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ASSESSING THE EFFECTS OF FOREIGN DIRECT INVESTMENT AND CORE MACROECONOMIC INDICATORS ON TOURISM ARRIVALS IN MALAYSIA

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Abstract: *Tourism plays a vital role in Malaysia's economic and social landscape, contributing significantly to government revenue, job creation, and community development. Defined as a social, cultural, and economic activity involving travel beyond one's usual environment, tourism often stimulates broader economic growth. This study investigates how foreign direct investment (FDI), the exchange rate (ER), and gross domestic product (GDP) influence tourist arrivals in Malaysia between 1995 and 2024 using the Autoregressive Distributed Lag (ARDL) approach. The study seeks to accomplish three main objectives, which are to assess the strength of the relationship between tourism and the selected macroeconomic variables, to examine their short- and long-run effects, and to identify the factor that most dominantly influences tourist arrivals. The study employs the bounds test, error-correction model (ECM), Granger causality analysis, and the Cumulative Sum (CUSUM) stability test. The findings reveal the presence of a long-run relationship among all variables. However, only GDP exhibits a positive long-run effect on tourist arrivals, whereas FDI and the exchange rate show negative long-run relationships. In the short run, all variables also demonstrate significant effects on tourism. Moreover, the CUSUM test confirms model stability within the 5% confidence interval. These insights provide valuable guidance for policymakers in*

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formulating strategies to strengthen Malaysia's tourism sector and attract more international visitors.

Keywords: *Tourist Arrivals, Foreign Direct Investment, Exchange Rate, Gross Domestic Product, ARDL Approach*

Introduction

Tourism represents one of Malaysia's most dynamic economic sectors, contributing substantially to national income, employment creation, and community development. As a socio-cultural and economic phenomenon, tourism involves the movement of individuals beyond their usual environment for leisure, business, or professional purposes. Owing to its labour-intensive nature, the tourism industry is often viewed as an effective mechanism for reducing unemployment and income inequality (Huseynli, 2022). Consequently, the sector plays a pivotal role in strengthening Malaysia's economic resilience, and disruptions to tourism can lead to significant economic repercussions. In 2003, when South East Asian tourism sites were targeted by the Bali attack, Malaysian tourism had grown dramatically during the previous eleven years. Malaysia was ranked among the top 10 places to visit in the world for the very first time in history in 2009. Malaysia may be able to sustain a drop in consumer demand for worldwide travel this year, despite the worldwide economic downturn and H1N1 virus pandemic. The same trend was noticed in 2005, when the tourism industry expanded despite the tsunami that ravaged the neighbouring countries, Indonesia, the year prior (Aissa Mosbah, & Abd Al Khuja Mohamed Saleh, 2014).

One of the indicators in this study is the impact of foreign direct investment (FDI) inflow on tourism in Malaysia. Where FDI (inflow) refers to the amount of direct investments from abroad made by foreign investors for the development of the country in which they invest, as well as for their own gain and profit. Based on the IMF and OECD classifications, FDI indicates the goal of obtaining a long-term interest in an enterprise located in a different nation, which is the direct investment enterprise by a resident entity of a particular nation, which is the direct investor. The phrase "lasting interest" implies a long-term connection within the direct investor along with the direct investment enterprise, as well as significant influence over the latter's management.

Direct investment includes both the initial transaction that establishes the investor-enterprise relationship and all subsequent investment transactions among them and among affiliated enterprises, both incorporated and unincorporated. Where FDI in tourism would assist developing countries, such as Malaysia, in mitigating the effect of the negative growth disparity between developed and developing countries. As evidence, Malaysia's FDI position rose by RM14.4 billion, reaching a record RM 875.1 billion at the end of the fourth quarter of 2022.

The link between the exchange rate and tourism is not implausible. International tourism receipts are significant contributors to foreign exchange earnings, and they are highly correlated with the exchange rate. Shifts in exchange rates have a significant impact on tourism demand in an area because they affect the value of the currency of the nation of origin. Any changes within the exchange rate are going to lead the tourist's currency to appreciate or depreciate, influencing expenses for transportation and the tourist's decision to visit the

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country. Therefore, the exchange rate influences both the number of tourists who visit and the revenue generated by tourism (Adeleye, B. N., Ogede, J. S., Rabbani, M. R., Adam, L. S., & Mazhar, M., 2022).

Literature Review

Tourism has grown to be among the key export industries in many developing countries. An overall compromise has formed that not only increases foreign exchange income but additionally creates job opportunities, encourages the growth of the travel and tourism sector, and, as a result, promotes overall financial development. When compared to the popular tourist destinations of Paris, London, and New York, Malaysia's participation on the list of most visited countries is unexpected (Alam, A., Malik, O. M., Ahmed, M., & Gaadar, K., 2015). International tourism earnings are the expenses incurred by foreign visitors, including payments made to domestic carriers for transportation abroad. These receipts include any additional prepayment made for goods or services acquired in the country of destination (Sarpong, S. Y., Bein, M. A., Gyamfi, B. A., & Sarkodie, S. A., 2020). Compared to travel expenditures within the Balance of Payments, which do not include international passenger transportation, this definition is more expansive.

FDI is critical for economies that are developing and boosting growth in countries like Malaysia. It is assumed that the benefits of FDI from the host country's perspective and level of living for economic growth outweigh its limitations (Sherly George & Farnaz Jafari Harandi, 2013). Furthermore, a relationship can also be seen between FDI and tourist arrivals when a pandemic occurs in the world, for example, according to Rifki Fadilah M. & Riyanto (2021), when Covid-19 occurred, the number of international tourists declined, resulting in a decline in tourism FDI as well as gross domestic product.

An exchange rate or an ensemble of currencies is the relative value of one currency conveyed in terms of a different currency. If the destination country's exchange rates rise, tourism, manufacturing and services are going to become more reasonably priced for foreign visitors. In other words, at a given exchange rate, foreign tourists are able to obtain a greater number of products and services for the same value previously, which can encourage visitors from overseas to visit the country (Azreen Shaliza, Wan Nur Syafiqah, & Noor Sharida, 2023).

In the study of Rajeeshwaran Moorthy (2014), it has been said that the exchange rate is inversely connected to tourism demand since tourists with more spending power prefer to visit Malaysia. Next in the study of Adeleye, B. N., Ogede, J. S., Rabbani, M. R., Adam, L. S., & Mazhar, M. (2022), the short run, exchange rates have an unequal impact on tourism development in emerging nations such as India, Bangladesh, Pakistan, and Nepal. When the dynamic common correlated effects (DCCE) technique was used in the study of demand and exchange rate shocks on tourist development, it was determined that the effects of exchange rate shocks on growth in tourism are transient.

Malaysia is presently acknowledged as the best tourist destination, ranking in the top ten in terms of arrivals and in the top fifteen in terms of global receipts. In Malaysia, the IO approach is more likely to be utilised in assessing the impact of the tourism sector on the economy than other industries.

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Due to COVID-19 in recent years, the tourism sector and the GDP have shown a negative impact this in because in that year the tourism sector slowed down due to the pandemic. For instance, nationally, the financial harm experienced by the Malaysian cultural and tourism industries in the first half of 2020 as a result of the COVID-19 pandemic corresponded to about USD 10.8 billion. Statistics published by the Department of Statistics Malaysia (DOSM) in April 2020 indicated a significant drop in labour volume, at one percent, including more than 14.93 million people, compared to the same period last year. (Mustafa, H., Ahmed, F., Zainol, W. W., & Mat Enh, A., 2021).

There are three different sorts of theoretical models in tourism: descriptive models, explanatory models, and predictive models. A descriptive model displays the system for tourism, but an explanatory model demonstrates the manner in which the system and subsystems function. The predictive model is built on a causal link that enables forecasting. Tourism is an area that involves multiple disciplines since the phenomena inside it can be explored using just one field of study. Tourism scholars apply theories from several disciplines such as sociology, anthropology, psychology, the field of economics and others.

Methodology

The data collection procedure is the initial step in each subject of study. This is carried out to collect relevant data to meet the study's research objectives. Quantitative analysis, often known as statistical methodology, focuses on numerical data. Statistical procedures involve analysing, explaining, and evaluating numerical data. The quantitative secondary data were gathered to examine the correlation between independent variables and tourism arrivals. This study chose to gather secondary data due to its bigger scope and greater accuracy.

Based on the literature review, an economic model will be developed to analyse the relationship between tourist arrivals, foreign direct investment, exchange rates, and gross domestic product. The economic model is specified as below:

$$\mathbf{TOUR} = f\ \mathbf{(FDI, ER, GDP)} \quad (1)$$

Where TOUR is tourism, FDI is foreign direct investment, ER is the exchange rate, and GDP is gross domestic product. First, stationarity is evaluated to prevent false regression and misleading results. This study used the augmented Dickey-Fuller test (ADF) to evaluate the null hypothesis of a unit root in a time series. The ADF unit root test is the idea from Fisher (1932). Multiple variable measurements resulted in diverse functional interactions in the economic model. The variable's nonlinear relationship prevented the formation of a linear regression model. Therefore, the natural logarithmic technique addresses non-linear relationships between independent and dependent variables and standardises unit measurement. Logarithmic transformation reduces the impact of outliers in observations by converting significantly skewed variables to approximately conventional ones (Kenneth Benoit, 2011).

Furthermore, the ARDL model differs from the Dynamic OLS model in that it allows for different short-run dynamic specifications across cross-sections, whereas long-run coefficients must remain constant. The ARDL model examines heterogeneous dynamics across cross-sections and estimates long and short-term relationships between variables.

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This study aims to analyse the influence of foreign direct investment, currency rate, and GDP on tourism in both the short and long term. The economic model from equation (2) has been converted into a log-log econometric model, as shown below:

$$InTA_t = \beta_0 + \beta_1 InFDI_t + \beta_2 InER_t + \beta_3 InGDP_t + \varepsilon_t$$

Where:
$InTA_t$= Logarithmic of tourist arrival of international tourists to Malaysia in year t;
$InFDI_t$= Logarithmic of Malaysia foreign direct investment in year t;
$InER_t$= Logarithmic of Malaysia exchange rate in year t;
$InGDP_t$= Logarithmic of Malaysia gross domestic product in year t;
ε_t= Error term in year t.

Findings and Discussion

Unit Root Test

The ADF test results indicate that FDI is stationary at a level, while tourism arrivals, exchange rate, and GDP become stationary after first differencing. These findings validate the use of the ARDL model. A unit root in the time series shows that the stocks have not been co-integrated as well, and the time series is non-stationary (Chainika Thakar, 2023). As mentioned in Hashim et al. (2019), the optimal lag time for the ADF test can be determined by examining the minimum value of the Akaike Information Criteria (AIC).

Table 1: Augmented Dickey-Fuller (ADF) of Unit Root Test (Intercept) & (Trend & Intercept) for Malaysia

Malaysia					
Variables	Argumented Dikey-Fuller Test (ADF)				
	Level		1st Different		Status
	Intercept	Trend&Intercept	Intercept	Trend&Intercept	
TOUR	-1.324766 (0.6017)	1.941652 (1.0000)	-7.290123 (0.0000) ***	-2.947349 (0.1689)	I(1)
FDI	-4.842189 (0.0006) ***	-5.291908 (0.0011) ***	-4.671026 (0.0011) ***	-4.576004 (0.0068) ***	I(0) & I(1)
ER	-2.548516 (0.1163)	-2.064693 (0.5412)	-4.198438 (0.0032) ***	-4.138878 (0.0161) **	I(1)
GDP	-0.632967 (0.8471)	-1.900635 (0.6265)	-4.677473 (0.0010) ***	-4.594334 (0.0059) ***	I(1)

Notes: *** statistically significant at the 1% level, ** statistically significant at the 5% level, * statistically significant at the 10% level. The symbol '-' indicates that the test is not computed for the first difference series once the variable is identified as stationary in the level form. This is because the null hypothesis under the Augmented Dickey-Fuller test is that the series is non-stationary at the level. If the test statistic is negative and exceeds the critical value, the null hypothesis cannot be related; the null hypothesis cannot be rejected; otherwise, the null hypothesis can be rejected. Figures in parentheses denote the lag order.

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According to Table 1, the t-test statistics at level form for all series, which are intercept, trend and intercept from the ADF test, fail to reject the null hypothesis of non-stationary, in other words, the data series at level form is not stationary at a 95% significance level.

Meanwhile, at first, different for consideration intercept as well as trend and intercept result shows that the ADF test easily rejected the null hypothesis for all variables. Where the $|T| > T_{\alpha}$. In other words, the data series for FDI and GDP at first differ and are stationary at a 99% significance level for intercept as well as trend and intercept. Furthermore, for ER, at first difference is stationary at a 99% significance level for the intercept and stationary at a 95% significance level for trend and intercept. Thus, the ER is I(1) at first different for intercept as well as trend and intercept.

ARDL Cointegration Bound Test

An enhanced autoregressive distributed lag (ARDL) bounds test for cointegration performs an additional F-test on the lagged degrees of the independent variable(s) in the ARDL equation. Initially, this testing approach was first implemented through the bootstrap method. This work includes both tiny sample sizes and asymptotic critical values in order to make the test simpler to apply and useful to a wider range of investigators. The augmented ARDL limits test has two advantages: it does not require the presumption of an I(1) dependent variable, and all three tests provide an obvious verdict on the cointegration status (Sam, C. Y., McNown, R., & Goh, S. K., 2019). The ARDL bound test allows for accurate estimate of the long-run model.

Table 2: Bound Test for Co-Integration

Malaysia		
Null Hypothesis: No level relationship		
Test statistic	Value	K
F-statistic	4.693003	3
Critical Value Bound		
Significance	**I(0) Bound**	**I(1) Bound**
10%	2.37	3.2
5%	2.79	3.67
2.5%	3.15	4.08
1%	3.65	4.66

ARDL Long-run Equation Results

The coefficient for the long run is then estimated using the ARDL model. Based on Table 3 below, Malaysia data, the findings show that FDI and ER have a negative long-run relationship, but GDP have a positive correlation with international tourism arrival. The foreign direct investment and gross domestic product are statistically significant at 90%. The coefficient of the foreign direct investment is -1.605387, statistically significant with a 10% level of significance, which means upward in FDI will respectively decrease the international tourism arrivals, which is this finding is totally opposite of the finding of Rifki Fadilah M., & Riyanto. (2021), where in their finding, an increase in foreign visitor attendance by 1% will end up resulting in a 0.55% gain in tourist FDI over time. Following that, a 1% spike in tourism FDI will boost tourist GDP by 0.10%.

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Table 3: Long Run ARDL Estimation

Malaysia				
Variables	**Coefficient**	**Std error**	**T-statistic**	**Probability**
FDI	-1.605387	0.734719	-2.185036	0.0567 *
ER	-0.843650	0.273883	-3.080333	0.0131 **
GDP	2.447844	1.172509	2.087697	0.0664 *
C	-3.851513	6.233210	-0.617902	0.5520
EC = TOUR - (-1.6054*FDI -0.8436*ER + 2.4478*GDP - 3.8515)				

ARDL Short-run Equation Results

The error correction model (ECM) is useful in time-series analysis to more fully comprehend long-term dynamics. ECM can be generated from an auto-regressive distributed lag model as long as all of the variables are cointegrated. In that context, every equation in the vector autoregressive (VAR) model is an autoregressive distributed lag model; hence, the vector error correction model (VECM) can be thought of as a VAR model with cointegration requirements.

Table 4: The Short-run Coefficient Estimation

Malaysia				
Variable	**Coefficient**	**Std.Error**	**T-Statistic**	**Prob.**
D(FDI)	-0.749912	0.221917	-3.379237	0.0081
D(FDI(-1))	0.725736	0.263594	2.753231	0.0224
D(ER)	3.092787	0.626930	4.933224	0.0008
D(ER(-1))	1.645931	0.913701	1.801389	0.1052
D(ER(-2))	3.073534	1.050889	2.924700	0.0169
D(ER(-3))	3.002452	0.816417	3.677595	0.0051
D(GDP)	19.79135	4.496882	4.401126	0.0017
D(GDP(-1))	5.237176	6.183519	0.846957	0.4190
D(GDP(-2))	20.84993	6.337019	3.290180	0.0094
D(GDP(-3))	11.99148	3.816968	3.141625	0.0119
CointEq(-1)*	-0.949571	0.163105	-5.821848	0.0003
	R-squared	0.813882	Mean dependent var	0.001737
	Adjusted R-squared	0.670713	S.D. dependent var	0.529212
	S.E. of regression	0.303681	Akaike info criterion	0.757882
	Sum squared resid	1.198885	Schwarz criterion	1.297823
	Log likelihood	1.905421	Hannan-Quinn criter.	0.901128
	Durbin-Watson stat	2.794844		

According to the theory, the ECM calculated from the short-run dynamic test result for Malaysia data is -0.949571, which is negative and significant at the 1% level of significance. The error term's negative sign implies that mistakes in the short run converge or adapt to the long run equilibrium at a rate of 94.95% per year. The statistical value for Durbin Watson is 2.794844, showing that there is no autocorrelation between the variables. R- squared is 0.813882, suggesting that independent variables explain 81.38% of the variation in dependent

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variables. The F-statistic is 4.693003, and the adjusted R- R-squared is 0.670713. The findings also imply that FDI, ER and GDP have a short-run relationship with the international tourism arrivals.

Conclusion

This paper examined the impact of FDI, exchange rate, and gross domestic product on tourist arrivals in Malaysia from 1995 until 2024. The purpose of this study is to see the correlation between the independent variables and the dependent variable, whether there is correlation in the long-run and short run, as well as the dominant factor that influences the dependent variable, which is tourist arrivals.

This study also conducts an ARDL approach, which includes the ADF unit root test, bound test, long-run test, and ECM for the short-run. After that, the study also examines the Granger causality test and lastly is CUSUM test. In the findings, we can see that all variables have a long-run relationship with the dependent variables, but only GDP have a positive correlation with the tourist arrivals; meanwhile for FDI and the exchange rate have a negative correlation with the tourist arrivals. Furthermore, all variables also have a correlation with tourist arrivals in the short run and as the cumulative sum (CUSUM) remains within the critical boundaries of the 5% confidence interval, indicating that the null hypothesis of stability is not rejected. The plot of the CUSUM statistic remains smooth within the crucial confines of the 5% confidence interval, meaning that the null hypothesis of stability is not rejected. It is evident that the trend line is mostly contained inside the boundaries. As a result, the null hypothesis is dynamically stable and is not rejected.

Recommendation

The government must increase government expenditure on the tourism sector to allow new innovations to happen, as well as improvements in infrastructure, where this matter is closely related to Sustainable Development Goal (SDG) 9, which SDG 9 is related to industry, innovation and infrastructure. For example, the tourism infrastructure financing fund will strengthen the forward progress of the tourist sector's recuperation, involving support for hotel renovation, urban redevelopment, and historical conservation.

Sustained investment in innovation and infrastructure is critical for economic expansion and growth. Growth in tourism is dependent on strong both private and public facilities. The industry could impact public policy for improvements and retrofits, causing them to be more environmentally friendly, creative, and resource-efficient, as well as pushing towards low-carbon progress, therefore drawing a variety of foreign investments. In addition, tourist marketing could draw monetary investments for the development of social facilities. SDG 9 includes five objectives aimed at promoting a sustainable and equitable industry and invention. The possible project metrics will be based on these goals.

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