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THE IMPACT OF VIOLENT CRIME ON TOURIST ARRIVALS IN MALAYSIA

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Abstract: The tourism industry plays an important role in boosting economic growth, providing job opportunities, and reducing the poverty rates in many countries. For this reason, the factors influencing tourism should be investigated, to ensure continued growth within the industry. Few studies had examined the effect of violent crime on tourist arrivals and price competitiveness in Malaysia. An increasing criminal activity and a rise in prices may discourage tourism arrivals. This paper applies an autoregressive distributed lag (ARDL) model to estimate Malaysia's determinants of tourism arrivals, on the period from 1986 to 2016. Tourism demand is modeled as a function of economic growth, tourism accommodation, prices (proxied by exchange rates and inflation), unemployment, and the crime index to proxy criminal activity in Malaysia. The results showed that inflation can reduce the number of tourists in the long run and in the short run. Similarly, the results also show that a higher exchange rate and violent crime index can reduce the number of tourists visiting Malaysia in the short run. Economic growth can attract more tourists to Malaysia in the long run.These findings are important for the formulation and implementation of policies. The Malaysian government should combat violent crime in the first place to prevent any reduction in tourist arrivals. Increasing government expenditure on national security could lead to a reduction in the violent crime index, thus increasing the number of tourist arrivals in Malaysia.

Key words: violent crime, economic growth, international tourism, tourism development, employment policy, sustainable tourism

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INTRODUCTION

Tourism has become the largest industry in several countries. This industry has provided more than 330 million job opportunities around the world (World Travel & Tourism Council 2019). Tourism also plays a major role in some developing countries as it spurs the economy to grow and reduces poverty (Khan et al., 2020). However, political instability has acted as a stumbling block for the industry to grow prosperously (Ivanov et al., 2017; Muzindutsi et al., 2021; Gozgor et al., 2022). The industry in developing countries must also be competitive in the global market. Due to increasing globalization, the tourism industry has become more dynamic and competitive. This has resulted in fierce competition between many countries. Tourism is one of the top service markets in Malaysia. The tourism industry has favourable impacts on the balance of payments, employment, and economic growth in Malaysia, accounting for 10.3% of total GDP in 2019.

The tourism industry comprises several service sectors, such as hotels, restaurants, public transportation, shopping, tours, among others (Esquivias et al., 2021). These sectors provide services to tourists, and so an increase in the number of tourist arrivals can provide a financial boost to these sectors. An expansion of these sectors entails the employment of more workers, facilitating a reduction in the unemployment rate. Despite innumerable challenges and difficulties faced by the industry, it is still able to provide many job opportunities, thus contributing towards an increase in well-being (Zheng et al., 2022). As more people have jobs, the poverty rate is reduced. Shahbaz et al. (2019) stated that tourism can generate more job opportunities and improve income distribution. Additionally, an increase in revenues from tourist arrivals through foreign exchange can be observed, as foreign tourists demand the local currency to spend in the domestic market (Sharma and Pal, 2020). As a result, local people benefit from increasing economic activity. Table 1 illustrates the number of tourist arrivals in Malaysia from 2008 to 2016. The highest number of tourists coming to Malaysia was recorded in 2014 with more than 27.4 million visitors. The lowest number of tourists visiting Malaysia stood at 22 million in 2008. Despite the

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highest number of tourists in 2014, Malaysia recorded the highest tourist receipts in 2016 at RM 82,098.2. Malaysia recorded the smallest tourist receipts in 2008, at RM49,561.2 million. It shows that both the number of tourist arrivals and the tourist receipts declined in 2015, with decreases of 6.25% in tourist arrivals and 4% in tourist receipts. This is because Malaysia mounted a "Visit Malaysia" campaign to promote Malaysia in 2014 (Rahman et al., 2022). However, the campaign abated, resulting in a lack of promotions in the following year (2015), causing the number of tourist arrivals to drop. Nevertheless, the number of tourist arrivals increased the next year by 4.03%, and tourist receipts increased by 18.78%.

Due to the importance of the tourism industry in boosting economic growth, and reducing poverty and unemployment rates, numerous studies have been carried out into several factors that can increase the number of tourist arrivals, such as accommodations, including exchange rates, economic growth, among others (Altintag, 2014; Dincer et al., 2015; Muryani et al., 2020; Khanalizadeh et al., 2018; Song and Wu, 2021). The findings of these studies, however, are mixed, and the issue merits further attention. A small number of previous studies include crime as a potential determinant of tourist arrivals (Rosselló et al., 2020; Lee et al., 2018; Muryani et al., 2020; Muzindutsi et al., 2021). The higher rate of crime or violence in countries such as Venezuela, Papua New Guinea, Indonesia, and South Africa, may deter tourists from visiting. This can be attributed to a risk-averse behaviour among tourists, who do not which to put themselves in danger whilst travelling. These countries reported the highest numbers of crime cases, including murder, robbery and assault, in the world (World Population Review, 2021). However, the effect of types of crime, especially violent crime, on tourist arrivals has been sparsely investigated by previous studies (Hua et al., 2020; Lisowska, 2017), and none of them have thus far focused on Malaysia.

Motivated by a lack of current empirical studies on crime in Malaysia, it is imperative to conduct this research to shed light on the impacts of violent crime on Malaysia's tourist arrivals. There is no doubt that myriad other factors, such as road safety and conditions, cyber security issues, terrorism threats and others (OSAC, 2020) might affect the decision of tourists to visit Malaysia. For the purposes of this study, however, the intention is to determine whether there is a long-run relationship between violent crime and tourist arrivals in Malaysia. Table 2 illustrates the number of violent and property crime cases in Malaysia reported from 2008 to 2016. The highest number of violent crime cases in Malaysia was recorded in 2009, with a total number of 42,3 thousand cases. The lowest number of violent crime cases in Malaysia stood at 21,810 in 2015. The number of property crime cases reported increased, Malaysia recorded the highest property crime in 2008 at more than 173 thousand cases. Malaysia recorded the smallest number of property crime cases in 2016 at nearly 90 thousand reported cases. The table also shows that the number of violent crime cases declined the most in 2010 with a decrease of 19.43% in violent crime cases, and the number of property crime cases declined the most in 2014. It dropped by 12.38%. Property crime decreased in 2016, but violent crime increased in 2016 by 2.37%.

Table 1. Tourist Arrivals and Tourist Receipts in Malaysia from 2008 to 2016. (Source: CEIC Data, 2020)

Year	Tourist Arrival	Tourist Receipts (RM million)
2008	22,052,488	49,561.2
2009	23,646,191	53,492.5
2010	24,577,196	56,492.5
2011	24,714,324	58,315.9
2012	25,032,708	60,556.7
2013	25,715,460	65,443.3
2014	27,437,315	71,998.8
2015	25,721,251	69,119.6
2016	26,757,392	82,098.2

Table 2. Violent Crime and Property Crime in Malaysia from 2008 to 2016 (Source: Royal Malaysian Police, Department of Statistic Malaysia, 2020)

Year	Violent Crime	Property Crime
2008	37,817	173,828
2009	42,365	170,313
2010	34,133	152,029
2011	30,662	135,633
2012	29,950	123,719
2013	29,375	117,687
2014	25,425	103,119
2015	21,810	93,735
2016	22,326	90,028

LITERATURE REVIEW

The determinants of tourist arrivals have been debated by previous studies (Khanalizadeh et al., 2018; Marti and Puertas, 2017; Muryani et al., 2020; Naudé and Saayman, 2005). Their mixed findings are dependent on their countries of study. Nevertheless, their findings unanimously suggest that economic growth plays an important role in determining tourist arrivals, regardless of different countries and methodologies. Khanalizadeh et al. (2018) investigated the factors that affect the number of international tourists to visit Iran. The ARDL approach was employed to analyse data between 1983 and 2015. Several potential determinants have been identified by the study, such as exchange rates (Sharma and Pal, 2020), commodity trade, the number of hotels which is a proxy for accommodation (Muryani et al., 2020), and real GDP. The results revealed that all of these determinants can have positive effects on the number of tourist arrivals in the short, and even long term.

Based on the gravity framework, Marti and Puertas (2017) examined several determinants of tourist arrivals in European Mediterranean countries. The determinants consist of the distance between origin and destination countries, economic growth in the origin country and in the destination country, the population of the origin country and the destination country, the travel and tourism competitiveness index, and dummy variables including border, official language, second language, colony, etc. The results indicated that the countries should improve safety, health, business, marketing strategies and infrastructure to encourage the influx of more tourists. Naudé and Saayman (2005) used both cross-section and panel data to examine the determinants of the number of tourist arrivals in 43 African countries. The determinants include political stability, tourism infrastructure, marketing and information, and the level of development at the destinations. Data from 1996 to 2000 were collected and analysed by using the OLS and GMM methods. The study broke down tourist arrivals by several continents: the Americas, Europe, and Africa. The results showed that political instability can negatively affect tourism in Africa. However, tourist infrastructure, marketing and information, and the level of development at the destination play an important role in boosting the tourism industry in Africa. Several studies examined the effect of crime on tourism, such as Perry and Potgieter

(2013), Altindag (2014), Nkosi (2010), Nguyen (2022), etc. They produced the consistent findings that crime can have a negative effect on tourism. Altindag (2014) conducted the study on European countries by using panel data from 1983 to 2015. The study divided crime into several types, namely violent crime, homicide, rape, robbery, and assault. The results showed that violent crime can have a lasting negative effect on international tourists and international tourism revenues. This implies that before tourists choose a destination country, their safety takes precedence over other factors, such as exchange rates (Sharma and Pal, 2020; Yen et al., 2021). Perry and Potgieter (2013) also examined the effect of crime on tourism but their study was conducted on South Africa, using literature and data from South African Tourism (SAT).

Their findings consistently showed that tourists' safety is considered before they travel. Nkosi (2010) also gave credence to the findings that a higher level of crime can deter international tourists from visiting. An interview was conducted to the local community of the city of Umhlathuze and Kwazulu-natal. Alleyne and Ian Boxill (2003) investigated the relationship between crime and tourist arrivals in Jamaica. Data over a period of 3 years ranging from 1962 to 1999 from the European countries. The study did not only consider the total crime but also murder cases in their model, and results showed that crime can reduce tourist arrivals to Jamaica. Mohammed and Sookram (2015) also explored the relationship between crime and tourist arrivals in Jamaica, making a comparison with other countries, particularly Trinidad and Tobago. The study split crime into property and violent crime, and the results showed that both types of crime (property and violence) can have unfavourable impacts on the tourism industry in the countries of study.

METHODOLOGY

This study uses annual time series data over a period of 30 years starting from 1986 to 2016. A total of seven variables have been used in the model estimation. Data on the number of tourist arrivals (A), consumer price index (CPI), exchange rate (ER), Gross Domestic Product (GDP), hotels and accommodations (NS), the number of people in unemployment (UN), and the violent crime index rate (VCIR). The variables were obtained from the official website of the Department of Statistic Malaysia (DOSM) and the World Bank (https://data.worldbank.org). The control variables, namely CPI, the exchange rate, GDP, accommodations, and unemployment, were selected based on previous studies. The model specification is as follows (Perles-Ribes et al., 2017):

$$A_t = \alpha + \beta_1 CPI_t + \beta_2 ER_t + \beta_3 GDP_t + \beta_4 NS_t + \beta_5 UN_t + \beta_6 VCIR_t + \varepsilon_t \quad (1)$$

where by A represents the number of tourist arrivals, CPI represents inflation, ER indicates the exchange rate, GDP represents economic growth, NS represents accommodation, UN is unemployment and VR represents violent crime index rates. α is the intercept and ε is the random error term. t is the number of years. A simplified flowchart of the method used is as follows (Figure 1):

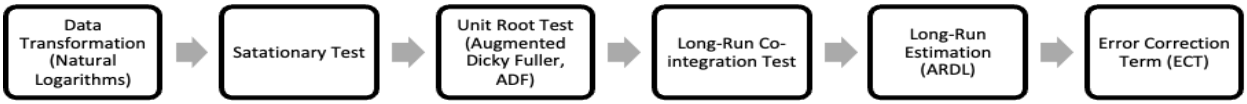

Figure 1. Flowchart Methodology (Source: Authors compilation)

To analyze the effect of violent crime, GDP, inflation, accommodation, the exchange rate, and unemployment on tourist arrivals in percentage, all the variables must be transformed into the natural logarithms, and thus a new model specification is as follows (Perles-Ribes et al., 2017):

$$LnA_t = \delta + \partial_1 LnCPI_t + \partial_2 LnER_t + \partial_3 LnGDP_t + \partial_4 LnNS_t + \partial_5 LnUN_t + \partial_6 LnVCIR_t + e_t \quad (2)$$

Whereby LnA represents the log of the number of tourist arrival, LnCPI represents the log of consumer price index, LnER represents the log of the exchange rate, LnGDP represents the log of GDP, LnNS represents the log of accommodation, LnUN represents the log of unemployment, LnVCIR represents the log of violent crime index rate, δ represents the intercept and e represents the random error term.

Table 3. Variable Description Source. Department of Statistic Malaysia (DOSM) and the World Bank (https://data.worldbank.org)

Variable name	Definition/ proxy and data source	Symbol	Unit measurement
Tourist arrival	The number of tourist arrival (number of arrival)	A	Number of arrivals
Inflation	Consumer price index (2010=100)	CPI	(2010=100)
Exchange rate	Official exchange rate local currency unit per US$, period average)	ER	Local currency unit per US$, period average
Economic growth	Gross Domestic Product (current local currency unit)	GDP	(current local currency unit)
Accommodation	Hotel and Accommodation	NS	Hotel and Accommodation
Unemployment	The number of unemployed people	UN	The number of unemployed people
Violent crime	Violent crime index	VCIR	violent crime index

This study employs the ARDL approach to examine the effect of violent crime on tourist arrivals in Malaysia from 1986 to 2016. The approach is chosen as it is robust and able to produce better results with a small sample size of data. It can also estimate a long-run linear regression model in the presence of co-integration among the variables (Esquivias et al., 2021). Several other co-integration techniques can also be employed, such as Engle-Granger (1987) as well as Johansen and Juselius (1990). However, these techniques require all the variables to be integrated in the same order. The order of integration for the ARDL approach can be purely I(0) and I(I) or mixed but not I(2). Basically, the ARDL approach requires a stationary test to be

conducted first. This implies that the co-integration test based on the ARDL approach can be employed regardless of whether all the variables are in the order of I(0), I(1) or a mixture of I(0) and I(1) but not I(2). Thus, to test the presence of root unit in the time series, the Augmented Dickey Fuller (ADF) test is applied, and the model based on Perles-Ribes et al. (2017) is as follows:

$$\Delta x_t = n_0 + n_1 x_{i=1} + \sum_{i=1}^{k} n_1 \Delta x_{t=i} + \varepsilon_t \quad (3)$$

Where Δ is the first differential operator, ε_t is the white noise, and x_t is the variable for the time series data. The hypothesis that needs to be tested is the null hypothesis, H_0: $n_1 = 0$, which means there is a unit root (non-stationary time series), while the alternative hypothesis, H_1: $n_1 > 0$, which suggests that the time series data have no unit root or are stationary. If the null hypothesis is rejected, it indicates that the variable (x_t) is stationary with a mean value of zero (Perles-Ribes, et al., 2017). Next, to estimate the ARDL model, there are three steps to be followed. The first step is to estimate a long-run relationship (co-integration) among the time series variables. The model (Pesaran et al., 2001) is as follows:

$$\Delta LNA_t = \theta_1 + \sum_{i=1}^{p} \lambda_1 \Delta LNA_{t-i} + \sum_{i=0}^{q} \lambda_2 \Delta LNCPI_{t-i} + \sum_{i=0}^{r} \lambda_3 \Delta LNER_{t-i} + \sum_{i=0}^{s} \lambda_4 \Delta LNGDP_{t-i} + \sum_{i=0}^{t} \lambda_5 \Delta LNNS4_{t-i} + \sum_{i=0}^{u} \lambda_6 \Delta LNUN_{t-i} + \sum_{i=0}^{v} \lambda_7 \Delta LNVCIR_{t-i} + \pi_1 LNA_{t-1} + \pi_2 LNCPI_{t-1} + \pi_3 LNER_{t-1} + \pi_4 LNGDP_{t-1} + \pi_5 LNNS_{t-1} + \pi_6 LNUN_{t-1} + \pi_7 LNVCIR_{t-1} + \mu_t \quad (4)$$

where by Δ is the first differential operator, (p, q, r, s, t, u, v) are the optimum lag, and μ refers to the error term. To identify the existence of a long-run relationship between the variables in the equation, then the null and alternative hypotheses are tested using the F-statistical test as follows:

$$H_0: no\ cointegration: (\pi_1 = \pi_2 = \pi_3 = \pi_4 = \pi_5 = \pi_6 = \pi_7 = \pi_7 = 0)$$
$$H_0: cointegration: (\pi_1 \neq \pi_2 \neq \pi_3 \neq \pi_4 \neq \pi_5 \neq \pi_6 \neq \pi_7 \neq \pi_7 \neq 0)$$

If the estimated value of F-statistic exceeds the upper bound critical value, then the null hypothesis is rejected. This suggests that the estimated long-run relationship are co-integrated among the variables. If the estimated value of F-statistic is less than the lower bound critical value, the null hypothesis is not rejected. If the estimated value of F-statistic falls between the lower and upper bound critical values, then it cannot be identified whether there is a co-integration. It means that the result is inconclusive. If there is co-integration among the variables, then the long-run relationship can be estimated using the ARDL approach. After the existence of co-integration has been confirmed, then the second step is to estimate the ARDL model (p, q, r, s, t, u, v) in the long run. Following Pesaran et al. (2001), the equation is as follows:

$$LNA_t = \theta_{11} + \sum_{i=1}^{p} \pi_1 \Delta LNA_{t-i} + \sum_{i=0}^{q} \pi_2 \Delta LNCPI_{t-i} + \sum_{i=0}^{r} \pi_3 \Delta LNER_{t-i} + \sum_{i=0}^{s} \pi_4 \Delta LNGDP_{t-i} + \sum_{i=0}^{t} \pi_5 \Delta LNNS_{t-i} + \sum_{i=0}^{u} \pi_6 \Delta LNUN_{t-i} + \sum_{i=0}^{v} \pi_7 \Delta LNVCIR_{t-i} + \pi_8 \Delta LNA_{t-i} + \pi_9 \Delta LNCPI_{t-i} + \pi_{10} \Delta LNER_{t-i} + \pi_{11} \Delta LNGDP_{t-i} + \pi_{12} \Delta LNNS_{t-i} + \pi_{13} \Delta LNUN_{t-i} + \lambda_{14} \Delta LNVCIR_{t-i} + \mu_t \quad (5)$$

In the last step, the term ARDL short model should be estimated by considering the error correction term (ECT) derived from the long-run ARDL model. The error correction model (ECM) can be expressed in the following equation (Pesaran et al., 2001):

$$\Delta LNA_t = \theta_{111} + \sum_{i=1}^{p} \lambda_1 \Delta LNA_{t-i} + \sum_{i=0}^{q} \lambda_2 \Delta LNCPI_{t-i} + \sum_{i=0}^{r} \lambda_3 \Delta LNER_{t-i} + \sum_{i=0}^{s} \lambda_4 \Delta LNGDP_{t-i} + \sum_{i=0}^{t} \lambda_5 \Delta LNNS_{t-i} + \sum_{i=0}^{u} \lambda_6 \Delta LNUN_{t-i} + \sum_{i=0}^{v} \lambda_7 \Delta LNVCIR_{t-i} + \lambda_7 ECT_{t-i} + \mu_t \quad (6)$$

The co-efficient value (λ_7)of ECT can explain two things. First, it will measure the speed of adjustment towards the long-term equilibrium. The time is taken to converge towards the long-term equilibrium. Second, ECT can also confirm the long-run relationship among the variables.

Table 4. Results of Descriptive Statistics (Source: Authors compilation)

	Tourist Arrival	Inflation	Exchange Rate	Economic Growth	Accommodation	Unemployment	Violent Crime
Mean	16.2290	4.3733	1.1549	26.5860	11.1903	5.8492	4.3892
Median	16.1739	4.4026	1.1697	26.5993	11.3124	5.9043	4.4514
Max.	17.1274	4.7462	1.4227	27.8539	11.8067	6.2228	5.0335
Min.	15.1511	3.9581	0.9181	24.9943	10.2914	5.3702	3.9208
Std. Dev	0.6752	0.2455	0.1719	0.8624	0.4784	0.2464	0.3209
Kurtosis	1.5102	1.8782	1.4384	1.9036	2.1242	2.3735	2.1231
Jarque-Bera	2.8753	1.9072	3.1741	1.8349	2.7713	1.5871	1.067849
Sum	503.0993	135.5721	35.8009	824.1654	346.8989	181.3247	136.0656

RESULTS AND DISCUSSION

The results of the descriptive statistical analysis on seven variables (inflation, exchange rate, economic growth, accommodation, unemployment, and violent crime) are reported in Table 4. The analysis is to see the mean, median, maximum, minimum, etc. The results show that the highest mean among the seven variables is economic growth at 26.5860. The median value of economic growth is 26.5993 and the highest value among the variables. Next, the highest maximum value is also economic growth at 27.8534 with a minimum value of 24.9942. The differences between the maximum and minimum for inflation, exchange rate, accommodation, unemployment, and violent crime are 0.7882, 0.50465, 1.5152 and 1.1127, respectively. For the maximum and minimum difference in descriptive statistics results on the environmental impact variable is 6.416977. It can be concluded that the maximum and minimum difference at the highest value is in the economic growth**.**

Table 5. Unit Root of Augmented Dickey-Fuller (ADF) with and without Trend (Source: Authors compilation)

Variable	Intercept		Intercept and Trend	
	Level	First Difference	Level	First Difference
Tourist Arrival	-1.000332 (0.7402)	-6.012364*** (0.0000)	-2.648208 (0.2634)	-5947029*** (0.0002)
Inflation	-1.223789 (0.6508)	-4.765745*** (0.0007)	-0.994245 (0.9299)	-5.222547*** (0.0011)
Exchange Rate	-1.081502 (0.7099)	-4.227584*** (0.0026)	-1.641717 (0.7517)	-4.149762** (0.0144)
Economic Growth	-2.336131 (0.1678)	-5.830602*** (0.0000)	-1.840443 (0.6596)	-6.814795*** (0.0000)
Accommodation	-2.966322* (0.0501)	-7.433410*** (0.0000)	-1.133119 (0.9055)	-8.689798*** (0.0000)
Unemployment	-1.236834 (0.6450)	-5.235665*** (0.0002)	-3.395251* (0.0739)	-5.887946*** (0.0002)
Violent Crime	-1.703860 (0.4188)	-3.513721** (0.0148)	-1.925526 (0.6156)	-3.509180* (0.0571)

Note: ***, ** and * indicate significance levels of 1%, 5%, and 10% respectively.

The results of the unit root test are reported in Table 5. The findings suggest that all of the variables are not stationary in level under intercept without trends except for accommodation. However, under intercept and in the first difference, the results show that all variables are significantly stationary. The results under intercept with trends and in level show that all the variables are not stationary except for unemployment which is significant at the difference level of 10%. In the first difference, all the variables are significantly stationary. Table 6 shows the results of the bound test. The bound test was performed before estimating the long-run coefficients. The findings are reported in Table 3. The F-statistic value is 4.7115 and higher than the critical value at the 1% significance level. It is larger than the lower bound of 2.12 and upper bound of 3.23. The results suggest that the null hypothesis is rejected, and thus there is a long-run co-integration among the variables.

Table 6. Bound Test (Source: Authors compilation)
Note: *** indicates a significance level of 1%

	F-statistic	
	4.7115***	
Critical Value	**Lower Bound**	**Upper Bound**
1% significance level	3.15	4.43
5% significance level	2.45	3.61
10% significance level	2.12	3.23

Table 7. Estimated Long Run Coefficient using the ARDL approach (Source: Authors compilation)

Variable	Coefficient	Standard Error	Probability
Inflation	-5.985711**	2.184658**	0.0135**
Exchange Rate	0.490922	0.352560	0.1880
Economic Growth	2.469839***	0.676900***	0.0018***
Accommodation	-0.189744	0.629115	0.7664
Unemployment	0.057097	0.226092	0.8035
Violent Crime	0.048043	0.117162	0.6866
C	-21.999786***	6.450273***	0.0031***

Note: R-squared is 0.9845, and adjusted R-squared is 0.9750. *, **, *** indicates a significance level of 10%, 5%, and 1% respectively

Table 8. Estimated Short-Run Coefficient Using the ARDL approach (Source: Authors compilation) Notes: ***, **, and * indicate significance levels of 1%, 5% and 10%, respectively

Variable	Coefficient	Std. Error	Prob.
Inflation	-5.229638**	2.137717**	0.0249**
Exchange Rate	-0.883056**	0.340262**	0.0183**
Economic Growth	0.116560	0.621959	0.8534
Accommodation	-0.165777	0.550549	0.7668
Unemployment	-0.289604	0.253030	0.2674
Violent Crime	-0.457420**	0.213649**	0.0462**
ECT	-0.873687***	0.161968***	0.0000***

Table 7 shows the results for the long-run coefficients using the ARDL approach. The results show that inflation can have a negative effect on tourist arrivals in the long run as it is significant at 5%. The coefficient value is -5.98, and thus this means that a 1% increase in inflation can cause tourist arrivals to drop by 5.98% in the long run. Athari et al. (2021) also supported that inflation can disrupt tourism due to increases in various prices of goods and services, including travel, hotels, recreation services, etc. Blengini and Heo (2020) also supported that firms need to adapt pricing strategies to macroeconomic factors (i.e., inflation pressures). From the table, it shows that a higher exchange rate has no effect on tourist arrivals in the long run as it is not significant. The coefficient value is 0.49, therefore this means that a 1% increase in the exchange rate cannot cause tourist arrivals to change in the long run. Athari et al. (2021) also found that a favourable exchange rate can attract more tourists as they can exchange their currencies for more local currencies. As a result, they can have more money and thus visit many places. The results also show that economic growth can have a positive effect on tourist arrivals in the long run as it is significant at 1%. The coefficient value is 2.46, and this means that a 1% increase in economic growth can cause tourist arrivals to increase by 2.46%. Athari et al. (2021) and Song and Wu (2021) also agreed that economic growth can boost tourism. This is because higher GDP can expand the tourism industry, and thus more tourist attractions can be explored and improved to attract more tourists. The results also show that an increase in accommodation does not have any effect on tourist arrivals in the long run. The coefficient value is -0.18, and thus this means that a 1% increase in accommodation does not cause tourist arrivals to change in the long run. This suggests that accommodation is not the main priority for tourists, and thus we can see about 270,000 backpackers a year visiting Malaysia. They are willing to rent low-cost rooms so that they can stay for many days. The results also show that unemployment can have no effect on tourist arrivals in the long run as it is not significant. The coefficient value is -0.05, and this means that a 1% increase in unemployment cannot cause tourist arrivals to change in the long run. The results also show that violent crime can have no effect on tourist arrivals in the long run.

Table 8 shows the result for the short-run coefficients using the ARDL approach. The results show that inflation can have a negative effect on tourist arrivals in the short run as it is significant at 5%. The coefficient value is -5.2296, and thus a 1% increase in inflation can cause tourist arrivals to drop by 5.2296% in the short run. This is similar to the result of Meo et al. (2018), which suggests that inflation can result in tourists' purchasing power decreasing in the country. Hence, they are less interested in visiting countries with high inflation. From Table 7, it also shows that a higher exchange rate can have a negative effect on tourist arrivals in the short run as it is significant at 5%. The coefficient value is -0.8831, therefore a 1% increase in

the exchange rate can cause tourist arrivals to drop by 0.8831% in the short run. This corresponds to the result of Athari et al. (2021) as well as the result of Sharma and Pal (2020) that a higher exchange rate can negatively affect tourism, which is similar to the expected theory. Tourists have to spend more money to exchange for local currencies. By contrast, a. more competitive exchange rate (lower), will attract more tourists to visit the country due to the fact that they need to spend less money for their holiday. The results also show that economic growth has no effect on tourist arrivals in the short run.

The coefficient value is 0.1166, and thus a 1% increase in economic growth cannot cause tourist arrivals to change in the short run. The results also show that an increase in accommodation does not have any effect on tourist arrivals in the short run. The coefficient value is -0.1658, and thus a 1% increase in accommodation does not cause tourist arrivals to change in the short run. This implies that many tourists, especially backpackers, visit Malaysia on a budget. They stay in places that are not expensive and travel on a budget. That is the reason why inflation may disrupt their holiday. The results also show that unemployment can have a negative effect on tourist arrivals in the short run. The coefficient value is -0.2896, and therefore a 1% increase in unemployment does not cause tourist arrivals to change in the short run. The table also shows that violent crime can have a negative effect on tourist arrivals in the short run as it is significant at 5%. The coefficient value is -0.4574, and thus a 1% increase in violent crime can cause tourist arrivals to drop by 0.4574% in the short run. The results indicate that safety is a basic feature of successful tourism in Malaysia, and that failing to provide a secure environment can compromise future arrivals (Kim et al., 2021). The results are in line with earlier evidence in the case of South Africa (Garidzirai, 2021). The results of diagnostic tests (Breusch-Godfrey Serial Correlation LM, Ramsey RESET stability and Heteroscedasticity) are reported in Table 9. The results show that the model does not suffer any diagnostic problems. Hence, the model is reliable to explain the effects of inflation, exchange rates, economic growth, accommodation, unemployment, and violent crime on tourism in Malaysia. Figure 2 shows the results of the plots of the CUSUM graphs. The plots are within the boundaries. This shows that the model is stable.

Table 9. Diagnostic Test (Source: Authors compilation)

Test statistic	F-statistic	Probability
Jarque - Bera	0.897784	0.638335
Breusch-Godfrey Serial Correlation LM	1.528101	0.3128
Ramsey RESET Test	0.154774	0.6989
Heteroskedasticity Test	0.777117	0.6586

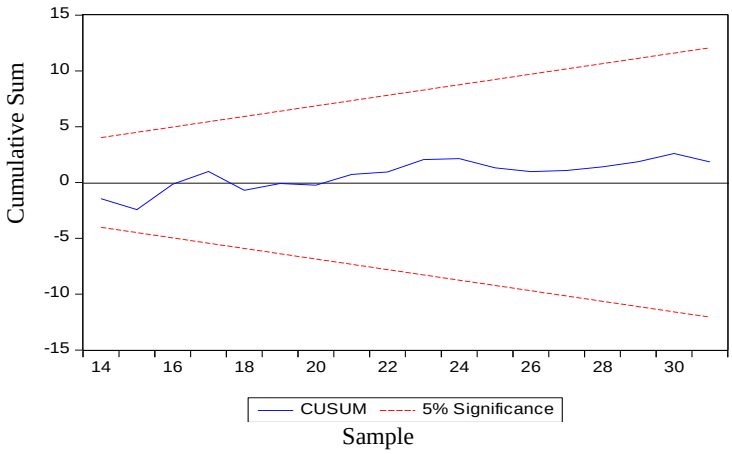

Figure 2. Results of CUSUM (Source: Author's Own Results)

CONCLUSION

This study aims to investigate the effect of violent crime on tourist arrivals in Malaysia. A unit root test was conducted, and the results show that all of the variables measured (economic growth, inflation, violent crime, exchange rate and unemployment) are not stationary in level under intercept without trends, except accommodation. However, under intercept and in the first difference, the results show all variables are significantly stationary. Other than that, the results under intercept with trends show that all variables are not significant in level except for unemployment. However, in the first difference, all of the variables are stationary. These findings of mixed order of integration allow us to conduct a co-integration test. The results revealed that there is a co-integrated relationship among the variables. The results of the ARDL test show that inflation and economic growth can affect tourist arrivals in the long run, and the results also show that inflation and exchange rates can affect tourist arrivals in the short run. The findings also suggest that an increase in the violent crime rate can reduce the number of tourist arrivals into Malaysia. Prior studies support our significant findings on exchange rates, inflation and economic growth affecting the number of tourist arrivals. Similarly, the findings provide new evidence on the negative impact that violent crime can play on tourism arrivals suggesting that ensuring safety is critical for the tourism sector. These findings are important for influencing policymakers to formulate policies on reducing violent crime in Malaysia. The Malaysian government should increase expenditure on improving security within the country. The number of police officers could be increased to strengthen patrols in all areas. In addition, law enforcement against violent crime in Malaysia could be improved to act as a deterrent to would-be criminals. Like other previous studies, this current study also has several flaws. For future research, property crime should also be included in the model.

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