

An Analysis of the Relationships between Tourism Development and Foreign Direct Investment: An Empirical Study in Selected Major Asian Countries

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Abstract

This study analyses the relationship between the development of tourism industry (ARR) and foreign direct investment (FDI) in selected Asian countries namely Malaysia, Singapore, Thailand, China and Hong Kong utilizing autoregressive distributed lag approach (ARDL.) This approach allows the usage of stationary data at various levels, i.e. $I(1)$ and $I(0)$ and may be applied on small sample size and provide the long and short-run empirical results simultaneously. The result indicates that there is cointegration/long-run relationship between variables for all countries under study. However, the ARR is found to be more significant as compared to the FDI in affecting dependent variables, besides being more elastic. In the short run, it is found that Hong Kong has a bidirectional relationship between the ARR and FDI. As for Malaysia and Thailand, there is a unidirectional relationship between ARR and FDI; while for Singapore and China, there is no relationship between these two variables.

Keywords: Asian countries, cointegration, tourism industry, foreign direct investment

1. Introduction

Tourism is now becoming one of the leading industries in many countries. It is mainly due to its major contribution to foreign exchange earnings, national income and employment opportunities which give major economic impact to the respective countries. For the period of 1995 to 2010 for example, the international tourist arrivals had increased from 541 million to about 935 million, an average increase of 3.7% a year. Total income from tourist receipts for the same time period had increased from USD410.7 billion to USD935 billion (UNWTO, 2011) with an average growth of 5.5% annually. These figures have shown that international tourism industry had grown drastically and had becoming the leading export contributor of the service sector globally. The fast growth in this industry was partly due to the participation of newly developed tourist destinations especially from the developing countries which were seriously developing their tourism industry.

However, until today, the international tourist arrivals and receipts are still being monopolised by the traditional markets, mainly the European and American markets. Nonetheless, in terms of growth, the new markets especially those from Asia and Pacific regions are recording a rapid increment. The rapid increase in the international tourist arrivals to the new markets especially the Asian and Pacific markets are mainly due to various factors; among others are tourists interest in exploring new destinations with new tourism products such as eco-based and historical heritage. Besides that, the cheaper tourism cost also encourages more arrivals. At the same time, government of most countries in these regions are taking initiatives in developing their tourism sector.

Various strategies and incentives are given to service providers/operators especially the private sectors in stimulating their countries' tourism industry growth by providing multitude of facilities needed by tourists (Redzuan and Norlida, 2006). Furthermore, the foreign direct investment (FDI) inflow is also seen as having significant impact to the growth of tourism industry. The UNCTAD (2007) stated that FDI's do increase the standard of tourism sector facilities especially in hotels, restaurants and recreational centers, as well as supporting the physical infrastructure and basic services from developed nation (NM) to the tourism industry in developing nations (NSM). Nonetheless, data indicates that the inflow of FDI's into the NSM's tourism sector is only 10 percent of the total FDI's globally (UNCTAD, 2007). This indicates that tourism sector is quite behind in terms of FDI's inflow as compared to other economic sectors such as services, manufacturing, agriculture and others. However, the tourism sector is found to grow fairly rapid that it outperformed the growth of other sectors. Thus, countries that wish to increase their tourism sector must increase their FDI's as to accelerate the said sector's growth as mentioned by UNCTAD (2007). Here, FDI can be the catalyst that speeds up NSMs in developing their tourism industry.

By utilizing the cointegration method, this study is focusing on empirical analysis in proving the existence of relationship between tourism industry growth as proxy by tourist arrival data (ARR) and FDI at selected Asian major countries namely Malaysia, Thailand, Singapore, China and Hong Kong. In this context, if there is relationship between ARR and FDI, it is still undetermined as to which variable is exogenous or endogenous. By employing the Granger causal test, the direction of relationship between the ARR and PLA can be determined. In other words, the test result can determine whether FDI caused ARR (FDI-led tourism development), i.e. FDI as exogenous variable; or ARR caused FDI (tourism development-led FDI), i.e. tourism industry growth as exogenous variable.

2. Past Researches

A causal analysis is usually carried out in determining the direction of relationship among economic variables. Among the variables studied are economic development, FDI, technology transfer, trade and tourism. Below are past studies that discussed on relationship among several variables including tourism. Relationship between FDI and economic growth has been studied by several researchers, with different results. For instance, research done by Mohd Azlan et al. (2003) found that the direction of causality between FDI and economic growth among developed nations (NM) and developing nations (NSM) is inconsistent. Borenstztein et al. (1998) employed a set of data of FDI inflow from industrialized countries to 69 NSMs. Result of the study shows that FDI allows transfer of technology and generate higher economic growth. However, only the recipient country has the minimum threshold stock of human capital and high productivity. In the aspect of tourism, Dunning and McQueen (1981); Contractor and Kundu (1995); and Kundu and Contractor (1999) found that economic growth rate specifically the tourism business is an important determinant in FDI for international hotels. This study on the relationship between FDI and tourism only analyzed international hotel industry but did not discuss the relationship between FDI and tourist arrival. Michael (1999) researched on the relationship of the Mexican tourism and its growth for the past 30 years beginning 1970 to 1999. Research result found that a factor that may increase the foreign tourist arrival to Mexico is by having top well known hotels in the country. The foreign tourist arrival also encourages the involvement of private sector in the economy.

Kulendran and Wilson (2000) researched on the aspect of tourism and trade. They employed the cointegration and Granger causality method; and came out with a preliminary hypothesis on the existence of relationship between tourism and international trade. They suggested that this topic needs further discussion. Meanwhile, Corte-Jimanez and Pulina (2006) researched on tourism sector and export where they may influence economic growth in Spain and Italy. Research result showed that exports caused economic growth in the long term for both countries. Study found that only Spain showed that tourism do influence growth in the long term. Redzuan et al. (2008) researched on the existence and the direction of the relationship or the linkage between tourism industry development and economic growth (GDP). Research result found that both variables have long run relationship and the tourism industry growth has unidirectional causal effect on economic growth. Thus, tourism industry development encourages GDP growth; but GDP growth is insignificant in influencing the tourism industry development. Research also estimates that 10 percent increase in tourist arrival is capable in increasing the Malaysian GDP by 1.9 percent. Redzuan and Norlida (2010) re-examined the same variables of selected countries that are grouped into the established and newly-established countries. The purpose of the analysis is to find the pattern of relationship between the two countries.

Study result however could not find any consistencies between those groups. Redzuan et al. (2010) also test the relationship between tourism industry development and economic growth in ASEAN countries. Study result showed that there is a unidirectional relationship between tourism industry development and economic growth. As for Thailand and Indonesia, it is found that economic growth caused tourism industry growth (GLT). Meanwhile, for Malaysia and Singapore, their tourism industry development caused economic growth (TLG). Tamat and Norlida (2009) also conducted a study on the relationship between tourism industry development, but employed the trade and growth variables of ASEAN countries. Study result showed evidence of long term relationship among foreign tourist arrival, trade and economic growth.

Meanwhile, short term behavioral analysis found that tourist arrival has significant Granger caused trade flow to several countries. At the same time, in the short term it is found that growth in total trade (import and export) and foreign tourist arrival to Malaysia has unidirectional Granger caused in real income and statistically proved that international trade brings in foreign tourist arrival. Analysis indicates that there are unidirectional and bidirectional relationships among the three variables between Malaysian and four ASEAN main countries namely Indonesia, Singapore, Thailand and Brunei. Researches that linked tourism industry development and FDI in general are still limited. To date only Tang, Selvanathan and Selvanathan Seroja (2007) is found to discuss on the relationship between tourism industry development and FDI in China using quarterly time series data beginning 1985 to 2003. Research result showed that there is unidirectional causal relationship from FDI to tourism; and this study explains the rapid growth in tourism for the past decade.

3. Foreign Direct Investment (FDI) and Tourism in Five Selected Asian Countries

During 1960s, tourism sector in most NSM did not gain much attention. This is because its impact to the economy is insignificant. However, worldwide economic growth has changed the perception of most countries toward this industry. In fact, lately tourism is an important determinant in economic growth and FDI (UNCTAD, 2007) China for instance, with its open door policy which was officially launched in 2001 has opened up a new era in economic growth. Tourism industry development and the inflow of FDIs were found to happen drastically. China was reported to have gained USD4,071 million worth of FDIs in 2000 and increased to USD108,312 million in 2008. During the same period, China gained USD17,318 million and USD44,130 million in tourism receipt, respectively. Increased in this income is stimulated by drastic tourist arrival as shown by Table 1; where China recorded healthy growth of 10.6 million of tourist in 2000 to 53 million in 2008.

Other countries such as Malaysia, Thailand, Singapore and Hong Kong also showed that their economic growth has been stimulated by the development in tourism industry and inflow of FDIs. For instance, Malaysia received USD5,873 in tourism receipt in 2000 and USD18,553 million in 2008 with 10.2 million and 22 million tourists, respectively. At the same time, inflow of FDIs recorded by Malaysia increased from USD3,788 million to USD8,053 million. Meanwhile, Singapore recorded tourism receipt of USD5,142 million and USD10,583 million in 2000 and 2008; with tourist arrival of 6.9 million and 7.8 million, respectively. Meanwhile, in terms of income from FDIs, Singapore received USD16,484 million and USD22,725 million during the same year. Thailand and Hong Kong received USD9,936 million and USD8,198 million in tourism receipt in 2000; and increased to USD21,980 million and USD20,413 million in 2008, respectively. As other countries, both countries recorded rapid increased in tourist arrival from 9.5 million to 14.5 million; and from 13.1 million to 17.3 million for Thailand and Hong Kong, respectively. The amount of FDI for Thailand also increased from USD3,349 million to USD10,091 million; and USD61,924 million to USD63,003 million for Hong Kong, respectively, refer Table 1.

Table 1. Tourist arrivals and FDI in selected Asian countries

Year/ Country	Tourist Arrival (‘000 Persons)					Foreign Direct Investment (USD million)					Tourism Receipts (USD million)	
	1980	1990	2000	2005	2008	1980	1990	2000	2005	2008	2000	2008
Malaysia	2067	7446	10221	16431	22052	9334	2611	3788	4064	8053	5873	18553
Thailand	1858	5299	9579	11567	14536	189	2575	3349	8048	10091	9936	21980
Singapore	2311	4842	6917	7079	7778	1236	5575	16484	14374	22725	5142	10583
China	5703	27401	10160	46809	53049	57	3487	4071	72406	108312	17318	44130
Hong Kong	1748	5933	13059	14773	17319	710	3275	61924	33618	63003	21980	20413

Source: World Tourism Organization (2009), United Nation Conference on Trade and Development, Tourism Malaysia (2008) and World Bank (World Development Indicator).

It is clear from the above discussion that increase in tourist arrival means increase in tourism receipt. Besides, it is also found that the selected countries recorded increased in FDIs during the same time frame. Thus, there is a unidirectional relationship between the tourist arrival data as proxied to tourism industry growth and FDI. As such, there is possibility that both are cointegrated and causal. As explained earlier, this is an important issue that needs to be studied.

4. Data and Methodology

This research employs time series data obtained from World Tourism Organization (WTO), and World Bank for the period of 1978 to 2008. This research also focuses on empirical analysis in showing the relationship between ARR and FDI of selected Asian countries namely Malaysia, Thailand, Singapore, China and Hong Kong. There are three tests and methods that would be performed in this study. The first test that needs to be fulfilled in applying the cointegration method is stationarity of data. Thus, the unit root test is the first that need to be analyzed. The second step is to conduct cointegration test for ARR and FDI for all the five Asian countries. Test is done by using the cointegration method through the ARDL approach for proving. The third step is the Granger causality test which is done in order to test the existence of unidirectional or bidirectional relationship between these two variables. Both variables are estimated in logarithm form.

5. Empirical Results

5.1 Unit root test

In economic analysis, unit root test is conducted to determine the stationarity of the time series data. There are many methods in calculating the stationarity of a time series in unit root test, among which are the Augmented Dickey Fuller (ADF, 1979) and Phillips Perron (PP, 1988). Both tests employ the presence of unit root as null hypotheses. The PP test differs from the ADF in terms of handling of the serial correlation in error. This study employs the Augmented Dickey Fuller test which uses an auto regression parameter in approaching structural errors in regression test.

A time series data is said to be stationary when the means and variances are constant through time, while auto covariance series are not time dependent. On the other hand, when time series data is non stationary¹, means and variance are time dependent. If non stationary data is employed in the analysis, spurious correlation will exists among variables and inconsistent result will be produced. The ADF test based on normal regression is as follows:

$$\text{ADF Test : } \Delta Y_t = \alpha + \delta t + \beta Y_{t-1} + \gamma \sum_{i=1}^p \Delta Y_{t-i} + u_t$$

Where, ΔY_t variable indicates unit root test for Y_t that uses logarithm for all model variables (ARR and FDI) at time t . Meanwhile, ΔY_{t-1} indicates first difference lag where Δ is the symbol for difference. u_t is the estimation error and α , β , δ , and ϖ are parameters that need to be estimated. The ADF test result in Table 2.

From Table 2, the hypotheses used in this test are as follows:

$$H_0: \beta = 0,$$

$$H_1: \beta < 0$$

Result of test shows that H_0 can be rejected at 5% significant level after first difference is done on both variables for all countries. This shows that all variables have unit root and are stationary at first level and denoted as $I(1)$. This however is not the case for the FDI variable for Singapore, China and Hong Kong which are stationary at level and denoted as $I(0)$ when model with intercepts and trends is used.

¹ According to Nelson and Plosser (1982), most economic variables including those financial variables can be categorized as non stationary and only reaches stationary at first level difference or higher.

Table 2. ADF result for unit root test on level and first difference

Country	Variable	Level		First Δ Level	
		Intercept	Intercept and Trend	Intercept	Intercept & Trend
Malaysia	ln PLA	-1.84 (0)	-2.56 (0)	-6.93* (0)	-6.80* (0)
	ln ARR	-0.36 (0)	-2.87 (0)	-5.44* (0)	-5.35* (0)
Thailand	ln PLA	-1.75 (0)	-2.54 (2)	-5.48* (0)	-4.21* (7)
	ln ARR	-2.26 (4)	-1.66 (0)	-4.86* (0)	-5.11* (7)
Singapore	ln PLA	-2.13 (0)	-4.56* (0)	-5.41* (1)	-5.32* (1)
	ln ARR	-1.51 (0)	-1.97 (0)	-6.71* (0)	-6.74* (0)
China	ln PLA	-1.94 (2)	-13.04* (1)	-13.27* (1)	-11.88* (1)
	ln ARR	-2.19 (0)	-2.19 (0)	-5.47* (0)	-5.35* (0)
Hong Kong	ln PLA	-1.27 (0)	-3.91* (0)	-6.27* (0)	-6.15* (0)
	ln ARR	-1.68 (0)	-1.56 (0)	-4.99* (1)	-5.63* (1)

Note: In FDI is logarithm for Foreign Direct Investment (FDI), and In ARR is logarithm for tourism industry growth as proxied by number of tourist arrival. Figure in parenthesis is the lag length that is employed in the ADF test (as per determined from the SIC set, maximum at seven) for serial correlation rejection in residuals. The ADF unit root test is done with intercept and intercept and trend.

* significant at 5% significant level (or at confidence level of 95%), i.e. representing null hypotheses at 5% level.

5.2 Cointegration

Johansen (1988, 1991) and Johansen and Juselius (1990)² pioneered the efforts in understanding the behavior or the long term relationship among economic variables by introducing the cointegration technique³. The important pre-condition that needs to be fulfilled in applying the Johansen cointegration technique is that the data must be of the same order of stationary. However, in this study, several countries such as Singapore, China and Hong Kong have stationary data at level. This means that this study data is stationary at I(0) and I(1). The difference in stationary level does not allow the usage of Johansen cointegration method. On the contrary, the cointegration method pioneered by Pesaran and Shin (1995, 1999); Pesaran et. al (1996); and Pesaran et al. (2001) that refer the Autoregressive Distributed Lag (ARDL) approach may be employed.

The ARDL bound test approach is chosen as it can be used in small sample size, estimates long term and short term relationships simultaneously; and allows the test on existence of relationship among variables for stationary data at various level, i.e. I(0) and I(1). The ARDL is conducted with the help of Microfit 4.0 computer package. The equations of the estimated long run model and ARDL long term and short term are per Equations (1) and (2). Engel and Granger (1987) stated that if the data is cointegrated in the long run, any disturbance to the imbalance is only temporary in nature and can be shown by the Error Correction (ECM) model, as shown by Equation 3 below.

$$LARR = \alpha_1 + \beta_1 LFDI_t + \varepsilon_t \quad --(1)$$

$$\Delta LARR = \alpha_1 + \sum_{i=1}^n \beta_{1i} \Delta LARR_{t-i} + \sum_{i=1}^n \beta_{2i} LFDI_{t-1} + \alpha_2 LARR_{t-1} + \alpha_3 LFDI_{t-1} + \varepsilon_t \quad --(2)$$

$$\Delta LARR_t = \alpha_1 + \sum_{i=1}^n \beta_{1i} \Delta LARR_{t-i} + \sum_{i=1}^n \beta_{2i} \Delta LFDI_{t-1} + \lambda ECT_{t-1} + \varepsilon_t \quad --(3)$$

Where, Δ is the symbol of difference, ε_t is the error/residual (white noise); and, α and β are the variables coefficients that need to be estimated. ARR_t and PLA_t refer to the tourism industry growth and foreign direct investment for chosen countries namely Malaysia, Thailand, Singapore, China and Hong Kong. In order to recognize the existence of the long term relationship between variables ARR and FDI, the Pesaran, et al. (2001) bound test will be conducted.

² Cheung and Ng (1998) stated that the Johansen procedure is more efficient as compared to the two-step approach by Eagle and Granger (1987). Meanwhile, Gonzalo (1994) stated that the Johansen procedure has the finite sample properties.

³ Cointegration refers to the possibility that non-stationary variables may have a linear combination that is stationary (Tang, 2007), thus the regression analysis is not spurious.

The bound test is based on the F-test or Wald-statistic. The F-test is to test both hypotheses below:

$$(H_0: \alpha_2 = \alpha_3 = 0), \quad \text{No cointegration between variables} \quad \text{--(4)}$$

$$(H_a: \alpha_2 \neq \alpha_3 \neq 0), \quad \text{Existence of cointegration between variables} \quad \text{--(5)}$$

The cointegration test equation can also be written as follows:

$$F_{LARR} (LARR | LFDI).$$

In view that the F-test does not have non-standard distribution, two critical values, i.e. lower critical bound (LCB) and upper critical bound (UCB), are given Pesaran et al. (2001). The LCB value assumes that all variables are I(0), meaning there is no cointegration between variables; while the UCB value assumes that all variables are I(1), i.e. existence of cointegration between variables. If the calculated F value exceeds UCB, then the H_0 hypotheses will be rejected. Thus, there is cointegration between variables. Situation is reversed when if the calculated F value is smaller than the LCB value. This means that the H_0 hypotheses failed to be rejected. If the calculated F value is between the LCB and UCB, it means that the result cannot be determined. The result of cointegration test as shown in Table 3 is based on the bound test approach. All five countries show the existence of cointegration between variables, with the F value exceeds the UCB critical value.

Table 3. Cointegration bound test approach result

Country	F-statistic
Malaysia	33.32601*
Thailand	385.4691*
Singapore	199.8105*
China	10.15609*
Hong Kong	163.3420*

Note: UCB value at 5%=5.473, 1%=7.873

LCB value at 5%=4.267, 1% = 6.183

** significant at 5% significant level

* significant at 1% significant level

5.3 Long-run and Short-run Estimation

Due to the existence of relationship between variables in the long run; the long run coefficient for the variables are estimated as presented in Table 4. The result shows that the long run coefficient value for the ARR variable is elastic in influencing FDI for all countries, but is only significant for Malaysia, Thailand and Hong Kong. Meanwhile, by assigning the ARR as dependent variable, only the FDI for Hong Kong is significant in influencing the ARR and it is inelastic. Thus, we can conclude that in the long run, the ARR is an important dependent variable as compare to the FDI. Only unidirectional relationship between ARR and FDI in the long run occur for Malaysia and Thailand, bidirectional for Hong Kong and no relation for Singapore and China.

Table 4. Result of ARDL (long run output)

Country	Constant	LFDI	Constant	LARR
Malaysia	48.5972 (0.0437)	-0.7376 (-0.02669)	151.4049*** (3.7023)	9.0328*** (3.4607)
Thailand	18.2655*** (8.4347)	-0.0196 (-0.2301)	111.3169** (2.7269)	6.3289** (2.4084)
Singapore	16.2288*** (28.4506)	0.0310 (1.0992)	131.0241 (1.6850)	7.6804 (1.5185)
China	17.3683*** (26.0497)	0.0495 (0.8588)	-19.7596 (-0.2761)	1.7292 (0.4011)
Hong Kong	17.5584*** (28.9883)	0.0820** (2.7454)	121.9795*** (4.6824)	6.8651*** (4.1709)

Note: ***, **, * significant at significant level of 1%, 5% and 10% (or at confidence level of 99%, 95% and 90%), i.e. representing null hypotheses at 1%,5% and 10% level.

As the short run relationships being conducted, it is found that by assigning the FDI as a dependent variable, ARR is significant in influencing FDI for Malaysia, Thailand and Hong Kong. Meanwhile, it is found that only FDI in Hong Kong is significant in influencing ARR in the short term, refer Table 5.

Table 5: Result on ARDL approach on ECM model

Country	Δ LFDI	Δ LARR	Δ Constant	ECT	F-Statistic
Malaysia	0.0015 (0.2256)		0.0978 (0.0869)	-0.0020 (-0.0291)	0.966
		4.409** (2.4048)	73.9071** (2.4700)	-0.4881*** (-3.1799)	5.0711**
Thailand	0.4881E ⁻³ (0.2633)		0.4558 (1.2901)	-0.0250 (-1.1365)	1.2193
		4.5787* (1.9081)	80.5335** (2.0695)	-0.7235*** (-3.6228)	6.6483***
Singapore	-0.0028 (-1.0822)		1.4743* (1.8635)	-0.0908** (-1.7871)	1.7347
		5.2354 (1.4252)	89.3129 (1.5563)	-0.6817*** (-3.7446)	7.0203***
China	0.0233 (1.5929)		4.2037** (2.6552)	-0.2420** (-2.5877)	5.3661**
		3.8180 (1.5929)	-6.7597 (-0.2963)	-0.3421* (-1.9545)	4.5948**
Hong Kong	-0.0076** (-2.5220)		1.6220*** (3.1053)	-0.0924*** (-2.8850)	4.8579**
		25.16** (2.5220)	121.9795*** (4.6824)	-1.0000 (NONE)	17.0927***

Note: **, *, * significant at significant level of 1%, 5% and 10% (or at confidence level of 99%, 95% and 90%), i.e. representing null hypotheses at 1%,5% and 10% level.

6. Conclusion

The purpose of this empirical study is to examine the long term and causal relationship between tourism industry development (ARR) as proxied by tourist arrival and foreign direct investment (FDI) of selected Asian countries namely Malaysia, Thailand, Singapore, China and Hong Kong. The unit root test is done followed by cointegration analysis and Granger causal test. Test result indicates that there is long term relationship between variables studied. The ARR is found to be more significant than the FDI in influencing dependent variable besides being more elastic in the long run. By employing the FDI as endogenous variable, the ARR is found to be significant for Malaysia, Thailand and Hong Kong with elasticity valued at -9.0328, -6.3289 and -6.8651, respectively. Meanwhile, Hong Kong showed significant but inelastic, i.e. valued at -0.0820, when the ARR is the endogenous variable.

Meanwhile, in the short run it is found that Hong Kong showed a bidirectional relationship between the FDI and ARR variables. As for Malaysia and Thailand, there is unidirectional relationship when FDI is applied as endogenous variable. Meanwhile, for Singapore and China, it is found that ARR and FDI do not have short term relationship. In conclusion, this study found that ARR influence FDI in Malaysia, Thailand and Hong Kong. The ARR is more significant in influencing FDI and not otherwise for Malaysia and Thailand. However, for Hong Kong, there is bidirectional relationship for both variables. Thus, in order to stimulate sustainable economic growth, tourism development that brings in arrivals must be carried out as it has the potential in generating economy as well attracting investments from overseas.

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