

Understanding Economic Indicator toward Tourism Sector and Economic Growth in Malaysia

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To Link this Article: <http://dx.doi.org/10.6007/IJARPED/v12-i3/19316>

DOI:10.6007/IJARPED/v12-i3/19316

Published Online: 16 September, 2023

Abstract

This study is to determine the relationship between economic growth, unemployment rate, exchange rate and tourist arrivals in Malaysia using secondary data from 1990 to 2019. The Augmented Dickey-Fuller test, Phillips-Perron test, Kwiatkowski-Phillips-Schmidt-Shin test, Johansen cointegration test and VECM Granger Causality test have been fully applied to achieve the objectives of the study. ADF and PP test were found of integrated of order 1, I (1) and for robustness purpose, KPSS results supports the unit root test well. Meanwhile, the Johansen-Juselius cointegration test indicates a long-run relationship were existing among the variables namely economic growth (GDP) as the dependent variable and unemployment rate, real effective exchange rate (REER) and tourist arrivals as the independent variables. The Granger Causality test is used to validate the association while also determining the direction of causation. The result showed the existence of a long-run relationship between the dependent variable economic growth (GDP) and its independent variables unemployment rate (UNEMP), real effective exchange rate (REER) and tourist arrivals (TA). It clearly shows the importance of each independent variable to the economic growth (GDP) of Malaysia. Meanwhile, there is a short-run unidirectional causal relationship found between GDP, UNEMP and TA. This article recommends that to reduce unemployment rate, increase exchange rate and increase number of tourist arrivals in order to have good economic growth.

Keywords: Economic Growth, Unemployment Rate, Exchange Rate, Tourist Arrivals, Economic Indicator.

Introduction

Malaysia has had both positive and negative economic growth until today. A variety of economic possibilities have been generated and are ready to be grasped by entrepreneurial Malaysians. Tourism is among one of Malaysia's most important economic industries (Narayan, 2005). Based on the history, the number of tourist arrivals as well as the unemployment rate and the exchange rate will influence the economy of Malaysia.

Economic growth, which refers to the economy's long-term output capacity, has been a common topic of discussion among scholars and development economists. (Abdul Manaf et al., 2019). When an economy is producing more, the sales of its businesses become more profitable, resulting in an inflow of international corporations and an increase in the number

of tourists. Customers will have much more money to spend on other goods and services, which will increase their purchasing power.

Malaysia continues to accomplish its goal of becoming a developed country by focusing on the stabilization of economic growth, which may be impacted and assessed by a variety of parameters such as GDP, exchange rate, unemployment, and foreign direct investment. Numerous studies examined the connection between economic growth and tourist arrivals, tourist arrivals and unemployment rate, and economic growth and unemployment rate. It is essential to investigate the interactions between these variables. (Abdul Manaf et al., 2019). Economic growth is defined as an increase in the output of economic goods and services from one period to the next. It can be expressed nominally or in real (inflation-adjusted) terms. Although different measurements are occasionally employed, aggregate economic growth has historically been measured in terms of gross national product (GNP) or gross domestic product (GDP). Tourism is one of Malaysia's most significant industries, contributing 5.9 percent of the nation's GDP and employing over a fifth of the labor force. (Hirschmann, 2021). The concept of tourism development as a driving force behind economic growth, agricultural advancement, energy development, and the alleviation of poverty has gained acceptance on a global scale. Although it is generally accepted as fact, there is scholarly disagreement regarding the causal relationship between the expansion of tourism and increased economic growth. According to Khan et al (2020), study shows tourism is supported and promoted by governments in the developing world due to its high multiplier effects in terms of generating employment, increasing foreign exchange earnings, having a positive impact on the balance of payment, and stimulating tourism supply sectors. All of these activities help to alleviate poverty.

Several studies conducted over the last few decades indicated that nations with higher number of tourist arrivals may generate more revenues and so increase economic growth. This is the situation in both developed and countries that are still developing. As a consequence, any programs aimed at expanding the tourist business may benefit the country as well as the nation. The relationship between tourism and employment rates is yet another feature of tourism that scholars find interesting. An increase in tourist arrivals might lead to an increase in demand for domestic products and services. According to the above analysis, the tourist sector is seen as beneficial to the economy. Shaari, Ahmad and Razali (2018), because numerous studies indicate that economic growth is one of the macroeconomic objectives hence, policymakers will develop economic growth-promoting policies.

Tourist arrivals are the number of tourists or visitors who arrive. A person who visits the nation on many occasions is regarded as a new arrival each time. Yi et al (2020), tourism is also renowned as a dynamic and competitive sector that demands the capacity to continually adapt to changing client wants and wishes, since the pleasure, satisfaction, and safety of customers is the emphasis of tourism firms. Tourist is inherently susceptible to various interpretations, however, any correctly applied major tourism phrases at the national, regional, and local levels are appropriate. As a result, tourist planning and management are known to be somewhat effective when the many stakeholders involved have differing ideas about what tourism is.

According to the Malaysia Tourism Promotion Board (MTPB), Malaysia attracted 10.2 million international tourists in 2000, with the average length of stay increasing from 4.8 nights in the 1980s to 5.8 nights in 2000. Malaysia was placed third in the Asia Pacific area by the World Tourism Organization in terms of foreign visitor arrivals, but only tenth in terms of earnings in 1999. Nonetheless, Global Traveler, a prominent US-based business magazine, named

Malaysia the greatest foreign destination of 2008 (MTPB, 2009). Lean, Chong and Hooy (2014), the tourist sector has exposed new opportunities and offered individuals hope, a profession, and a future as a driver for Malaysian economic progress. However, throughout the 1980s, Malaysia's tourist industry grew in importance. Nanthakumar, Ibrahim and Harun (2007), this is clear since the government and the private sector invest around \$US350 million per year in new facilities and capital equipment, accounting for 7.3 percent of total global capital investments.

Unemployment rate. In general, unemployment is regarded as a serious labor-market problem. Unemployment does not always occur in the contemporary economy, which has resulted in various challenges. The main difficulties are their size, dispersion to the entire population, persistence in the case of individuals or groups, the number of unemployment benefits linked with pay and how long they last. As of December 31, 2019, Malaysia has 3.2% of the country's unemployment rate, or 510,000 jobless persons. Malaysian planners discovered that the majority of them have been jobless for less than six months, are likely to find work, are not yet looking for a suitable job, or are waiting for a response from a prospective employer (Yi, 2020). The quantity of money spent by tourists and visitors grows in perfect sync with the number of arrivals. As a result of this circumstance, there will be a larger demand for labor to offer additional working hours to tourism sectors. A lower unemployment rate is beneficial to the country's economic growth (Ismail, 2013).

In countries that use a fixed exchange rate, it is the job of the central banks of the world's major economies to keep the exchange rate stable by buying and selling currencies to adjust the market's demand and supply of money. Supporters of the exchange rate system claim that sustaining fixed exchange regimes is difficult, but keeping a stable exchange rate alongside macroeconomic stability increases international trade and investment, hence boosting GDP (Morina, 2020). The transaction costs of international business have increased, decreasing the benefits for investors and limiting their activities expansion decisions.

According to scholars, floating rates may be harmful to the economy because every country or nation uses the currency as an intermediary to acquire or buy goods and services in international commerce. When the currency rate becomes unpredictable, they suffer uncertainty about the arrangement they have with other countries. The exchange rate risk is a concern not only for policymakers but also for academics. Volatility is defined as the risk or uncertainty associated with unpredictability of exchange rate fluctuations over time (Hysa, 2020). Therefore, this study is to investigate the short-run and long-run relationship between GDP growth and the components real effective exchange rate, unemployment rate and tourist arrivals in Malaysia

Literature Review

Theoretical Literature

In this theoretical literature, I will emphasize the relationship between economic growth, unemployment rate (UNEMP), real effective exchange rate (REER) and tourist arrivals in Malaysia. Since the tourist arrivals and unemployment rate are highly related to the economic growth or gross domestic product (GDP) growth, their features are also emphasized in this theoretical literature to have a better understanding.

Economic Growth

According to the prior study findings, a positive relationship can be seen between the number of tourist's arrivals and the economic growth has been identified. The tourism industry affects

economic growth or also known as Gross Domestic Product (GDP) growth through tourist arrivals. The increase in tourist arrivals will increase the revenue of the economy and thus it will increase the economic growth of Malaysia. Additionally, the increase in tourist arrivals will result in a rise in GDP. The correlation between tourist arrivals and economic expansion has been demonstrated (Ismail, 2013).

Ismail (2013) investigated the relationship between the tourism industry and the economy of Malaysia. Their study showed that the number of tourist arrivals has a positive relationship with economic growth. The study analyses the possible correlation between the tourist industry and the Malaysian economy and the test showed that the tourist arrivals have a positive correlation with the GDP of Malaysia. Besides Ismail (2013), Eugenio-Martin, Martin and Scarpa (2011) also study the number of tourists and economic growth in Latin American countries by applying Arellano- Bond Dynamic Panel estimation. Based on their study, they found as they predicted, an increase the number of tourists per capita has a positive effect on the economies of the countries.

Yusuf, Cem, and Ibrahim (2009) looked at how tourism has affected Turkey's economic development. The Granger Causality test, the Cointegration approach, the Phillips-Perron test, and a Vector Autoregression (VAR) model were all employed in this work. According to the study, economic growth has a favorable long-run influence on Turkey's tourism industry. In addition, it was demonstrated that there is a long-run correlation between economic growth and tourism expansion.

Unemployment Rate

First and foremost, GDP refers to the final value of goods and services within a country. Borowy and Schmelzer (2017) state that GDP is one of the components of national accounting, and has long been used as a benchmark for evaluating a country's or region's size and economic growth rate. Besides, tourist arrivals refer to the number of individuals that arrived in a certain country or we can call visitors. According to UNWTO (2008), people who spend at least one day in the country but does not stay there for more than 12 months is considered a tourist. Every visit count as one-time even if the same individual travels more than one time in the same year. The number of tourist arrivals can be affected by various reasons, for example, fewer attractions in the country, weather conditions, high transportation costs and also the global pandemic. As for the unemployment rate is a measurement of the number of unemployed and it is calculated by dividing the number of unemployed by total number of labor force participants.

Many scholars have concluded that there are relationships and correlations between GDP and unemployment. Mostly agreed that economic growth has a negative relationship with the unemployment rates. Irpan, Saad, et al (2016) findings show correlation analysis indicates a negative correlation between GDP growth and unemployment rate. Alamro, and Al- dalaieen (2014) in their study suggested unemployment in the short or long run results in weak significant negative effect on GDP. In the study, evidence was created using classical linear regression method and simple correlation. However, Liban (2019) proposes that classical linear regression and simple correlation cannot strongly indicate both short-run and long-run impacts on unemployment rates. Later, he suggests to using a vector error correction model to determine the relationship. Unemployment could be a bad indicator for the economy. In the short run unemployment, individuals will reduce a person's income and in the long run, they will not save enough for their retirement. Meidani and Zabihi (2011) have studied the

impact of the unemployment rate on GDP. Their finding shows that there are negative effects between the unemployment rate on real GDP per capita both in the short run and long run.

Real Effective Exchange Rate

According to economic theory, the idea that the exchange rate (ER) as a monetary variable could impact long-run growth, particularly the negative effect, is quite perplexing. Two pathways have been proposed in earlier literature by which ER (common currency) should favorably affect GDP. A common currency reduces currency risk and consequently interest rates, stimulating investment and growth; and A common currency may have an influence on growth by cutting transaction costs connected with international commerce. However, more commerce has been proven to sometimes, but not always, boost economic growth. Real exchange rate, as a measure of international competitiveness, undoubtedly aids in the identification of inflation and currency impacts and indicates the comparable cost or price stated in a common currency (Asid et al., 2012).

The real exchange rate is one of the macroeconomic policies that may be employed. Furthermore, the actual appreciation of the exchange rate should not be permitted to surpass the equilibrium level to avoid the derailment of exports at the expense of huge importation of products and ultimately improve economic growth (output growth). The relationship between successful economic performance and real exchange rate dynamics is frequently seen as strong in Latin America, Africa, and Asia, among other places.

Tourist Arrivals

The prior study showed that tourist arrivals have a negative effect on the unemployment rate. The tourist industry is essential to drive rapid growth in the country's economy, which in turn produces more job opportunities and, eventually, decreases unemployment. Yi et al. (2020), increases in tourism arrivals inside a nation often result in a decrease in unemployment, owing to the growing tourism industry's quick expansion in job possibilities. Gnjatović and Leković (2019), tourism has a multiplier impact on certain parts of the economy, social and cultural life of nations where the advancement of this service activity is one of the strategic goals. Tourist arrivals will increase labor force employment and lower the unemployment rate (Tang, 2011). An increase in tourism demand in that nation may increase in employment. Shaari et al. (2018), tourism's high economic growth indicates a reduced unemployment rate. Eugenio-Martin et al (2011) study that the tourist industry has a significant benefit in that it is labor-intensive, therefore a rise in output is usually accompanied by an increase in employment. This is beneficial for economies that need to reduce unemployment.

Many researchers have investigated the relationship between GDP and tourist arrivals in their study. According to Yazdi, et al (2017) indicates that they believed that tourism is linked with the arrival of tourists in respective countries. GDP growth will have a certain impact when the trend of tourism which is one of the important indicators of economic growth started to increase. Martin (2018), in his study, found that tourist arrivals tend to have positive relationships with the level of GDP per capita. This study also stated that there will be negative relationships between tourism and GDP, however, it will only happen when the country is most specialized in tourism, usually small states. A positive relationship between GDP and tourist arrivals means an increase in tourist arrivals will cause an increase in GDP growth while a decrease in tourist arrivals will cause a decrease in GDP. Another study by Lau et al. (2008) found that there is a long-run movement relationship between economic growth and tourist arrival in Sarawak, that is, tourism can lead to economic growth. Castro et al., (2013)

study the contribution of tourism to GDP. The result shows that there is a positive elasticity between tourism and economic growth. Also, we found that safety indicators are one of the various reasons that affect tourist arrivals (APEC, 2016). Logically, tourists will not choose to go to terrorized countries and place with high crime rates. They will surely choose a safe place to stay not to mention that they will be staying in a foreign country unless they are from human rights institutions or volunteers.

Empirical Literature

This section reviews the relationship between economic growth (GDP), unemployment rate, real effective exchange rate (REER) and tourist arrivals respectively in Malaysia. Besides, this section also reviews the variables of tourist arrivals, real effective exchange rate and unemployment rate which may be used as the explanatory variables in the empirical model of this study. Firstly, Yi et al (2020) determined the aspect of the relationship between tourist arrivals and unemployment by studying the period 1999 to 2018 in Malaysia. The World Bank provided data on tourist arrivals and unemployment from 1999 to 2018. Simply stated, the data is evaluated to find the correlation coefficient as well as the causal link between tourist arrivals and unemployment. The study's findings demonstrate that there is a significant negative association between both variables, implying that as tourism arrivals grow, so will Malaysia's employment rate. The correlation coefficient of determination results in this study verifies the main conclusion, which is the relationship between tourist arrivals and unemployment.

Hooi Lean et al. (2014) examine the impact of tourism on the economic growth of Malaysia and Singapore. Estimation was performed using double-log equations, descriptive statistics of variables, the ADF unit root test, the cointegration test, and the Granger causality test. When tourism receipts are employed as a proxy, long-run causal relationships exist in both the economic growth equation and the trade equation. In the short run, economic growth in Granger has a unidirectional influence on REER, but REER and overall trade have a feedback effect. The results indicate that both proxies support the economic-driven tourist growth theory over the long term when comparing Malaysia and Singapore. Furthermore, Nanthakumar et al. (2007), have used data from the Immigration Department of Malaysia and Tourism Development Corporation (TDC) under the Ministry of Tourism Malaysia. The data used in this study for the estimation period is from 1980 to 2007. This study has used the unit root test, Johansen cointegration test, and Granger causality test. The results show that the test indicates Granger causality running in both directions between CPI and tourist arrivals.

Next, Gnjatovic and Lekovic (2019), examined the function and relevance of tourism in lowering unemployment in the Republic of Serbia. The study indicated that, despite the achieved growth and development, tourist activity still contributes very marginally to overall employment and activity in the national economy. Slovenia, Greece, Hungary, Croatia, Romania, Bulgaria, Montenegro, and Albania attract more international tourists than the Republic of Serbia. What is promising is that the Republic of Serbia was among the nations with the fastest rise in international tourist arrivals from 2011 to 2017. However, if the trend of increasing tourist activity's contribution to the creation of gross domestic product and employment continues, it is projected that in the near future, this activity will be able to claim the title of a major employer in the Republic of Serbia.

Ismail (2013) has examined the impacts of the tourism industry on the Malaysian economy using correlation studies. The output also demonstrates that arrivals are positively associated with the number of jobs in Malaysia's tourist industries. Secondary data was utilized to determine the relationship between the tourist sector and the Malaysian economy.

According to the analysis, there are high correlations between the tourist industry and Malaysia's economic growth indicators. The findings also indicated that the tourist sector, including eco-tourism and agro-tourism, might play important roles in the economic development of rural regions.

Additionally, Naseem (2021) found that economic growth has a favorable relationship of more than 80% with tourism receipts, tourism expenditures, and the number of tourist arrivals. The unit root test was run on the studied data, which showed that at the zero and first-order difference, there were both short and long-run relationship between endogenous and exogenous variables. Additionally, the Johansen co-integration test revealed both short and long-run correlations between endogenous and exogenous variables. They thereby shown a long-run relationship between the variables, which led to the do not reject of hypothesis 1. Tourism and actual economic growth have both a short and long-run relationship, according to Kadir & Karim (2015). One of the key drivers of economic growth in Malaysia is the tourist sector.

In conclusion, based on the literature reviewed, the variables that are included are economic growth or gross domestic product, tourist arrivals, unemployment rate and real effective exchange rate. Mostly, the unemployment rate, real effective exchange rate and tourist arrivals have direct impacts on the economic growth of Malaysia. And it shows that unilateral direction in the short-run relationship between the variables.

Methodology

Augmented Dickey-Fuller unit root test

The Augmented Dickey-Fuller unit root test is used to determine whether or not time series data is stationary. There are different forms or null hypothesis in the ADF test.

The hypothesis for the ADF unit roots test are:

$$H_0 : \sigma = 1$$

$$H_1 : \sigma < 1$$

The existence of a unit root and non-stationary variables is implied by the null hypothesis. The alternative hypothesis states that the variables do not have a unit root, implying that the series is stationary.

The t-statistic is used in the ADF test to determine whether or not the variables being tested are stationary. The Akaike Information Criterion (AIC) is utilized to reach the optimal lag length. The significance level of the variable is determined by a critical value between 1%, 5%, and 10% significance levels. The null hypothesis will be rejected if the t-statistic is found to be greater than the critical value. On the other hand, if the t-statistic is less than the critical value, then the series cannot be considered significant, and the results, the null hypothesis will not be rejected.

Phillips-Perron Test

For a single-time series, the Phillip-Perron test is a type of semi-parametric test that examines whether or not the unit root hypothesis is true. By utilizing non-parametric estimates of the long-run variance, the purpose of this test is to eliminate the impact of residual serial correlation that occurs within a simple Dickey-Fuller regression.

The PP test is written as

$$x_t = \alpha_0 + \beta x_{t-1} + \mu_t$$

Similarity with ADF test, the hypothesis for PP test is

$$H_0 : \beta = 1$$

$$H_1 : \beta < 1$$

The null hypothesis indicates that a unit root exists. The series is therefore non-stationary. The alternative hypothesis states that the series has no unit root and the variables are stationary.

Using the t-statistic, the PP test determines if a series is stationary. The PP test bandwidth is determined using the Newey-West criterion, which is derived from the Bartlett kernel method. The significant variables are selected according to the critical value at the 5% significance levels. The null hypothesis for the PP test suggests that the series has a unit root and the variables are non-stationary. The alternative hypothesis suggests that the variables are stationary and that there is no unit root.

The null hypothesis is rejected if the t-statistic is greater than the critical value. The series may be considered stationary. If the t-statistic is less than the critical value, the series is insignificant and the null hypothesis cannot be rejected. This indicates the series is not stationary.

Kwiatkowski-Phillip-Schmidt-Shin Test

The linear regression underlies the Kwiatkowski-Phillip-Schmidt-Shin test. This test breaks

$$X_t = r_t + \beta_t + \epsilon_t$$

down a series into three parts: a random walk, a deterministic trend, and a stationarity error, resulting in the following regression:

The null hypothesis of the KPSS test is written as below:

$$\begin{aligned} H_0 &: \sigma_\mu^2 = 0 \text{ (The series do not contain unit root, variables are stationary)} \\ H_a &: \sigma_\mu^2 > 0 \text{ (The series contain unit root, variables non-stationary)} \end{aligned}$$

The significance of the variables is determined using critical values at the 1%, 5% and 10% significance levels. We reject the null hypothesis if the t-statistics is greater than the critical value. As a result, the variable is significant. However, if the t-statistics is less than the critical value, the null hypothesis is not rejected.

Johansen Cointegration Test

After identifying whether variables are stationary, the Johansen Cointegration Test is applied to evaluate the long-run relationship between the economic growth (GDP) and macro factors. The research is permitted to carry out the test if all of the variables are stationary at level I(0) or I(1).

Two likelihood tests use to examine the number of cointegration vectors. The likelihood test consists of a trace test and a maximum Eigenvalue test.

The null hypothesis states that cointegration does not exist, while the alternative hypothesis indicates that one cointegration vector exists. If the calculated value of the trace test exceeds the critical value. It suggests that the null hypothesis is rejected, indicating that the model is cointegrated. In contrast, the null hypothesis is rejected if the estimated result of the trace test is less than the critical value. Consequently, the model has no cointegration.

The Eigenvalue Test is expressed as follows:

$$T_{max} = -T \ln(1 - \lambda_{r-1})$$

where, T = the number of observations.

λ_{r-1} = the largest estimated Eigenvalue.

The null and alternative hypothesis of this test are stated below:

$$\begin{aligned} H_0 &: r \text{ cointegrating vector} \\ H_a &: r+1 \text{ cointegrating vector} \end{aligned}$$

The null hypothesis states that there is no cointegration factor in the long term, while the alternative hypothesis states that there is. When the Eigenvalue test result is greater than the critical value, the null hypothesis is rejected. Consequently, the model has a cointegration component over the long run. If the estimated Eigenvalue test result is less than the critical value, however, the null hypothesis is not rejected. Consequently, the model has no cointegration.

Vector Error Correction Model (VECM)

If one or more cointegrating vectors for a set of variables are acquired, a VECM (Vector Error Correction Model) is a valuable estimating tool since it accounts for both short-run changes in variables and departures from equilibrium. The lag length criteria also propose defining VECM with a single lag.

The equation of VECM is as follows:

The coefficient of the error correction term is a critical parameter in the estimation of the

$$\Delta y_t = a_1 + a_2 ec_{t-1} + a_3 \Delta y_{t-1} + a_4 \Delta X_{t-1} + \epsilon_t$$

VECM dynamic model.

Granger Causality Test

Once the cointegrating vector is incorporated in the model, a Granger causality test using the Vector Error Correction Model (VECM) is necessary. The Granger Causality test is used to determine the short run relationship between the variables. The null hypothesis is rejected if the variables are significant at 5% and the p-value is less than the significance level. Consequently, it is easy to conclude that the independent factors are responsible for the dependent variables. In contrast, the null hypothesis is rejected if the variables are insignificant at 5% and the p-value is greater than the significance level. The conclusion is that the independent and dependent variables do not have a causal relationship.

Findings

The tested empirical findings of this investigation will be covered in this section. Many different types of statistical tests were employed in this investigation, including the Augmented Dickey Fuller (ADF) test, the Phillips Perron (PP), the Kwiatkowski Phillip Schmidt Shin (KPSS), the Johansen Cointegration test, the Vector Error Correction Model (VECM), and the Granger Causality test. A number of tests will be used to determine the relationship and dependability of the exogenous and endogenous variables in this study.

Unit Root Tests

1. Augmented Dickey-Fuller (ADF), Phillips-Perron (PP) & Kwiatkowski-Phillips-Schmidt-Shin (KPSS)

Table 1

ADF and PP Unit Root Test

Variables	ADF		PP	
Level				
	Intercept and intercept	Trend and intercept	Intercept	Trend
LGDP	-2.0404	-2.2105	-2.3506	-2.0967
LUNEMP	-3.4855*	-3.2508	-3.5979*	-3.2580
LREER	-1.2688	-2.8951	-0.8598	-2.3265
LTA	-0.6268	-2.0781	-0.5461	-2.0781
1 st Difference				
	Intercept	Trend and intercept	Intercept	Trend and intercept
LGDP	-6.0096*	-6.6899*	-6.0483*	-6.7497*
UNEMP	-5.1817*		-5.0468*	-9.0057*
			-8 . 1 8 2 5 *	
LREER	-4.1829*		-4.0981*	-7.4004*
			-7 . 7 7 4 1 *	
LTA	-5.3329*		-3.2468	-5.5782*
			-5 . 5 2 5 3 *	

Note: (*) indicates statistically significant at 5 percent level.

The aforementioned table shows the empirical findings from the ADF test and PP test for the following variables: Gross Domestic Product (LGDP), unemployment rate (LUNEMP), real effective exchange rate (LREER), and tourist arrivals (LTA). LGDP, LREER, and LTA are not significant in intercept or trend & intercept at level, according to the results of the ADF test. For LUNEMP, the intercept is considerable but the trend and intercept at level are not significant. With the exception of LTA, all of these variables are significant in the first difference's intercept or trend & intercept (trend & intercept). This demonstrates that all of these variables have p-values that are less than 0.05, rejecting the null hypothesis, stationary at the first difference, and has no unit root.

Kwiatkowski-Phillips-Schmidt-Shin (KPSS)

Table 2

The Kwiatkowski-Phillips-Schmidt-Shin (KPSS) Unit Root Test

Variables	Level			1 st difference		
	Intercept	Trend	and intercept	Intercept	Trend	and intercept
LGDP	0.7135	0.1679		0.4308*	0.0473*	
LUNEMP	0.1620*	0.0805*		0.2766*	0.3100	
LREER	0.5921	0.1080*		0.5000	0.5000	
LTA	0.6563	0.1265*		0.1625*	0.1625*	

Note: Asterisks (*) denoted as level of significant at 5 percent level

Based on the KPSS results, clearly shows that LGDP is stationary in intercept and trend and intercept at first difference as the t-statistics is lower than the critical value at 5% significant level. The null hypothesis is do not reject. For LUNEMP it is stationary except for trend and intercept at first difference. Meanwhile, for LREER, only stationary in trend and intercept at level and the others which are stationary is because the t-statistic is larger than critical values. For LTA, all stationary except for intercept at level.

According to the unit root results that have been resulted, it can be concluded that all of the variables are stationary and able to proceed to the Johansen-Juselies cointegration test.

Johansen & Juselius (J&J) Co-integration Test

Table 3.

Results of the J&J Cointegration test

k = 1, r = 1					
Hypothesis		Trace Test		Max-Eigen	
H0	Ha	Trace	5% CV	Max-Eigen	5% CV
r = 0	r = 1	48.752*	47.856	24.696	27.584
r ≤ 1	r = 2	24.056	29.797	15.092	21.132
r ≤ 2	r = 3	8.965	15.495	5.696	14.265
r ≤ 3	r = 4	3.269	3.841	3.269	3.841

Note: Asterisks (*) denote statistically significant at 5% level. The k is lag length and r is the cointegrating vector(s)

This Johansen cointegration test is carried out to determine whether or not there is a relationship that exists over the long run between all variables. This particular test of cointegration uses a lag length of 1. The value of the trace statistic, which can be seen in the result shown above, indicates that there is at least one relationship exists between the variables over the long run. Although that the result from the Max-Eigen statistic value demonstrates that there is not a cointegration vector among the variables, the result from the Trace statistic value demonstrates that there is one cointegration. Because result of the trace statistic and the Max-Eigen value are distinct, we could, in this instance, take into consideration selecting and adhering to the result of the trace statistic value. This is because trace statistics will take into account all of the smallest eigenvalues, and they also have greater power than maximum eigenvalue statistics (Serlestis & King, 1997). As a result, the null hypothesis can be rejected and conclude that there is one co-integrating vector that shows the existence of long-run relationship between variables.

Vector Error Correction Model (VECM)

Table 4.

Result of VECM Granger Causality test

Dependent	Δ LGD	Δ LUNEMP	Δ REER	Δ LTA	ECT	
Variable	χ^2 -statistics			Coefficient		t-ratio
Δ LGD	-	2.0134 (0.3654)	1.4765 (0.4780)	4.4095 (0.0103)*	-0.1112	-1.6400
Δ LUNEMP	4.7028 (0.0045)*	-	1.7121 (0.4248)	0.1973 (0.9061)	-0.0501	-0.3794
Δ REER	2.1018 (0.3496)	1.5214 (0.4673)	-	0.1583 (0.9239)	-0.1069	-1.6243
Δ LTA	1.4229 (0.4909)	0.7133 (0.7000)	0.3568 (0.8366)	-	-0.3127	-1.9926

Note: χ^2 – statistics tests the joint significance of the lagged value of the independent variables, and the significance of the error correction term(s). Δ is the first difference operator. Asterisks (*) indicate statistically significant at 5 percent level.

The Granger Causality test empirical result is represented above using the Vector Error Correction Model (VECM). Finding the relationship between the dependent variable and the independent variables is the goal of this test. It illustrates which variable Granger was caused by others. The "null hypothesis" for the Granger Causality test is the claim that "X is not Granger caused by Y." The pace of long-run equilibrium correction is shown by the Error Correction Term (ECT). The dependent variable's value must be negative, statistically significant, and less than 1 according to the ECT principles.

Based on the results, notice that there is only one error correction term (ECT) exists in the long-run relationship and cointegrated with the variables. This result has been supported by the result of only one cointegrating vector has been detected by the Johansen-Juselius Cointegration test. The result implied the presence of long-run relationship where the ECT output of LTA fulfills all the conditions which are less than 1, negative value which is -0.3127 and also significant at 5% level. Speed adjustment of LTA is 31.27% per year which means Malaysia will need at least about 3.2 years to adjust back to 100%.

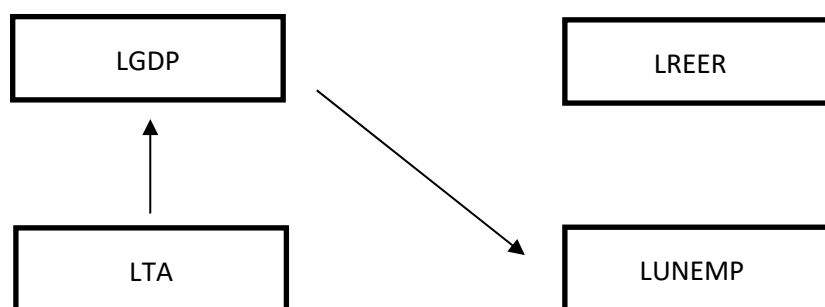
Granger Causality TestFigure 1. *Causality Direction*

Figure 1 presents the direction of short-run Granger causality between the selected variables. The LGDP and LUNEMP have unidirectional causality. Likewise, there is unidirectional causality between LTA and LGDP. In the short run, LREER does not contain any direction of causality with other variables.

Discussion

This research aims to determine the short-run and long-run causal relationships between variables in Malaysia. The independent variables are unemployment rate, real effective exchange rate (REER), and tourist arrivals, whereas the dependent variable is economic growth (GDP). The yearly secondary data for 30 years from 1990 to 2019. These data were taken directly from the website of the World Bank. Furthermore, many tests have been conducted to meet the objectives. Augmented Dickey-Fuller and Phillips-Perron unit root tests are used to examine the stationarity of each variable. Also have been tested with Kwiatkowski-Phillips-Schmidt-Shin (KPSS) for robust unit root results. The Johansen-Juselius Cointegration test is then used to identify the number of cointegration, and the Granger Causality test conducted after Vector Error Correction Model (VECM) analysis, is used to determine the direction of causation among the variables. All of these tests were carried out using the latest Eviews 12 software.

In terms of results, both the ADF and PP tests reveal a consistent result in which all variables have a unit root at the level but then signal the presence of a stationary feature after the first difference. That is the reason VECM is implemented in this study rather than the VAR model. This allows the Johansen-Juselies Cointegration test to be performed, which confirms that at least one cointegrating vector exists among the variables. The Granger Causality test is used to validate the association while also determining the direction of causation. The result showed the existence of a long-run relationship between the dependent variable economic growth (GDP) and its independent variables unemployment rate (UNEMP), real effective exchange rate (REER) and tourist arrivals (TA). It clearly shows the importance of each independent variable to the economic growth (GDP) of Malaysia. Meanwhile, there is a short-run unidirectional causal relationship found between GDP, UNEMP and TA.

The result also shows that there is existence of short and long-run relationship between tourism and economic growth. The results are the same as Karim & Kadir (2012) as they stated that one of the contributors to economic growth is tourism. Based on the results obtained, clearly can be seen that growth in tourism positively impacted economic growth which has

been stated (Purwomarwanto* & Ramachandran, 2015). According to Naseem (2021), economic growth has long-run relationship with tourist arrivals as my results show it clearly. In addition, Tang's (2011) research study established a long-run between economic growth and unemployment. As previously stated, there is a long-run relationship between the dependent and independent variables; this finding is consistent with that of Sarmidi et al. (2011) in Malaysia. Our findings show that the real effective exchange rate has a favorable influence on gross domestic product (GDP), and this conclusion is comparable to those (Koirala, n.d.). In conclusion, this study has succeeded in achieving its intended goals.

Recommendation

Economic growth is defined as a rise in real GDP — the value of national output, income, and spending. Economic expansion mostly benefits rising living standards. Accelerated GDP growth boosts the overall size of the economy and enhances budgetary circumstances. And to boost GDP growth, variables such as the unemployment rate, real effective exchange rate and tourist arrivals mainly have to solve any upcoming issues. Therefore, as the unemployment rate will affect GDP growth, the government plays a crucial role in implementing policies to decrease the unemployment rate in Malaysia. For example, a monetary policy such as cutting interest rates can be implemented as lower rates will reduce the cost of borrowing and encourage citizens to spend expenditures and make investments. The increase in the aggregate demand will enhance the GDP growth which as a result will reduce demand deficient unemployment. Moving on, another policy that can be taken by our government is to improve labor market flexibility. For instance, abolishing the maximum working weeks will make hiring workers at ease, and it will encourage more job creation. The increased labor market flexibility may result in a rise in temporary employment and a reduction of job security. With the rise in employment, the GDP growth in Malaysia will surely accelerate. To sum up, the Malaysian government needs to implement a suitable policy to tackle the issue of the unemployment rate which will affect the GDP growth in Malaysia.

For a real effective exchange rate, some factors influence them. To begin, to increase Malaysia's competitiveness and preserve the favorable impact of REER on GDP, it will be important to conduct a monetary policy that keeps inflation at a tolerable level in comparison to key trade partners. Second, domestic credit, rather than the exchange rate, plays the most essential role in enhancing economic growth in Malaysia. As a result, the government should focus more on increasing credit to various economic sectors by implementing an interest rate strategy that favors domestic investment.

Furthermore, the tourist industry demands innovative and skilled individuals as well as well-developed infrastructure. Based on the findings of this study, the government should encourage tourism to provide employment possibilities, income sources, and money for local residents, as well as economic activity in the country. The government may boost the tourist industry by giving incentives in the form of fundamental facilities such as a high-quality transit system, highways, massive airports, and tax breaks for tourism-related businesses (i.e., hotels). The government should also secure the safety of all tourists and develop long-term tourism plans. This guarantees the country's tourism demand is constant, secure, and consistent.

Recommendation for Future Study

The initial step is to carry out some preliminary study. It is necessary to conduct appropriate research on the subject or title that has been picked by searching for appropriate journal

articles. Develop and have a solid understanding of your study's objectives and aspirations. This will be important when doing our subtopics, particularly the outcomes component, to ensure that we are aligned with the targets that have been set. The subsequent step that is one of the most significant is selecting appropriate research methodologies. It is necessary for us to read through all of the journal articles in order to locate the approaches that we may use for our investigation. There is always the possibility that something unexpected may take place at some point. For instance, the findings that we acquired are inaccurate or may display certain problems on further inspection. To get around this, we need to test once more and ensure that we are using the appropriate approaches to ensure robustness.

Conclusion

In conclusion, this study is to determine the relationship between economic growth, unemployment rate, exchange rate and tourist arrivals in Malaysia using secondary data from 1990 to 2019. It clearly shows the importance of each independent variable to the economic growth (GDP) of Malaysia. Findings show that the real effective exchange rate has a favorable influence on gross domestic product (GDP), and this conclusion is comparable to (Koirala, n.d.). Meanwhile, there is a short-run unidirectional causal relationship found between GDP, UNEMP and TA. Based on the results obtained, clearly can be seen that growth in tourism positively impacted economic growth.

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