FISCAL, ICT, AND TRADE DIMENSIONS OF MALAYSIA'S ECONOMIC DEVELOPMENT

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Abstract*: This study investigates the relationship between fiscal policy, ICT, and trade dimensions in driving Malaysia's economic development. Using the Autoregressive Distributed Lag (ARDL) model and annual data from 2001 to 2023, the analysis explores both short-run and long-run relationships among these three key dimensions. The results of the bounds test confirm the presence of a long-run relationship between the variables. In the long run, fiscal expenditure and digital adoption have positive effects on economic growth, while trade openness shows a negative relationship. In the short run, trade remains a major contributor to growth, whereas the benefits of digital adoption progress appear more gradually as the economy adjusts to technological changes. Fiscal spending has a smaller short-term impact but supports growth over time. Overall, the findings suggest that Malaysia's economic growth is moving toward a more sustainable and balanced path, strengthened by sound fiscal management, digital adoption, and resilient trade strategies.*

Keywords*: Fiscal Expenditure, Digital Adoption, Trade Openness, Malaysia, Economic Growth, ARDL*

Introduction

Malaysia's economic growth has been shaped by a series of major reforms aimed at improving fiscal sustainability, expanding digital adoption, and strengthening its position in global trade. Under the Twelfth Malaysia Plan (2021–2025), the country continues its transition toward high-income status, reflecting how strong fiscal management, rapid digitalisation, and trade competitiveness support long-term development. In 2024, Malaysia's GDP reached approximately USD 422 billion, placing the nation firmly within the upper-middle-income category and demonstrating resilient and sustained economic momentum (IMD, 2024). These developments underscore the importance of strategic economic planning, technological advancement, and global integration in driving Malaysia's growth trajectory.

The IMD World Competitiveness Ranking (WCR) and the World Digital Competitiveness Ranking (WDCR) are often used as important measures of a country's fiscal capacity, governance quality, and digital readiness. Malaysia's standing in these rankings has shown clear progress, improving from 34th place in 2024 to 23rd in 2025. This rise reflects the country's strong recovery after the pandemic and better coordination across government policies. It also shows how fiscal reforms, stronger digital infrastructure, and deeper trade integration under the Madani Economy framework have helped strengthen Malaysia's overall competitiveness (IMD, 2024).

Fiscal policy plays a key role in driving economic growth through public spending, taxation, and investment in productive areas. Effective fiscal management ensures that government spending supports inclusive development while maintaining financial stability. When funds are directed toward essential sectors such as healthcare, education, and infrastructure, they help improve productivity, develop human capital, and encourage more sustainable and broad-based economic growth (Dao, 2012). A recent study by Saragih et al. (2020) on Thailand analyzes four decades of data (1976–2018) to identify key determinants of economic growth. It offers policy recommendations to stimulate growth and highlights the link between a strong economy and national stability, providing a foundation for future research.
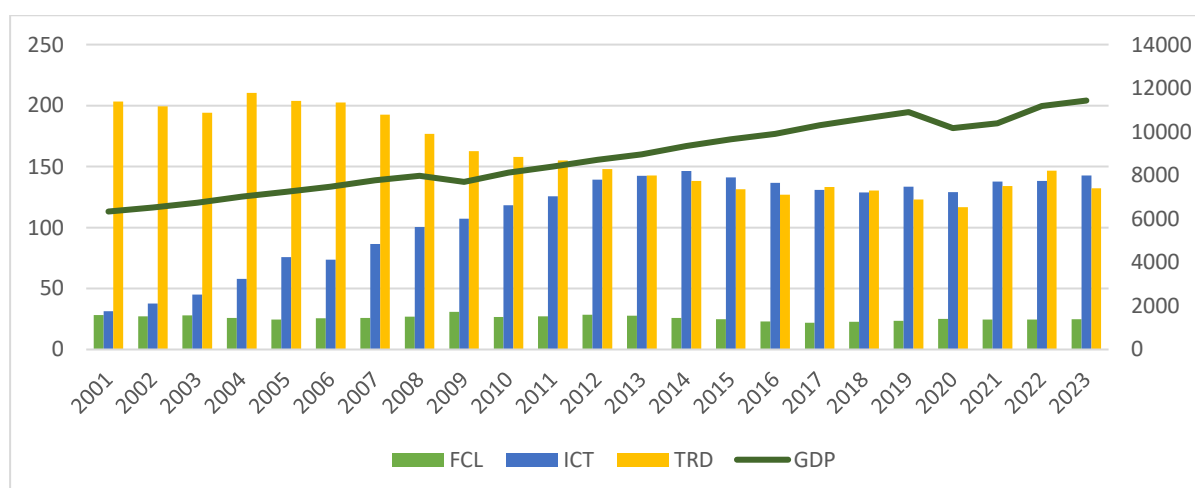

Figure 1: Trends Of Economic Development (ED), Fiscal Expenditure (FCL), Digital Adoption (DTL), And Trade Openness (TD) In Malaysia From 2001 - 2023
Source: World Bank

Figure 1 highlights four key patterns that describe Malaysia's changing economic structure. Fiscal expenditure (FCL) remained relatively stable from 2001 to 2023, showing the government's continued commitment to development and public services, even during major global crises such as the 2008 financial crisis and the COVID-19 pandemic. In contrast, the digital adoption (DTL) indicator shows a steady rise beginning in 2007, reflecting Malaysia's growing emphasis on digital infrastructure and innovation through initiatives like the MyDIGITAL Blueprint and the Madani Economy Framework.

Trade openness (TD) dropped noticeably after 2008, suggesting that Malaysia has become less reliant on foreign trade and is moving toward more domestic-based growth. Over the same period, GDP continued to rise each year, showing steady economic progress supported by fiscal spending and the expansion of the digital sector. Overall, these trends suggest that Malaysia's economy is becoming more resilient and balanced. Fiscal and digital growth now play a stronger part in supporting long-term development, while trade continues to be significant but in a more sustainable way.

In recent years, Malaysia has faced several economic challenges that make the interaction between fiscal policy, digital adoption, and trade openness more important than ever. The government is managing increasing fiscal pressures while balancing the need for development spending. Digitalisation continues to grow, but productivity gains remain uneven due to gaps in skills, infrastructure, and technology adoption among firms. At the same time, Malaysia's trade-to-GDP ratio has been declining, leaving the economy more exposed to global supply chain disruptions and geopolitical uncertainties. These changes show that Malaysia's growth path is becoming more complex and multidimensional, creating a need for stronger evidence on how these three factors work together to support sustainable development.

Although many studies have examined fiscal policy, digitalisation, and trade openness, most of them focus on these factors separately. As a result, they only explain part of the story and often rely on older data that do not reflect the economic changes Malaysia experienced after COVID-19. Previous Malaysian studies using the ARDL approach also tend to leave out digital variables and rarely analyse how fiscal spending, digital adoption, and trade openness work together in both the short and long run. This creates an important gap because Malaysia's economic transformation is complex and interconnected, yet the evidence used to guide policy remains fragmented.

To fill this gap, this study brings together fiscal, digital adoption, and trade dimensions within a single ARDL framework using data from 2001–2023. This approach allows the analysis to capture immediate short-term adjustments as well as long-term relationships among the variables. By examining these factors together, the study provides a clearer understanding of how government spending, digital development, and trade openness influence Malaysia's economic growth. The findings can help support Malaysia's transition toward a more resilient, innovative, and sustainable economy in line with the MyDIGITAL Blueprint and the Madani Economy agenda.

Literature Review

Previous studies have widely explored the roles of fiscal expenditure, digital adoption, and trade openness in shaping economic growth. However, these studies often examine each factor separately, resulting in fragmented evidence on how they interact within a modern economy

like Malaysia. This section synthesises past findings and highlights areas where empirical gaps remain.

Fiscal and Economic Development

The connection between fiscal spending and economic growth has long been discussed across various economic theories. The Keynesian view, introduced by John Maynard Keynes, emphasizes that overall demand influences production and employment levels (Jahan and Papageorgiou, 2014). In the same line of thought, Nguyen (2022) suggests that government intervention can encourage long-term growth by investing in human capital and promoting technological progress.

Empirical studies support that fiscal expenditure fosters economic growth. Othman et al. (2024) found cointegration between GDP and government consumption, suggesting that fiscal spending is a productive investment that increases competitiveness. Mandala (2020) also discovered a similar positive relationship, while Sinha (1998) found a long-run causal relationship between GDP and government spending in Malaysia during the period 1950-1992. Next, Abdullah et al. (2009) reported that trade openness and fiscal policy positively influence economic growth, although the effect of transparency is sensitive to how it is measured. Notably, their findings on taxation and budget balance differ from many earlier studies, indicating a unique pattern in Malaysia's fiscal–growth relationship.

However, not all evidence points in the same direction. Mallick (2008), for example, finds that aggregate government spending, including capital expenditure, does not significantly influence long-run growth. This suggests that the composition and efficiency of spending may matter more than its total size. Together, these findings show that while fiscal expenditure can support growth, its impact varies across countries and time periods, underscoring the need to examine Malaysia's fiscal performance using updated data.

Digital Adoption and Economic Development

Digital development has become increasingly important for improving productivity and supporting economic transformation. Kuppusamy and Shanmugam (2007) examine the ICT–growth relationship in Malaysia across two distinct periods. Their results show that economic growth drove ICT investment between 1960 and 1982, whereas in the later period, ICT investment began to lead and stimulate economic growth. During 1983–2004, ICT investment had a positive and significant impact on growth, reflecting increasing returns to scale and signalling a major structural shift in Malaysia's economy. Next, Global studies reinforce this relationship. Stanley et al. (2018) analyzed the impact of information and communication technology (ICT) on national development and found that ICT adoption tends to stimulate economic growth in both developing and developed countries. while Majeed and Ayub (2018) report that indicators such as mobile broadband, internet access, and mobile penetration positively affect GDP growth worldwide.

Despite these consistent findings, research focusing specifically on Malaysia's digital landscape remains limited. Moreover, ICT variables are rarely included in Malaysian ARDL studies on economic growth, leaving a gap in understanding how digitalisation interacts with fiscal expenditure and trade openness in both the short and long run.

Trade Dimensions and Economic Development

Trade openness has historically been a major engine of growth for Malaysia. The empirical relationship between trade openness and fiscal dynamics has produced mixed evidence across countries. Idris et al. (2016) identified two-way causal relationships between economic growth and trade openness between OECD and developing countries, with both being caused by each other. Makun (2017) found that trade positively and significantly affects GDP growth in Malaysia.

However, not all studies show a consistently positive relationship. Sáenz et al. (2013), in the case of Spain, find that while openness initially increases public expenditure, the relationship becomes negative following political reforms, suggesting that institutional context matters. Nursini (2017) also highlights that in Indonesia, trade openness supports long-run growth when paired with productive government spending financed through tax revenue rather than external borrowing. Nguyen and Bui (2021) further argue that the openness–growth relationship in ASEAN may be non-linear, where excessive openness yields diminishing returns without strong institutional frameworks. These findings imply that the trade–growth nexus is sensitive to structural and political conditions, which is especially relevant as Malaysia's trade-to-GDP ratio has been declining since 2008.
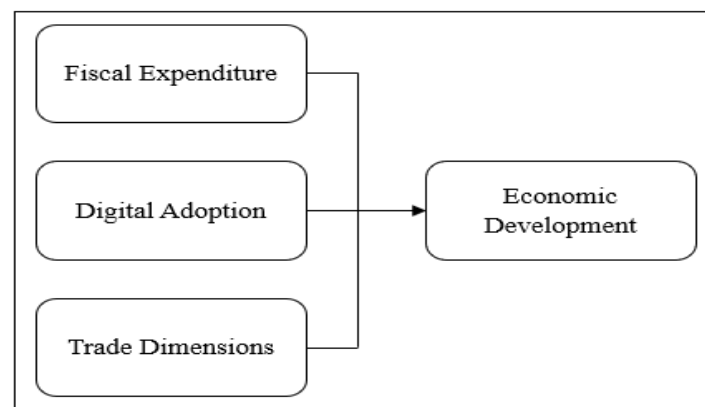
Conceptual Framework

Figure 2: Conceptual Framework for Malaysia

Fiscal expenditure, digital adoption, and trade openness are proposed as key determinants of Malaysia's economic development. Fiscal spending enhances productive capacity, digital adoption improves efficiency and innovation, while trade openness expands market access. These three dimensions jointly influence economic performance and are modelled together in the ARDL framework to capture both short-run adjustments and long-run relationships.

Methodology

This study employs the Autoregressive Distributed Lag (ARDL) approach to examine the short-run and long-run relationships between fiscal expenditure, digital adoption, trade, and economic development in Malaysia. The data for the period 2001–2023 were used for this study. The ARDL model is suitable because whether the variables are integrated at the I(0) level or the first difference I(1), as long as none of them is integrated of order two, I(2).

The regression equation for the economic growth model proposed in this paper is as follows:

$$ED = f(DTL, FCL, TD)$$

The log-linear form for LN in the equation above is as follows:

$$LNED_{it} = \alpha_0 + \beta_1 LNDTL_{it} + \beta_2 LNFCL_{it} + \beta_3 LNTD_{it} + \varepsilon_{it}$$

The sign ε indicates an error term, while the subscripts i and t indicate country and time, respectively.

Table 1: Variables And Data Source

Variable	Symbol	Description	Sources
Economic Growth	ED	GDP per capita (constant 2015 US$)	
Digital	DTL	Mobile Cellular Subscriptions (per 100 people)	World Bank
Trade	TD	Trade (% of GDP)	
Fiscal	FCL	Government expenditure, percent of GDP (% of GDP)	International Monetary Fund (IMF)

Source: World Bank and International Monetary Fund

Before estimation of the ARDL model, certain tests were run to ensure that the data were proper. The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests were run to identify whether data for all of the variables were stationary over time. Once it was confirmed that all variables were stationary, the ARDL bounds testing approach by Pesaran et al. (2001) was applied to examine the existence of a long-run relationship among them. After confirming this long-term relationship, the Error Correction Model (ECM) was then estimated to investigate short-run dynamics and how quickly the system corrects towards the equilibrium point after any changes.

Results

Table 2 shows the ARDL approach to cointegration, which uses the F-statistic to test for the possibility of a long-run relationship among the model's variables. The ideal lag length was determined using the Akaike Information Criterion (AIC), with a maximum of three lags applied due to the annual frequency of the dataset.

Table 2: ARDL Test for Cointegration

Model		
AIC (Lag Order)	(3,1,3,3)	
F-Statistic	21.0318	
Critical Values	**Lower Bound, I(0)**	**Upper Bound, I(1)**
1%	4.614	5.966
5%	3.272	4.306
10%	2.676	3.586

Table 3 summarizes the findings of the four major diagnostic tests for Malaysia and Singapore. The p-values for serial correlation (LM test), normality (Jarque-Bera), heteroskedasticity (ARCH), and functional form (Ramsey RESET) in both models are more than the 5% significance level of $p > 0.05$.

These findings show that the models are well-specified, free of serial correlation and heteroskedasticity, and with evenly distributed residuals. As a result, the estimates from the ARDL models for both countries are statistically valid and stable for further analysis.

Table 3: Diagnostic Test for Model

	Model
Serial Correlation	5.86 [0.065]
rmality Test Jarque-Bera	3.85 [0.146]
Heteroscedasticity Test	0.31 [0.963]
Functional Form Ramsey RESET	1.24 [0.316]

Note: 1. The values in square brackets indicate p-values. 2. Serial correlation tested using Breusch-Godfrey LM test 3. Normality based on Jarque-Bera test (residual skewness and kurtosis) 4. Heteroskedasticity based on the Breusch-Pagan-Godfrey test 5. Functional form tested using Ramsey RESET with one fitted term.

Table 4: Long-Run Elasticities for Malaysia

IV	Coefficient	Prob.
LNFCL(-1)	0.0347	0.7965
LNDTL(-1)	0.1112	0.1442
LNTD(1-)	-0.1695	0.2883
C	9.4641	0.0000***

Note: 1. (***), (**), and (*) denote significance at the 1%, 5%, and 10% levels, respectively. 2. Bound test results indicate the existence of cointegration for Malaysia

In the long run, fiscal expenditure (LNFCL) and digital adoption (LNDTL) have positive coefficients of 0.0347 and 0.1111, respectively, while trade openness (LNTD) has a negative coefficient of –0.1694. Although the coefficients are not statistically significant at the 5% level, their signs provide meaningful insight. The positive coefficients for fiscal and digital variables indicate that government spending and digital development contribute positively to Malaysia's long-term economic performance.

Table 5: Short-Run Elasticities for Malaysia

	Coefficient	Prob.
Δ(LNED(-1))	-0.3295	0.0072**
Δ(LNED(-2))	-0.1976	0.0481**
Δ(LNFCL)	-0.0625	0.0949*
Δ(LNDTL)	-0.0800	0.0157**
Δ(LNDTL(-1))	-0.3136	0.0000***
Δ(LNDTL(-2))	-0.2398	0.0000***
Δ(LNTD)	0.0883	0.0637*
Δ(LNTD(-1))	0.4722	0.0000***
Δ(LNTD(-2))	0.5026	0.0000***
COINTEQ*	-0.6362	0.0000***
R-squared	0.9646	
Adjusted R-squared	0.9327	

Notes: 1. Δ refers to first-difference terms. 2. Dependent Variable is LNED 3. (***) (**), and (*) indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 5 presents the short-run elasticities for Malaysia based on the ARDL model results. The findings indicate that past values of economic growth (ΔLNED(-1) and ΔLNED(-2)) have a negative and significant effect on current ED, with coefficients of –0.3295 (p = 0.0072) and –0.1976 (p = 0.0481), respectively. This suggests that short-term fluctuations in economic growth tend to correct themselves over time, reflecting a stabilizing pattern in Malaysia's economic performance.

Fiscal expenditure (ΔLNFCL) shows a negative but statistically insignificant short-run relationship with economic growth (p = 0.0949). This suggests that the impact of public spending may take longer to appear, as fiscal measures often influence growth gradually rather than immediately. In contrast, digital adoption (ΔLNDTL) has a negative and significant short-run relationship with ED (p < 0.05). This finding indicates that although digital transformation brings long-term gains, it may initially create short-term adjustment costs, such as industry restructuring, higher investment requirements, or temporary skill mismatches in the labor market

Trade openness (ΔLNTD and lag terms) shows positive and statistically significant short-run effects on economic growth, especially in the first and second lags, with coefficient values of 0.4722 and 0.5026 (p < 0.01). This result highlights that foreign trade continues to be an important driver of Malaysia's short-term economic performance, reflecting the country's strong integration with global markets.

The error correction term (COINTEQ = –0.6362) is significant (p = 0.0000) and negative, confirming a correct long-run relationship between the variables. The coefficient indicates approximately 64% of any short-run disequilibrium is corrected within a year, indicating a relatively rapid adjustment to long-run equilibrium.

Overall, these findings suggest that Malaysia's economy gains more long-term benefits from digital development and fiscal policy, while trade continues to serve as an important short-run driver of growth. The results indicate that Malaysia is gradually shifting from a trade-dependent economy to one driven more by internal factors such as government spending and digital

innovation. This transformation aligns with the objectives of the Madani Economy Framework and the MyDIGITAL Blueprint, both of which promote balanced growth through fiscal responsibility, digital readiness, and resilient trade strategies.

Conclusion

In conclusion, this study finds that fiscal policy, digital development, and trade openness each play an important role in driving Malaysia's economic growth. The results show that these three factors are closely related over the long term. Fiscal spending and digital both have strong positive effects on growth, while the influence of trade openness is mixed. In the short term, trade remains a major contributor to economic activity, whereas the benefits of digital transformation appear more gradually as the economy adjusts to new technologies.

The findings also suggest that Malaysia's economy is steadily moving from heavy reliance on external trade toward greater dependence on domestic fiscal strength and digital innovation. To maintain this momentum, the country should focus on keeping fiscal policies balanced, expanding digital infrastructure, and continuing to enhance trade performance. By pursuing these priorities under the Madani Economy Framework and the MyDIGITAL Blueprint, Malaysia can advance toward a more inclusive, stable, and sustainable growth path.

Acknowledgements

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