the other hand, Indonesia experienced the high Gini index with an upward trend recently (Sinaga, 2012).

The low entry barriers in tourist sector (Benavides and Pérez-Ducy, 2001) might help the poor to increase their earning and reduce the gap between poor and rich. Another important characteristic of tourist sector is providing the jobs for unskilled and semi-skilled people (Mitchell and Ashley, 2006), which helps the poor to have higher income and cause better income distribution. Although these characters exist in Southeast Asian countries (for example, Timothy and Wall (1997) stated the low entry barriers for the poor in Indonesian vending market) reducing the income inequality by tourist expansion is not definite.

In spite of the benefit of people from tourism through a wide range of skills (Honey and Gilpin, 2009), the tourism industry is low paying and the exploitation by the rich is high (Clancy, 2001). Moreover, Southeast Asian countries absorb sex tourism. For instance, sex tourism ruled in Thailand (Mason, 2011 and Green, 2015). In this type of tourism, poor are highly exploited by the rich and as a result, tourist expansion might increase the gap between rich and poor. All in all, income inequality and tourism relationship are a hot topic in this region that will be investigated in chapter four. We must mention that in chapter four, at first the long-run relationship between tourist and income distribution is examined in Southeast Asia. Then, investigations from one country to another are done to have more information about this relationship.

Problem 2

Beautiful natural sceneries in Southeast Asia attracts tourists from all over the world every year as tourism and environment are highly related in this region. Furthermore, the area with a unique flora and fauna and natural lakes are attractive for tourism. It is believed that tourism is a clean industry (für Naturschutz, 1997; Wattanakuljarus and Coxhead, 2008). The monuments and historic place could be restored from the tourism income. Besides, the natural beauties are preserved for use in the future (Ap and Crompton, 1998). Nevertheless, tourism has a negative side effect on the environment. Pollutions in various types such as air pollution, water pollution and noise pollution are considered as negative impacts of tourism expansion (Baoying and Yuanqing, 2007; Briassoulis, Pompl, and Lavery, 1993). Overusing of natural
resources is another drawback of tourism expansion (Van Beukering and Cesar, 2004). In chapter five, we will focus on the CO₂ emissions and tourist nexus to examine the linear and non-linear dynamic relationship between tourism and environment.

CO₂ emissions have increased in Southeast Asia since 1970. Our finding reveals that the average five-year growth rate of CO₂ emissions in this region is positive. Moreover, the mentioned growth rate is higher than the growth of the average five-year emissions in a global scale (World Bank). The temperature has risen 1 to 3 degrees centigrade decade by the decade from 1950-2000 in Southeast Asia (Cruz, Harasawa, Lal, Wu, Anokhin, Punsalmaa, Ninh, 2007), the number of hot days and nights went up while the number of cold days and nights fell down (Manton Della, Marta, Haylock, Hennessy, Nicholls, Chambers and Gunawan, 2001), and the frequency and intensity of extreme events increased (Zhuang, 2009) which highlight the vulnerability of Southeast Asia to climate change. For instance, extreme rains and floods continue to increase in this region. Besides that, droughts and frequency of cyclones also increased in Southeast Asia (Glantz, 2001; Kelly and Adger, 2000, Cruz et al., 2007). Consequently, rising temperatures highly affect this region negatively (Zhuang, 2009; Cruz, et al., 2007). In addition, higher emissions increase the probability of this change (National Geography; Baccini, Goetz, Walker, Laporte, Sun, Sulla-Menashe, Hackler, Beck, Dubayah, Friedl, Samanta, and Houghton, 2012).

Despite of the negative effects of tourism on emissions through car and air transportation, and activities providing accommodation in host countries, tourism expansion might decrease the emissions through the development effects. The level of arrivals is another factor that affects the CO₂ emissions. At a low level of arrivals, countries do not pay attention to this sector since the earnings from this sector are not high compared to other sectors which cause emissions increase. Meanwhile, as tourist expanded, countries could enjoy more opportunities provided by this expansion to preserve the environment. All in all, the role of tourism in CO₂ emissions is not clear. Thus, multiple regressions are conducted to illustrate the size and sign of this relationship, which will be further explained in chapter five.

Problem 3

The effect of tourism in social and cultural characteristics to the community should be investigated to reduce the negative impact of this sector and improve their positive effects. For instance, residents and visitors interactions affect the society. Health facility is one of the positive externalities of tourism (Hundt, 1996). The host country also enjoys cultural exchange with travelers (Liu and Var, 1986; Sheldon and Var, 1984). However, immoral and illegal activities such as using drugs and drinking increase, especially in the beach areas (Belisle and Hoy, 1980), which shows that the impact of tourism in the society might be negative. Crime is another variable that is related to tourism in different ways, hence the relationship between crime and tourism is investigated in chapter six in detail.

In addition, the importance of crime reduction on communities cannot be ignored and Southeast Asian countries are not an exception. Crime is one of the main challenges...
in Malaysia and Indonesia (Farrar, 2013). Moreover, Singapore’s government tries to reduce their total crime (Lay, 2013). Besides that, reducing the crime in the Philippines is necessary for increasing the economic growth (Senate, 2013). Chapter six shows how tourism and crime are related in Southeast Asia by incorporating different models. This examination could fill the gap in the literature by applying econometric methods in the mentioned region.

Theoretically, tourism affects the crime rate from different channels, whether positive or negative. Tourists carry more cash with them (Fujii and Mak, 1980), have less information about unsafe areas and the probability of reporting a crime to the police is lower for them (Campaniello, 2013; Howsen and Jarrell, 1987). Thus, they are safer targets compared with the residents. Moreover, the potential of suspicion decreases by tourist expansion (Jarrell and Howsen, 1990). Finally, we must notice that excursionists might participate in criminal activities. Keeping in mind that the large amount of tourist arrivals in Southeast Asia increases the importance of investigating the relationship between tourist and crime.

1.5. Research Objectives

The impact of receiving more tourists in Southeast Asian countries economically, environmentally and in society is the broad objective of this thesis. The previous sections have highlighted that the tourism industry plays an important role in this region. This study tries to investigate the effects of tourism on income inequality, CO₂ emissions and crime in Southeast Asia. In this case, the thesis is expected to achieve the following specific objectives:

1. To investigate the long-run impact of tourism on income inequality in Southeast Asia,
2. To examine the long-run effect of tourism on CO₂ emissions in Southeast Asia,
3. To investigate the long-run impact of tourism on crime in Southeast Asia.

1.6. Significance of the Study

The main purpose of the present study is to investigate the impact of tourism on income inequality, CO₂ emissions and crime in Southeast Asia.

From the first essay, this essay aimed to reveal how tourism affects the income distribution in Southeast Asia. Considering the Gini index as a dependent variable in this study, the negative relationship between variables means that policymakers could provide a higher degree of equality through tourism. However, the positive relation shows that tourism is much more attractive for people belong to high income group in comparison to the people in low income group, so that the government must be more careful if they want to have equity in the community. The research to date has tended to focus on input-output analysis to investigate the relationship between income inequality and tourism. Present study contributes to the previous by applying econometric methods controlling the Kuznets hypothesis, education and unemployment.
In the second essay, we try to examine the impact of tourism on CO$_2$ emissions in Southeast Asia. The negative relationship between tourism and emissions indicates that the Southeast Asian countries can reduce the CO$_2$ emissions in this region by investing more in the tourism industry. On the other hand, the positive relations between the emissions and tourism mean that the tourism industry is not green in this region and attracting more visitors will be harmful for the environment, hence decision makers must tread cautiously. Moreover, the non-linear relationship between tourism and CO$_2$ emissions is examined to find that if the inverted U-shaped relationship between tourism and emissions exists. The U-shaped relationship shows that high levels of tourism are harmful for the environment in this region. In contrast, if the results confirmed the inverted U-shaped relationship, tourism expansion would be beneficial for the environment. Previous studies in this field have only focused on the linear relationship between tourism and emissions, while the non-linear relationship between tourism and CO$_2$ emissions are ignored. Thus, the present study incorporates multiple regressions to investigate the non-linear effect of tourism on CO$_2$ emissions to fill this gap.

Besides that, the long-run impact of tourism on crime will be examined in third essay. If our findings show that tourism has a positive effect on crime, tourism-led-growth would be unsustainable and policy makers must invest more to reduce the crime activities. However, if tourism causes crime but with a negative sign, the increase in tourism has a positive externality in this region. Due to this situation, the government could benefit from the side effect of boosting tourism. The persistency of crime would also be investigated by examining the relationship in a dynamic fashion. The results of this part could help the policy makers to investigate how crime in one year affects the other year to allow policy makers evaluate the consequences of establishing new tourist attraction.

1.7. Organization of the Study

The present thesis is organized as follows to investigate the effects of tourism in Southeast Asia. Chapter one has presented an introduction with a description of the global tourism pattern as well as Southeast Asia to highlight the importance of tourism. The impact of tourism has been mentioned briefly in the statement of problem followed by the objectives of the study and the significance of the study that focuses on economic, environmental and social impact of tourism in Southeast Asia. The following chapter represents the tourism pattern in Malaysia, Singapore, Thailand, Indonesia and the Philippines. Moreover, the literature relevant to the study is discussed in chapter three. Latter, in chapter four we concentrate on the economic effects of tourism by investigating the influence of tourism on income inequality in five most important countries in Southeast Asia. While in chapter five, the environmental impact of tourism is examined by focusing on the impact of tourism on CO$_2$ emissions followed by chapter six discussing on the social externality of tourism. In this chapter, the analysis is around the tourism and crime nexus in Southeast Asia. Finally, chapter seven summarizes the results along with the policy implication and future research recommendations.
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