UNIVERSITI PUTRA MALAYSIA

ECONOMIC, ENVIRONMENTAL AND SOCIAL EXTERNALITIES OF TOURISM IN SOUTHEAST ASIA

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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

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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*

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the Degree of Doctor of Philosophy

ECONOMIC, ENVIRONMENTAL AND SOCIAL EXTERNALITIES OF TOURISM IN SOUTHEAST ASIA

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January 2016

Chair   : Professor Mohd Shahwahid Othman, PhD
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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 CO_2 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 CO_2 emissions. The linear and non linear relationship between tourism and CO_2 emissions is tested, using the panel cointegration and pooled mean group techniques. The result indicates that tourism and CO_2 emissions are cointegrated. Besides, tourism causes CO_2 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

CO_2 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 CO_2 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.

ii

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk Ijazah Doktor Falsafah

EKONOMI, ALAM SEKITAR DAN EKSTRNALITI SOSIAL INDUSTRI PELANCONGAN DI ASIA TENGGARA

Oleh

REZA SHERAFATIAN-JAHROMI

Januari 2016

Pengerusi   : **Profesor Mohd Shahwahid Othman, PhD**
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Negara-negara Asia Tenggara amat bergantung kepada industri pelancongan dan mensasar pertumbuhan tahunan ketibaan pelancong ke negara mereka. Menurut statistik Pertubuhan Pelancongan Dunia, bilangan ketibaan di rantau ini pada tahun 2010 adalah empat kali lebih tinggi daripada tahun 1990. Malaysia, Indonesia, Singapura, Thailand dan Filipina adalah antara negara yang paling penting di rantau ini. Pertumbuhan positif purata lima tahun ketibaan pelancong semasa 1981-2010, serta pendapatan pelancongan semasa 1996-2010 menggambarkan kepentingan sektor ini.

Ia dijangka bahawa pertumbuhan ketibaan pelancong di Asia Tenggara adalah sekitar 5% setiap tahun sehingga tahun 2030. Oleh yang demikian, ia adalah amat penting untuk meneliti semua aspek perkembangan ini. Kajian ini cuba untuk menganalisis kesan sampingan pelancongan di negara-negara Asia Tenggara. Untuk mencapai matlamat ini, tiga kesan sampingan utama pelancongan akan dipertimbangkan. Dalam kes kesan ekonomi pelancongan, ketidaksamaan pendapatan dan hubungan pelancongan dikaji. Pengaruh alam sekitar pelancongan dinilai dengan mengambil kira pembebasan CO_2 dan neksus pelancongan. Akhir sekali, eksternaliti sosial pelancongan dinilai dengan adanya hubungan pelancongan dan jenayah.

Kesan pelancongan terhadap ketidaksamaan pendapatan dinilai dengan menggunakan model kesan tetap untuk analisis statik dan juga model kesan tetap dinamik untuk pemeriksaan dinamik. Dapatan kajian menunjukkan bahawa pelancongan memberi kesan negatif kepada indeks Gini. Dalam erti kata lain, industri ini membantu masyarakat berpendapatan rendah daripada masyarakat berpendapatan tinggi dan mengurangkan jurang antara golongan miskin dan kaya. Selain itu, hubungan dinamik menggambarkan bahawa kelajuan pelarasan adalah signifikan yang tinggi dan 67 peratus daripada ketidakseimbangan dibetulkan setiap tahun. Mempunyai output berbentuk empat segi dalam model mendedahkan kewujudan Lengkung Kuznets di rantau ini.

Terdapat peningkatan kebimbangan bahawa pelancongan sangat memberi kesan kepada pembebasan CO_2. Hubungan linear dan tidak linear antara pelancongan dan

pembebasan CO_2 diuji, menggunakan kointegrasi panel dan teknik purata kumpulan terkumpul. Hasilnya menunjukkan bahawa pelancongan dan pembebasan CO2 adalah berkointegrasi. Selain itu, pelancongan menyebabkan pembebasan CO_2 di rantau ini. Penemuan kami menyokong Tisdell (1987) dalam kes hubungan tidak linear antara pelancongan dan pembebasan. Hasil ini menyimpulkan bahawa pembebasan CO_2, memang mengurangkan tahap ketibaan. Selain itu, kajian ini mengesahkan kewujudan Lengkung Kuznets Alam Sekitar di Asia Tenggara. Akhir sekali, hasil empirikal menunjukkan bahawa penggunaan tenaga sangat memberi kesan kepada pembebasan.

Hubungan statik dan dinamik antara pelancongan dan jenayah dikaji dengan menggunakan kesan rawak dan diubahsuai sepenuhnya ganda dua terkecil biasa dalam tempoh 1980-2012. Hubungan jangka panjang disahkan dengan menggunakan ujian unit akar dan ujian kointegrasi. Keputusan ujian Hausman mendedahkan bahawa kesan rawak adalah diutamakan. Pekali bagi pelancong muncul dengan tanda positif, menunjukkan bahawa sebarang pengembangan pelancongan mengurangkan jumlah jenayah di Asia Tenggara. Tambahan pula, hasil empirikal menunjukkan bahawa pendidikan dan pertumbuhan ekonomi mempengaruhi jenayah secara negatif. Di samping itu, kadar pengangguran dan populasi memberi kesan positif kepada jenayah. Kajian dinamik kami menunjukkan bahawa bentuk terlat jenayah ketara secara signifikan memberi kesan kepada jenayah. Dalam erti kata lain, jenayah adalah selalu berulang.

Walaupun kesan positif ketibaan pelancong kepada ekonomi dan alam sekitar, eksternaliti negatif pelancongan dalam masyarakat tidak boleh diabaikan. Simulasi bagi tahun 2020 dan 2030 menunjukkan bahawa ketidaksamaan pendapatan akan berkurang dalam jangka masa panjang. Kesan negatif tinggi daripada KDNK adalah berikutan daripada kesan pengembangan pelancongan, sementara itu, pelaburan dalam pendidikan meningkatkan pengagihan pendapatan. Simulasi pembebasan CO_2 menunjukkan bahawa pembebasan di rantau ini meningkat pada tahun 2020 dan 2030, selalunya disebabkan kesan positif daripada penggunaan tenaga dan KDNK. Akhir sekali, simulasi jenayah bagi tahun 2020 dan 2030 menggambarkan bahawa melabur lebih banyak dalam pendidikan boleh menyerap kesan-kesan negatif pelancongan pada jenayah. Secara keseluruhan, dapat disimpulkan bahawa kesan sampingan positif pengembangan pelancongan di Asia Tenggara adalah lebih tinggi daripada kesan negatif.

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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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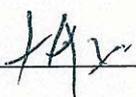Member of
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TABLE OF CONTENTS

LIST OF TABLES

xiii

LIST OF FIGURES

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.
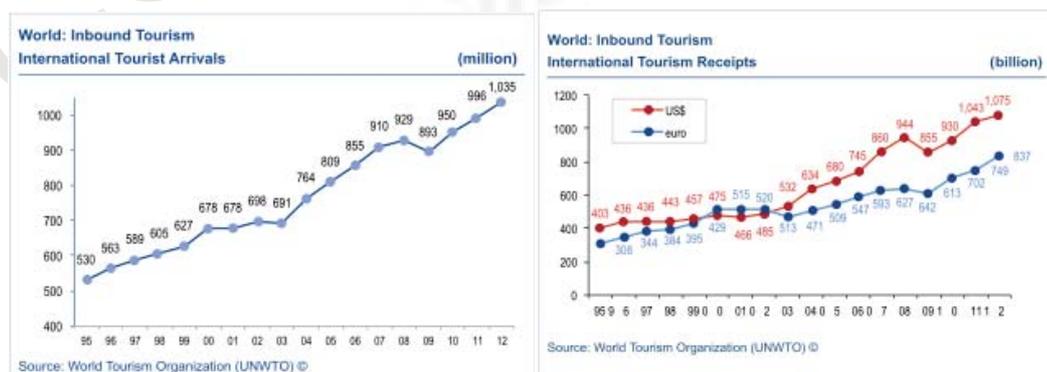
Figure 1.1 International tourist arrivals (million) and receipts (billion)
(Source: World Tourism Organisation)

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

	1990	1995	2000	2005	2010	2011	2012	Share 2012 (%)
World	436	529	677	807	949	995	1035	100
Advanced economies	297	336	420	459	506	530	551	53.2
Emerging economies	139	193	256	348	443	465	484	46.8
Europe	262.7	305.9	388.0	448.9	485.5	516.4	534.2	51.6
Asia and the Pacific	55.8	82.0	110.1	153.6	205.1	218.2	233.6	22.6
Northeast Asia	26.4	41.3	58.3	85.9	111.5	115.8	122.8	11.9
Southeast Asia	21.2	28.4	36.1	48.5	70.0	77.3	84.6	8.2
Oceania	5.2	8.1	9.6	11.0	11.6	11.7	12.1	1.2
South Asia	3.1	4.2	6.1	8.1	12.0	13.5	14.1	1.4
Americas	92.8	109.0	128.2	133.3	150.4	156.0	163.1	15.8
Africa	14.8	18.8	26.2	34.8	49.9	49.4	52.4	5.1
Middle East	9.6	13.7	24.1	36.3	58.2	54.9	52.0	5.0

(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[1], as the impact of tourism in economic, environment and socio-culture need

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[1] - For instance, Lee and Chang (2008) in OECD and non-OECD countries, Dritsakis (2004) in Greece, Skerritt and Huybers (2005) in 37 developing countries, Fayissa, Nsiah, and Tadasse (2009) in 17 LAC countries, Kaplan and Çelik (2008) and Zortuk (2009) in Turkey, Kim, Chen, and Jang (2006) in Taiwan, Kreishan (2010) in Jordan, Khalil, Kakar, and Malik (2007) in Pakistan and Lau,

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.

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 charecteristic 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

5

resources is another drawback of tourism expansion (Van Beukering and Cesar, 2004). In chapter five, we will focus on the CO_2 emissions and tourist nexus to examine the linear and non-linear dynamic relationship between tourism and environment.

CO_2 emissions have increased in Southeast Asia since 1970. Our finding reveals that the average five-year growth rate of CO_2 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 CO_2 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 CO_2 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, CO_2 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 CO_2 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, CO_2 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 policy makers 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.

REFERENCES

Agnecy France Presse, (2013). Fashion retailers complian street crime is ruining Paris tourism. May, 24, 2013. Retrieved 23 June 2014 from http://www.rawstory.com/rs /2013/05/24/fashion-retailers-complain-street-crime-is-ruining-paris-tourism/

Albalate, D. and Bel, G. (2010). Tourism and urban public transport: Holding demand pressure under supply constraints, *Tourism Management* 31(3): 425-433.

Albanese, J.S. (1985). Effect of casino gambling on crime. *Fed. Probation* 49, 39-44.

Alesina, A. and Perotti, R. (1996). Income distribution, political instability, and investment. *European economic review* 40(6): 1203-1228.

Altindag, D.T. (2014). Crime and international tourism. *Journal of Labor Research* 35(1): 1-14.

Ap, J. and Crompton, J.L. (1998). Developing and testing a tourism impact scale. *Journal of travel research* 37(2): 120-130.

Arbulú, I., Lozano, J. and Rey-Maquieira, J. (2013). Municipal solid waste generation in mature destinations: An IPAT-type model for Mallorca. *Economía agraria y recursos naturales* 13(1): 69-93.

ATUC (2013). PHI has the highest inequality rate in ASEAN. August, 6, 2011. Retrieved 4 February 2014 from http://aseantuc.org/2011/08/study-phl-has-highest-income-inequality-rate-in-asean/

Baccini, A., Goetz, S.J., Walker, W.S., Laporte, N.T., Sun, M., Sulla-Menashe, J., Hackler, P.S.A., Beck, R., Dubayah, M.A., Friedl, S., Samanta, R. and Houghton, A. (2012). Estimated carbon dioxide emissions from tropical deforestation improved by carbon-density map. *Nature Climate Change* 2: 182-185.

Baharom, A.H. and Habibullah, M.S. (2009). Crime and income inequality: The case of Malaysia. *Journal of Politics and Law* 2(1): 55-70.

Balaguer, J. and Cantavella-Jorda, M. (2002). Tourism as a long-run economic growth factor: The Spanish case. *Applied economics* 34(7): 877-884.

Baltagi, B. 2008. *Econometric analysis of panel data*: John Wiley and Sons.

Baoying, N. and Yuanqing, H. (2007). Tourism development and water pollution: Case study in Lijiang Ancient Town. *China Population, Resources and Environment* 17(5): 123-127.

Barker, M., Page, S.J. and Meyer, D. (2002). Modeling tourism crime: The 2000 America's cup. *Annals of Tourism Research* 29(3): 762-782.

Barro, R.J. (2000). Inequality and growth in a panel of countries. *Journal of economic growth* 5(1): 5-32.

Becken, S. (2005). Harmonising climate change adaptation and mitigation: the case of tourist resorts in Fiji. *Global environmental change* 15(4): 381-393.

Becken, S. and Simmons, D.G. (2002). Understanding energy consumption patterns of tourist attractions and activities in New Zealand. *Tourism Management* 23(4): 343-354.

Becken, S., Simmons, D.G. and Frampton, C. (2003). Energy use associated with different travel choices. *Tourism Management* 24(3): 267-277.

Becker, G.S. and Mulligan C.B. (1997). The endogenous determination of time preference. *The Quarterly Journal of Economics* 11(3): 729-758.

Becker, G.S. and Chiswick, B.R. (1966). Education and the distribution of earnings. *The American Economic Review* 56(1/2): 358-369.

Becker, C. (1968). Punishment: An economic approach. *Journal of Political Economy* 76(2): 169-217.

Belisle, F.J. and Hoy, D.R. (1980). The perceived impact of tourism by residents a case study in Santa Marta, Colombia. *Annals of tourism research* 7(1): 83-101.

Benner, T. (2013). Singapore poverty in the spotlight. November, 9, 2013. Retrieved 13 February 2014 from http://www.aljazeera.com/indepth/features/2013/11/singapore-poverty-spotlight-20131178362669442.html

Ben-Porath, Y. (1967). The production of human capital and the life cycle of earnings. *The Journal of Political Economy* 75(4): 352-365.

Benavides, D.D. and Pérez-Ducy, E. (2001). Tourism in the least developed countries. *World Tourism Organization*.

Biagi, B., Brandono, M.G. and Detotto, C. (2012). The effect of tourism on crime in Italy: A dynamic panel approach. *Economics: The Open-Access, Open-Assessment E-Journal* 1-24.

Biagi, B. and Detotto, C. (2012). Crime as tourism externality. *Regional Studies* 48(4): 693-709.

Bird, K., Higgins, K. and Harris, D. (2010). Spatial poverty traps: An overview. *ODI Working Paper No. 321, Chronic Poverty Research Centre Working Paper No.161 (December)*. London: Overseas Development Institute.

Bird, K., Hattel, K., Sasaki, E. and Attapich, L. (2011). Poverty, Income Inequality, and Microfinance in Thailand. Southeast Asia Working Paper Series.

Björklund, A. (1991). Unemployment and income distribution: time-series evidence from Sweden. *The Scandinavian Journal of Economics* 93(3): 457-465.

Blake, A. (2008). Tourism and income distribution in East Africa. *International Journal of Tourism Research* 10(6): 511-524.

Blake, A., Arbache, J.S., Sinclair, M.T. and Teles, V. (2008). Tourism and poverty relief. *Annals of Tourism Research* 35(1): 107-126.

Blank, R.M. and A.S. Blinder (1985). Macroeconomics, income distribution, and poverty: *National Bureau of Economic Research Cambridge*, Mass., USA.

Blau, P.M. 1977. *Inequality and heterogeneity: A primitive theory of social structure*. New York: Free Press.

Blinder, A.S. and Esaki, H.Y. (1978). Macroeconomic activity and income distribution in the postwar United States. *The Review of Economics and Statistics* 60(4): 604-609.

Bouley, Jr., Eugene E. and Vaughn, M.S. (1995). Violent crime and modernization in Colombia. *Crime, Law and Social Change* 23(1): 17-40.

Briassoulis, H., Pompl, W. and Lavery, P. (1993). Tourism in Greece. *In:* Pomple W. and Lavery P. (eds) *Tourism in Europe: Structures and Development* 285-301.

Brown, R.L., Durbin, J. and Evans, J.M. (1975). Techniques for testing the constancy of regression relationships over time. *Journal of the Royal Statistical Society. Series B (Methodological)* 37(2): 149-192.

Buonanno, P. and Leonida, L. (2006). Education and crime: evidence from Italian regions. *Applied Economics Letters* 13(11): 709-713.

Buonanno, P. (2006). Crime and labour market opportunities in Italy (1993–2002). *Labour* 20(4): 601-624.

Buse, A. (1982). The cyclical behaviour of the size distribution of income in Canada: 1947-78. *Canadian Journal of Economics* 15(2): 189-204.

Campaniello, N. (2013). Mega events in sports and crime evidence from the 1990 Football World Cup. *Journal of sports economics* 14(2): 148-170.

Cantor, D. and Land, K.C. (1985). Unemployment and crime rates in the post-World War II United States: A theoretical and empirical analysis. *American Sociological Review* 50(3): 317-332.

Case, M., Ardiansyah, F. and Spector, E. (2007). Climate Change in Indonesia. Implications for Humans and Nature (Gland, Switzerland: World Wide Fund for Nature (WWF)) Retrieved 15 January 2016 from http://assets.panda.org /downloads/inodesian_climate_change_impacts_report_14nov07.pdf.

Chao, C.C., Hazari, B.R., Laffargue, J.P., Sgro, P.M. and Yu, E.SH. (2006). Tourism, dutch disease and welfarer in an open dynamic economy. *Japanese economic review* 57(4): 501-515.

Chamlin, M.B. and Cochran, J.K. (2004). Excursus on the population size-crime relationship, An. *Western Criminology Review* 5(2): 119-130.

Chandran, V. and Tang, C.F. (2013). The impacts of transport energy consumption, foreign direct investment and income on CO_2 emissions in ASEAN-5 economies. *Renewable and Sustainable Energy Reviews* 24: 445-453.

Chang, T.C. and Yeoh, B.S.A. (1999). New Asia–Singapore: Communicating local cultures through global tourism. *Geoforum* 30(2): 101-115.

Chesney-Lind, M. and Lind, I.Y. (1986). Visitors as victims crimes against tourists in Hawaii. *Annals of Tourism Research* 13(2): 167-191.

Chesney-Lind, M., Lind, I.Y and Schaafsma, H. (1983). Salient factors in Hawaii's crime rate. *University of Hawai'i School of Social Work. Available from author*.

Chintrakarn, P. and Herzer, D. (2012). More inequality, more crime? A panel cointegration analysis for the United States. *Economics Letters* 116(3): 389-391.

Chong, C., Ni, W., Ma, L., Liu, P., and Li, Z. (2015). The Use of Energy in Malaysia: Tracing Energy Flows from Primary Source to End Use. *Energies* 8(4): 2828-2866.

Collins, P. and Autino, A. (2010). What the growth of a space tourism industry could contribute to employment, economic growth, environmental protection, education, culture and world peace. *Acta Astronautica* 66(11): 1553-1562.

Clancy, M. (2001). Mexican tourism: Export growth and structural change since 1970. *Latin American Research Review* 36(1): 128-150.

Choi, I. (2001). Unit root tests for panel data. *Journal of international money and Finance* 20(2): 249-272.

Coomer, N. (2003). America's underclass and crime: The influence of macroeconomic factors. *Issues in Political Economy* 12.

Croes, R. and Vanegas, M. (2008). Cointegration and causality between tourism and poverty reduction. *Journal of Travel Research* 47(1): 94-103.

Cruz, R.V., Harasawa, H., Lal, M., Wu, S., Anokhin, Y., Punsalmaa, B., Ninh, N.H. (2007). Asia. Climate Change 2007: Impacts, adaptation and vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, ed. Parry, M.L., Canziani, O.F.,

Palutikof, J.P., Linden, P.J. and Hanson, C.E. 469–506. Cambridge, Cambridge University Press.

Dailymail (2013). Special 'tourist courts' to be set up in Thailand to fast-track crimes against holidaymakers. Retrieved 24 January 2014 from http://www.dailymail.co.uk/travel/article-2323719/Thailand-tourist-safety-Special-tourist-courts-set-fast-track-crimes.html

Danziger, S. and Wheeler, D. (1975). The economics of crime: Punishment or income redistribution. *Review of Social Economy* 33(2): 113-131.

De Albuquerque, K. (1984). A comparative analysis of violent crime in the Caribbean. *Social and Economic Studies* 33(2): 93-142.

De Albuquerque, K. and McElroy, J. (1999). Tourism and crime in the Caribbean. *Annals of Tourism Research 26*(4): 968-984.

Deininger, K. and Squire, L. (1997). Economic growth and income inequality: reexamining the links. *Finance and Development* 34: 38-41.

Deller, S. (2010). Rural poverty, tourism and spatial heterogeneity. *Annals of Tourism Research* 37(1): 180-205.

Demombynes, G. and Özler, B. (2005). Crime and local inequality in South Africa. *Journal of Development Economics* 76(2): 265-292.

Deneen, S. (1993). Miami measures fallout of slayings. *Hotel and Motel Management* 208(8): 1-11.

Diesendorf, M. (2002). I=PAT or I=PBAT. *Ecological Economics* 42(1): 3.

Dietz, T. and Rosa, E.A. (1997). Effects of population and affluence on CO2 emissions. *Proceedings of the National Academy of Sciences* 94(1): 175-179.

Dörnyei, Z. and Csizér, K. (2005). The effects of intercultural contact and tourism on language attitudes and language learning motivation. *Journal of Language and Social Psychology* 24(4): 327-357.

Dritsakis, N. (2004). Tourism as a long-run economic growth factor: an empirical investigation for Greece using causality analysis. *Tourism Economics* 10(3): 305-316.

Dwyer, L., Forsyth, P., Fredline, L., Jago, L., Deery, M. and Lundie, S. (2006). Concepts of tourism yield and their measurement: CRC for Sustainable Tourism.

Dwyer, L., Forsyth, P., Madden, J. and Spurr, R. (2000). Economic impacts of inbound tourism under different assumptions regarding the macroeconomy. *Current Issues in Tourism* 3(4): 325-363.

Dwyer, L., Forsyth, P., Spurr, R. and Hoque, S. (2010). Estimating the carbon footprint of Australian tourism. *Journal of Sustainable Tourism* 18(3): 355-376.

Eckstein, Z. and Zilcha, I. (1994). The effects of compulsory schooling on growth, income distribution and welfare. *Journal of Public Economics* 54(3): 339-359.

Ehrlich, I. (1973). Participation in illegitimate activities: A theoretical and empirical investigation. *Journal of political Economy 81*(3): 521-565.

Ehrlich, P.R. and Holdren J.P. (1971). Impact of population growth. *Science* 171(3977): 1212-17.

Ehrlich, P.R. and Holdren J.P. (1972). Impact of population growth. 365-77 *in* Population, Resources and the Environment. Washington, D.C.: US. Government Printing Office.

Engle, R.F. and Granger, C.W.J. (1987). Cointegration and error correction: Representation, estimation and testing. *Econometrica* 55: 251–276.

Epstein, P.R. (2000). Is global warming harmful to health? *Scientific American* 283(2): 50-57.

Essex, S., Kent, M. and Newnham, R. (2004). Tourism development in Mallorca: is water supply a constraint? *Journal of Sustainable Tourism* 12(1): 4-28.

Esteban, J. and Ray, D. (2003). Inequality and public resource allocation. 1-44.

Expatfocus, (2013). Indonesia- crime and safety. Retrieved 25 February 2014 from http://www.expatfocus.com/expatriate-indonesia-crime-safety.

Fajnzlber, P., Lederman, D. and Loayza, N. (2002). Inequality and violent crime. *JL and Econ* 45: 1-40.

Fan, Y., Liu, L.C., Wu, G. and Wei, Y.M. (2006). Analyzing impact factors of CO_2 emissions using the STIRPAT model. *Environmental Impact Assessment Review* 26(4): 377-395.

Farrar, S.A. (2013). Crime and Criminal Justice in Malaysia *Handbook of Asian Criminology* 231-246.

Fayissa, B., Nsiah, C. and Tadasse, B. (2009). Tourism and economic growth in Latin American countries (LAC): further empirical evidence. *Depatment of economics and finance working paper series*, March 2009.

Fortanier, F. and Van Wijk, J. (2010). Sustainable tourism industry development in sub-Saharan Africa: Consequences of foreign hotels for local employment. *International Business Review* 19(2): 191-205.

Freedman, M. and Owens, E.G. (2011). Low-income housing development and crime. *Journal of Urban Economics* 70(2): 115-131.

Freeman, R.B. and Rodgers III, W.M. (1999). Area economic conditions and the labor market outcomes of young men in the 1990s expansion: National bureau of economic research.

Friedl, B. and Getzner, M. (2003). Determinants of CO_2 emissions in a small open economy. *Ecological Economics* 45: 133–148

Fuji, E.T., Mak, J. and Nishimure, E. (1978). Tourism and crime. Honolulu: University of Hawaii. *Tourism Research Project, Occasional Paper*(2).

Fujii, E.T. and Mak, J. (1980). Tourism and crime: Implications for regional development policy. *Regional Studies* 14(1): 27-36.

Fuller, T. (2013). Wave of high-profile crimes has put Malaysians on the defensive. The New York Times, October, 18, 2013. Retrieved 21 January 2014 from http://www.nytimes. com/2013/10/20/world/asia/soaring-crime-rate-takes-a-growing-malaysia-by-surprise.html?_r=0

für Naturschutz, B. (1997). Biodiversität und tourismus, konflikte und lösungsansätze an der küste der weltmeere. Berlin, Heidelberg.

Gallup, J.L. (2012). Is there a Kuznets Curve? Portlan State University. Unpublished.

Galor, O. and Tsiddon, D. (1996). Income distribution and growth: the Kuznets hypothesis revisited. *Economica-London* 63(250): 103-117.

Gerson, M. P. R. (1998). *Poverty, income distribution, and economic policy in the Philippines*. International Monetary Fund.

Giacopassi, D.J., Stitt, B.G. and Nichols, M. (2000). Including tourists in crime rate calculations for new casino jurisdictions: What difference does it make? *American Journal of Criminal Justice* 24(2): 203-215.

Gillado, M. and Tan-Cruz, T. (2004). Panel data estimation of crime rates in the Philippines. *9 th National Convention on Statistics (NCS) Paper*.

Glaeser, E.L. and Sacerdote, B. (1996). Why is there more crime in cities? : National Bureau of Economic Research.

Glantz, M.H. (2001). Once burned, twice shy? A UNEP/NCAR/UNU/WMO/ISDR Assessment, October 2000.

Glensor, R.W. and Peak, K.J. (2004). Crimes against tourists: US Department of Justice, Office of Community Oriented Policing Services.

Glomm, G. and Ravikumar, B. (1992). Public versus private investment in human capital: endogenous growth and income inequality. *Journal of political economy* 100(4): 818-834.

Gomez, E. T., and Sundaram, J. K. (1999). *Malaysia's political economy: Politics, patronage and profits*: CUP Archive.

González, M. and Menendez, A. (2000). The effect of unemployment on labor earnings inequality: Argentina in the nineties: *Woodrow Wilson School of Public and International Affairs*.

Gössling, S. (2002). Global environmental consequences of tourism. *Global environmental change* 12(4): 283-302.

Gössling, S., Hansson, C.B., Hörstmeier, O. and Saggel, S. (2002). Ecological footprint analysis as a tool to assess tourism sustainability. *Ecological economics* 43(2): 199-211.

Gota, S. Huizenga, C., Peet, K. and Kaar, G. (2015). Intended Nationally-Determined Contributions (INDCs) Offer Opportunities for Ambitious Action on Transport and Climate Change. Partnership on Sustainable Low Carbon Transport. November, 24, 2015.

Gottschalk, P. and Smeeding, T.M. (1997). Cross-national comparisons of earnings and income inequality. *Journal of Economic literature* 35(2): 633-687.

Gould, E.D., Weinberg, B.A. and Mustard, D.B. (2002). Crime rates and local labor market opportunities in the United States: 1979–1997. *Review of Economics and Statistics* 84(1): 45-61.

Green, P. (2015). Thailand: tourism and the Sex Industry. *Women Magazine*. N.p., 01 Aug. 2001. Web. 31 May 2015.

Gregorio, J.D. and Lee, J.W. (2002). Education and income inequality: new evidence from cross-country data. *Review of Income and Wealth* 48(3): 395-416.

Grinols, E., Mustard, D. and Staha, M. (2009). How do visitors affect crime? *Journal of Quantitative Criminology* 27(3) 363-378.

Grogger, J. (1997). Market wages and youth crime: National Bureau of Economic Research.

Grossman, G.M. and Krueger, A.B. (1995). Economic growth and the environment. *The quarterly journal of economics* 110(2): 353-377.

Habibullah, M.S. and Law, S. (2007). Crime and financial economic variables in Malaysia: Evidence from a vector error-correction model. *Journal of Social and Economic Policy* 4(2): 263-276.

Hadri, K. (2000). Testing for stationarity in heterogeneous panel data. *The Econometrics Journal* 3(2): 148-161.

Hamilton, J.M., Maddison, D.J. and Tol, R.S.J. (2005). Effects of climate change on international tourism. *Climate Research* 29(3): 245-254.

Hang, G. and Yuan-sheng, J. (2011). The relationship between CO_2 emissions, economic scale, technology, income and population in China. *Procedia Environmental Sciences* 11: 1183-1188.

Harper J.W. (2001). Comparing tourists crime victimization. *Annals of Tourism Research 28*(4): 1053-1056.

Harris, J.R. and Todaro, M.P. (1970). Migration, unemployment and development: a two-sector analysis. *The American Economic Review* 60(1): 126-142. (dar matn nist, ezafe shavad)

Hassan, H. (2004). The role of department of environment in mitigating climate change. Department of Environment, Ministry of Natural Resources and Environment, Malaysia.

Hausman, J.A. (1978). Specification tests in econometrics. *Econometrica: Journal of the Econometric Society* 46(6): 1251-1271.

Hendel, I., Shapiro, J. and Willen, P. (2005). Educational opportunity and income inequality. *Journal of Public Economics* 89(5): 841-870.

Hollander, G., Threlfall, P. and Tucker, K.A. (1982). Energy and the Australian tourism industry. *Working Paper, Bureau of Industry Economics, Australia* 25

Holtz-Eakin, D. and Selden, T.M. (1995). Stoking the fires? CO_2 emissions and economic growth. *Journal of public economics* 57(1): 85-101.

Honey, M. and Gilpin, R. (2009). Tourism in the developing world. Promoting peace and reducing poverty. *Special Report* 233.

Hoque, S., Forsyth, P., Dwyer, L., Spurr, R., Van Ho, T. and Pambudi, D. (2010). The carbon footprint of Queensland tourism: CRC For Sustainable Tourism.

Hornby, W.F. and Fyfe, E.M. (1990) Tourism for tomorrow: Singapore looks to the future. *Geography* 75: 58-62.

Houghton, R.A. (2012). Estimated carbon dioxide emissions from tropical deforestation improved by carbon-density maps. *Nature Clim. Change* 2(3): 182-185.

Howsen, R.M. and Jarrell, S.B. (1987). Some determinants of property crime: economic factors influence criminal behaviour but cannot completely explain the syndrome. *American Journal of Economics and Sociology* 46(4): 445-457.

Høyer, K.G. (2000). Sustainable tourism or sustainable mobility? The Norwegian case. *Journal of Sustainable tourism* 8(2): 147-160.

Hughes, G.C. (1982). The employment and economic effects of tourism reappraised. *Tourism Management* 3(3): 167-176.

Hughes, H.L. (1981). A tourism tax—the cases for and against. *International Journal of Tourism Management* 2(3): 196-206.

Hundt, A. (1996). Impact of tourism development on the economy and health of Third World nations. *Journal of travel medicine* 3(2): 107-112.

Ikemoto, Y. (1985). Income distribution in Malaysia: 1957–80. *The Developing Economies* 23(4): 347-367.

Im, K.S., Pesaran, M.H. and Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics* 115(1): 53-74.

Integrated Regional Information Networks (IRIN). (2009). Indonesia: Climate Change worsening disasters, says UN. (Nairobi, Kenya: IRIN, Humanitarian News and Analysis, 16. October); Retrieved 10 January 2016 from http://www.irinnews.org/Report.aspx?ReportID=86617.

Ismail, R. (2000). Educational and Income Inequality in Malaysia. *Humanomics* 16(2): 19-40.

Jafari, Y., Othman, J., and Nor, A.H.S.M. (2012). Energy consumption, economic growth and environmental pollutants in Indonesia. *Journal of Policy Modeling* 34(6): 879-889.

Jalil, A. and Feridun, M. (2011). The impact of growth, energy and financial development on the environment in China: A cointegration analysis. *Energy Economics* 33(2): 284-291.

Jarrell, S. and Howsen, R.M. (1990). Transient crowding and crime. *American Journal of Economics and Sociology* 49(4): 483-494.

Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of economic dynamics and control* 12(2): 231-254.

Johnson, E.A. 1995. *Urbanisation and crime: Germany 1871-1914*: Cambridge University Press.

Jones, C. and Munday, M. (2007). Exploring the environmental consequences of tourism: a satellite account approach. *Journal of Travel Research* 46(2): 164-172.

Jong-Sung, Y. and Khagram, S. (2005). A comparative study of inequality and corruption. *American Sociological Review* 70(1): 136-157.

Jud, G.D. (1975). Tourism and crime in Mexico. *Social Science Quarterly* 56(2): 324-330.

Kahya, M. (2012). Structural change, income distribution and poverty in ASEAN-4 countries.

Kalemo, Z.R. (2011). Understanding the role of tourism in poverty reduction, the case of communities adjacent to Mikumi National Park in Tanzania.

Kao, C. (1999). Spurious Regression and Residual Based Tests for Cointegration in Panel Data. *Journal of Econometrics* 90: 1–44.

Kao, C. and Chiang, M.H. (2001). On the estimation and inference of a cointegrated regression in panel data. *Advances in econometrics* 15: 179-222.

Kaplan, M. and Çelik, T. (2008). The impact of tourism on economic performance: the case of Turkey. *The International Journal of Applied Economics and Finance* 2(1): 13-18.

Katircioglu, S.T., Feridun, M. and Kilinc, C. (2014). Estimating tourism-induced energy consumption and CO_2 emissions: The case of Cyprus. *Renewable and Sustainable Energy Reviews* 29: 634-640.

Kelly, P.M. and Adger, W.N. (2000). Theory and practice in assessing vulnerability to climate change and Facilitating adaptation. *Climatic change* 47(4): 325-352.

Khalil, S., Kakar, M.K. and Malik, A. (2007). Role of tourism in economic growth: Empirical evidence from Pakistan economy. *The Pakistan Development Review* 46(4): 985-995.

Kim, H.J., Chen, M.H. and Jang, S.C. (2006). Tourism expansion and economic development: The case of Taiwan. *Tourism Management* 27(5): 925-933.

Kleck, G. (1979). Capital punishment, gun ownership, and homicide. *American Journal of Sociology* 84(4): 882-910.

Klitgaard, R. and Katz, R. (1984). Overcoming ethnic inequalities: Lessons from Malaysia. *Policy Studies Review Annual* 7(3): 84.

Kreag, G. (2001). The impacts of tourism. Sea Grant Minnesota, Unpublished.

Kreishan, F.M.M. (2010). Tourism and economic growth: The case of Jordan. *European Journal of Social Sciences* 15(2): 63-68.

Krongkaew, M. and Zin, R.H.M. (2003). Income distribution and sustainable economic development in east Asia: A comparative analysis. In *Annual Meeting of the East Asian Development Network, Singapore* 10-17.

Kuznets, S. (1955). Economic growth and income inequality. *The American economic review* 6(2): 1-28.

Kwaramba, H.M., Lovett, J.C., Louw, L. and Chipumuro, J. (2012). Emotional confidence levels and success of tourism development for poverty reduction: The South African Kwam eMakana home-stay project. *Tourism management* 33(4): 885-894.

Lau, E., Oh, S.L. and Hu, S.S. (2008). Tourist arrivals and economic growth in Sarawak. *MRPA Paper* 9888.

Law, S.H. and Tan, H.B. (2009). The role of financial development on income inequality in Malaysia. *Journal of Economic Development* 34(2): 153.

Lay, B. (2013). Statistics showing declining crime rate in S'pore is a bogus trend. Mothership. Retrieved 6 March 2014 from http://mothership.sg /2013/09/statistic-showing-declining-crime-rate-in-spore-bogus-trend/

Lee, C.C. and Chang, C.P. (2008). Tourism development and economic growth: A closer look at panels. *Tourism Management* 29(1): 180-192.

Lee, C.K. and Kang, S. (1998). Measuring earnings inequality and median earnings in the tourism industry. *Tourism Management* 19(4): 341-348.

Lee, J.W. and Brahmasrene, T. (2013). Investigating the influence of tourism on economic growth and carbon emissions: Evidence from panel analysis of the European Union. *Tourism Management* 38: 69-76.

Lee, S. (2009). Income inequality in tourism services-dependent counties. *Current Issues in Tourism* 12(1): 33-45.

Levantis, T. and Gani, A. (2000). Tourism demand and the nuisance of crime. *International Journal of Social Economics* 27: 959-967.

Levin, A., Lin, C.F. and James, C.C.S. (2002). Unit root tests in panel data: asymptotic and finite-sample properties. *Journal of econometrics* 108(1): 1-24.

Levitt, S.D. (1999). The changing relationship between income and crime victimization. *Economic Policy Review* 5(3): 87-98.

Liu, J.C. and Var, T. (1986). Resident attitudes toward tourism impacts in Hawaii. *Annals of Tourism Research* 13(2): 193-214.

Liu, J., Feng, T. and Yang, X. (2011). The energy requirements and carbon dioxide emissions of tourism industry of Western China: A case of Chengdu city. *Renewable and Sustainable Energy Reviews* 15(6): 2887-2894.

Lochner, L. (2004). Education, work, and crime: A human capital approach. *International Economic Review 45*(3): 811-843.

Lundie, S., Dwyer, L. and Forsyth, P. (2007). Environmental-economic measures of tourism yield. *Journal of Sustainable Tourism* 15(5): 503-519.

Maddala, G.S. and Wu, S. (1999). A comparative study of unit root tests with panel data and a new simple test. *Oxford Bulletin of Economics and statistics* 61(S1): 631-652.

Malaysia. (1991). *The Second Outline Perspective Plan, 1991-2000*. National Print. Department.

Malaysian Business, (2013). Urgent need to address income inequality. Retrieved 15 June 2014 from http://malaysianbiz.my/other-thots/urgent-need-address-income-inequality/

Manton, M.J., Della-Marta, P.M., Haylock, M.R., Hennessy, K.J., Nicholls, N., Chambers, L.E. and Gunawan, D. (2001). Trends in extreme daily rainfall and temperature in Southeast Asia and the South Pacific: 1961–1998. *International Journal of Climatology* 21(3): 269-284.

Marcouiller, D.W., Kim, K.K. and Deller, S.C. (2004). Natural amenities, tourism and income distribution. *Annals of Tourism Research* 31(4): 1031-1050.

Markides, K.S. and Tracy, G.S. (1976). The effect of the age structure of a stationary population on crime rates. *Journal of Criminal Law and Criminology* 67(3): 351-355.

Martindale, C. (2013). Crime could hurt Barbados' image, says readers. Nation News, March 19, 2013. Retrieved 3 August 2013 from http://www.nationnews.com/mobile/ view/crime-could-hurt-barbados-image-says-readers/

MacKinnon, J.G., Haug, A.A. and Michelis, L. (1998). Numerical distribution functions of likelihood ratio tests for cointegration: Department of Economics, University of Canterbury.

Mason, A. (2011). Tourism and the sex trade industry in Southeast Asia. *The University of Western Ontario Journal of Anthropology* 7(1): 51-62.

McPheters, L.R. and Stronge, W.B. (1974). Crime as an environmental externality of tourism: Miami, Florida. *Land Economics* 50(3): 288-292.

Meera, A.K. and Jayakumar, M.D. (1995). Determinants of crime in a developing country: a regression model. *Applied Economics* 27(5): 455-460.

Merican, Y., Yusop, Z. and Law, S.H. (2007). Foreign direct investment and the pollution in five ASEAN nations. *International Journal of Economics and Management* 1(2): 245-261.

Merlo, A. and Wolpin, K.I. (2009). The transition from school to jail: Youth crime and high school completion among black males, Second Version.

Mesa, E.P. (2007). Measuring education inequality in the Philippines. *Discussion paper, School of Economics, University of the Philippines*

Miller, W.J. and Schwartz, M.D. (1998). Gambling: Socioeconomic impacts and public policy: Casino gambling and street crime. *Annals* 556: 124-186.

Milman, A. and Pizam, A. (1988). Social impacts of tourism on central Florida, *Annals of Tourism Research* 15(2): 191-204.

Mitchell, J. and Ashley, C. (2006). Can tourism help reduce poverty in Africa. ODI Briefing Paper, March.

Mocan, H.N. (1999). Structural unemployment, cyclical unemployment, and income inequality. *Review of Economics and Statistics* 81(1): 122-134.

Motonishi, T. (2006). Why has income inequality in Thailand increased?: An analysis using surveys from 1975 to 1998. *Japan and the World Economy* 18(4): 464-487.

Moyo, B. and Ziramba, E. (2013). The impact of crime on inbound tourism to South Africa: An application of the bounds test. *African Security Review* 22(1): 4-18.

Munday, M., Turner, K. and Jones, C. (2013). Accounting for the carbon associated with regional tourism consumption. *Tourism Management* 36: 35-44.

Narayan, P.K. and Narayan, S. (2010). Carbon dioxide emissions and economic growth: panel data evidence from developing countries. *Energy Policy* 38(1): 661-666.

National Geography. What causes global warming? Retrieved 5 September 2014 from http://environment.nationalgeographic.com/environment/global-warming/gw-causes/

Nepal, S.K. (2008). Tourism-induced rural energy consumption in the Annapurna region of Nepal. *Tourism Management* 29(1): 89-100.

Neuts, B., Nijkamp, P. and Van Leeuwen, E. (2012). Crowding externalities from tourist use of urban space. *Tourism Economics* 18(3): 649-670.

Nolan, B. (1988). Macroeconomic conditions and the size distribution of income: evidence from the United Kingdom. *Journal of Post Keynesian Economics* 11(2): 196-221.

NSCB (2009). Tourism as an engine for employment creation. Statistically Speaking, National Statistical Co-ordination Board, Manila.

Ochrym, R.G. (1988). Street crime in Atlantic City, New Jersey: An Empirical Analysis. *Nevada Review of Business and Economics* 12*:* 2-7.

Ochrym, R.G. (1990). Street crime, tourism and casinos: An empirical comparison. *Journal of Gambling Studies* 6(2): 127-138.

Office of Natural Resources and Environmental Policy and Planning, 2010. Thailand's Second National Communication under the United Nations Framework Convention on Climate Change. Ministry of Natural Resources and Environment. Bangkok, Thailand.

Ostry, J.D. and Berg, A. (2011). Inequality and unsustainable growth: two sides of the same coin? : International Monetary Fund.

Pan-Long, T. (1995). Foreign Direct Investment and income inequality: further evidence. *World Development* 23: 469-483.

Papps, K. and Winkelmann, R. (2000). Unemployment and crime: New evidence for an old question. *New Zealand Economic Papers 34*(1): 53-71.

Patalinghug, E.E. (2011). Crime rates and labor market opportunities in the Philippines: 1970–2008. *Economics Letters* 113(2): 160-164.

Pattaravanich, U., Williams, L.B., Lyson, T.A. and Archavanitkul, K. (2005). Inequality and educational investment in thai children. *Rural sociology* 70(4): 561-583.

Paul, V.J. (2008). Global warming and cyanobacterial harmful algal blooms Cyanobacterial Harmful Algal Blooms: State of the Science and Research Needs, *Advances in Experimental Medicine and Biology Volume* 46: 239-257.

Pedroni, P. (1999). Critical values for cointegration tests in heterogeneous panels with multiple regressors. *Oxford Bulletin of Economics and statistics* 61(S1): 653-670.

Pedroni, P. (2000). Fully modified OLS for heterogeneous cointegrated panels. In Baltagi, B.H. (Ed.) Nonstationary panels, panel cointegration and dynamic panels, Elsevier, Amsterdam.

Pedroni, P. (2004). Panel cointegration. Asymptotic and finite sample properties of pooled time series tests with an application to the PPP hypothesis. *Econometric Theory* 20: 597–625.

Pelfrey, W.V. (1998). Tourism and crime: a preliminary assessment of the relationship of crime to the number of visitors at selected sites. *International journal of comparative and applied criminal justice 22*(2): 293-304.

Perdue, R.R., Long P.T. and Allen, L. (1987). Rural resident tourism perceptions and attitudes. *Annals of Tourism Research* 14(3): 420-429.

Pesaran, M.H., Shin, Y. and Smith, R.P. (1999). Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association* 94(446): 621-634.

Pesaran, M.H. and Pesaran, B. (1997). *Working with Microfit 4.0: Interactive econometric analysis.* Oxford University Press.

Pesaran, M.H. and Smith, R. (1995). Estimating long-run relationships from dynamic heterogeneous panels. *Journal of econometrics 68*(1): 79-113.

Pesaran, M.H., Shin, Y. and Smith, R.P. (1999). Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association* 94(446): 621-634.

Phillips, P.C.B. and Moon, H.R. (2000). Nonstationary panel data analysis: an overview of some recent developments. *Econometric Reviews* 19(3): 263-286.

Phillips, P.C.B. and Hansen, B.E. (1990). Statistical inference in instrumental variables regression with I(1) processes. *The Review of Economic Studies* 57(1): 99-125.

Phillips, P.C.B. and Hansen, B.E. (1995). Fully modified least squares and vector autoregression. *Econometrica* 63(5): 1023–1078.

Phillips, L., Votey, H.L. and Maxwell, D. (1972). Crime, youth, and the labor market. *The Journal of Political Economy* 80(3): 491-504.

Phillips, P.C.B. and Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika* 75(2): 335-346.

Pigram, J.J. (1980). Environmental implications of tourism development. *Annals of Tourism Research* 7(4): 554-583.

Pizam, A. (1978). Tourism's impacts: The social costs to the destination community as perceived by its residents. *Journal of Travel Research* 16(4): 8-12.

Pratomo, D.S. (2013). Determinants of international demand for tourism to Indonesia. *Jurnal Tema* 4(2): 154-167.

Pushpanatan, S. (1999). Combating transnational crime in ASEAN, *7th ACPFworld conference on crime preventionand criminal justice, 23- 26, New Delhi-India.*

Ram, R. (1984). Population increase, economic growth, educational inequality, and income distribution: Some recent evidence. *Journal of Development Economics* 14(3): 419-428.

Ram, R. (1991). Kuznets's inverted-U hypothesis: evidence from a highly developed country. *Southern Economic Journal* 57(4): 1112-1123.

Rao, V.B. (2004). Economic growth, poverty and income inequality: Experience of East Asia and Implications for India. Paper presented at the International Seminar on Wages and Incomes in India, Mumbai, December 12-14.

Rao, V.B. and Ramakrishnan, M.K. (1980). *Income Inequality in Singapore: Impact of Economic Growth and Structural Change, 1966-1975*. Singapore University Press.

Raphael, S. and Winter-Ebmer, R. (2001). Identifying the effect of unemployment on crime. *Journal of Law and Economics* 44(1): 259-283.

Reiter, P. (2008). Global warming and malaria: knowing the horse before hitching the cart. *Malaria Journal* 7: 1-9.

Roca, J. (2002). The IPAT formula and its limitations. *Ecological economics* 42(1): 1-2.

Rothman, R.A. (1978). Residents and transients: community reaction to seasonal visitors. *Journal of Travel Research 16*(3): 8-13.

Ryan, C. (1993). Crime, violence, terrorism and tourism: an accidental or intrinsic relationship? *Tourism Management* 14(3) 173-183.

Saboori, B., Sulaiman, J. and Mohd, S. (2012). Economic growth and CO_2 emissions in Malaysia: a cointegration analysis of the environmental Kuznets curve. *Energy Policy* 51: 184-191.

Saboori, B., Sulaiman, J.B. and Mohd, S. (2012). An empirical analysis of the environmental Kuznets curve for CO_2 emissions in Indonesia: the role of energy consumption and foreign trade. *International Journal of Economics and Finance* 4(2): 243-251.

Saenz-de-Miera, O. and Rosselló, J. (2014). Modeling tourism impacts on air pollution: The case study of PM10 in Mallorca. *Tourism Management* 40: 273-281.

Sáenz-de-Miera, O. and Rosselló, J. (2013). Tropospheric ozone, air pollution and tourism: a case study of Mallorca. *Journal of Sustainable Tourism* 21(8): 1232-1243.

Sah, R.K. (1991). Social osmosis and patterns of crime. *Journal of political Economy* 99(6): 1272-1295.

Schine, E. (1994). Sayonara to la-la land. *Business Week*. April 11, 29.

Schreiber, S. (2008). The Hausman test statistic can be negative even asymptotically. *Jahrbücher für Nationalökonomie und Statistik* 228(4): 394-405.

Schiebler, S.A., Crotts, J.C. and Hollinger, R.C. (1996). Florida tourists' vulnerability to crime. *Tourism, crime and international security issues*, pp. 37-50 *in*: A. Pizam and Y. Mansfeld (eds.), Tourism, crime, and international security issues. Chichester, England, New York, Wiley.

Schubert, S.F. (2010). Coping with externalities in tourism: a dynamic optimal taxation approach. *Tourism Economics* 16(2): 321-343.

Schulze, P.C. (2002). I= PBAT. *Ecological Economics* 40(2): 149-150.

Scott, D., Peeters, P. and Gössling, S. (2010). Can tourism deliver its "aspirational" greenhouse gas emission reduction targets? *Journal of Sustainable Tourism* 18(3): 393-408.

Senate, (2013). Crime statistics at a glance. AG-13-03, June 2013.

Sen, A. (1992). *Inequality reexamined*. Oxford University Press.

Shahbaz, M., Hye, Q.M.A., Tiwari, A.K. and Leitão, N.C. (2013). Economic growth, energy consumption, financial development, international trade and CO_2 emissions in Indonesia. *Renewable and Sustainable Energy Reviews* 25: 109-121.

Shahbaz, M., Solarin, S.A., Mahmood, H. and Arouri, M. (2013). Does financial development reduce CO_2 emissions in Malaysian economy? A time series analysis. *Economic Modelling* 35: 145-152.

Shari, I. (2000). Economic growth and income inequality in Malaysia, 1971–95. *Journal of the Asia Pacific Economy* 5(1-2): 112-124.

Sheldon, P.J. and Var, T. (1984). Resident attitudes to tourism in North Wales. *Tourism Management* 5(1): 40-47.

Shelley, L.I. (1981). Crime and modernization: The impact of industrialization and urbanisation on crime: Southern Illinois University Press Carbondale.

Sinaga, A. (2012). Income a perilously widening gap. The Jakarta Post. June, 5, 2012. Retrieved 6 October 2013 from http://www.thejakartapost.com/news/2012/06/05/income-a-perilously-widening-gap.html

Skerritt, D. and Huybers, T. (2005). The effect of international tourism on economic development: An empirical analysis. *Asia Pacific Journal of Tourism Research* 10(1): 23-43.

Solarin, S.A. (2013). Tourist arrivals and macroeconomic determinants of CO2 emissions in Malaysia. *Anatolia: An International Journal of Tourism and Hospitality Research* 25(2): 1-14.

Song, H., Witt, S.F. and Li, G. (2003). Modelling and forecasting the demand for Thai tourism. *Tourism Economics* 9(4): 363-387.

STB. (2013). Navigating the next phase of tourism growth. Tourism industry conference 2013.

Stern, P.C., Young, O.R. and Druckman, D. (1991). Global environmental change: Understanding the human dimensions: National Academies Press.

Sugiyarto, G., Blake, A.T. and Sinclair, M.T. (2002). *Economic impact of tourism and globalisation in Indonesia*: Christel DeHaan Tourism and Travel Research Institute, University of Nottingham.

Surugiu, C., Surugiu, M.R., Breda, Z. and Dinca, A.I. (2012). An input-output approach of CO_2 emissions in tourism sector in post-communist Romania. *Procedia Economics and Finance* 3: 987-992.

Tang, C.F. (2011). An exploration of dynamic relationship between tourist arrivals, inflation, unemployment and crime rates in Malaysia. *International Journal of Social Economics* 38(1): 50-69.

Tang, C.F. (2009). The linkages among inflation, unemployment and crime rates in Malaysia. *International Journal of Economics and Management* 3(1): 50-61.

Teo, P. (1994). Assessing socio-cultural impacts: the case of Singapore. *Tourism Management* 15(2): 126-136.

Tabatchnaia-Tamirisa, N., Loke, M.K., Leung, P.S. and Tucker, K.A. (1997). Energy and tourism in Hawaii. *Annals of Tourism Research* 24(2): 390-401.

Thomas, D., Beegle, K., Frankenberg, E., Sikoki, B., Strauss, J. and Teruel, G. (2004). Education in a crisis. *Journal of Development Economics* 74(1): 53-85.

Timothy, D.J. and Wall, G. (1997). Selling to tourists: Indonesian street vendors. *Annals of Tourism Research* 24(2): 322-340.

Tisdell, C. (1987). Tourism, the environment and profit. *Economic Analysis and Policy* 17(1): 13-30.

Tovar, C. and Lockwood, M. (2008). Social impacts of tourism: an Australian regional case study. *International journal of tourism research* 10(4): 365-378.

Tsai, P.K., (1995). Foreign direct investment and income inequality: further evidence. *World Development* 23(3): 469-483.

Tyrrell, T.J. (1984). A survey of attitudes toward tourism growth in Rhode Island, *Journal of Hospitality and Tourism Research* 8(2): 22-33.

UNWTO. (2013). Tourism highlights 2013 edition. Retrieved 20 January 2014 from http://mkt.unwto.org/publication/unwto-tourism-highlights-2013-edition

UNWTO-UNEP-WMO. (2008). Climate change and tourism: Responding to global challenges, *World Tourism Organization and the United Nations Environment Programme*.

Utari, G.D. and Cristina, R. (2015). Growth and Inequality in Indonesia: Does Kuznets Curve Hold?. *Journal of Modern Accounting and Auditing*, *11*(2), 93-111.

Van Beukering, P. and H.S. Cesar (2004). Ecological economic modeling of coral reefs: Evaluating tourist overuse at Hanauma Bay and algae blooms at the Kihei Coast, Hawai'I, *Pacific Science* 58(2): 243-260.

Van Tran, X. and Bridges, F.S. (2009). Tourism and crime in European Nations. *E-review of Tourism Research* 6(5): 102-109.

Viner, D. and Agnew, M. (1999). Climate change and its impacts on tourism: Climatic Research Unit, University of East Anglia.

Waggoner, P.E. and Ausubel, J.H. (2002). A framework for sustainability science: A renovated IPAT identity. Proceedings of the National Academy of Sciences 99(12): 7860-7865.

Wattanakuljarus, A. and Coxhead, I. (2008). Is tourism-based development good for the poor?: A general equilibrium analysis for Thailand. *Journal of Policy Modeling* 30(6): 929-955.

Whiteford, A. and Van Seventer, D. (2000). South Africa's changing income distribution in the 1990s, *Journal of Studies in Economics and Econometrics* 24(3): 604-609.

Winegarden, C.R. (1979). Schooling and income distribution: Evidence from international data. *Economica* 46(181): 83-87.

World Bank (2010) Indonesia: Climate Change (Washington, DC: The World Bank, online resource) Retrived 10 January 2016 from http://go.worldbank.org /HQQFW5MV70.

Wuttisorn, P. (2014). Rural-Urban Poverty and Inequality in Thailand. National Economic and Social Development Board (NESDB).

Xue-pin, W. and Jun-yang, L. (2012). On the relationship between the growth of tourism industry and inflation; Evidence from Hainan international tourism Island. *Tourism Tribune* 27(9): 9-16.

York, R., Rosa, E.A. and Dietz, T. (2003). STIRPAT, IPAT and ImPACT: Analytic tools for unpacking the driving forces of environmental impacts. *Ecological economics* 46(3): 351-365.

Yuzuru, M. and Siong, H.C. (2013). Low Carbon Society Scenarios, Malaysia 2030. Unpublished Paper.

Zhang, J. (1997). Fertility, growth and public investments in children. *Canadian Journal of Economics* 30(4): 835-843.

Zhuang, J. (2009). The economics of climate change in Southeast Asia: a regional review. Asian Development Bank.

Zhuang, J., Kanbur, R. and C. Rhee (2014). Rising inequality in Asia and policy implications., *ADBI Worikng Paper Series* 463.

Zortuk, M. (2009). Economic impact of tourism on Turkey's economy: evidence from cointegration tests. *International Research Journal of Finance and Economics* 25(3): 231-239.