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Tourism and Economic Growth: Comparing Malaysia and Singapore

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ABSTRACT

The nexus between tourism and economic growth has been debated whether tourism contributes to the growth of economies (tourism-led economic growth) or it is impacted by growth of the economies (economic-driven tourism growth). This paper examines the impact of tourism on economic growth of Malaysia and Singapore. Two control variables, international trade and exchange rate are included in the model to enhance the specification. The results suggest that economic-driven tourism growth hypothesis is supported in Malaysia while tourism-led economic growth hypothesis has been identified for Singapore. Moreover, maintaining a competitive exchange rate is vital to improve the tourism and economic growth.

Keywords: tourism; economic growth; cointegration; Granger causality; Malaysia; Singapore

INTRODUCTION

Tourism has become one of the most important global industries today. The ease of movement across borders has gained tourism industry a position as the world's biggest export earner. It appears as a growth factor for many nations on its contribution of foreign exchange revenues for government whilst stimulating greater investments in infrastructure that ultimately improved the living standard of the particular nation (UNWTO, 2009). According to Tourism Highlights (2009), worldwide contribution of tourism to gross domestic product (GDP) is estimated around 5 percent; and tourism's contribution to employment is anticipated around 6 to 7 percent. Contribution of tourism to countries with advanced and diversified economies ranges about 2 percent while for island and developing countries, tourism tends to be a key economic sector.

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Tourism has been known as a potential contributor in economic sector based on long experience of many countries that sustain and improve the national economy through tourism industry (Mansfeld and Winckler, 2008). This economic sector stimulates domestic demand and national economy from foreign direct investment in expanding the infrastructure and links tourism with other economic sector such as transport, retailing, wholesaling, manufacturing and other services (Proenca and Soukiazis, 2008). In addition, it multiplies national, regional and local earnings from tourism and related activities, albeit being a service industry (Balaguer and Cantavella-J, 2002). Many studies inferred that multiplier effect vary upon the nature and size of local economy: the more developed the local economy, the higher the multiplier values (Liu and Liu, 2008). Also, tourism expands job opportunities through direct employment, indirect placement and induced recruitment (Vanhove, 1981). Tourism in developing countries offers competitive labor costs in contrast to the technologically-incentive industries that require knowledgeable workers. The increase number of tourist inflows expands the local market size and generates higher ranked levels of services offered (Sinclair, 1998). Finally, tourism increases the diffusion of technical knowledge, encourages the research and development as well as accelerates the human capital accumulation (Brida and Risso, 2010).

According to Malaysia Tourism Promotion Board (MTPB), Malaysia has attracted 10.2 million international tourist arrivals in 2000 staying an average of 5.8 nights in the country from 4.8 nights in 1980s. The World Tourism Organization ranked Malaysia as the third most popular destination in the Asia Pacific region in term of international tourist arrivals, but it is ranked only the tenth in terms of receipts in 1999. Nevertheless, Malaysia was voted the best international destination of 2008 by Global Traveler, a prestigious US-based business Magazine (MTPB, 2009). Being the catalyst for Malaysian economic growth, the tourism industry has revealed new avenues and provided many with hope, career and a future. In 2009, it has contributed 12.3 percent of total GDP in Malaysia, with 1.16 millions employment opportunities provided. This shows a growing importance of tourism industry to Malaysian economy.

On the other hand, tourism is a fast-growing industry in Singapore. Despite the small contribution to the country's overall GDP, hovering around 8 percent, Singapore's tourism industry lingers as a noteworthy showcase not only for trade and economic powerhouse, but also as a hub for entertainment, media and culture in Southeast Asia. In 2005, Singapore Tourism Board heralded its target to ensure tourism played the role as key economic pillar by tripling tourism receipts to S$30 billion and doubling visitor arrivals to 17 million in 2015. In addition, the "Uniquely Singapore" campaign that launched in March 2004, aimed to show the

world the blend of the best of Singapore as modern world of warm, enriching and unforgettable tourist destination had won a gold award conferred by the Pacific Asia Travel Association. In 2009, the contribution of tourism industry on economic growth has recorded 7.3 percent and created 5.8 percent out of total employment opportunities. An increasing trend showing 4.1 percent of total economy from tourism industry in 2004 has escalated to 7.3 percent in 2009.

This study seeks to contribute to the literature by comparing the relationship between tourism and economic growth for two neighboring countries which have similar economic structure. Despite both countries are deemed as being export-oriented, tourism remains an important industry to the economic growth with very significant and growing contributions to their GDP. Besides, Malaysia and Singapore are projected to grow at 4.8% and 4.2% p.a. for the next ten years, according to the World Travel & Tourism Council[1]. With the close relationship between both countries, in both geographic and economic terms, tourism-related relationship is still somewhat vague. Thus, we strive to examine the existence of long-run relationship, determine and compare the causality nexus between tourism and economic growth in Malaysia and Singapore.

Four hypotheses have been identified with regard to the tourism-economic growth relationship (Oh, 2005): tourism-led economic growth, economic-driven tourism growth, bi-directional causal relationship and no absolute relationship between tourism and economic growth. The tourism-led economic growth hypothesis indicates a one way causal relationship running from tourism development to economic growth. If this happens, policy in promoting tourism might increases the income level. In contrast, the reverse causation with the economic-driven tourism growth hypothesis exhibits a unidirectional causal nexus from economic growth to tourism expansion. The economic expansion might enhance the tourism revenues. However, the reciprocal hypothesis benefits both tourism expansion and economic growth by exerting a dynamic interaction in both areas (Chen and Chiou, 2009). Finally, it is believed that tourism and economic growth in special circumstances, has no significant relationship on each other, which means they are neither capturing the benefits from the economic nor the tourism expansion. In this case, enthusiasm in promoting tourism or aggressive economic expansion may not as effective as the real scenario.

Moreover, international trade and exchange rate are two variables that play an extremely important role amidst economic concerns. Balaguer and Cantavella-J (2002) and Oh (2005) strongly proposed to include real exchange rate to deal with

[1] From 2013 to 2023, The Economic Impact of Travel & Tourism 2013, World Travel & Tourism Council.

omitted variable problem while Shan and Wilson (2001) recommended the role of international trade as one of the determinants of tourism demand. Thus, this study includes these two variables in the model to ensure the specification.

Although there have been numerous studies analyzing various issues of tourism in Malaysia (e.g. Din, 1982; Lau et al., 2008; Liu and Liu, 2008; Nanthakumar et al., 2008; Othman and Salleh, 2008; Lean and Tang, 2010; Kadir and Jusoff, 2010; Othman and Salleh, 2010; Sarmidi and Salleh, 2011; Othman et al., 2012); however, limited studies have examined its impact on economic growth. The same happened to studies on Singapore tourism (e.g. Khan et al., 2005; Lee, 2009; Lee and Hung, 2009). This paper covers the research gap by combining the tourism growth, international trade, real exchange rate and economic growth in a multivariate model.

The paper proceeds as follow. Section two reviews the literature. The third section consists of the data and methodology adopted while section four discusses the empirical results. The penultimate section presents the conclusion and policy implication.

LITERATURE REVIEW

The theoretical trend of studies stems from the export-growth nexus where export causes economic growth or in other words the export-led growth hypothesis. Literature on export-led growth hypothesis affirmed the contribution of export on economic development (Shan and Sun, 1998; Marin, 1992). Recently, some researchers focused on non-traded goods, more specifically on tourism and economic growth (Balaguer and Cantavella-J, 2002; Dristakis, 2004; Durbarry, 2004; 2009b; Khalil et al., 2007; Belloumi, 2010; Brida and Risso, 2010); and tourism and trade (Kartircioglu, 2009b; Khan *et al*., 2002).

Empirical studies have reported diverse results on the nexus of tourism and economic growth. It is believed that the findings will range from tourism-led economic growth, economic-driven tourism growth, two-way causal relationship or the uncommon no relationship between tourism and economic growth. Balaguer and Cantavella-J (2002) supported the tourism-led economic growth hypothesis in Spain. On the other hand, Oh (2005) found that causality is running from economic growth to tourism expansion in Korea. However, Kim *et al*. (2006) discovered the feedback causal relationship between GDP and total tourist arrivals in Taiwan. Kartircioglu (2009a) included real exchange rate in the model. Surprisingly, the results showed no long-run relationship exists between international tourism and Turkish economy.

Generally, the studies on the tourism-growth nexus can be categorized into two groups: (i) those based on cross country data, and (ii) those based on time series

data. However, time series data are more favorable in the recent trend (Balaguer and Cantavella-J, 2002; Dristakis, 2004; Durbarry, 2004; Gunduz and Hatemi, 2005; Oh, 2005; Kim et al., 2006; Khalil et al., 2007; Croes and Vanegas, 2008; Kaplan and Celik, 2008; Lee and Chien, 2008; Akinboade and Braimoh, 2009; Kartircioglu, 2009a; Kartircioglu, 2009b; Zortuk, 2009; Belloumi, 2010; Brida and Risso, 2010) oppose to the cross section data (Cortes-J, 2008; Lee and Chang, 2008; Sequeira and Nunes, 2008).

In terms of methodology, Johansen and Juselius (1990) cointegration test and Granger causality tests have been widely employed in empirical studies (Balaguer and Cantavella-J, 2002; Dristakis, 2004; Oh, 2005; Kim et al., 2006; Khalil et al., 2007; Brida et al., 2008; Othman and Salleh, 2008; Akinboade and Braimoh, 2009; Zortuk, 2009; Belloumi, 2010; Brida and Risso, 2010). Gunduz and Hatemi-J (2005) suggested leveraged bootstrap is favorable if sample size is small, autoregressive conditional heteroscedasticity (ARCH) effect exists and the assumption of normality is invalid. On the other hand, Chen and Chiou (2009) proposed the use of EGARCH-M model to include the negative impact of shock.

Throughout the literature, GDP has been proxied as the indicator of a country's economic growth regardless nominal or real term. Two most common variables for tourism activity pointers are total number of tourist arrivals and tourism receipts or earnings. The selection of proxy subjects to the reliability, availability of data and other technical problems, such as serial correlation or multicollinearity (Gunduz and Hatemi-J, 2005). Oh (2005) discussed that tourism receipts provide more precise measure of tourism expansion generated from economic data due to the role as universally measured consistent index that closely linked to GDP.

Balaguer and Cantavella-J (2002) suggested including real effective exchange rate (REER) to deal with potential omitted variables problem and to account for external competiveness. It is noted that Nanthakumar et al. (2008) included consumer price index (CPI) to study the relationship between total tourist arrivals and real GDP. However, we argue that it would be superfluous to include CPI if it comparatively absorbs the price level changes only in domestic market but REER comprehensively considers both the local currency against major currency with the inclusion of domestic cost living.

The importance of international trade on tourism has been pointed out by Kulendran and Wilson (2000) and Shan and Wilson (2001). Kulendran and Wilson (2000) indicated a unidirectional causal relationship running from total trade to total travel in United States of America and United Kingdom while Kadir and Jusoff (2010) found a unidirectional causality running from total trade to tourism receipts in Malaysia. However, result from Kartircioglu (2009b) showed a one-way causation from international tourist arrivals to international trade in Cyprus.

Empirical studies on causal relationship between tourism and economic growth in Malaysia is still rare. Lau *et al*. (2008) tested co-movement relationship between tourist arrivals and economic growth in the state of Sarawak. The empirical evidence supported tourism-led growth hypothesis. With the annual data from 1980 to 2007, Nanthakumar *et al*. (2008) examined the hypothesis of economic-driven tourism growth in Malaysia using a trivariate model with real GDP, total tourist arrivals and CPI. The findings showed bidirectional relationship between CPI and tourist arrivals and between CPI and GDP whilst suggested economic factor drives the Malaysia's tourism sector. Kadir and Jusoff (2010) investigated the cointegration and causality relationship using quarterly data on exports, imports, total trade and international tourism receipts. They concluded that total trade causes the expansion in tourism.

Using annual data for GDP and total tourist arrivals from 1976 through 2005, Othman and Salleh (2008) found that tourism-led economic growth hypothesis is valid in Malaysia and Singapore while economic-drive tourism growth is found for Thailand and Indonesia. Generally, Khan et al. (2002) found that the estimated multipliers value for Singapore tourism is quite high. This suggested the increasing importance of tourism industry in Singapore economy. Lee and Hung (2009) employed Granger causality test to examine the dynamic reactions among tourism, economic development and health care in Singapore. They revealed that causality is running from economic development to health care but a bi-directional causality exists between health care and tourism. Using ARDL approach, Othman *et al*. (2012) found long run relationship between the development of tourism industry, economic growth and foreign direct investment in 18 major international tourism destinations, including Malaysia and Singapore. Besides, Sarmidi and Salleh (2011) also used ARDL to examine the dynamic inter-relationship between economic development, total trade and number of tourist arrival for Malaysia and ASEAN tourism partners. The exists of unidirectional and bidirectional relationships between the trade, economic growth and tourism amongst Malaysian and the top four ASEAN countries prevailed in the short term. They also showed high interrelationships between tourism, trade and economic growth in the long run.

As far as the studies on relationship between tourism and economic growth in Malaysia and Singapore are concerned, the literature is limited. This study attempts to provide evidence for tourism-led growth hypothesis in the case of Malaysia and Singapore. Then, the results and policies between two countries will be compared in order to suggest appropriate policy implications in boosting the tourism industry in tandem with the economic growth for both countries.

DATA AND METHODOLOGY

This study adopts time series analysis and data have been collected over the period from 1980 to 2009. Data includes real GDP, total number of international tourist arrivals, total tourism receipts, total international trade and REER for both Malaysia and Singapore. The output variable is represented by real GDP. It is computed by dividing the nominal GDP with CPI at the base year 2005,[2] measured in local currency in million dollars. Data have been drawn from the International Financial Statistics (IFS).

This study uses two different proxies to measure tourism activity: total tourism receipts and total number of international tourist arrivals. According to Oh (2005), tourism receipts are used because of a universally measured index collected by national and international agencies. It is a generated variable which the aggregate nominal tourism receipts are deflated by CPI. For Malaysia, the tourism data are sourced from various issues of Tourism Malaysia Annual Report while for Singapore, the data are provided by Singapore Tourism Board on its annual report of tourism statistics. REER measures the price competitiveness between Malaysia (or Singapore) and other major currencies relative to the CPI. It is a proxy variable of external competitiveness. Total trade includes both exports and imports of goods and services. Both data of REER and total trade are taken from CEIC database. All variables are transformed to natural logarithm for more appropriate interpretation of the estimated coefficients.

In order to examine the relationship of tourism growth on economic growth in Malaysia and Singapore, the following double-log equations are estimated:

$$lnGDP_{j,t} = \beta_0 + \beta_1 lnARV_{j,t} + \beta_2 lnREER_{j,t} + \beta_3 lnTRADE_{j,t} + \mu_{1j,t} \quad (1)$$

$$lnGDP_{j,t} = \beta_4 + \beta_5 lnRCPT_{j,t} + \beta_6 lnREER_{j,t} + \beta_7 lnTRADE_{j,t} + \mu_{2j,t} \quad (2)$$

where $lnGDP_{j,t}$ is the natural log of GDP of country j (either Malaysia or Singapore) at time t, ARV represents total tourist arrivals; RCPT stands for total tourism receipts; REER denotes the real effective exchange rate and TRADE is the total trade of goods and services. β_0 and β_4 are the constant parameters and $\mu_{1j,t}$ and $\mu_{2j,t}$ are the white noise error terms. The sign of coefficients β_1, β_2, β_3, β_5, β_6 and β_7 are all expected to be positive. These equations represent the long-run equilibrium relationship and may form a cointegrated set provided all the variables are intergrated of order 1.

As shown in Figure 1, economic time-series data tends to be non-stationary. Thus, Augmented Dickey-Fuller (ADF) test is carried out to examine the stationarity of each variable.

[2] Base year of 2005 has been chosen due to the availability of data for both countries.

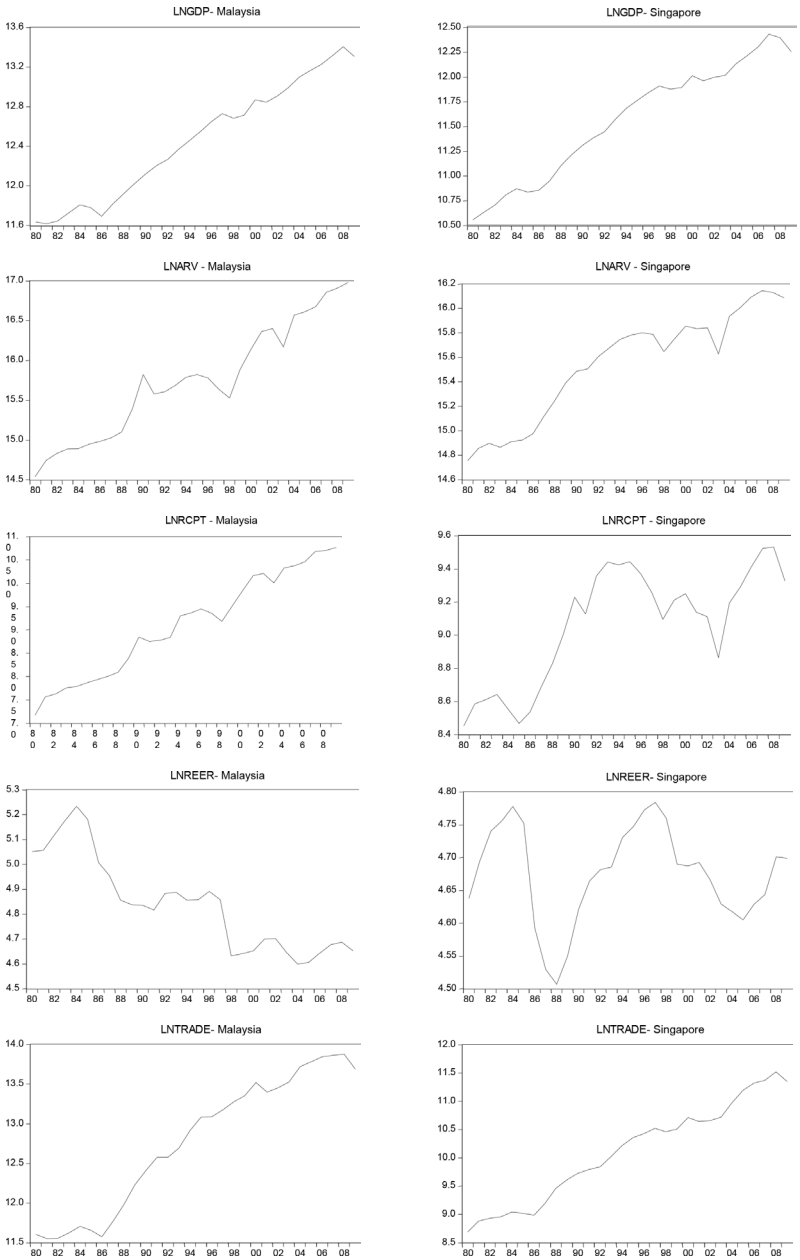

Figure 1 The trend of variables (in natural logarithms) for Malaysia and Singapore

Johansen-Juselius (1990) cointegration test is used to analyze the long-run relationship between tourism and economic growth. If there is no cointegration between tourism and economic growth, an unrestricted Vector Autoregression (VAR) based procedure will be adopted in which all variables are treated as endogenous. On the other hand, if cointegration is detected between variables, then the existence of Granger causality in either way can be ruled out through Vector Error Correction Model (VECM). This process is particularly more favorable compare to the standard VAR as it permits temporary causality to emerge from the sum of the lagged coefficients of the differenced explanatory variables and the coefficients of the error correction term (Gujarati, 2003). VECM for testing the Granger causality as follow:

$$\begin{bmatrix} \Delta ln\,GDP_{j,t} \\ \Delta ln\,\mathrm{ARV}_{j,t} \\ \Delta ln\,REER_{j,t} \\ \Delta ln\,TRADE_{j,t} \end{bmatrix} = \begin{bmatrix} a_0 \\ b_0 \\ c_0 \\ d_0 \end{bmatrix} + \begin{bmatrix} A_{11,1} & A_{12,1} & A_{13,1} & A_{14,1} \\ B_{21,1} & B_{22,1} & B_{23,1} & B_{24,1} \\ C_{31,1} & C_{32,1} & C_{33,1} & C_{34,1} \\ D_{41,1} & D_{42,1} & D_{43,1} & D_{44,1} \end{bmatrix} \begin{bmatrix} \Delta ln\,GDP_{j,t-1} \\ \Delta ln\,\mathrm{ARV}_{j,t-1} \\ \Delta ln\,REER_{j,t-1} \\ \Delta ln\,TRADE_{j,t-1} \end{bmatrix} + \dots$$

$$+ \begin{bmatrix} A_{11,i} & A_{12,i} & A_{13,i} & A_{14,i} \\ B_{21,i} & B_{22,i} & B_{23,i} & B_{24,i} \\ C_{31,i} & C_{32,i} & C_{33,i} & C_{34,i} \\ D_{41,i} & D_{42,i} & D_{43,i} & D_{44,i} \end{bmatrix} \begin{bmatrix} \Delta ln\,GDP_{j,t-i} \\ \Delta ln\,\mathrm{ARV}_{j,t-i} \\ \Delta ln\,REER_{j,t-i} \\ \Delta ln\,TRADE_{j,t-i} \end{bmatrix}$$

$$+ \begin{bmatrix} a_1 \\ b_1 \\ c_1 \\ d_1 \end{bmatrix} \begin{bmatrix} ECT_{(GDP)j,t-1} \\ ECT_{(ARV)j,t-1} \\ ECT_{(REER)j,t-1} \\ ECT_{(TRADE)j,t-1} \end{bmatrix} + \begin{bmatrix} \mu_{1t} \\ \mu_{2t} \\ \mu_{3t} \\ \mu_{4t} \end{bmatrix}$$

where Δ denotes the difference operator, a_0, b_0, c_0 and d_0 are the deterministic components, *ECT* is the error correction term derived from the long-run cointegration model, μ_{1t}, μ_{2t}, μ_{3t} and μ_{4t} represent the error terms and *i* stands for optimal lag length selected. The ARV in this equation can be replaced by RCPT when tourism receipts as proxy.

With the Akaike Information Criteria (AIC), the optimum order of lags have been determined to allow each equation captures sufficient short-run dynamic.[3] The significance of F-test of the lagged explanatory variables indicates short-run causal effect between the dependent variable and independent variable. Meanwhile,

[3] This approach allows each equation to meet no autocorrelation assumption.

the long-run causal nexus is measured by the significance of the *t*-statistic of the lagged error correction term. The null hypotheses for Granger causality test are as follow:

H_1: *economic growth does not Granger cause tourism growth*

H_2: *tourism growth does not Granger cause economic growth*

EMPIRICAL RESULTS

Tables 1 and 2 show the descriptive statistics of variables tested in Malaysia and Singapore respectively. Skewness and kurtosis of all variables adopted are positively skewed except RCPT and REER are negatively skewed for Singapore. All variables recorded kurtosis less than 3 with the flat distribution relative to normal distribution.

Table 1 Descriptive statistics of variables for Malaysia

	GDP	ARV	RCPT	REER	TRADE
Mean	300700.0	8731197.0	15024.5	128.7	476271.4
Std. Dev.	170314.4	6273990.0	14271.2	25.5	333407.2
Skewness	0.6172	1.0261	0.9840	0.7989	0.4012
Kurtosis	2.1896	2.9238	2.7050	2.6360	1.7858
Jarque-Bera	2.7260	5.2721	4.9502	3.3574	2.6476

Table 2 Descriptive statistics of variables for Singapore

	GDP	ARV	RCPT	REER	TRADE
Mean	122875.3	6133327.0	9152.7	107.5	34302.9
Std. Dev.	64545.2	2407816.0	2902. 0	7.8	27573.9
Skewness	0.3460	0.0328	–0.1563	-0.3321	0.9756
Kurtosis	1.9872	1.9117	1.7457	2.413	2.8986
Jarque-Bera	1.8808	1.4856	2.0887	0.9818	4.7726

Based on the unit root test results in Table 3, all variables cannot be rejected at levels, but they are rejected in their first differences. In other words, time-series data of all variables are I(1). Therefore, we proceed to the analysis of cointegration.

Table 3 ADF Unit root test results

Variable	Malaysia		Singapore	
	Intercept	Trend and Intercept	Intercept	Trend and Intercept
GDP	–0.1122(0)	–1.5863(1)	–1.1948(1)	–2.7994(0)
ΔGDP	–4.4302(0)***	–2.6388(0)*	–2.8741(0)	–4.1863(0)**
RCPT	–0.3906(3)	–1.7055(0)	–1.6140(0)	–4.2917(1)**
ΔRCPT	–4.8912(3)***	–4.5062(0)***	–4.4791(0)***	–4.7892(3)***
ARV	–0.5321(0)	–1.3664(0)	–1.7466(0)	–2.8120(0)
ΔARV	–5.3362(0)***	–5.4912(0)***	–5.4948(0)***	–5.2495(0)***
REER	–1.3423(1)	–3.4171(1)**	–3.3259(1)*	–3.3253(1)*
ΔREER	–3.8595(0)***	–3.0625(0)**	–3.0064(0)	–3.7283(1)**
TRADE	–1.4143(1)	–0.7922(0)	–2.8516(1)	–0.8916(1)
ΔTRADE	–3.2256(0)**	–3.7417(0)***	–3.6478(0)**	–3.2602(0)*

Notes: Numbers in brackets are lag lengths used in ADF test (as determined by AIC). *, **, *** indicate the level of significance at 10%, 5% and 1% levels, respectively.

VAR based cointegration test uses two likelihood ratio tests, trace test and maximum eigenvalue test to test the number of cointegrating relationships. Table 4 shows results of the cointegration test between tourism growth and other variables for Malaysia and Singapore. Appropriate lag length determined with the minimum AIC has indicated a lag of 2 for Malaysia and lag 3 for Singapore respectively.

Table 4 Cointegration test results

Null hypothesis (r = number of cointegrating equations)		Trace statistic		Maximum eigenvalue statistic	
Malaysia					
lnARV	r = 0	84.3741***	(53.12, 60.16)	40.1474****	(28.14, 33.24)
	r = 1	44.2266***	(34.91, 41.07)	22.3605**	(22.00, 26.81)
	r = 2	21.8661**	(19.96, 24.60)	15.1876	(15.67, 20.20)
lnRCPT	r = 0	91.8906***	(53.12, 60.16)	47.2559***	(28.14, 33.24)
	r = 1	44.6400***	(34.91, 41.07)	18.9798	(22.00, 26.81)
	r = 2	25.6601***	(19.96, 24.60)	17.7804**	(15.67, 20.20)
Singapore					
lnARV	r=0	96.4966***	(53.12, 60.16)	40.4810***	(28.14, 33.24)
	r=1	56.0156***	(34.91, 41.07)	28.8708***	(22.00, 26.81)
	r=2	27.1447***	(19.96, 24.60)	21.9301***	(15.67, 20.20)
lnRCPT	r=0	95.0976***	(53.12, 60.16)	46.6311***	(28.14, 33.24)
	r=1	48.4665***	(34.91, 41.07)	22.1202**	(22.00, 26.81)
	r=2	26.3462***	(19.96, 24.60)	20.1443**	(15.67, 20.20)

Note: Osterwalf-Lenum critical values at 5% and 1% are in parentheses. ** and *** indicate that the null is rejected at the 5% and 1% respectively.

For Malaysia, null hypotheses (r = 0) and (r = 1) are rejected at either 1% or 5% significant level. Therefore, it is concluded that there is a long-run equilibrium relationship between tourism and economic growth in Malaysia. There is also strong evidence of long-run equilibrium relationship between tourism and economic growth in Singapore.

Table 5 indicates two long-run causal relationships are existed in equations when tourist arrivals and REER as dependent variable respectively. This infers the causality is running from economic growth, REER and total trade to tourist arrivals in long-run. Another long-run causality is running from economic growth, tourist arrivals and total trade to REER. There is only one-way short-run causality running from economic growth and total trade to REER.

Table 5 Results of Granger causality test for tourist arrivals model of Malaysia

Dependent variable	χ^2 statistics				*t*-statistic
	ΔlnGDP	**ΔlnARV**	**ΔlnREER**	**ΔlnTRADE**	**ECTt-1**
ΔlnGDP	–	1.0819	0.9989	0.0818	–1.4519
ΔlnARV	0.4503	–	0.4590	0.6451	–1.8636*
ΔlnREER	5.3593*	0.0576	–	7.0922**	–2.0170*
ΔlnTRADE	0.2543	0.8224	0.6375	–	0.0430

Note: * ,** and ***denotes statistically significant at 10% ,5% and 1% levels.
The Breusch-Godfrey serial correlation LM tests for tourist arrival equation: [1] 0.0005 (0.9808) and [2] 0.0619 (0.9695); for real effective exchange rate equation: [1] 0.1524 (0.6962) and [2] 0.3012 (0.8602); [ ] refers to the order of serial correlation and ( ) refers to the p-values. White heteroskedasticity test in tourist arrival equation: 12.4827 (0.1874) and in real effective exchange rate equation: 4.3872 (0.8841).

When tourism receipts as proxy, similar results are obtained for both long-run and short-run causality. Table 6 shows that the t-statistics are significant in the tourism receipts equation and REER equation at 5%. These results can be interpreted as given a deviation of tourism growth from the long-run equilibrium relationship; all three other variables interact in a dynamic way to restore long-run equilibrium.

Table 6 Results of Granger causality test for tourism receipts model of Malaysia

Dependent variable	χ^2 statistics				*t*-statistic
	ΔlnGDP	**ΔlnRCPT**	**ΔlnREER**	**ΔlnTRADE**	**ECT_{t-1}**
ΔlnGDP	–	1.4717	0.5949	0.3101	–1.6665
ΔlnRCPT	0.9246	–	0.0236	1.1306	–2.1158**
ΔlnREER	5.2659*	0.0566	–	6.8297**	–2.1859**
ΔlnTRADE	0.3616	1.0616	0.3660	–	–0.1447

Note: * and ** denotes statistically significant at 10% and 5% levels.
The Breusch-Godfrey serial correlation LM tests for tourism receipts equation: [1] 0.1197 (0.7293) and [2] 0.1850 (0.9116); for real effective exchange rate equation: [1] 0.1801 (0.6712) and [2] 0.4592 (0.7948); [ ] refers to the order of serial correlation and ( ) refers to the p-values. White heteroskedasticity test in tourism receipts equation: 8.2247 (0.5117) and in real effective exchange rate equation: 2.9301 (0.9670).

Table 7 shows long-run causality in trade equation only. When tourism receipts as proxy (Table 8), long-run causal relationship is existed in both economic growth equation and trade equation. In the short-run, economic growth Granger causes REER in unidirectional manner, but, REER and total trade have feedback effect.

Table 7 Results of Granger causality test for tourist arrivals model of Singapore

Dependent variable	χ^2 statistics				*t*-statistic
	ΔlnGDP	**ΔlnARV**	**ΔlnREER**	**ΔlnTRADE**	**ECTt-1**
ΔlnGDP	–	4.4063	5.1171	4.3898	1.5432
ΔlnARV	0.9962	-	4.9134	1.5450	–0.5911
ΔlnREER	11.1431**	0.4697	–	7.7631*	–0.6948
ΔlnTRADE	3.1141	2.6767	6.4022*	–	–1.9131*

Note: * ,** and ***denotes statistically significant at 10% ,5% and 1% levels.
The Breusch-Godfrey serial correlation LM tests for trade equation: [1] 1.5022 (0.2203) and [2] 2.6314 (0.2683); [ ] refers to the order of serial correlation and ( ) refers to the p-values. White heteroskedasticity test in trade equation: 7.6802 (0.8638).

Table 8 Results of Granger causality test for tourism receipts model of Singapore

Dependent variable	χ^2 statistics				*t*-statistic
	ΔlnGDP	**ΔlnRCPT**	**ΔlnREER**	**ΔlnTRADE**	**ECTt-1**
ΔlnGDP	–	5.0065	5.7270	4.6428	2.0244*
ΔlnRCPT	0.3506	–	3.1976	1.9754	–0.7850
ΔlnREER	11.2989**	0.0779	–	7.441*	–1.2042
ΔlnTRADE	3.4532	5.4303	6.4305*	–	–2.4149**

Note: * ,** and ***denotes statistically significant at 10% ,5% and 1% levels.
The Breusch-Godfrey serial correlation LM tests for economic growth equation: [1] 3.2194 (0.0728) and [2] 3.4565 (0.1776); [ ] refers to the order of serial correlation and ( ) refers to the p-values. White heteroskedasticity test in economic growth equation: 16.2880 (0.2339). For trade equation, the Breusch-Godfrey serial correlation LM tests at: [1] 1.3023 (0.2538) and [2]3.2813 (0.1938) with white heteroskedasticity test 8.4110 (0.8158)

Comparing Malaysia and Singapore, in the long-run, the economic-driven tourism growth hypothesis is supported for Malaysia with both proxies. For Singapore, when tourism receipts is applied to measure the tourism activity, tourism-led economic growth hypothesis is found. Tourist arrivals to Singapore are mainly dominated by Asian with the purpose of visit as family relations, transit arrangements and for pure pleasure and shopping (Khan *et al*., 2005).

Moreover, tourism activities influences REER in Malaysia but the same activities manipulates trade in Singapore. The assorted results show the significant role of trade and REER in enhancing both economic growth and tourism expansion. Business travelers may travel out of curiosity or as a routine checking on the destination country where they trade. This justifies the trade is preceded by the tourism activity in Singapore. Meanwhile, exchange rate volatility or relative price changes influences a tourist's selection of destination country. Tourists from

wealthier generating countries will have greater desire to visit Malaysia, a lower relative value of Malaysia Ringgit. Both Singapore and Malaysia adopt the managed floating exchange rate regime to guarantee domestic price stability. This exerts a force to attract more trade to Singapore and tourism activity in Malaysia.

Short-run nexus in Malaysia and Singapore reckons that economic growth and total trade lead REER at least in unidirectional manner. Exchange rate is said under the influence of economic growth and trade activity of a country. However, there is no causal relationship between economic growth and tourism expansion for both countries in the short-run. This implies that the impact of tourism expansion on economic growth may not be seen significantly in the short-run. Any introduction of tourism products and activities need time to bring significant effect on economic growth in the country.

CONCLUSION

This study examines and compares the relationship between tourism and economic growth in Malaysia and Singapore. Using annual data from 1980 to 2009, the results consistently indicate that tourism expansion is cointegrated with economic growth, REER and total trade in both countries.

Granger causality results suggest that economic-driven tourism growth hypothesis is supported in Malaysia in the long-run while in Singapore, tourism-led economic growth hypothesis is shown in the long-run for tourism receipts. This is consistent with the finding of Nanthakumar et al. (2008) for Malaysia, and Lee and Hung (2009) that supported tourism-led economic growth in Singapore.

Since economic-driven tourism growth hypothesis holds in Malaysia, government should allocate funds and resources in developing the leading industries in the country so that the overall economy will be improved. Conversely, as tourism activity leads economic growth in Singapore, the resources allocation and efforts in promoting tourism or assertive economic expansion strategies, is perceived to intensify the real scenario.

Moreover, REER plays an important role to tourism activity in both Malaysia and Singapore in which maintaining a competitive exchange rate is vital to boost tourism industry. Thus, a monetary policy aimed at a higher interest rate may attract inflow of foreign capital that later will strengthen the local currency. Temporal effect or short-run impact on international trade and tourism activity can be seen in Singapore in accordance to the increasing interest rate. In addition, positive economic growth inclines to attract more foreign investment and thus, increases tourism activity in Malaysia. Given the rapid expansion of the world best low-cost airline, AirAsia as a budget carrier in Malaysia and the ease of online

accommodation and tour booking or e-tourism, travelers have more flexibility in planning a visit to Malaysia. Therefore, government should ensure the stability and the development in transportation and infrastructures are in order to gain on the tourism expansion.

Nevertheless, unlike other developed country, tourism in Singapore plays a vital role in its economic growth in the long-run. Therefore, attractive marketing packages in promoting Singapore are needed to woo tourist arrivals to Singapore. A depreciation of local currency improves her competitiveness in the region where tourists will find it comparatively cheaper to travel to Singapore. This increases tourist arrivals to Singapore in short-run and tourism receipts will help in boosting total trade of Singapore in temporal duration. Decisions on tourism-boosting strategies or framework on attracting foreign capital inflows are essentially needed in developing Singapore's economy.

On the other hand, no short-run causality between tourism and economic growth in both countries reflects any short term marketing strategies or economic plans fail to bring instant impact to the growth. Furthermore, the short term growth may be negatively affected by external shocks such as influenza H1N1, SARS, etc. Therefore, efforts to promote economic growth or tourism development should be concentrated in the long term manner.

For Malaysia, policy to develop a comprehensive mass rapid transit system connecting entire city-state is recommended to enable tourist explores the city himself. In addition, offsetting up more tourists information centers may reap the tourist's numbers in the long-run. Meanwhile, concept of employing 'walking guides' by using Global Positioning System (GPS) to point out the places of interest and brief introduction on the attractions are aimed to stimulate the tourism industry.

For Singapore, strategy highlighting Singapore events shall be prioritized. The unique culture on the festival celebrations in an urban city lures the curiosity of travelers especially from the non-Asian countries. Home-stay experience during the unique events period ensures an impressive encounter. A range of advertising ideas through different medium can be adopted to recognize Singapore as a tourism destiny or entertainment hub subsequent to the grand opening of two casinos.

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