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The Study of the Malaysia's Tourism Arrivals: An ARDL Approach

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Abstract

Tourism plays a vital role in the development of country in term of income generation, foreign exchange earnings and employment opportunity. Plenty of researchers intended to verify the tourism-led growth hypothesis and investigate the determinants of tourism growth in Malaysia by using cointegration approach. Their studies however mostly are based on yearly data and applied traditional cointegration approach such as Johansen's test. Therefore, this study uses the Autoregressive Distributed Lag (*ARDL*) approach and the Error Correction Model (*ECM*) Granger causality test to determine the existence of a long-run relationship between tourism and real exchange rates by applying quarterly data. Pairwise models are built by using tourist arrivals in Malaysia as a dependent variable and real exchange rates of different countries as independent variables. The results show that the real exchange rates of China, Singapore and the United States are significant and cointegrated with the tourist arrivals. The *ECM* Granger causality test results indicate the existence of the long-run bidirectional causality relationships between tourist arrivals and the real exchange rates of China, Singapore and the United States. The reliability and validity of the models are confirmed by the diagnostics test and the *CUSUM* test.

Keywords: autoregressive distributed lag, error cointegration model, real exchange rates, tourist arrivals.

1. Introduction

For the past few decades, tourism has been growing rapidly and become one of the largest industries in recent years. Malaysia's tourism is the second highest sector in earning foreign exchange and is the third highest contributor in terms of contribution to the gross national income (Hasbullah 2017). Malaysia has placed at 27^{th} and 24^{th} out of 116 countries in term of absolute contribution to Gross Domestic Product (*GDP*) and employment respectively during 2016. Malaysia's tourism has contributed RM167.5 billion to *GDP*, which is equivalent to 13.7% of *GDP*. Besides, 1,700,500 job opportunities have been generated which supporting 12% of total employment. The performance of tourism has further improved in 2017. The total contribution to *GDP* and total contribution to employment have increased to RM181.4 billion and 1,704,500 jobs and are expected to have 4.3% and 1.5% of growth rate in 2018. Malaysia government has placed tourism as the mainstream in national development agenda and targeting to achieve 33.1 million tourist arrivals and tourist receipts of RM118 billion in

2018 (Hasbullah 2017).

With the significant contribution of tourism, many researchers are interested in studying the relationship between tourism and economic growth. Salleh, Othman, and Ramachandran (2007) examined the contribution of tourism prices, incomes, travelling costs and exchange rates to Malaysia's tourist arrivals. Their study focused on the major markets of Malaysia, namely Australia, Hong Kong, Japan and Singapore. Their results shown that all the variables have a significant effect on tourist arrivals to Malaysia in both short-run and long-run. These findings are supported by the study of Salleh, Law, Ramachandran, Shuib, and Noor (2008), who aimed to examine the determinants of the number of tourist arrivals from seven Asian countries (Brunei, China, Hong Kong, Indonesia, Japan, Singapore and Thailand) to Malaysia. Their results shown that income, substitute price, tourism price and travelling cost are significantly influencing the number of tourist arrivals to Malaysia.

The study of Kadir and Jusoff (2010) shown that there were no long run relationship between the four variables, which were, international tourism receipts, exports, imports and total trade of Malaysia by using Johansen and Juselius approach. However, unidirectional causality relationships were found from exports and imports to international tourism receipts at 5% significant level and from total trade to international tourism receipts at 10% significant level. On the other hand, Tang (2011) used monthly data from January 1989 to May 2010 and found that tourist arrivals in Malaysia, real effective exchange rates and real output are cointegrated in the long-term using Johansen's cointegration test. The results of Granger causality test shown that there were bilateral causality relationships in the long-run among that three variables. Matahir and Tang (2015) examined the effect of education tourism on economic growth in Malaysia over the period of 2002 to 2013 using Johansen's test and Granger causality test and the results shown that education tourism has no effect on economics growth in short-run. Overall, these past studies shown that economic variables such as trade openness, real effective exchange rate, gross domestic product and travelling cost are cointegrated with local tourism in Malaysia.

Malaysia is having an economic crisis and the Ringgit is depreciated against most world currencies since 2015. It may affect the income of the country from various areas include tourism industry. The interest of this study is to figure out whether the total number of tourist arrivals in Malaysia will increase due to the depreciation of Ringgit. Therefore, this study is proposed to explore whether there are long-run and short-run relationships between the tourist arrival in Malaysia and the real exchange rates. The Autoregressive Distributed Lag ($ARDL$) bounds test of cointegration proposed by Pesaran, Shin, and Smith (2001) is used to investigate the long-run relationship, and the $ARDL$ framework is applied to examine the long-run and short-run dynamics. Then the Error Correction Model (ECM) Granger causality test proposed by Granger (1988) is applied to determine the causality relationship between the tourist arrival in Malaysia and the real exchange rates.

The article is organized as follows. A review of some important definitions on the various tests which will be used in the $ARDL$ approach and the ECM Granger causality is given. Section 3 explained the models and the data; followed by the discussion on the empirical results in Section 4. Finally, Section 5 concluded the study included the recommendations for further study.

2. Autoregressive distributed lag approach

$ARDL$ approach is introduced by Pesaran and Shin (1999) which is a general dynamic model that used the lags of the dependent variable and the lagged and contemporaneous values of the independent variables to estimate the long-run and short-run cointegration relationship between variables. Compare to other existing cointegration methods, $ARDL$ approach has the advantage of capable for analysis regardless of whether the underlying variables are I(0), I(1) or mutually cointegrated (Pesaran and Shin 1999; Pesaran *et al.* 2001). The $ARDL$ approach is more robust and statistical significant even though the data sample is small (around 30-80), whereas Johansen and Engle-Granger approaches can only be used and reliable when the sample size is large enough (Narayan 2004). Other than that, the *ARDL* approach can be used to examine the short-term and long-term relationships between variables by reparameterized *ARDL* model into *ECM* model. Finally with *ARDL*, it is applicable with different optimal lag length for each variables, which is not applicable to some other cointegration techniques such as Johansen approach (Pahlavani, Wilson, and Worthington 2005).

Before performing the *ARDL* cointegration analysis, all of the variables are tested by unit root test in order to determine the order of integration of variables (Nkoro and Uko 2016). The unit root test is used to examine the stationarity of the data. The *ARDL* approach involves two stages for estimating the long-run relationship. The first stage of the *ARDL* procedure is to determine the existence of a long-run relationship among all variables using *ARDL* bounds test. The bounds test can be performed by using the F-statistics or Wald test to check the significance of the lagged coefficient in the *ARDL* correction model. Pesaran *et al.* (2001) provided two set of critical F-values, where first set of the critical F-values is assumed all the variables in the *ARDL* model are I(0) while another set is assumed all the variables are I(1). The null hypothesis will be rejected only if the computed F-statistics falls beyond the upper critical bound, indicating that there is long run relationship among the variables. The hypothesis remains inconclusive when the computed F-statistics falls within the critical bound and checking need to be done on the data in order to determine whether there is any human mistakes or data issues. Assuming there is a long run relationships in the *ARDL* model, then the next stage is to estimate the long-run and short-run coefficients in the model. The optimal lag length of the model is selected either based on Schwarz Information Criterion (*SIC*) or Akaike Information Criterion (*AIC*). According to Koehler and Murphree (2016), *SIC* is a better information criterion since *AIC* often overfits the data and leads to over parameterization. This statement is supported by another study conducted by Gayawan and Ipinyomi (2009). Their findings shown that *SIC* is able to provide a lesser number of parameters as compared to *AIC*.

According to Granger (1988), when two series are cointegrated, there must exist at least one direction of causality relationship between them. The presence of cointegration in the *ARDL* approach does not indicate the direction of causality between variables. Therefore, *ECM* Granger causality test is conducted in order to examine the direction of causality between variables in both short-run and long-run in this study. In order to test for the short-run causality, Wald test is adopted for all the lag independent variables by assuming the parameters for these variables are zero. Decision on hypothesis testing will depends on the value of joint F-statistics and the rejection of null hypothesis indicates that there is short-run causality from independent variable to dependent variable.

On the other hand, the long-run causality relationship can be determined from the coefficient of the error correction term in the *ARDL* model. Apart from that, the error correction term in the *ARDL* model also can be used to identify the short-run elasticity of model. The *ARDL* model needs to be reparameterized into *ECM* model in order to determine the error correction term. The model equations are shown in the next section. Lastly the cumulative sum (*CUSUM*) test is conducted in order to check for the stability of long-run and short-run coefficient estimates. A reliable estimation only can be done when the coefficient estimates are stable. The coefficient estimates is said to be stable when the *CUSUM* statistics stays within 5% significant level.

3. Methodology

The variables used in this study are selected after reviewing on previous empirical studies on the tourism-related topic and the time range for the data is from 1995:Q1 until 2017:Q4 with a total of 92 observations. A set of quarterly data is obtained from Immigration Department of

Malaysia, Bloomberg and International Monetary Fund. The data set consists of the number of arrivals visited Malaysia (T) and the real exchange rate (R) between Malaysia with other countries. Tourist arrivals and tourist receipts are often used by many researchers as a proxy for tourism demand. In this study, tourist arrivals is chosen as dependent variable due to the difficulties in obtaining quarterly data for tourist receipts in Malaysia. Real exchange rate is the comparison of relative price of consumption baskets between two countries and can be calculated by multiplying nominal exchange rate with the ratio of price of two countries. In this study, real exchange rate is obtained by multiplying the currency exchange rate with the ratio of consumer price index (CPI) of two countries. The formula is given as below.

$$R = e \times \frac{P^*}{P} \tag{1}$$

where R is the real exchange rate, e is the nominal exchange rate, P^* is the CPI of a foreign country and P is the CPI of Malaysia.

Five countries and one continent have been considered in this study, namely China (CN), Indonesia (IN), Singapore (SG), Thailand (TH), the United States (US) and Europe (EU). Pairwise models have been built using tourist arrivals (T) as dependent variable and real exchange rate between Malaysia and each chosen countries. In this study, Augmented Dickey-Fuller (ADF) test is employed to check on the order of integration of each variables. The proposed models for the $ARDL$ bounds test approach can be expressed as follows:

$$\Delta \ln T_t = C_0 + \pi_1 \ln T_{t-1} + \pi_2 \ln R\_CN_{t-1} + \sum_{j=1}^{p} \gamma_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{q} \gamma_{2j} \Delta \ln R\_CN_{t-j} + \epsilon_{1t} \tag{2}$$

$$\Delta \ln T_t = C_0 + \pi_1 \ln T_{t-1} + \pi_2 \ln R\_IN_{t-1} + \sum_{j=1}^{p} \gamma_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{q} \gamma_{2j} \Delta \ln R\_IN_{t-j} + \epsilon_{2t} \tag{3}$$

$$\Delta \ln T_t = C_0 + \pi_1 \ln T_{t-1} + \pi_2 \ln R\_SG_{t-1} + \sum_{j=1}^{p} \gamma_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{q} \gamma_{2j} \Delta \ln R\_SG_{t-j} + \epsilon_{3t} \tag{4}$$

$$\Delta \ln T_t = C_0 + \pi_1 \ln T_{t-1} + \pi_2 \ln R\_TH_{t-1} + \sum_{j=1}^{p} \gamma_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{q} \gamma_{2j} \Delta \ln R\_TH_{t-j} + \epsilon_{4t} \tag{5}$$

$$\Delta \ln T_t = C_0 + \pi_1 \ln T_{t-1} + \pi_2 \ln R\_US_{t-1} + \sum_{j=1}^{p} \gamma_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{q} \gamma_{2j} \Delta \ln R\_US_{t-j} + \epsilon_{5t} \tag{6}$$

$$\Delta \ln T_t = C_0 + \pi_1 \ln T_{t-1} + \pi_2 \ln R\_EU_{t-1} + \sum_{j=1}^{p} \gamma_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{q} \gamma_{2j} \Delta \ln R\_EU_{t-j} + \epsilon_{6t} \tag{7}$$

where Δ represents the first difference operator, ln represents natural logarithm, C_0 denotes the drift component, γ_{ij} denotes the parameter for variables, p and q are the lag order determined by Schwarz Information Criterion (SIC), π_i is the coefficients of lagged level variables and ϵ_t is the white noise. The presence of long-run cointegration relationship can be determined by using F-test and the null hypothesis is $H_0 : \pi_1 = \pi_2 = 0$. The null hypothesis is rejected if the computed F-statistics falls beyond the upper critical bound, indicating that cointegration exists among the two variables.

After the cointegration relationship between tourist arrivals and real exchange rate are confirmed, the direction of the causality relationship between the variables is determined by *ECM* Granger causality test. Then, The *ARDL* model needs to be reparameterized into *ECM* model in order to determine the error correction term which can be used to identify the short-run elasticity of model. The proposed *ECM* models are given as below:

$$\Delta \ln T_t = \alpha_0 + \sum_{j=1}^{p} \gamma_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{q} \gamma_{2j} \Delta \ln R\_CN_{t-j} + \delta EC_{t-1} + \epsilon_t \tag{8}$$

$$\Delta \ln T_t = \alpha_0 + \sum_{j=1}^{p} \gamma_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{q} \gamma_{2j} \Delta \ln R\_IN_{t-j} + \delta EC_{t-1} + \epsilon_t \tag{9}$$

$$\Delta \ln T_t = \alpha_0 + \sum_{j=1}^{p} \gamma_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{q} \gamma_{2j} \Delta \ln R\_SG_{t-j} + \delta EC_{t-1} + \epsilon_t \tag{10}$$

$$\Delta \ln T_t = \alpha_0 + \sum_{j=1}^{p} \gamma_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{q} \gamma_{2j} \Delta \ln R\_TH_{t-j} + \delta EC_{t-1} + \epsilon_t \tag{11}$$

$$\Delta \ln T_t = \alpha_0 + \sum_{j=1}^{p} \gamma_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{q} \gamma_{2j} \Delta \ln R\_US_{t-j} + \delta EC_{t-1} + \epsilon_t \tag{12}$$

$$\Delta \ln T_t = \alpha_0 + \sum_{j=1}^{p} \gamma_{1j} \Delta \ln T_{t-j} + \sum_{j=0}^{q} \gamma_{2j} \Delta \ln R\_EU_{t-j} + \delta EC_{t-1} + \epsilon_t \tag{13}$$

where Δ represents the first difference operator, α_0 is the drift component, EC_{t-1} is the error-correction term, and ϵ_t is the white noise. The parameters of γ indicate the short-term relationships and δ measures the speed of adjustment. A positive EC_{t-1} indicates the series is divergent while negative EC_{t-1} indicates the series is convergent. There is no adjustment for the series when the error correction term equals to zero.

4. Results and discussion

Table 1 shows the results for the *ADF* unit root test. At level, the *ADF* test results reveal that the null hypothesis of a unit root for all the series cannot be rejected at both 5% and 10% significant level except real exchange rate with Europe (*R_EU*). This indicates most of the series are non-stationary at their level. However, they are stationary after the first differencing with the null hypothesis is rejected at 1% significant level. This suggests that the order of integration for all series are I(1) except *R_EU* is I(0).

Table 1: The *T*-statistics for *ADF* unit root test.

Variables	Level	First Difference	Order of Integration
ln T	-0.9215	-9.6845*	I(1)
ln R_CN	-2.0845	-0.86110*	I(1)
ln R_IN	-2.3972	-8.2735*	I(1)
ln R_SG	-1.2572	-9.4007*	I(1)
ln R_TH	-0.0743	-9.0879*	I(1)
ln R_US	-2.5306	-8.7818*	I(1)
ln R_EU	-5.1809*	-	I(0)

The symbol * represents statistical significance at 1%.

The six pairwise of *ARDL* models is developed in this study:

Model 1: $T = F(R\_CN)$

Model 2: $T = F(R\_SG)$

Model 3: $T = F(R\_US)$

Model 4: $T = F(R\_EU)$

Model 5: $T = F(R\_IN)$

Model 6: $T = F(R\_TH)$

The *ARDL* equations for the above models can be found in Equations (2 - 7). After confirming the order of integration for all the variables are not higher than one, *ARDL* cointegration test was applied to test the cointegration between the variables. The results from the *SIC* suggested that ARDL(4, 0) is the optimal lag length selection for Model 1, 3, 4, 5, and 6 and ARDL(3, 0) is suggested for Model 2. Table 2 displays the results of the estimated *ARDL* parameter for Model 1 to 6 based on the *SIC* optimal lag length selection. The results shown that China, Singapore and the United States are the only countries with significant real exchange rates with Malaysia at 10% significance level. The real exchange rates with Europe, Indonesia and Thailand are found not significant in estimating the number of tourist arrivals in Malaysia. It can be observed that the relationship between tourist arrivals and the real exchange rates with China, Singapore and the United States are negative. 1% increase in *R_CN*, *R_SG*, and *R_US* will lead to 0.5857%, 0.7921% and 0.5873% decrease in tourist arrivals respectively. These can be interpreted as the depreciation of the currency value of Malaysia or the rising currency value of China, Singapore and the United States will eventually result in the increase of tourist arrivals.

Table 2: Summary of the real exchange rates for the six pairwise models.

Variables	Coefficient	Standard Error	*T*-Statistics
$\Delta ln\ R\_CN$	-0.5857	0.3470	-1.6880*
$\Delta ln\ R\_SG$	-0.7921	0.4586	-1.7271*
$\Delta ln\ R\_US$	-0.5873	0.3146	-1.8089*
$\Delta ln\ R\_EU$	-0.0.0016	0.0127	1.2568
$\Delta ln\ R\_IN$	-0.0277	0.1507	-0.1839
$\Delta ln\ R\_TH$	0.7269	0.4705	1.5448

The symbols * denotes rejection of hypothesis at the 10% levels.

Travel and tourism sector will always be impacted by currencies. The country with weaker currency will attract more tourists and stronger currency will encourage people to travel and spend more. Malaysia has been treated as a shopping heaven for Chinese tourists since there is no limitation imposed by Malaysia in purchasing luxury items. When the currency value of Malaysia becomes weaker, the number of Chinese tourists is expected to increase because the items are more prices friendly to them. On the other hand, the situation in Singapore is quite similar to China. The cost of living in Singapore is much higher than in Malaysia. Tourists that earning Singapore dollar will have stronger purchasing power and thus can always enjoy the price advantage in Malaysia. Furthermore, the United States dollar (*USD*) is the global currency. It can be accepted for trade throughout the world and therefore many tourists will exchange for *USD* before travelling even their destinations are not in the United States. For this reason, even when the real exchange rates between Malaysia and the United States decrease, it cannot be concluded that the rising of tourist arrivals is purely from the United States because some of the tourists may be come from other countries instead of United States.

Ironically, the *R_IN* and *R_TH* are not significant in affecting the number of tourist arrivals to Malaysia although both of these two countries have been ranked as 2^{nd} and 4^{th} in the list of top source countries of tourists to Malaysia in 2016. Malaysia has formed a strategic partnership with Indonesia and has identified them as one of the core markets in medical tourism. Malaysia has become so famous for Indonesian patients because quality, accessibility and affordability services are provided for them. These have explained the reason for contradict fact that obtained in this study. Plenty of Indonesian tourists are coming for work or medical treatments, instead of travelling and spending money on purchasing items. Therefore, less focus has been placed by them on the currency exchange value between Malaysia and Indonesia. Thailand is sharing a strong bilateral ties with Malaysia in areas such as education, trade and investment, security and socioeconomic developments. Thailand is an export-dependent country and Malaysia is the largest trading partner for them in *ASEAN*. Items and foods such as textiles and footwear, rice, fishery products and electrical appliances are frequently exported to Malaysia. Lastly, there were a total of 134,257 tourist arrivals (France) from the European Union, which is only contributed 2% to the total tourist arrivals during 2016. Therefore, it is reasonable that the variable R_EU is not significant since the contribution from Europe is relatively lower in term of the number of tourist arrivals in Malaysia.

For the results of the *ARDL* bounds test analysis, the computed F-statistics for Model 1, 2 and 3 are 9.9489, 33.0178 and 10.1364 respectively. The F-statistics for the three models is out of the critical bound at 1% level of significance (F-statistics = 5.58). Therefore, the null hypothesis of no cointegration can be rejected and it is concluded that tourist arrivals are cointegrated with the real exchange rates of Malaysia with China, Singapore and the United States respectively. The existence of cointegration in Model 1, 2 and 3 indicates that there is at least one direction of the causality relationship between the variable.

Table 3 presents the results for the short-run and long-run causality relationship between tourist arrivals and the real exchange rate for Model 1-3 which are computed by using *ECM* Granger causality test. In the short run, there is a bilateral causality relationship between the number of tourist arrivals and real exchange rates with Singapore. Besides, the results also prove the existence of unidirectional causality relationship from real exchange rates with China and the United States to tourist arrivals but not vice versa. In the long run, the null hypothesis of no causality relationship for Model 1, 2 and 3 are all rejected and bidirectional causality relationships have been proven and are significant at 1% level.

Table 3: Summary of the Granger causality test results.

Variables	Short-Run Causality (F-Statistics)	Long-Run Causality (T-Statistics)
$\Delta ln\ T$ -> $\Delta ln\ R\_CN$	2.8493*	5.5319***
$\Delta ln\ R\_CN$ -> $\Delta ln\ T$	0.3101	-8.6951***
$\Delta ln\ T$ -> $\Delta ln\ R\_SG$	2.9828*	-10.0747***
$\Delta ln\ R\_SG$ -> $\Delta ln\ T$	2.8242*	-9.9851***
$\Delta ln\ T$ -> $\Delta ln\ R\_US$	3.2723*	-5.5938***
$\Delta ln\ R\_US$ -> $\Delta ln\ T$	0.9273	-8.9340***

The symbols * and *** indicate rejection of non-causality hypothesis at the 10% and 1% levels respectively.

Table 4: Summary on the short-run elasticity estimation.

Country	Coefficient of *ECM*	Standard Error	T-Statistics
China (Model 1)	-1.7490	0.3162	-5.5319***
Singapore (Model 2)	-2.2606	0.2244	-10.0747***
United States (Model 3)	-1.7588	0.3150	-5.5838***

The symbols *** denotes rejection of hypothesis at the 1% levels.

The error correction term (*ECM*) represents the speed of adjustment to equilibrium after a short-run shock. The long-run relationship is stable when the *ECM* coefficient is negative and statistically significant. Table 4 shows the results for the short-run elasticity estimates for Model 1, 2 and 3. The coefficients for the three models are -1.7490, -2.2606 and -1.7588 respectively and are significant at 1% level.

The purpose of conducting heteroskedasticity test is to assure the variance for the error term is constant. The null hypothesis for the test is H_0: The error term of the model is homoskedasticity and the alternative is H_1: The error term of the model is heteroskedasticity. The heteroskedasticity test shows that the null hypothesis of the constant variance cannot be rejected and thus there is no evidence of heteroscedasticity effects for Model 1, 2 and 3. For *CUSUM* test, the results indicate that the coefficients for Model 1, 2 and 3 are all stable at 5% level.

5. Conclusion

This study investigated the short-run and long-run relationship between the number of tourism arrivals in Malaysia and currency exchange for Malaysia through the use of *ARDL* cointegration approach and *ECM* Granger causality test from 1995Q1 to 2017Q4. The results from the *ARDL* approach show that China, Singapore and the United States are the only countries with significant real exchange rate with Malaysia. Besides, the existence of cointegration between tourist arrivals to Malaysia and real exchange rates with China, Singapore and the United States also have been proven. The coefficients for the real exchange rates indicate that the relationships between real exchange rates and tourist arrivals are negative. The improvement of the currency value in a foreign country or the depreciation of currency value in Malaysia will eventually result in a higher number of tourist arrivals to Malaysia.

The findings from *ECM* Granger causality test suggest that tourist arrivals and real exchange rates with Singapore are bilaterally caused each other in both short-run and long-run relationship. Moreover, unidirectional causality relationships running from real exchange rate with China and the United State to the number of the tourist arrivals in Malaysia are found in short-run but not in vise versa. *ECM* version of the *ARDL* model is formed in order to determine the short-run elasticity for the estimated models. The limitation of this study is that some of the monthly economic data are not available in open source such as Malaysia GDP, international tourism receipts and the number of tourist arrivals. There are other factors such as foreign direct investment, politic issues, international tourism receipts or others that can be considered in future study which may not only limited to real exchange rates.

Based on the findings above, it is recommended that more resources should be spent by the Malaysia government in promoting the tourism sector when the economy of Malaysia is turning good. The attractiveness of Malaysia's tourism to foreign tourists will reduce since the cost of spending will increase when there is an improvement in Malaysia's. In contrast, fewer resources should be spent on tourism sector when the economy is turning down because foreign tourists are more likely to visit Malaysia when the currency value is lower. Policymakers should focus on rebuilding the economy of Malaysia instead of attracting more tourists from foreign countries during the economy downturn.

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