The Tourism Sector in Malaysia: An Analysis of the Impact of Economic Growth, Political Instability and the Exchange Rate

*Daniel Francois Meyer[a], TRADE, Faculty of Economic and Management Sciences, North-West Univeristy, South Africa
*Email Address: Daniel.Meyer@nwu.ac.za

Globally the tourism sector is one of the largest economic sectors and also one of the fastest growing sectors in the world. It is also one of the main economic sectors in attracting and generating foreign revenue, acting in a similar manner to an export industry and accounts for seven percent of global foreign revenue as an export industry. For this study, Malayisa was selected as the study region. In Malaysia, the sector plays an important role in the growth and development of the economy in support of traditional economic sectors. The objective of this study was to analyse the relationship of the dependent variable, namely the tourism sector, with economic growth, political stability and changes in the exchange rate, as independent variables. Malaysia is classified by the UN as an upper-middle income developing country. This study followed a quantitative research approach using an econometric model, with time series data from 1996 to 2017. The relationships between the variables were analysed using descriptive statistics, the Johansen cointegration model, the Vector Error Correction (VECM) and the Granger causality analysis. The results indicated that there are both long and short-run relationships between the variables. The tourism sector is significantly affected by the predicting variables and changes in these variables should be monitored and taken into account in policy formulation. A number of policy recommendations that could potentially contribute to the extension of the role of tourism in development include improved stability regarding politics and the local currency.

Key words: *Economic growth, Malaysia, political instability, tourism.*
JEL Classification*: O53, Z32.*

Introduction

On a global scale, the tourism industry as an economic sector element is an important consideration for economic growth, and further, as it plays the role of an export sector, it also generates income and tax revenue, and creates jobs (Saha & Yap, 2014; Seddighi, Theocharous & Nuttall, 2002). Only international tourism generates annual revenues of over $ 1 trillion and tourism ranks as one of the leading export industries of the world (Vavrečka, 2014; Rahman, 2017). The sector could however be affected by external and internal factors which could include political instability, social unrest and terrorism (Saha & Yap, 2014). Since the early 2000s, the tourism sector has been the fastest growing sector globally (Reddy, Basha & Kumar, 2014). The UNTWO (2018) has identified the sector as a main driver of economic development. The sector has surpassed industries such as the motor vehicle industry and is ranked third overall behind only the chemicals and fuels industries (UNWTO, 2018). International tourist arrivals increased by 7 percent to a total of 1.3 billion people in 2017 (from only 25 million people in 1950), while tourism generated US$ 1.6 trillion in export earnings. Tourism growth is anticipated to continue subject to global political stability. The sector is an important employment generator and is responsible for 1 in 10 jobs, it also provides for 10 percent of global GDP (UNWTO, 2018).

Tourism has proven to be an effective sector for economic growth but also other beneficial factors such as the diversification of local economies, attracting foreign investment, regional development, creation of employment and income, as well as the stimulation of domestic household consumption (Steiner, 2006; Meyer & Meyer, 2015; De Bruyn et al., 2018). The Huron Business Development Corporation (2004) identified some factors for successful tourism development including political stability, investment in infrastructure, effective policies and planning, broad participation by all stakeholders, capacity, building on strengths, promotion of entrepreneurship and partnerships.

Table 1 provides a summary of tourism data with a comparison between the global data, Malaysian and South African data for total international tourist arrivals and tourism receipts in 2017. Global tourism international arrivals have grown at a rapid pace at 7% per annum, while Malaysia had a negative growth rate from 2016 to 2017, this situation could be as a result of the highly competitive markets in Asia and the volatility in the exchange rate. Malaysia however received more than double the number of international tourists compared to South Africa. Malaysia has a 1.95% share of global tourist arrivals. In terms of receipts from international tourists, global growth is also rapid at 5% while both Malaysia and South

Africa are lagging behind at 1.5% and 3% respectively. Both countries have lower shares in percentage global receipts if compared to global arrivals as demonstrated in Table 1 below.

Table 1: Tourism comparison, 2017

Region	International tourist arrivals 2017			International tourism receipts 2017		
	Total number (millions)	Growth from 2016 to 2017	Share of global (%)	US$ (billion)	Growth from 2016 to 2017	Share of global (%)
World	1 326	7%	100%	1 340	5%	100%
Malaysia	25.9	-2.6%	1.95%	18.3	1.5%	1.37%
South Africa	10.3	2.4%	0.78%	8.2	3%	0.61%

Source: UNWTO, 2018.

In terms of the WEF Travel and Tourism Competitiveness Report 2017 (WEF, 2017), the following are relevant statistics for this study: Malaysia (26th) (lost 2 positions since 2016 on the index), South Africa (53rd) (lost six places since 2016 on the index), China (15th position and moving up the rankings), Singapore (13th and losing positions in ranking) and Japan (4th and moving up the rankings). The Malaysian tourism industry contributes 4.4% of the total GDP and provides jobs for 574 000 people in the country. The WEF reports indicates problem areas in the tourism sector as environmental sustainability, cultural resources, time to start a business, high tax rates and the terrorism index. The primary objective of the study is to assess the impact of economic growth, political stability and the exchange rate on the tourism sector in Malaysia. The main research question is what type of relationship exists between tourism and growth as well as what is the impact of change in the exchange rate and ongoing political instability on tourism. These relationships have not been tested using recent data in Malaysia, and the implications of these relationships could have an impact on future policy formulation.

Literature Review

This section of the study has its focus on the analysis of literature related to the relationship between the tourism sector and the other variables included in the study. Firstly, the relationship between tourism and economic growth is analysed by means of empirical results from previous studies. A large number of studies have been conducted regarding this relationship. Payne and Merver (2010) argued that the relationship between tourism and economic growth could be uni-directional or bi-directional. Lee and Chang (2008), analysed

both OECD and non-OECD countries from 1990-2002 and found that changes in tourism caused economic growth in OECD countries with a coefficient of 0.36, while for non-OECD countries there are bi-directional relationships with a coefficient of 0.50. Chou (2013) analysed 10 transition countries for the period 1988 to 2011 and found that tourism growth causes economic growth in countries such as Cyprus, Latvia and Slovakia, while a reverse relationship was found for the Czech Republic and Poland where economic growth causes tourism growth.

Asian studies also provided some mixed results. Kim, Chen and Jang, (2006) tested the tourism and economic growth nexus from the period 1971 to 2003 in Taiwan and found bi-directionality with a coefficient of 0.10. In Malaysia, Tang and Tan (2015) found that tourism causes economic growth from 1975 to 2014 with a coefficient of between 0.24 and 0.31. Karimi (2018) examined a non-linear approach between international tourism arrivals and economic development in Malaysia. Asymmetric models where used for the time period 2001-Q1 to 2015-Q4. The results yielded that in the long run, tourism arrivals is positively related to economic growth without any short-run relationship. Kadir, Nayan and Abdullah (2010) conducted an analysis of the casual relationship between tourism and economic growth in Malaysia for the time period 1994 to 2004. They found that growth in the national economy leads to growth of the tourism industry. This means that any improvements in the national economy will lead to a higher quality of tourism. Oh (2005) analyzed the Korean's causal relationship between tourism growth and economic growth by making use of the Engle and Granger two-stage approach and a bivariate Vector Autoregression model for the period 1975Q1 to 2001Q1. The study yielded that, in the long run, there is no co-integration between tourism and economic growth in Korea. Also, in the short-run there is no tourism-led economic growth.

For African countries, Fayissa, Nsiah and Tadasse, (2008) analysed the situation in 42 countries on the continent from 1995 to 2004 and found that tourism causes economic growth with a low coefficient of 0.03, while Durbarry (2004) in Mauritius from 1952 to 1999, found a bi-directional relationship between tourism and economic growth with a coefficient of 0.77. In Kenya, Kumar (2014) found that economic growth caused tourism for the period 1978 to 2010 with also a low coefficient of 0.08. In South American countries the results of previous studies are also not conclusive. In Mexico, it was found that tourism caused economic growth for the period 1980 to 2007 with a relatively high coefficient of 0.69 (Brida, Carrera & Risso, 2008), while Brida and Risso (2009) for the period 1988 to 2008 in Chile found that tourism also caused economic growth with a high coefficient of 0.81 and also for Uruguay a coefficient of 0.42 was estimated. Salimi, Sadiku and Sadiku (2017) analyzed the effects of tourism on economic growth in the Western Balkan countries. Their panel data consist of 6

countries and spans over the period of 1998 to 2014. They concluded that for every 1% increase of tourist arrivals, there will be a 0.08% increase in their output.

Secondly, the impact of political instability, which could include terrorism, on tourism is analysed. Tourists are rational consumers, and they will make decisions on a destination by weighing up risks and costs involved. Higher levels of political instability increase the risk and cost of a destination. For this reason, high costs of political instability lead to the substitution of a destination for a more stable destination (Gu & Martin, 1992). According to Simon (1982) political instability could flow from aspects such as strikes, protests, boycotts, efforts for nationalization, leadership struggles, low growth and high inflation, bureaucratic politics, border and internal factional conflicts, high levels of debt and corruption, etc. (Sadaf, Oláh, Popp, & Máté, 2018; Rafindadi & Kondo 2018). Literature indicates that political instability could impact the tourism sector negatively and some research even indicates that political stability is a requirement for a growing tourism sector (Hall, 1994; Santana, 2001; Lakner et al., 2018; Pakurár & Oláh, 2008). Issa and Altinay (2006) indicate that politically unstable countries struggle to have policy certainty with poor planning and implementation, leading to low levels of growth in the economy and tourism. The role and effectiveness of government in coordination of economic activities, including tourism, determines economic growth (Balaguer & Cantavella-Jorda, 2002). Eilay and Einav (2004) analysed the impact of political risk on tourism growth. They found a relationship between a country's political risk rating and tourism growth and that political risk has a significant impact on growth in tourism. Destination risk has a significant impact on tourism, more than trade in other goods and services. According to Sonmez (1998), even strong growth in tourism cannot provide a barrier or shield against the impact of political instability which could include terrorism with examples such as the Philipines, Fiji, Egypt, Zimbabwe and Turkey.

Saha and Yap (2014) analysed the impact of political instability on tourism growth for 139 countries from 1999 to 2009. The results reveal that political instability has a severe and long-run impact on demand for tourism with a coefficient of 0.254. Seddighi, Theocharous and Nuttall (2002) analysed the impact of instability on tourism in Cypress, taking into account the sensitive nature of the industry and ever increasing competition between regions and countries. The main conclusions from the research include that instability is multi-dimensional and could have a spill-over effect where instability in one country or region could lead to instability in a neighbouring region. In this regard, tourism and economic planners need to understand the impact of instability on the sector and must, through policy try to reduce the negative impacts. Floyd, Gibson, Pennington-Gray and Thapa (2004) analysed the impact of the September 11, 2001 attack in New York looking at perceived risks on travel and found that issues for consumers included safety concerns, social risks, travel

experience and costs (income), all of these were significant predictors for future travel intensions. Brown (1999) analysed political risk and the impact on tourism development in Africa. The results from the study are that regional instability has a larger impact on tourism development than globalised risks. Political risk has an impact on investment and tourism investment could include investment in accommodation, food and beverage facilities, transport infrastructure and services. The main barriers for tourism development in Africa were identified as crime and safety issues; political issues; service related issues; economic risks; health risks; infrastructure problems; cultural differences and image and marketing.

Tang (2018) analyzed the impact of governance and institutions on the demand for tourism in Malaysia by means of a dynamic panel data study. The study spanned the period 2005 to 2015 and includes 45 tourism countries. The results showed that Malaysia's visitors decreased by 5.8% (approximately 1.5 mil visitors) between 2014 and 2017 when the corruption perception ranking of Malaysia dropped from the 50th place to the 62nd place. Further studies found that a 1% increase in political stability would increase demand for tourism in Malaysia by approximately 1.4%.

In their panel data-based analysis of factors that influence the demand for Chinese outbound tourist, Lui, Li and Li (2018) made use of the top 50 outbound destinations for Chinese tourists over the period 2002 to 2013. They found that political stability is positively correlated with tourism but has no significant effect on outbound tourism demand if the destination is close to China. The further away the destination is from China, the higher the concern it for political instability (Liu *et al.,* 2018). Perles-Ribes, Ramón-Rodríguez, Such-Devesa and Moreno-Izquierdoa's (2019) conducted a study on Catalonia during the fourth quarter of 2017 found that, due to political instability, Catalonia's tourist arrivals decreased by 6.49%. Yap and Saha (2013) conducted a study on the effect of political instability, terrorism and corruption on UNESCO-listed heritage destinations for 139 countries during the period 1999-2009. The study proved that a one unit increase in political instability will lead to a decrease in tourism arrivals and tourism revenue between 24% - 36%.

Lastly, the impact of changes in the exchange rate on tourism growth is analysed. Salleh, Siong-Hook, Ramachandran, Shuid and Noor (2008) did a study on the demand for tourism in Malaysia from Singapore, Indonesia, Thailand, Brunei, China, Japan and Honk Kong. The study covered the period from 1970 – 2004 and found that exchange rates did not affect the number of tourist arrivals from these countries to Malaysia, except from Hong Kong. The study concluded that a 1% increase in the exchange rate increases the arrivals to Malaysia by 3%. Salleh *et al.* (2008) propose that the contradictory findings can be because the countries are cross-border to Malaysia and that other similarities like culture and religion can motivate

citizens to travel irrespective of higher exchange rates. Seo, Park and Yu (2009) analyzed the demand for tourism to Jeju Island, Philippines, Singapore and Thailand from South Korea by making use of the multivariate generalized autoregression conditional heteroskedasticity and Vector Error models. Seo *et al.* (2009) used monthly Korean outbound data for the period April 1980 to June 2006. They found that the outbound tourism destinations, as competitors for the Korean tourists, gains a competitive advantage based on the exchange rate.

The more the exchange rate is in the favor of the South Korean's, the more they are inclined to visit the outbound destination (Seo *et al.,* 2009). Agiomirgianakis, Serenis and Tsounis (2015) examined the impact of exchange rate volatility for tourist arrivals for Iceland during the period 1990Q1 to 2014Q4. By making use of the Autoregressive Distributed Lags model for cointegration, Agiomirgianakis *et al.* (2015) found that exchange rate volatility has a significant effect on the number of tourist arrivals. Saayman and Saayman (2013) based a study on the impact of exchange rate volatility on seven countries' arrivals to South Africa from January 2003 to December 2010. Using the autoregressive lag model and bound test approach, the study concluded that exchange rate volatility does have an influence on tourism, but more on tourist spending than tourist arrival. In conclusion, it is apparent that a positive relationship exists between tourism and economic growth, but the direction of causality differs from region to region. The impact of political instability and exchange rate changes on tourism has also been proven in literature and in empirical results.

Methodology

A quantitative research methodology was utilized in this study from a functionalist paradigm (Teddlie & Tashakkori, 2009). Time series data were used to analyse the impact of economic growth, changes in exchange rate and political stability on tourism growth in Malaysia from 1996 to 2017. This period was selected due to availability of data. To ensure variation is reduced within the data sets, all data were transformed to natural logarithms. In conducting the analysis, the statistical econometric software package, Eviews 9 was used. The variables included in the study are:

- **Tourism Ratio**: This variable is used as the dependent variable. This is a composite index variable consisting of Tourism expenditure (receipts) and number to international tourists. Data set was obtained from the World Tourism Organization (2018). The variable is listed as LTR.

- **GDP:** GDP at constant prices is used as the proxy for economic growth. Data was obtained from the World Bank (2018). The variable is listed as LGDP.

- **Exchange rate:** The specific exchange rate variable used in the study is the Malaysian currency, the Ringget, and its exchange rate to the US$. Data was obtained from the World Bank (2018). An increase in this variable means the depreciation of the local currency while a decrease in the variable means an appreciation of the local currency. The variable is listed as LEXCH.

- **Political Stability Index**: Political Stability Index measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism in a specific country. The data set for political stability was obtained from the World Bank Worldwide Governance Indicators, (2018). The data set is an estimate of governance (ranges from approximately -2.5 (weak) to +2.5 (strong) governance performance). The variable is listed as LPOLSTAB.

The study investigates the relationship between the variables using the following model:

$$LTR = f (LGDP, LEXCH, LPOLSTAB, e)\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Where: LTR is the log of the tourism ratio; LGDP is the log of Gross Domestic Product; LEXCH is the log of the Exchange rate; LPOLSTAB is the log of the political stability index and *e* is the error term. The objective of the study is therefore an analysis to provide estimates of the relationships between the variables with the Tourism ratio as the dependent variable. Due to the nature of time series data, the study will have to test whether or not the data series are stationary or non-stationary (Thayaparan, 2014).

The study employs the Augmented Dickey Fuller (ADF) (Dickey and Fuller, 1981) unit root test for all the variables to test whether the variables are stationary at either levels (I(0)) or first difference (I(1)). The results from the unit root tests provide decision making information regarding which model should be utilised to test for long-run relationships. If there is evidence of a mixture of stationarity, the ARDL model is used while if variables are stationary at the same level of stationarity, the Johansen co-integration model (1991) is used. If the output of the model indicates the existence of a co-integrating equation or long-run relationship among the study variables, the next step will be to estimate the VECM to capture the short-run dynamics of the study variables. A Granger causality test is then estimated to determine the causality among the study variables. Lastly, model diagnostic and stability tests are conducted to test for the stability of the model.

Results and Discussion

This section includes the results from the estimations and discussions of results compared to empirical findings from previous research. Figure 1 below indicates the raw data for the variables, including also GDP per capita and the sub-components of the tourism ratio variable. The impact of the financial crises is visible on all the sub-graphs for the period 2007 to 2009, with recovery during 2009 towards 2010. Both graphs for GDP and GDP per capita indicate the continuous strong growth trends with only the financial crises having a negative impact, but strong recovery immediately thereafter. International tourist arrivals peaked in 2013, but have since then declined and are currently stagnant. Receipts from international tourism have similar trends if compared to arrivals with a steady increase up to 2013 and a decline thereafter. The tourism ratio (receipts per arrival) indicates interesting trends with a peak in 2007, but a significant decline during the financial crises. A recovery occurred from 2010 to 2013, but a sharp decline occurred up to 2016, while 2017 presented a limited recovery. The Ringgit/US$ exchange rate has been relatively stable if compared to other developing economies with the local currency appreciating from 1999 to 2011, but the Ringgit has depreciated significantly since then up to 2016, with a limited recovery in 2017. Regarding political stability, the trend is also volatile with strong periods of political stability such as 2002 to 2006, but since then the political stability has been below par a relative low levels.
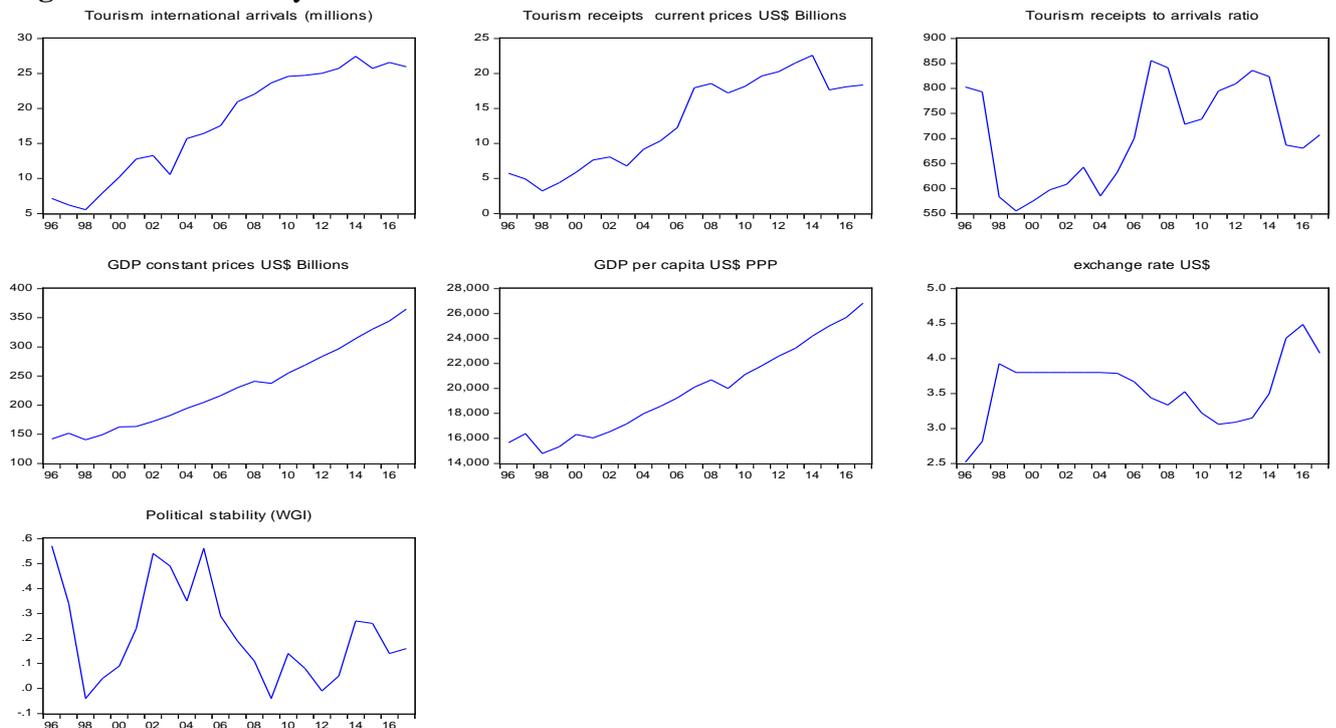
Figure 1. Trends analysis

Table 2 below provides a summary of the descriptive statistics for the data included in the study. The Jargue-Bera values, read with the probability values, indicates that all variables are normally distributed. The international tourism arrivals research reflects a maximum with 27.4 million visitors in 2014 with 17.9 visitors on average per annum since 1996. Tourism receipts also reached a maximum in 2014 with average receipts per annum equal to US$13.1 billion. The tourism ratio (receipts per visitor) had a maximum level in 2007 with average annual ratio of US$708. The GDP research its highest level in 2017 while GDP per capita also had a maximum in the same year with US$26 824, with an annual average of US$19 786. The exchange rate (Ringgit versus US$) had an average rate of Ringget3.6 over the study period with the Ringgit at its weakest level in 2016 while the currency was at its strongest in 1996. Regarding political stability, the average over the study period was 0.22 (ranging between -2.5 to +2.5). The highest level of stability was achieved in 1996 while the lowest level was reached in 2009.

Table 2: Descriptive statistical analysis

	International tourism arrivals	International tourism receipts	Tourism ratio	GDP at constant prices (US$)	GDP per capita (US$)	Exchange rate	Political stability
Mean	17.9896	13.1145	708.0217	229.2891	19786.14	3.5762	0.2190
Median	19.2600	14.7555	703.5477	223.1150	19630.00	3.7275	0.1750
Maximum	27.4370	22.6000	855.7669	364.5700	26824.00	4.4860	0.5700
Minimum	5.5510	3.2370	555.1633	140.6600	14800.00	2.5160	-0.0400
Std. Dev.	7.6413	6.5041	100.0613	70.0226	3647.665	0.4713	0.1914
Skewness	-0.3139	-0.1177	-0.0212	0.4123	0.3820	-0.3103	0.5253
Kurtosis	1.5732	1.4085	1.5806	1.9741	1.9616	2.8520	2.2188
Jarque-Bera	2.2274	2.3724	1.8483	1.5879	1.5234	0.3732	1.5714
Probability	0.3283	0.3053	0.3968	0.4520	0.4668	0.8297	0.4557

Table 3 below represents the Augmented Dicky-Fuller (ADF) unit root test results**.** Results reveal that all variables at levels have p-values above 0.05 significance level, suggesting that the variables are non-stationary at levels (I(0)). For that reason, based on the assumption of no stationarity, the null hypothesis is accepted. Accordingly, variables were tested at first difference, all variables have p-values below 0.05 significance level making them stationary.

The null hypothesis of no stationarity is rejected at first difference or I(1). Therefore, the next step involves the use of the Johansen co-integration model to test for long-run relationships or co-integration vectors in order to establish whether the variables are integrated in the long-run.

Table 3: Augmented Dickey-Fuller (ADF) Unity Root Test

Variables	Level: I(0)		First difference: I(1)		Order of integration result
	t-stat	P-value	t-stat	P-value	
LTR	-1.8843	0.3331	-3.5620	0.0168*	I(1)
LGDP	+0.5001	0.9824	-5.6889	0.0002**	I(1)
LEXCH	-3.6054	0.0154	-4.7564	0.0015*	I(1)
LPOLSTAB	-3.3760	0.0825	-5.8222	0.0001*	I(1)

*Note: * denotes P-value at 1% level of significance and ** at 5% significance.*

A lag order selection criteria tests were conducted to obtain the optimal lag length for the Johansen co-integration examination and the VECM. Having determined that the variables are all integrated at first differences or I(1) order of integration, the study used four selection criteria, namely; HQ, AIC, FPE, and LR to determine the optimal lag to be used in the model. Therefore, one (1) lag was suggested as the optimal lag length. For that reason, one lag is used in Johansen co-integration test as well as VECM. Having established that variables are integrated at first difference and the optimal lag length, it is necessary to establish whether there exists a non-spurious and stable relationship with at least a single linear combination between the regressors. Therefore, the Johansen co-integration test was conducted based on the Trace statistic and Max-Eigenvalue statistics as reported in Table 4.

Results indicate one co-integrating equation (r≤1) in Trace test statistic results as well as the Max-Eigenvalue revealed one co-integrating equation at 0.05 level of significance. Therefore, the null hypothesis of no co-integrating equation (r=0) is rejected. Henceforth, variables are co-integrated, simply implying that there exists a long-run relationship within the series.

Table 4: Johansen co-integration test results

Ho: No of CE(s)	Trace Test			Maximum Eigen-value		
	Trace Statistic	T-critical value	P-values*	Max-Eigen Statistic	T-critical value	P-values*
None*	92.1382	47.8561	0.0001*	55.7398	27.5843	0.0008*

At most 1*	36.3983	29.7970	0.0754	21.9825	21.1316	0.0679
At most 2	14.4157	15.4947	0.0722	13.8062	14.2646	0.0690
At most 3	0.6094	3.8414	0.4350	0.6094	3.8414	0.4350

Note: * *denotes rejection of the hypothesis at the 0.05 level.*

The presence of a co-integrating relationship between the variables, indicates long-run equilibrium in LTR can be explained by LGDP, LEXCH and LPOLSTAB. Results of the Johansen co-integration test sufficed the requirements of at least one single linear combination between the variables, the aforementioned is thus expressed in Equation (2):

$$LTR = 3.2881 + 0.3886(LGDP) + 0.8619(LEXCH) + 0.1180(LPOLSTAB)\dots\dots\dots\dots\dots(2)$$

Equation (2) reveals that the long-run exhibits a positive impact by all independent variables on the dependent variable, LTR. This implies that any increase in LGDP, LEXCH and LPOLSTAB, leads to an increase in the tourism ratio (LTR). Accordingly, a one percent increase in LGDP leads to a 0.39 percent increase in tourism. This result is similar as found by Tang and Tan (2015) in Malaysia, with a similar coefficient of between 0.24 and 0.31; also by Durbarry for Mauritius with a higher coefficient of 0.77. Additionally a percentage increase in the exchange rate (LEXCH) (depreciating currency), leads to a 0.86 percent increase in tourism (LTR). Studies by Salleh *et al*. (2008) and Seo *et al*. (2009) in Asian countries, found similar results. Also, a one percent increase in improved political stability (LPOLSTAB) leads to a 0.12 percent increase in tourism (LTR). Similar results were also found by Hall (1994); Saha and Yap (2014). Provided that a long-run relationship exists between the variables, the VECM is used to assess short-run disequilibrium adjustments towards reaching the long-run equilibrium or co-integration between the variables as indicated in equation (2) (Meyer & McCamel, 2017). Additionally, the error correction term (ECT) is further used to convey the speed of short-run dynamic adjustments towards long-run equilibrium (Blecker, 2013). Therefore, it follows that conditions for explaining short-run adjustments towards reaching equilibrium in the long-run requires a significant t-value and a negative adjustment coefficient or ECT (Mukhtar & Rasheed, 2010). Results of the ECT are presented in Table 5 below. All variables expect for LEXCH have equations which meet the adjustment requirements towards long-run equilibrium with negative coefficients. Further suggesting that the series LTR, LGDP and LPOLSTAB present evidence of error correction in the co-integration equation.

Table 5: Vector Error Correction Model

Error Correction	D(LTR)	D(LGDP)	D(LEXCH)	D(LPOLSTAB)
CoinEq1	-0.3824 [-3.6441]*	-0.1164 [-3.5415]*	0.3666 [6.0820]	-4.4332 [-3.3784]*
D(LTR(-1))	0.3232 [0.9540]	0.1061 [1.2838]	-0.2359 [-1.2124]	2.7455 [0.6480]
D(LGDP(-1))	-0.1192 [-0.1375]	-0.5169 [-1.9020]*	0.7741 [1.5535]	-17.6011 [-1.6227]
D(LEXCH(-1))	-0.5529 [-1.5613]	-0.0851 [-0.7669]	0.7033 [3.4574]	-2.2189 [-0.5010]
D(LPPOLSTAB(-1))	-0.0292 [-0.1361]	0.0081 [1.4211]	0.0137 [1.3152]	0.0448 [0.1966]

Note: T-value in [ ], * indicates significance at 5% level.

Granger causality tests results are indicated in Table 6 below indicating possible direction of causation on the short-run. The results indicates limited causality between variables. The results suggest an interesting bi-directional causal relationship between tourism ratio (LTR) and GDP (LGDP). This implies that short-run changes in the tourism sector cause changes in economic growth and vice versa. Research by Kim *et al*. (2006); Durbarry (2004); Payne and Merver (2010); and Lee and Chang (2008) also found that it's possible to have bi-directional causality between tourism and economic growth. Further results indicate that political stability causes change in tourism growth. Similar results were also reported Eilay and Einav (2004); and Saha and Yap (2014). As expected and importantly, a bi-directional relationship was found between changes in the exchange rate and GDP. Lastly, another interesting relationship was found between political stability and changes in the exchange rate.

Table 6: Pairwise Granger Causality

Null Hypothesis:	Obs	F-Statistic	Prob.
LGDP does not Granger Cause LTR	20	4.80886	0.0243*
LTR does not Granger Cause LGDP		7.64530	0.0051*
LEXCH does not Granger Cause LTR	20	2.44782	0.1202
LTR does not Granger Cause LEXCH		0.94210	0.4117
LPOLSTAB does not Granger Cause LTR	20	0.97292	0.0736**
LTR does not Granger Cause LPOLSTAB		3.12079	0.4210
LEXCH does not Granger Cause LGDP	20	6.10752	0.0115*
LGDP does not Granger Cause LEXCH		9.23903	0.0024*
LPOLSTAB does not Granger Cause LGDP	20	1.41544	0.2735
LGDP does not Granger Cause LPOLSTAB		0.83592	0.4527
LPOLSTAB does not Granger Cause LEXCH	20	14.0715	0.0004*

LEXCH does not Granger Cause LPOLSTAB	4.59678	0.0277*

*Note: *and ** indicate the rejection of the null hypothesis of no Granger causality at 5% and 10% significance respectively.*

In order to test the robustness and stability of results, underscored in the study are diagnostic tests as indicated in Table 7 below. Results showed that the model successfully passed the test for heteroscedasticity, serial correlation and normality. Therefore, the null hypothesis are not rejected.

Table 7: Diagnostic test results

Test	H0	Probability	Decision
LM Test	No serial correlation	0.9172	With a P-value above 5%, do not reject the H0. Therefore, there is no serial correlation in the model.
White (CT)	No heteroscedasticity	0.9150	With a P-value above 5%, do not reject the H0. Therefore, there is no heteroscedasticity in the model.
Jarque-Bera	Residuals are normally distributed	0.0813	With a P-value above 5%, do not reject the H0. Therefore, there is no heteroscedasticity in the model.

Finally, stability testing using the AR root may be conducted to further assess the stability of the model as indicated in Figure 2 below. Figure 2 reveals that all AR roots are contained within the unit circle, meaning that the model is stable and robust.

Figure 2. AR Root test

Inverse Roots of AR Characteristic Polynomial
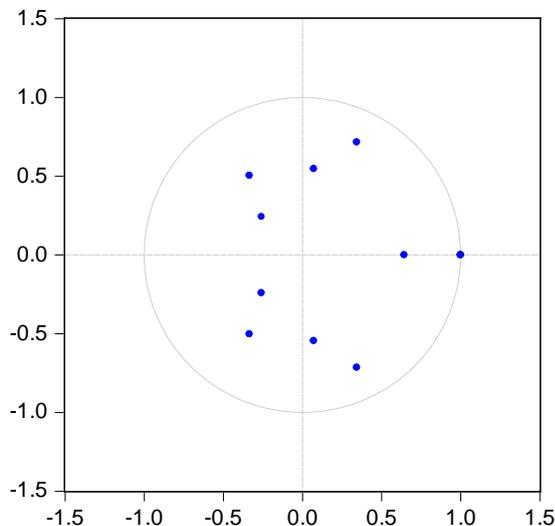
Conclusions and Recommendations

The tourism sector is a critical economic sector driving global growth. Most countries have a focus on tourism development as a strategic priority in national development plans for both developed and developing countries. The main objective of the study was to determine the impact of economic growth, political instability and changes in the exchange rate on the tourism sector in Malaysia. The results of the study indicate that a long-run relationship exists between the tourism sector and variables such as economic growth, political instability and the exchange rate. An important long-run result is that changes in the exchange rate with a coefficient of 0.86, had the highest impact on tourism development in Malaysia. This could be due to the high level of competiveness in the tourism sector in the region with similar products on offer. Both long-run coefficients of economic growth and political stability are significant at 0.39 and 0.12 respectively. Globally these coefficients vary between from as low as 0.03 to up to 0.8. For Malaysia it seems that economic growth has a medium level impact on the tourism sector, while political stability does not play a major role. It seems even low levels of political stability do not have a major impact on the tourism industry in the country. Significant short-run impacts were also identified between variables by means of the VECM. In addition, the Granger causality tests also confirm short-run relationships with bi-directional causality between tourism and economic growth, and political stability cause changes in both economic growth and tourism.

The limitations to the study are that some of the variables such as the global political instability index is only annual based data and available from only 1996. Future studies could include more similar variables such as the effectiveness and even the size of government and the relative impact on tourism. Also the use of panel data for the ASEAN group of countries could be researched. The use of non-economic variables in conjunction with economic variables could provide interesting results for improved policy formulation. From this analysis and from the literature review, a number of recommendations are listed: the tourism sector is an important growth sector for Malaysia although the contribution towards GDP is relatively low; the sector should be the focus of any growth strategy allowing for forward and backward linkages to other economic sectors and continued provision of infrastructure; the tourism sector should allow and support economic diversification with linkages to other sectors (Popp et al., 2018); the tourism sector can assist in the creation of jobs where limited skills (Máté, 2015) exist by supporting entrepreneurship; political stability is not as important as in other regions across the globe, but is still a factor for tourism and economic growth with good governance and policy certain factors in destination choice. A final point then is that

Malaysian tourism could be further developed and extended by ensuring environmental sustainability.

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