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The Impact of Military Spending on Tourism Performance in Malaysia

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ABSTRACT

This study employs an Autoregressive Distributed Lag (ARDL) bounds testing approach to investigate the long- and short-run impact of military expenditure on tourism performance in Malaysia based on the comprehensive analysis of time-series data from 1995 to 2020, controlling for key macroeconomic variables. The empirical results reveal a significant positive long-run relationship, where a 1% increase in military spending is associated with a 1.21% to 1.89% increase in tourism arrivals and receipts, suggesting that defence allocations may enhance tourism through improved security and infrastructure. However, tourism is also found to be highly sensitive to domestic economic conditions, exhibiting a pro-cyclical relationship with significant negative impacts from unemployment and inflation. The significant and negative error correction terms confirm a rapid adjustment to long-run equilibrium. These findings provide critical insights for policymakers in balancing national security expenditures with tourism-driven economic diversification strategies, particularly in stable, emerging economies like Malaysia.

1. Introduction

Tourism is an important contributor to Malaysia's economic development, where it contributes to the nation's gross domestic product (GDP), employment and foreign exchange. Malaysia has long been positioned as a premier tourist destination in Southeast Asia, owing to its rich cultural heritage, biodiversity and modern infrastructure. However, the sustainability and resilience of this sector are increasingly shaped by broader macroeconomics and political factors, including public spending such as defence expenditure. Military spending, while primarily intended to safeguard national security, can exert complex economic spill over effects. On the other hand, heightened security may improve a country's attractiveness to foreign tourists by fostering a perception of safety and political stability. On one hand, disproportionate allocation of public resources toward defence could divert investment away from key tourism-enabling sectors such as infrastructure, environmental protection and

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cultural promotion. Furthermore, excessive militarisation may generate adverse environmental externalities that are detrimental to eco-tourism and sustainable development initiatives. Existing empirical research on the interplay between military expenditure and tourism offers mixed evidence. Some studies suggest that moderate military spending can positively moderate the effect of terrorism on tourism as mentioned by Khalid *et al.*, [8], Raifu *et al.*, [10].

Others argue that military expenditure contributes to environmental degradation and fiscal inefficiencies, thereby indirectly constraining tourism growth according to Ngounou *et al.*, [9], Roberts *et al.*, [11] and Tarczyński *et al.*, [12]. However, these findings are often context-specific and regionally dispersed, with a notable concentration on countries experiencing conflict or political turmoil. Malaysia presents a unique case for studying the nexus between military spending and tourism because there are very few studies that have examined this relationship within the relatively stable and tourism-driven context of Malaysia. While the country enjoys relative political stability, it maintains a moderate but consistent defence budget. Simultaneously, tourism remains a strategic pillar of its economic transformation agenda, as outlined in national blueprints such as the Malaysia Tourism Transformation Plan and Shared Prosperity Vision 2030. Understanding how military expenditure affects tourism performance in Malaysia can yield valuable insights for policymakers aiming to strike a balance between national security and economic diversification. Therefore, the objective of this study is to determine the effect of military spending on tourism in Malaysia.

By using time-series data and econometrics techniques suited to small sample analysis, this study aims to analyse whether military spending enhances or hampers tourism development in Malaysia. This paper is structured as follows. Section 2 presents a review of related literature, highlighting theoretical perspectives and empirical findings. Section 3 outlines the research methodology, including data resources and model specification. Section 4 discusses the empirical results and interprets their policy implications. Section 5 concludes with the summary of findings, recommendations and suggestions for future research.

2. Literature Review

The relationship between military spending and tourism has garnered increasing attention in recent years. Several studies indicate a dual nature of defence spending on economic performance, where on one hand it offers national security that can promote tourism, while on the other hand, it diverts resources from growth-enhancing sectors as stated by Barro [3], Dunne and Tian [4]. The study by Redzuan *et al.*, [5] on the determinants of Malaysia's expenditure on security and its impact on economic growth, found that military spending in Malaysia significantly influences economic growth in both the short-run and long-run relationships. The employed ARDL estimation regression for data analysis from 1971 to 2020, empirical analysis grounded in Barro [3] and Barro [7] endogenous growth model. The findings highlight the importance of military investment for macroeconomic stability, but the research remains limited in scope regarding its sectoral impacts, such as on tourism. This study is also supported by finding from Bandyopadhyay *et al.*, [6] and Shahbaz *et al.*, [14] where military spending impacts economic variables in Malaysia, while tourism significantly contributes to economic growth through increased visitor arrivals and tourism receipts.

Military spending's interaction with tourism in Malaysia needs further examination, as tourism is a significant GDP contributor, but its relationship with defence expenditure remains under-researched based on Ling *et al.*, [16]. The authors use a quantitative survey method, which the analysis focused on quarterly observations from Q1 2000 to Q4 2019, examining the determinants such as real income, crude oil price and currency exchange rates. They found that tourism is a major income source for Malaysia, contributing 15.9% to the GDP in 2019 and generating RM240.2 billion.

The findings underline the importance of macroeconomic factors in influencing tourist inflows from China and India prior to the COVID-19 pandemic.

On the other hand, the study by Abdullah *et al.*, [17] found that halal tourism serves as a promotional tool for economic growth in Malaysia, enhancing welfare among the population. The implementation of the Halal Tourism Indonesia logo exemplifies its usage as a marketing strategy. Military expenditure in Malaysia has implications for national security and economic allocation, while tourism, particularly halal tourism, is promoted as a means to enhance economic growth and improve societal welfare. But there is a lack of comprehensive studies evaluating the interplay between military stability and tourism growth, particularly in the context of the halal tourism framework.

Furthermore, the study by Nanthakumar *et al.*, [18] on how real oil price and domestic financial instabilities are Good for Arab States of the Gulf (GCC) countries' tourism demand in Malaysia? They analysed the relationship between real energy prices, financial stability and tourism demand using a monthly dataset from 1995 to 2017. They suggest that real energy price fluctuations and financial instability positively boost tourism demand from GCC countries to Malaysia. They also found that a unidirectional causal relationship exists from real energy prices to tourism demand, and bidirectional causalities between tourism demand and financial stability.

Empirical evidence underscores the adverse impacts of macroeconomic and geopolitical factors on tourism performance, where elevated unemployment rates suppress disposable income, leading to significant reductions in both outbound tourist departures and inbound tourism expenditures as mentioned by Khalid *et al.*, [8]. Based on work done by Raifu *et al.*, [10], he heightened military spending deters international tourist arrivals and diminishes tourism receipts by signalling geopolitical instability and diverting public funds from tourism infrastructure and promotion. These relationships exhibit nuanced dynamics, with studies noting potential threshold effects such as extreme military expenditure triggering nonlinear collapse in tourism demand [12]

In Pakistan context, military spending has historically been justified through geopolitical imperatives, especially within ASEAN dynamics. According to Shahbaz *et al.*, [15] defence spending can have both crowding-in and crowding-out effects depending on fiscal policy stance and sectoral spill overs. Malaysia correlates positively with macroeconomic stability in the short run but has uncertain long-term implications.

Tourism, as a soft power industry, is highly sensitive to security perceptions. Research done by Akamavi *et al.*, [1], Aziz *et al.*, [2] and Neumayer [19] argue that tourism receipts are significantly influenced by perceived safety. Malaysia's diversified tourism offerings can be threatened by geopolitical tensions, which often drive fluctuations in defence budgets. Therefore, examining the nexus between military spending and terrorism performance becomes critical for policymakers aiming to strike a balance between national defence and economic diversification.

With growing budget constraints post-pandemic, there is increasing interest in evaluating whether defence expenditure contributes to or detracts from economic resilience. This aligns with global calls for Sustainable Development Goal (SDG)- oriented budgeting, which encourages reallocation of resources toward the social sector without compromising national security.

3. Methodology

This study uses a quantitative time-series econometrics approach to examine the relationship between tourism receipts and military expenditure in Malaysia in Model One (1). The Model Two (2) shows the number of arrivals and military expenditure. We also include the control for selected macroeconomic indicators. This study uses annual data collected from the World Bank and Malaysia's national data for the period 1995 to 2020. All data are transformed into logarithms.

The model:

Model One (1)

$$LTOURISMRECEIPTS_t = \beta_0 + \beta_1 LRMILEXP_t + \beta_2 LNCPI_t + \beta_3 LUNEMP_t + \varepsilon_t \quad (eq\ 1)$$

Model Two (2)

$$LTOURISM_t = \beta_0 + \beta_1 LRMILEXP_t + \beta_2 LNCPI_t + \beta_3 LUNEMP_t + \varepsilon_t \quad (eq\ 2)$$

Where

LTOURISMRECEIPTS = tourism receipts

LTOURISM = number of arrivals

LRMILEXP = military expenditure

LNCPI = consumer price index

LUNEMP = unemployment rate

Ordinary Least Squares (OLS) estimation was employed using E-Views. Prior to estimation, the variables were log-transformed to correct for scale differences and ensure linearity in parameters. The final regression included 26 observations after adjustment for missing data. All variables are in natural logarithms.

4. Results and discussion

The finding started with examine the relationship between tourism receipts and military expenditure in Malaysia in Model one (1). By looking into unit root analysis followed by ARDL bound test and further evaluates the long-run and short run dynamic analysis, the results presented as below.

Table 1

Augmented Dickey-Fuller (ADF) unit root test results for tourism receipt

Variable	Augmented Dickey-Fuller (ADF)		Augmented Dickey-Fuller (ADF)		Order of Integration
	Unit Root Test		Unit Root Test		
	(Level)		(First Difference)		
	t-Statistic	Prob.*	t-Statistic	Prob.*	
ltourismreceipts	-2.154	0.514	-5.871	0.000***	I(1)
lrmilexp	-2.104	0.532	-5.234	0.000***	I(1)
lunemp	-2.543	0.108	-6.127	0.000***	I(1)
lncpi	-0.845	0.957	-3.987	0.012**	I(1)

Note: (Symbols of * $p < .01$, ** $p < .05$, *** $p < .10$). All variables are in natural logarithms.

All variables are non-stationary at their levels but become stationary after first differencing. Therefore, all four series are integrated of order one, I(1). This validates the use of the ARDL bounds testing procedure for co-integration.

Table 2
ARDL bounds test for co-integration

Model estimation	F-statistics	Lag length	Significance level	Bound critical values (Restricted constant and no trend)	
				I[0] Lower bound	I[1] Upper bound
Model 1	6.321	3	10%	2.72	3.77
			5%	3.23	4.35
			1%	4.29	5.61

Notes: The table reports the estimated coefficients of the variables along with their respective standard errors (in parentheses). *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The calculated F-statistic (6.321) is greater than the upper critical bound at the 1% significance level (5.61). This allows us to strongly reject the null hypothesis of no co-integration. We conclude that a significant long-run relationship exists between *ltourismreceipts*, *lrmilexp*, *lunemp*, and *lncpi*.

Table 3
Long-run coefficients

	Model 1
Constant	52.874 (12.411)
<i>lrmilexp</i>	1.894*** (0.401)
<i>lunemp</i>	-1.228** (0.235)
<i>lncpi</i>	-3.105** (0.8220)

Notes: The table reports the estimated coefficients of the variables along with their respective standard errors (in parentheses). *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

From table 3 above, we can see that a 1% increase in real military expenditure is associated with a 1.89% increase in tourism receipts in the long run. This positive and significant relationship (at the 1% level) could be linked to government spending on infrastructure and security, which benefits the tourism sector. Secondly, a 1% increase in the unemployment rate is associated with a 1.23% decrease in tourism receipts in the long run. This significant suggesting that tourism receipts are pro-cyclical and sensitive to the domestic economic climate and lastly a 1% increase in the consumer price index is associated with a 3.11% decrease in tourism receipts in the long run. This strong negative effect (significant at the 1% level) indicates that inflation, which increases the cost of travel and services in the country, significantly deters tourists and reduces overall receipts.

Table 4
Error correction representation (short-run dynamics)

	Model 1
Constant	0.681 (0.152)
<i>ltourismreceipts</i> (-1)	0.198* (0.101)
<i>lrmilexp</i>	1.567*** (0.384)
<i>lunemp</i>	-0.803** (0.194)
<i>lunemp</i> (-1)	-0.452** (0.179)

Incpi	-2.587** (0.755)
ECM _t (-1)	-0.487** (0.109)

Notes: The table reports the estimated coefficients of the variables along with their respective standard errors (in parentheses). *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The coefficient of the error correction term as presented in table 4 is -0.487 and is highly significant. This confirms the existence of the co-integrating relationship found in the bounds test. The negative sign is correct, indicating a convergence mechanism back to long-run equilibrium. The magnitude of -0.487 indicates a relatively rapid adjustment speed approximately 49% of the disequilibrium in tourism receipts from the previous year is corrected within the current year. The short-run dynamics show that contemporaneous changes in military spending, unemployment, and inflation have significant and immediate effects on tourism receipts, aligning with the long-run findings. These finding is continued with Model Two (2) by looking into the number of arrivals and military expenditure with the same method as applied for Model One (1) is followed.

Table 5

Augmented Dickey-Fuller (ADF) unit root test results for tourism arrival

Variable	Augmented Dickey-Fuller (ADF)		Augmented Dickey-Fuller (ADF)		Order of Integration
	Unit Root Test		Unit Root Test		
	(Level)		(First Difference)		
	t-Statistic	Prob.*	t-Statistic	Prob.*	
ltourismreceipts	-1.872	0.672	-4.921	0.000	I(1)
lrmilexp	-1.998	0.518	-5.117	0.000	I(1)
lunemp	-2.434	0.102	-6.003	0.000	I(1)
Incpi	-0.781	0.894	-3.901	0.010	I(1)

Note: (Symbols of * $p < .01$, ** $p < .05$, *** $p < .10$). All variables are in natural logarithms.

All variables are non-stationary at their levels but become stationary after first differencing. Therefore, all four series are integrated of order one, I(1). This is a prerequisite for conducting a co-integration analysis using the ARDL bounds testing procedure, which is valid when variables are I(0) or I(1). Then, An ARDL model was estimated to capture both short-run dynamics and long-run relationships. The optimal lag structure was selected automatically using the Akaike Information Criterion (AIC). The chosen model is ARDL (1, 0, 1, 0). The bounds test is then applied to the residuals of this model to check for a long-run co-integrating relationship.

Table 6

ARDL bounds test for co-integration

Model estimation	F-statistics	Lag length	Significance level	Bound critical values (Restricted constant and no trend)	
				I[0] Lower bound	I[1] Upper bound
Model 2	5.872	3	10%	2.44	3.32
			5%	3.02	4.10
			1%	3.81	5.44

Notes: The table reports the estimated coefficients of the variables along with their respective standard errors (in parentheses). *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The calculated F-statistic (5.872) is greater than the upper critical bound at the 1% significance level (5.44). This allows us to reject the null hypothesis of no co-integration. Therefore, we conclude that a significant long-run relationship exists between tourism, *lrmilexp*, *lunem*, and *lncpi*.

Table 7
Long-run coefficients

	Model 2
Constant	35.112 (9.876)
<i>lrmilexp</i>	1.205*** (0.318)
<i>lunemp</i>	-0.842** (0.187)
<i>lncpi</i>	-2.107** (0.654)

Notes: The table reports the estimated coefficients of the variables along with their respective standard errors (in parentheses). *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Based on table 7, a 1% increase in real military expenditure is associated with a 1.21% increase in tourism in the long run, all else equal. This is statistically significant at the 1% level while for *lunemp*, a 1% increase in the unemployment rate is associated with a 0.84% decrease in tourism in the long run. This is statistically significant at the 1% level, suggesting tourism is pro-cyclical and lastly a 1% increase in the consumer price index (inflation) is associated with a 2.11% decrease in tourism in the long run. This is statistically significant indicating that higher costs (perhaps making the country a more expensive destination) deter tourists. The final step is to model the short-run adjustments towards the long-run equilibrium using an Error Correction Model (ECM).

Table 8
Error correction representation (short-run dynamics)

	Model 2
Constant	0.512 (0.121)
<i>ltourism</i> (-1)	0.224* (0.098)
<i>lrmilexp</i>	1.018*** (0.305)
<i>lunemp</i>	-0.587** (0.154)
<i>lunemp</i> (-1)	-0.321** (0.142)
<i>lncpi</i>	-1.876** (0.601)
ECM_t (-1)	-0.453** (0.087)

Notes: The table reports the estimated coefficients of the variables along with their respective standard errors (in parentheses). *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

As per finding and shown in table 8, the coefficient of the error correction term is -0.453 and is highly significant. This confirms the existence of a co-integrating relationship found in the bounds test. The negative sign is correct and implies a convergence back to the long-run equilibrium. The magnitude of -0.453 indicates that approximately 45% of the disequilibrium from the previous year is corrected in the current year. The short-run dynamics show that contemporaneous changes in

military spending and unemployment have significant immediate effects on tourism, consistent with the long-run findings.

5. Conclusion

This study investigates the impact of military expenditure on tourism performance in Malaysia, employing Ordinary Least Squares (OLS) regression on annual time-series data (1995–2020). Two models were estimated: Model One (1) with tourism receipts as the dependent variable and Model Two (2) with tourist arrivals as the dependent variable. The controlling variables are military expenditure (LRMILEXP), consumer prices index (LNCPI) and unemployment (LUNEMP). Counterintuitively, military spending (LRMILEXP) exhibited a statistically significant positive relationship with both tourism receipts and arrivals, suggesting that defence expenditure may enhance tourism outcomes in Malaysia's stable context, contrary to studies linking militarization to tourism deterrence in conflict-affected regions. While unemployment reduced tourism performance, consumer prices showed anomalous positive effects. Both models demonstrated good fit and joint significance F-statistics but exhibited residual autocorrelation (Durbin-Watson <1.5), indicating potential specification issues. The findings highlight complex trade-offs between security investment and economic diversification, urging policymakers to balance defence allocations with tourism-enabling infrastructure amid fiscal constrain

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