TOURISM AND ECONOMIC GROWTH LINKAGES IN MALAYSIA

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ABSTRACT

This study attempts to test a hypothesis of the relationship between the tourism sector and economic growth in Malaysia. Although a large number of literatures indicate that there is strong correlation between the tourism industry and economic growth, not much is known on the dynamic inter-relationship between these variables. This study employs recently developed ARDL bounds testing approach to cointegration. The estimated result based on the long run time series behaviour for the number of tourist arrival and economic growth indicator shows that these variables are not cointegrated. In the short run analysis, we found that economic growth has unidirectional Granger caused to the tourism activities. Recognition of the existence of a causal relationship between international tourism and economic growth has important implications for the development of different tourism activities and policy decisions. In order to attract tourism activities, effort must be taken to promote stability as well as sustainability of the economy of this country.

Keywords: Malaysia, Real GDP, Tourism, Cointegration, Causality

1. INTRODUCTION

Malaysia is a country in South-East Asia, located partly on a peninsula of the Asian mainland and partly on the northern one-third of the island of Borneo. West Malaysia shares a border with Thailand, and has coastlines on the South China Sea and the Straits of Malacca. East Malaysia, which is on the island of Borneo, shares borders with Brunei and Indonesia. Malaysia has a population of 28.3 million according to the Malaysian Population and Housing Census 2010. The average annual population growth rate was 2% from 2000 to 2010, declining from 2.6% from 1991 to 2000.

The Malaysian economy staged a strong recovery over the course of 2010, driven mainly by the domestic private sector, with support from commodity exports. Malaysian economy, which is amongst the most open economies in the Asia-Pacific region grew at 7.2 percent in 2010 and is slowed down to 5.1 percent in 2011. The economy is expected to grow at least 5 percent in 2012. Achieving Malaysia's Vision 2020 goal of high-income status requires average growth of 6 percent during the 10th Malaysia plan period, a marked improvement on the 4.4 percent achieved over 2006-2010. In an effort make Malaysia's economy less dependent on exports, the government has taken measures to diversify the economy. This includes effort to increase tourism contribution to the Malaysian economy.

In Malaysia, tourism was not regarded as an important economic activity in the 60s and 70s. This is particularly due to lack of effective marketing and promotional activities as well as limited budget allocation to this sector. Beginning late 80s and 90s this situation has changed gradually in Malaysia. This sector has become one of the major contributors to the Malaysian economy. The government agency in charge of promoting tourism in Malaysia is the Malaysia Tourism Promotion Board (MTPB). Its vision is to make the tourism industry a prime contributor to the socio-economic

development of the nation, and aims to market Malaysia as a premier destination of excellence in the region. This is done through its marketing representative offices located overseas.

In 1999, Malaysia launched a worldwide marketing campaign called "Malaysia, Truly Asia" which was largely successful in bringing in over 7.4 million tourists. The extra revenue generated by tourism helped the country's economy during the economic crisis of 2008. Today, tourism has become a major contributor to the Malaysian economy in terms of GDP, investment and employment. It has become Malaysia's third largest source of income from foreign exchange, and as of 2011, Malaysia ranks 9th among the top most visited countries in the world, after Germany. The developments of this sector also contribute towards employment creation in this country. Thus, the tourism industry has played an increasingly prominent role in the Malaysian economies. These encouraging developments seem to indicate that there is a relationship between economic growth and tourist arrivals in Malaysia. Thus, this paper attempts to investigate the empirical relationship between economic growth and tourist arrivals in Malaysia.

A general view through graphical displays, as shown in FIGURE 1, both economic growth (real GDP) and tourist arrival tend to increase over time with slightly changes occurring within the years 1997-1998 and 2007-2008 for real GDP, and in 1998 and 2001-2002 for the tourist arrival. Changes in real GDP are mainly due to the Asian financial crisis that occurred in the mid 1997 and the global financial crisis in 2008. Changes in the tourist arrival, on the other hand, are mainly due to the Asian financial crisis in the mid 1997 and world electronics demand crisis as well as the September 11 incident in USA in 2001 (Mulok & Kogid 2008).

The study is organized as follows. Section 2 is the literature review. Section 3 explains methodology and data used in the study. Section 4 provides the empirical findings and some concluding remarks.

2. LITERATURE REVIEW

Tourism is one of the world's largest industries and is growing significantly worldwide. This sector is a key foreign exchange earner contributing to Gross Domestic Product (GDP), investment and employment in many countries. The expansion of the tourism sector also has an effect on the growth of other related service industries such as, transport, hotels, food and beverages, shopping mall, entertainment etc.

There is quite a number of literature reviews that relates economic growth to tourism sector on the theoretical and empirical ground with different methodologies, data used, time periods and cases. Evidence from past studies are mixed. Brida and Pulina (2010) provide a comprehensive literature review on the temporal relationship between tourism and economic growth. There are also a number of articles proposing various methodologies in order to deal with the measurement of the impact of tourism upon the economy. Various methodological approaches have been used, such as VAR, VECM, ARDL, ARCH, GARCH, cross section and panel data. The cointegrating relationship of the economic variables allows one to test the short and long run Granger no-causality. Overall, the empirical findings, emerging from the existing literature, provide evidence that indeed tourism activity drives economic development in all the countries analyzed. This outcome further supports the well-established contribution that international tourism has to the economic development.

There are many publications treating the contribution of tourism to GDP, in which the absolute value of tourism GDP, the share of tourism in GDP and their changes over

time are discussed (Archer & Fletcher 1996; Biçak & Altinary 1996; Evensen 1998; Sharpley 2001; WTTC 2006). One leading study on the impact of tourism and economic development is by Proença and Soukiazis (2005). In their investigation, the correlation between the bed capacity of Portuguese regions and the regional economic growth measured by GDP per capita growth. They find that 1% increase in accommodation capacity in tourism sector induces 0.01% increase in per capita income. Tourism also increases the convergence rate of per capita income in Portuguese regions.

Using a different methodology, Lanza and Pigliaru (1999) examine the tourist specialization of the country and its effect of the economic growth based on Lucas's two-sector endogenous growth model. The authors state that countries with large endowments of suitable natural resources relative to the size of their labour force are likely to develop a comparative advantage in tourism and will grow faster than those who specialise in the manufacturing sector.

In a similar fashion, Brau, Lanza and Pigliaru (2003) further discuss the problem observing the correlation between the tourism specialization of the country (the ratio between international tourism receipts and GDP at market prices) and the real per capita GDP growth rate. They find that small tourism countries grew faster during the period 1980-1995 than countries from OECD, oil producers, least developed countries or other small economies, and conclude that albeit smallness of a country is detrimental to growth, the opposite is true if it is combined with tourist specialization.

Further, Eugenio-Martín, Martín-Morales and Scarpa (2004) consider the relationship between tourism and economic growth for Latin American countries for the period 1985-1998 with an analysis based on a panel data approach. The authors show that the growth in the number of tourists per capita produces a positive effect on the economic growth of the countries with low and medium levels of income per capita, but not in the group of rich countries. This finding suggests that the increase in the number of tourists' arrivals in a country offers an opportunity for economic growth while countries are developing, but not when countries are already developed.

In addition, Balaguer and Cantavella-Jordá (2002) construct a model, which includes the real gross domestic product, international tourism receipts in real terms, and the real effective exchange rate. They find that earnings from international tourism positively affect the Spanish economic growth and a long-run stable relationship between economic growth and tourism expansion exists. Vietze and Freytag (2005) investigate the influence of biodiversity on economic growth. They show that the relationship is not direct but through the positive effect biodiversity has on inbound tourism receipts per capita.

The common characteristic of all above-mentioned empirical studies is that they examine the relationship between tourism and economic growth with the help of econometric models – cross-country or cross-regional data. They all find that tourism stimulates positively the economic growth. The aim of our study is to provide empirical evidence on the causal relation between real GDP and number of tourists' arrival in Malaysia. We also analyze further to identify whether the relationship is in long-run or simply exists in the short-run, and also to give insight on the causality patterns.

3. METHODOLOGY AND DATA

This study aims to provide empirical evidence on the relationship between the economic growth indicator and tourist arrivals indicators in Malaysia. The study aims specifically to identify whether the relationship is in a long-run nature, just exists in the short-run or neither exists in the long-run nor short run, and also to give insights on causality patterns.

Prior to testing for cointegration relationship, unit root tests were conducted to check the stationarity as well as the order of the series variables used by using the Dickey-Fuller, DF or Augmented Dickey-Fuller, ADF (Dickey & Fuller 1979), Phillips-Perron, PP (Phillips 1987; Perron 1988; Phillips & Perron, 1988) and Kwiatkowski-Phillips-Schmidt-Shin, KPSS (Kwiatkowski, Phillips, Schmidt & Shin 1992) tests. The length for the ADF test, n, was chosen by minimizing the Schwarz Information Criterion (SIC).

This study then employs the Autoregressive Distributed Lag (ARDL) bounds testing approach for cointegration by Pesaran, Shin and Smith (2001) to check for the long-run movement of the variables as well as to consider the robustness of the results. The ARDL bounds testing approach are given as follow:

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \alpha_2 x_{t-1} + \sum_{i=1}^{m} \beta_i \Delta y_{t-i} + \sum_{j=0}^{m} \gamma_j \Delta x_{t-j} + \varepsilon_t \qquad (1)$$

where α_0 is the drift component, and ε_t are white noise errors. Following Pesaran *et al.* (2001), two separate statistics are employed to 'bounds test' for the existence of a long-run relationship: an *F*-test for the joint significance of the coefficients of the lagged levels in (1) (so that, $H_0: \alpha_1 = \alpha_2 = 0$), and a *t*-test for the null hypothesis $H_0: \alpha_1 = 0$ (see also Banerjee, Dolado and Mestre, 1998). Two asymptotic critical value bounds provide a test for cointegration when the independent variables are *I*(*d*) (where, $0 \leq d \leq 1$): a lower value assuming the regressors are *I*(0), and an upper value assuming purely *I*(1) regressors. If the test statistics exceed their respective upper critical values we can conclude that a long-run relationship exists. If the test statistics fall below the lower critical values we cannot reject the null hypothesis of no cointegration. If the statistics fall within their respective bounds, inference would be inconclusive. The main advantage of this approach is that it can be applied whether the regressors are *I*(0) or *I*(1) and avoids the pre-test problems associated with standard cointegration analysis (Pesaran *et al.* 2001). However, the implementation of unit root tests in the ARDL procedure might still be necessary in order to ensure that none of the variables is integrated of order two or beyond. This technique is also appropriate and robust for small or finite sample size. In addition, for long-run relations analysis, we consider the general form of conditional $ARDL(p,q)$ model as follows:

$$y_t = \alpha_0 + \sum_{i=1}^{p} \alpha_{1i} y_{t-i} + \sum_{i=0}^{q} \alpha_{2i} x_{t-i} + \varepsilon_t \qquad (2)$$

The causal relationship issue in this research is tested by using Error Correction Model based ARDL (ECM-ARDL). Generally, time series variables that are not stationary should not be applied in the regression model to avoid spurious regression. Based on the cointegration test, if both y_t and x_t cointegrated, by the definition $\hat{\varepsilon}_t \sim I(0)$, the said cointegrating vector must be used as the error correction term in modeling a short run relationship. In the case where y_t and x_t are stationary variables *I*(0), equation (3) and (4) without the error correction term can be estimated using the least squares method in level form. However, if y_t and x_t are non-stationary variables, *I*(1) and do not cointegrated, the ECM model such as equation (3) and (4) without the

error correction term in the first difference form can be used. Whereas equation (3) and (4) in ECM-ARDL framework exactly can be used in the case where y_t and x_t are $I(1)$ and cointegrated.

$$\Delta y_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{1i} \Delta y_{t-i} + \sum_{j=0}^{m} \alpha_{2j} \Delta x_{t-j} + \alpha_3 \varepsilon_{t-1} + u_t \qquad (3)$$
$$\Delta x_t = \beta_0 + \sum_{i=1}^{m} \beta_{1i} \Delta x_{t-i} + \sum_{j=0}^{m} \beta_{2j} \Delta y_{t-j} + \beta_3 \varepsilon_{t-1} + v_t \qquad (4)$$

where, ε_{t-1} is error correction term or cointegration obtained from cointegration tests. x_t is Granger cause to y_t if all α_{2j} in equation (3) is significant without taking into account β_{2j}. On the other hand, y_t would Granger cause to x_t if all β_{2j} in equation (4) is significant without taking into account α_{2j}. A Bilateral causal relationship exists between y_t and x_t if all α_{2j} and β_{2j} are significant.

This study uses real GDP or RGDP (as a proxy to economic growth indicator) and number of tourist arrival or TA (as a proxy to tourism indicator). The series of yearly data are obtained from International Financial Statistics (IFS) and Department of Statistics Malaysia for real GDP and the Malaysian Tourism Board for tourist arrival. The data ranges from 1974 to 2010, providing altogether 37 data samples. The period chosen is based on the availability of data.

4. RESULTS AND CONCLUSION

Both ADF and PP tests have produced similar results, indicating the RGDP and TA stationary at first difference, $I(1)$ regardless of the assumption of both constant, and constant and trend included in the test equations. As opposed to ADF and PP tests which assumed non stationary (unit root) of the null hypothesis, the KPSS test was assumed to be stationary for the null hypothesis. However, the result is consistent with the results from ADF and PP tests (see TABLE 1). The existence of a long-run cointegration relationship is tested using the ARDL bound testing approach. As in TABLE 2, the result shows that both of the variable series could not cointegrate in the long-run. The associated long-run estimate coefficient in TABLE 3 is positive but insignificant.

A Causality test based on the ECM-ARDL revealed that there is a unidirectional causal relationship running from RGDP to the TA, indicating that economic growth has influenced tourism activities (see TABLE 4). In addition, the model is free from serial correlation and heteroskedasticity problems but violated the functional form and normality assumptions in respective models (see TABLE 4 for details).

It is widely known that the tourism sector could contribute tremendously to the economic growth of a country. Previous empirical studies show that tourism activities could enhance economic growth. However, there are also studies shows the opposite, which is economic growth could also contribute towards tourism growth.

Empirical findings in this study show that the economic growth has direct significant effect upon tourism indicating that economic growth influences the tourism activities in Malaysia and not the other way around. Nevertheless, the contribution of the tourism sector towards an economy of a country cannot be denied as this sector may have indirect effect towards economic growth as such widely documented in the literature reviews.

For the purpose of future research, this present study suggests the importance of other variables such as inflation, exchange rate and so forth to be included in linking the tourism sector and economic growth as these variables may affect the

relationship between tourism sector and economic growth in order to get better results. In addition, the possibility of the structural breaks may need to be considered as well.

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ATTACHMENTS
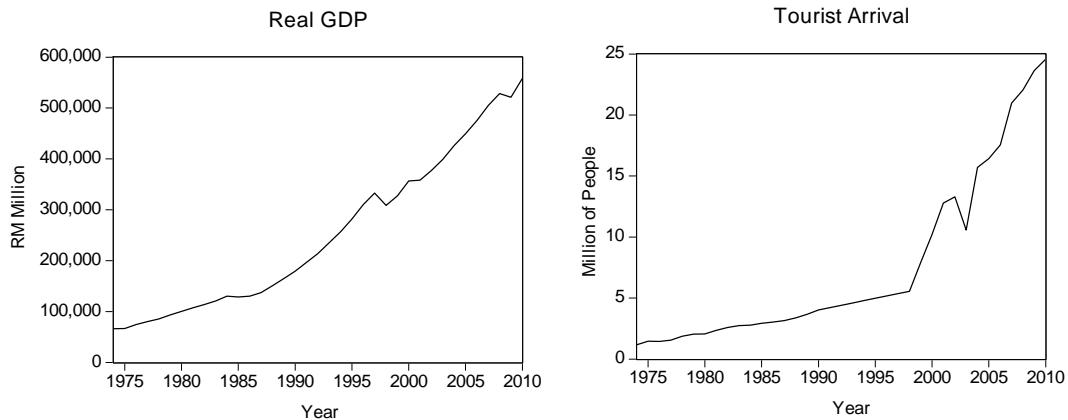
FIGURE 1: Real GDP and Tourist Arrival

Test Type	Variable	Level		First Difference	
		Constant	Constant & Trend	Constant	Constant & Trend
ADF	RGDP	-1.2188(0)	-1.2308(0)	-4.1452***(0)	-5.4154***(0)
	TA	-0.0462(0)	-1.9079(0)	-6.5291***(0)	-6.5284***(0)
PP	RGDP	-1.1963[2]	-1.4029[2]	-5.1533***[2]	-5.4263***[1]
	TA	-0.0408[2]	-1.8879[2]	-6.5943***[3]	-6.8604***[5]
KPSS	RGDP	0.7273**[5]	0.1254*[4]	0.1777[2]	0.0727[1]
	TA	0.7185**[5]	0.1673**[4]	0.0995[2]	0.0793[3]

Notes Figures in ( ) and [ ] indicates number of lag and bandwidth structures respectively. ***, **, * indicates significance at 1%, 5% and 10% levels respectively. All variables were transformed into logarithm.
TABLE 1: Unit Root Tests

Equation	Wald Statistic
$ARDL(0,0)$: $F(RGDP|TA)$	1.6759

Notes: The optimal lag length is selected based on the SIC. For bounds test, the asymptotic critical value bounds are obtained from Pesaran et al. (2001), intercept and no trend with k = 2. Lower bound, $I(0)$ = 5.15 / 3.79 / 3.17 and upper bound, $I(1)$ = 6.36 / 4.85 / 4.14 at 1% / 5% and 10% respectively. All variables were transformed into logarithm. The model was estimated using Microfit 4.1.
TABLE 2: ARDL Bounds Test

Equation: $ARDL(1,0)$ Based SIC Dependent Variable: *RGDP*		
Regressor	Coefficient	*t*-Statistic
α_0	14.8907	1.9537
TA	0.2107	0.1984

Notes: All variables were transformed into logarithm. The model was estimated using Microfit 4.1.
TABLE 3: Long-Run Estimated Equation Based ARDL

Variable	$ARDL\,(p,q)$	Wald Statistic
$\Delta TA \nRightarrow \Delta RGDP$	$ARDL\,(1,0)$	0.0210
Diagnostic Test		
R^2 = 0.0529		χ^2_{FF} = 2.1721
SIC = 57.4717		χ^2_{NOR} = 25.2529***
χ^2_{SC} = 1.1161		χ^2_{HET} = 0.7734
Variable	$ARDL\,(p,q)$	Wald Statistic
$\Delta RGDP \nRightarrow \Delta TA$	$ARDL\,(1,4)$	14.7427***
Diagnostic Test		
R^2 = 0.3960		χ^2_{FF} = 3.6463*
SIC = 22.9144		χ^2_{NOR} = 1.8663
χ^2_{SC} = 0.0711		χ^2_{HET} = 0.7220

Notes: *** and * denote significant and rejected at the 1% and 10% levels respectively. SC = Serial Correlation, FF = Functional Form, NOR = Normality and HET = Heteroscedasticity. All variables were transformed into logarithm. The models were estimated using Microfit 4.1.

TABLE 4: ECM-ARDL Causality Test