
Issues and Perspectives in Business and Social Sciences

Strategic spending: a sectoral analysis of government expenditure and its impact on Malaysia's economy and income distribution

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Abstract

Persistent income inequality and uneven economic development remain pressing challenges in Malaysia despite decades of public investment across key sectors. This study investigates the sectoral allocation of government spending and its impact on economic growth and income distribution, focusing on four critical areas: public pension payments, agriculture and rural development, education and training, and healthcare. Motivated by concerns about rising public debt, inefficient fiscal allocation, and growing public dissatisfaction, this study addresses a gap in the literature by providing a comparative long-term analysis of spending effectiveness across key sectors. Using time series data from 1980 to 2021 and applying the Autoregressive Distributed Lag (ARDL) model, the study reveals that spending on agriculture and rural development and education and training significantly contribute to long-term economic growth. By contrast, health and pension expenditures were found to be statistically insignificant in driving growth. Regarding income inequality, only agriculture and rural development spending show a long-term impact, while pension spending has short-run significance. This study makes a novel contribution by jointly examining the effects of government spending on both economic growth and income inequality across key sectors, providing actionable insights for more focused and efficient fiscal policymaking. The findings highlight the importance of prioritizing productive sectors, re-evaluating pension policies, and ensuring transparency in fiscal management to enhance growth and equity outcomes in Malaysia.

Keywords:

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Income inequality;
Agriculture and rural development;
Pension spending;
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1. Introduction

Public expenditure remains one of the most powerful instruments available to governments for shaping economic performance and improving social outcomes. In Malaysia, fiscal policies have historically been used to promote economic growth and enhance citizen welfare. Over the years, the government has allocated substantial spending to social sectors, such as pensions, education, healthcare, and rural development, in an effort to narrow development gaps and protect vulnerable groups. However, despite these efforts, several challenges remain. The Malaysian public continues to express concern over the efficiency and effectiveness of public service budget allocations, as they directly affect the quality and accessibility of government services. As noted by Albassam (2022), efficient public spending is critical for achieving sustained development and

delivering quality services, particularly in developing countries. Meanwhile, rising inequality persists, with low-income groups struggling to access adequate services and opportunities even as spending increases.

A significant concern is the growing fiscal burden on public pension systems. Over the past decade, government spending on pensions has continued to increase, with emoluments and pension payments accounting for a substantial portion of the federal expenditure. As depicted in Figure 1, government pension costs are increasing in Malaysia, posing a significant financial challenge that could strain public resources and hinder long-term economic stability. According to Yeap (2021), pension obligations have grown at an average rate of 4.24% over five years, increasing pressure on federal finances and raising questions about long-term sustainability.

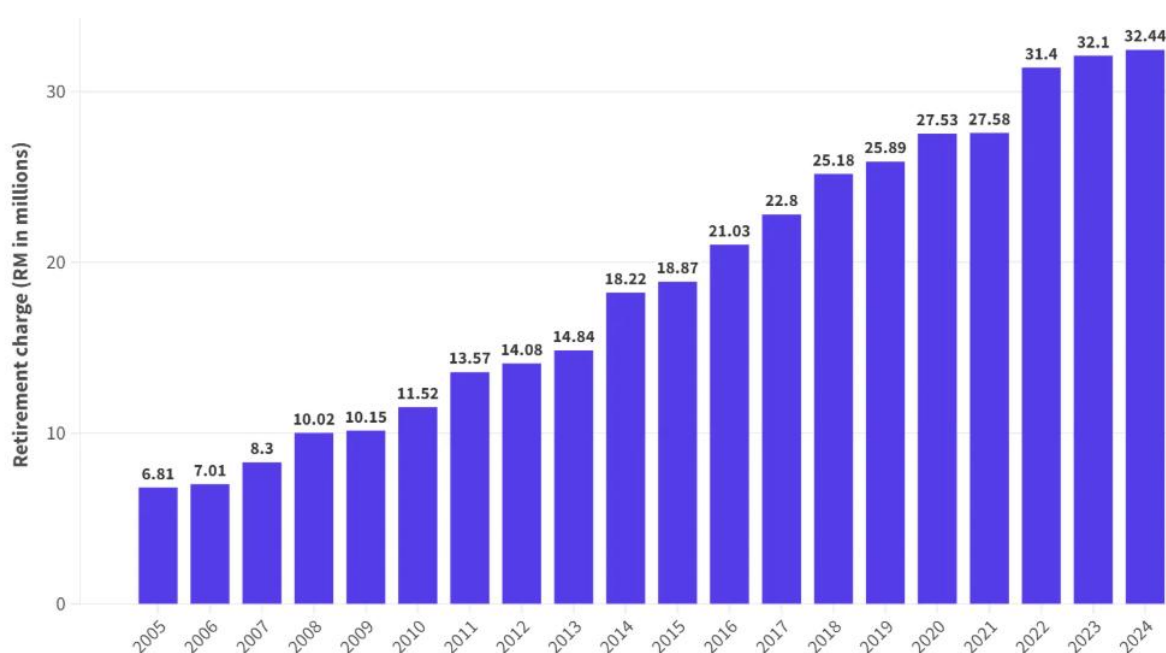


Figure 1: Government Pension Costs in Malaysia (2005-2024)

Source: Previous fiscal outlook and economic reports from the Ministry of Finance

Furthermore, Malaysia has been experiencing persistent budget deficits since 1998. The country is currently among those with the highest global deficits, with the 2023 shortfall ranking 26th worldwide (Fong, 2022). Government debt has exceeded RM1.5 trillion, amounting to over 80% of GDP, reflecting long-term fiscal strain (Fly Malaysia, 2023). These fiscal challenges raise broader concerns about the efficiency of current spending priorities and whether funds are directed to areas with the greatest economic and social returns.

Healthcare is one of the most heavily funded sectors, with the Ministry of Health receiving RM36.14 billion under Budget 2023, the largest allocation compared to other ministries. However, the public health care system continues to show signs of stress. A survey conducted by CodeBlue found that 95% of healthcare workers believed that public hospitals are in a state of crisis, citing overwork, burnout, and limited prospects for advancement (Zahiid, 2023). Simultaneously, individuals in lower-income groups continue to experience poorer health outcomes, pointing to ongoing inequities in access and service delivery.

These persistent issues—rising pension costs, healthcare system strain, long-standing budget deficits, and uneven social outcomes—raise important policy questions: Are government

expenditures contributing to sustainable economic growth? Are they helping narrow income disparities or inadvertently widen them? Malaysia's ongoing efforts to upgrade itself to a high-income nation, as highlighted by Wong et al. (2020), reflect the broader challenge of achieving sustainable economic growth.

While prior studies have independently explored the impact of government spending on economic growth or inequality, few have systematically evaluated both outcomes within a single model or across multiple key sectors. The main objective of this study is to address this gap by examining how government allocations to public pension payments, agriculture and rural development, education and training, and health affect economic growth and income distribution in Malaysia. Specifically, the first objective of this study is to analyze the effect of government spending allocation across various components (public pension payment, agriculture and rural development, education and training, and health) on economic growth in Malaysia. The second objective was to assess the impact of government spending allocation across different components (public pension payments, agriculture and rural development, education and training, and health) on income inequality in Malaysia.

The novelty of this study stems from its dual-focus approach, which examines the growth and equity impacts of sectoral spending within an integrated framework. In doing so, it provides empirical evidence to support more strategic fiscal planning and offers policy-relevant insights for improving the effectiveness of government resource allocation in Malaysia. The remainder of this study is structured as follows. Section 2 provides a comprehensive literature review, detailing both the theoretical frameworks underpinning our analysis and the empirical evidence that informs our research hypotheses on the impact of government spending on economic growth and income inequality, concluding with identified research gaps and the conceptual framework. Subsequently, Section 3 outlines the methodological approach and Section 4 describes the data used in this study. Section 5 presents a detailed discussion of our findings. Finally, Section 6 concludes, highlighting the study's key implications and offering recommendations for future research based on its inherent limitations.

2. Underpinning theories

Several theoretical frameworks have been developed to explain the relationship between government spending and economic outcome. Notable among these are the Classical Economic Theory, Wagner's Law, and Keynesian Theory. Each provides a distinct perspective on the role of government expenditure in shaping a country's economic growth trajectory (Afonso et al., 2005; Wijeweera & Garis, 2009). Classical Economic Theory (Smith, 1776) emphasizes the principle of harmony of interests, arguing that government intervention in the economy is both unnecessary and detrimental. Smith contended that such interventions lead to inefficiency, corruption, and monopolistic practices, all of which harm societal welfare. This view posits that markets function optimally when left undisturbed by government actions. However, the applicability of this theory in modern economic contexts remains contentious, particularly regarding its relevance to the role of government spending in fostering economic growth.

In contrast, Wagner's Law suggests that as an economy grows, the demand for government services increases, necessitating greater public spending. This theory highlights the positive relationship between government expenditures and economic growth, particularly in sectors such as social transfers, infrastructure, and other public services (Sharma et al., 2022). Wagner's Law aligns with the Malaysian context, where increasing government expenditure on public pensions is pivotal to supporting economic growth, particularly in a welfare-oriented framework.

The Keynesian perspective asserts that active fiscal and monetary policies are crucial for achieving full employment and economic stability (Keynes, 1936). Keynes advocated government

intervention, especially during economic downturns, to stimulate demand and drive economic growth (Sharma et al., 2022). This study utilizes Keynesian Theory to assess the effectiveness of government spending, particularly in Malaysia, in fostering economic growth and mitigating income inequality. This theory perfectly aligns with the study's objective of determining how government spending truly impacts Malaysia's economic growth and income equality. Unlike Classical Economic Theory, which suggests that the government should stand back, or Wagner's Law merely describes how spending grows with the economy, Keynesian theory explores how deliberate government spending can actively boost the economy and help bridge income gaps, which is a crucial aspect of Malaysia's ongoing efforts to enhance citizen welfare through fiscal policy (Goh & Mohd Aznan, 2023). Hence, it is the most practical and insightful theory to examine the real-world effects of Malaysian public spending.

3. Empirical literature and research hypotheses

This section examines empirical literature on the relationship between government spending and two key economic indicators: economic growth and income inequality. Through an analysis of relevant studies, we explore the effects of government expenditure in various sectors such as agriculture, education, health, and public pension payments. Based on existing evidence, this section develops the primary hypotheses and sub-hypotheses to be tested in this study.

3.1 Government spending and economic growth

The relationship between government spending and economic growth has long been the central focus of economic research. Keynesian economics posits that government expenditure can be an effective tool for stimulating economic growth, particularly during periods of economic downturns. The government's role in public spending has been seen as a means to fill the investment gap left by the private sector, thereby fostering aggregate demand and enhancing long-term economic growth. In particular, spending directed towards sectors such as agriculture, education, health, and pensions have been identified as having a significant long-term growth impact (Barro, 1991; Elmendorf & Mankiw, 1999).

Despite the extensive literature on government spending and its effects on economic growth and income inequality, limited attention has been paid to the specific role of public pension payments in shaping these outcomes, particularly in Malaysia. This gap is critical, as pension payments represent a significant portion of government expenditure; however, their direct impact on both economic growth and income inequality remains underexplored. This study addresses this gap by examining the influence of pension payments on Malaysia's economic growth and income inequality. Furthermore, while many studies have analyzed the general relationship between government spending and income inequality, few have utilized the Gini Coefficient as a measure to examine this relationship in the Malaysian context. This study seeks to fill this gap by investigating how government spending influences income inequality in Malaysia, and offers a deeper understanding of its redistributive effects.

Recent empirical studies continue to investigate this relationship, although the findings vary depending on the sectoral allocation of government spending. Research shows that investments in productive sectors, such as education and healthcare, generally yield higher growth than spending in less productive areas (Abdelli et al., 2024). However, inefficiencies such as corruption or poor targeting may diminish the growth-enhancing effects of government spending (Shi, 2024). Hence, we hypothesized that government spending has a significant impact on economic growth in Malaysia, and that this effect may vary depending on the sector in which spending occurs.

H1: Government spending significantly affects economic growth in Malaysia.

From the perspective of government spending on agriculture, research has shown that government spending on agriculture leads to improvements in infrastructure, agricultural productivity, and rural employment, thereby enhancing economic growth. Studies, such as those by Lian et al. (2024), have found that targeted agricultural investments in rural China, for example, significantly reduced poverty and boosted growth. In Malaysia, where agriculture remains a cornerstone of the economy, strategic spending on rural development can improve agricultural productivity and promote economic growth in rural areas (Gamal et al, 2022). Hence, the following hypothesis is proposed:

H1a: Government spending on agriculture and rural development positively affects Malaysia's economic growth.

Government investment in education and training enhances human capital, which in turn supports higher productivity and innovation, both of which are key drivers of economic growth. Recent studies show that educational spending can have a substantial impact on long-term economic development (Clements et al., 2025). In Malaysia, education spending has been pivotal in creating a competitive workforce and fostering economic growth, particularly through vocational training and higher education programs designed to meet the needs of the modern economy (Zulkifli et al., 2022). Therefore, we posit that government spending on education and training significantly affects economic growth as stated in the following hypothesis:

H1b: Government spending on education and training positively affects economic growth in Malaysia.

Healthcare spending is another critical area that influences economic growth by improving health outcomes, reducing the disease burden, and increasing labor force productivity. According to Ali et al. (2024), public health expenditures in Malaysia have led to better health outcomes, which directly contribute to economic productivity. As the country has an aging population, increasing investments in healthcare will continue to be a key driver of long-term economic growth. Thus, the relevant hypotheses are as follows:

H1c: Government spending on health positively affects economic growth in Malaysia.

Public pension payments, although primarily a social safety net, also play an indirect role in stimulating economic growth by supporting consumption among aging populations. Uchida and Ono (2024) found that pension payments boost domestic consumption, which contributes to economic activity. In Malaysia, where the pension system is gradually expanding, these payments help reduce poverty among the elderly and support consumption, thereby contributing to broader economic stability (Abdul-Rahman & Lau, 2024). Thus, the following hypothesis was formulated:

H1d: Government spending on public pension payments positively affects economic growth in Malaysia.

We propose Model 1, as depicted in Figure 2, to examine the first main hypothesis of our study, where government spending significantly affects economic growth in Malaysia.

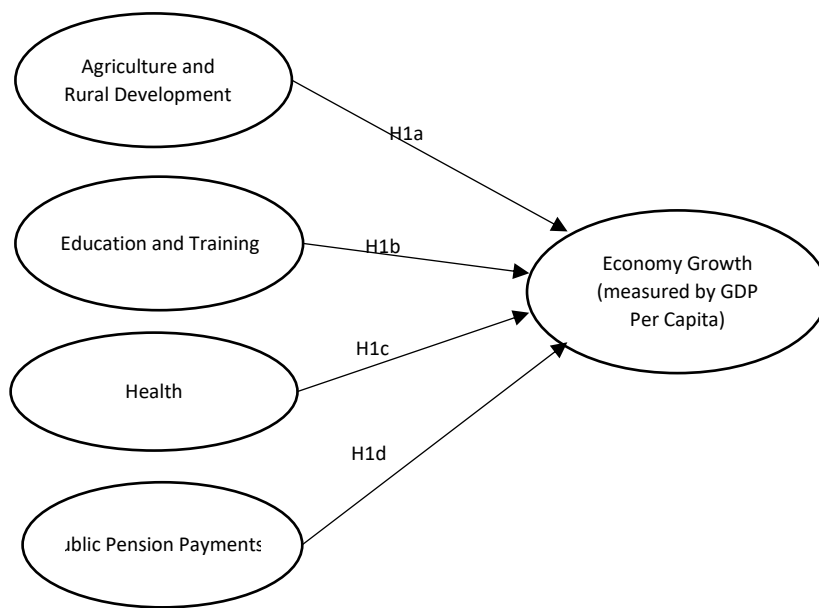


Figure 2: Government spending on different components towards economy growth

3.2 Government spending and income inequality

Income inequality continues to be a significant issue in Malaysia and many other countries. For instance, Khalid and Rosli (2025) found that income inequality increased between 2016 and 2022, with ethnic disparities remaining pronounced. Research has shown that targeted government spending in areas such as education, healthcare, and social protection can help reduce income inequality by redistributing resources and improving access to essential services (Clements et al., 2025). However, the effectiveness of such redistributive policies depends largely on the efficiency and targeting of the government programs.

The second hypothesis suggests that government spending can influence income inequality in Malaysia. It assumes that spending directed towards sectors such as education, health, and rural development can reduce income disparities by improving opportunities and access to lower-income households. Hence, we formulated the second main hypothesis as follows:

H2: Government spending significantly affects income inequality in Malaysia.

Research shows that agricultural spending can help reduce income inequality by boosting rural income and creating more employment opportunities in less-developed regions. Sukoharsono (2025) found that agricultural policies aimed at increasing farm productivity significantly reduced income inequality in the rural areas of China. In Malaysia, where rural areas face higher poverty rates, public investments in rural development can help narrow the income gap between urban and rural populations (Ragayah, 2008). Hence, the relevant hypothesis is stated as follows. H2a: Government spending on agriculture and rural development reduces income inequality in Malaysia.

Education spending has long been associated with reducing income inequality by improving the human capital of disadvantaged groups, thereby increasing their earnings potential. Zulkifli et al. (2022) demonstrate that government investment in education helps lower-income families access higher-paying jobs and reduces income inequality. By providing subsidized education and targeted support for low-income families, Malaysia's education policies aim to promote upward

mobility and equitable income distribution (Clements et al., 2025). Thus, the following hypothesis was developed:

H2b: Government spending on education and training reduces income inequality in Malaysia.

Access to affordable healthcare is essential to reduce income inequality, as poorer households are often disproportionately affected by health issues. Ali et al. (2024) found that improving access to healthcare reduces the financial burden on lower-income families and improves their overall well-being. In Malaysia, where public health expenditure is crucial for providing healthcare to all income groups, this investment plays a significant role in addressing income disparities (Thangiah et al., 2020), as stated in the following hypothesis:

H2c: Government spending on health reduces income inequality in Malaysia.

Public pension systems are key tools in redistributing income, especially in aging societies. Research indicates that pension payments help alleviate poverty among the elderly, directly reducing overall income inequality (Ramos-Herrera et al., 2025). In Malaysia, the expansion of public pension programs can help reduce the income gap between the younger and older populations, providing a safety net for retirees while also contributing to lower income inequality (Uchida & Ono, 2024). This proposition is supported by the following hypothesis:

H2d: Government spending on public pension payments reduces income inequality in Malaysia.

To test the second main hypothesis, we present Model 2, shown in Figure 3, which posits that government spending significantly affects income inequality in Malaysia.

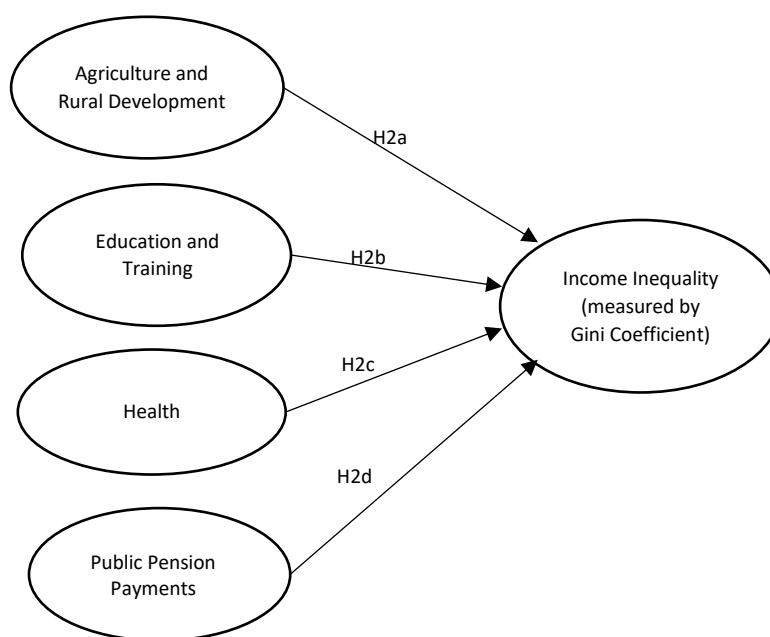


Figure 3: Government spending on different components towards income inequality

4. Methods

We use the Autoregressive Distributed Lag (ARDL) by Pesaran et al. (2001) to (i) analyze the effect of government spending allocation across various components (public pension payment, agriculture and rural development, education and training, health) on economic growth in Malaysia, and (ii) assess the impact of government spending allocation across different components (public pension payment, agriculture and rural development, education and training, health) on income inequality in Malaysia. This approach allows us to assess both short-

term dynamics and long-term equilibrium relationships between variables. The ARDL model is appropriate because it can be used to model the relationship between variables even when they are of different orders of integration (i.e., I(0) and I(1)). This method also enables us to capture the immediate and long-term effects of changes in government spending on economic growth.

The ARDL model specification for examining the long-run relationship for the first objective is as follows.

$$LOG_GDP_t = \beta_0 + \sum_{i=1}^p \beta_i LOG_GDP_{t-1} + \sum_{j=0}^p \gamma_j \Delta LOG_AGRI_{t-j} + \sum_{k}^p \delta_k \Delta LOG_EDU_{t-k} + \sum_{m}^p \rho_m \Delta LOG_HEALTH_{t-m} + \sum_{n}^p \sigma_n \Delta LOG_PENSION_{t-n} + \theta_0 LOG_GDP_{t-1} + \theta_1 LOG_AGRI_{t-1} + \theta_2 LOG_EDU_{t-1} + \theta_3 LOG_HEALTH_{t-1} + \theta_4 LOG_PENSION_{t-1} + e_t \quad (1)$$

In this model:

- LOG_GDP_t represents the log of Gross Domestic Product (economic growth).
- LOG_AGRI , LOG_EDU , LOG_HEALTH , and $LOG_PENSION$ represent logs of government spending on agriculture and rural development, education and training, health, and public pension payments, respectively.
- The Δ symbol indicates first difference, which accounts for short-term changes in the respective variables.
- The $\beta_i, \gamma_j, \delta_k, \rho_m, \sigma_n$ are the short-term coefficients that capture the immediate effect of changes in each of the independent variables on economic growth.
- The $\theta_0, \theta_1, \theta_2, \theta_3, \theta_4$ represent the long-run coefficients that reflect the long-term equilibrium relationship between the variables.
- e_t is the error term.

By estimating this model with the ARDL approach ARDL(1,1,1,1,2), we can determine how government spending across these sectors affects economic growth in the short run and long run. This allows us to identify both immediate and persistent impacts of fiscal policies on the economy. Additionally, this specification helps us understand whether long-run economic growth is driven by investments in agriculture, education, health, or pension payments, and how these sectors contribute to sustained economic development in Malaysia.

The ARDL (1,1,1,1,2) model specification for examining the long-run relationship for the second objective is as follows:

$$LOG_GINI_t = \beta_0 + \sum_{i=1}^p \beta_i LOG_GINI_{t-1} + \sum_{j=0}^p \gamma_j \Delta LOG_AGRI_{t-j} + \sum_{k}^p \delta_k \Delta LOG_EDU_{t-k} + \sum_{m}^p \rho_m \Delta LOG_HEALTH_{t-m} + \sum_{n}^p \sigma_n \Delta LOG_PENSION_{t-n} + \theta_0 LOG_GINI_{t-1} + \theta_1 LOG_AGRI_{t-1} + \theta_2 LOG_EDU_{t-1} + \theta_3 LOG_HEALTH_{t-1} + \theta_4 LOG_PENSION_{t-1} + e_t \quad (2)$$

Where:

LOG_GINI_t represents the log of GINI coefficients (income inequality).

This study utilized time-series data from 1980 to 2021. The data sources include the World Bank, the Ministry of Finance Malaysia, and the Department of Statistics Malaysia's Official Portal. Specifically, GDP per capita and the Gini Index were obtained from the World Bank Database. Information on government spending in sectors such as agriculture and rural development, education and training, and health is sourced from the Official Portal of the Ministry of Finance Malaysia. Additionally, data related to Pension Payments are drawn from the journal article titled The Malaysian Government Pension Scheme and the Ministry of Finance Malaysia's Official Portal. Table 1 summarizes the variables used in this study.

Table 1: Sources of variables

Variables	Proxy	Type	Scale of Measurement	Source
Economy Growth	GDP per Capita	Dependent variable	Ringgit constant 2010 Prices	World Bank data
Income Inequality	Gini Coefficient	Dependent variable	Scale from 0 to 1 (0 indicates perfect equality; 1 indicates perfect inequality)	World Bank data
Agriculture and Rural Development	Government Spending	Independent variable	Ringgit Malaysia (RM in Million)	Official Portal of Ministry of Finance Malaysia
Education and Training	Government Spending	Independent variable	Ringgit Malaysia (RM in Million)	Official Portal of Ministry of Finance Malaysia
Health	Government Spending	Independent variable	Ringgit Malaysia (RM in Million)	Official Portal of Ministry of Finance Malaysia
Public Pension Payment	Government Spending	Independent variable	Ringgit Malaysia (RM in Million)	Journal Article, and Official Portal of Ministry of Finance Malaysia

5. Results and discussions

Table 2 provides the descriptive summary of the variables. The mean value for GDP per capita is 18,746.10 Malaysian Ringgit, with a standard deviation of 13,589.95, indicating considerable variability in GDP across the time period. The Gini coefficient ranges from 0.3390 to 0.5010, with the minimum reflecting a lower level of inequality and the maximum showing higher inequality, indicating that the income distribution was more uneven, with a larger disparity between the rich and the poor. Government expenditure on agriculture and rural development vary moderately. The spending on education and training has a relatively high degree of variability, ranging from a minimum of RM 2,228 million to a maximum of RM 56,546 million. The mean government spending on Health is RM 8,34 million, with a standard deviation of RM 8,632 million, indicating considerable fluctuation in expenditure on health services. The average spending on pension funds is quite large, with a mean of RM 312,093 million.

Table 2: Descriptive summary of the variables

Variables	Unit of Measurement	Mean	Std. dev.	Min	Max
GDP per capita	RM	18746.10	13589.95	3841	46526
Income Inequality	Gini Coefficient	0.4439	0.0342	0.3390	0.5010
Agriculture and Rural Development	(RM in Million)	2211.39	1592.347	393	5415
Education and training	(RM in Million)	22227.82	19578.06	2228	56546
Health	(RM in Million)	8344.01	8632.26	697	27873
Pension Fund	(RM in Million)	312093.90	375400.6	552.70	1281763

Table 3 displays the results of the unit root tests conducted using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. These tests were employed to assess the stationarity of the time-series data. Unit root tests are essential to ensure that none of the variables exhibit second-order integration I(2). The results indicate that all variables in this study are stationary at first

difference, thereby satisfying the preconditions required for the ARDL bounds testing procedure. Models 1 and 2 demonstrate the dynamic stability. The models successfully passed two diagnostic tests: the serial correlation test and Cumulative Sum (CUSUM) test.

Table 3: Augmented Dickey Fuller (ADF) and Phillip Perron (PP) unit root tests results

Variables	Level		1 ST Difference	
	ADF	PP	ADF	PP
GDP per capita	1.5005	1.7187	-5.2956***	-5.4115***
Gini Coefficient	-2.7727*	-2.0649	-2.4384	-2.4384
Agriculture and Rural Development	-1.6958	-1.6184	-8.5063	-8.3203***
Education and training	2.0020	1.5739	-4.2295***	-4.1319***
Health	-3.9778***	2.9341*	-2.6310*	-4.7660***
Pension Fund	1.2043	0.0656	-5.5786***	-7.5603***

Table 4 presents the estimated long-run coefficients derived from the ARDL model for economic growth (Model 1). The results indicate that government spending on both agriculture and rural development and education and training are significant determinants of economic growth (GDP) in the long run, with significance at the 10% and 5% levels, respectively. The empirical results confirm that government spending on education and training has a significantly positive impact on economic growth in the long run. This finding contrasts with the study by Zulkifli et al. (2022), which argued that government spending on the education sector has a significant negative impact on Malaysia's economic growth. However, this aligns with the research of Hota (2023), which concluded that government spending on infrastructure and education significantly boosts economic growth. The findings of this study are further supported by the example of Odisha's education system in India, which has had a considerable impact on overall economic performance.

Based on these results, this trend suggests that heavy investment in education and training is a sound policy decision by the government to stimulate Malaysia's economic growth, and the government should continue to focus on this sector. Moreover, the result is consistent with Ahmed et al. (2019), who emphasized that government spending on education is a crucial factor influencing both agricultural and economic growth. Numerous economic theories, including those of Adam Smith, Lucas, Romer, and Solow, have recognized education as a key driver of economic growth (Ahmed et al., 2019).

In contrast, government expenditure on health and pensions does not have a significant impact on economic growth. The significant long-term impact of government expenditure on agriculture and rural development, as well as education and training, suggests the importance of these sectors in driving sustainable economic growth. Specifically, the positive relationship between education, training, and economic growth highlights the role of human capital development in fostering innovation, productivity, and overall economic prosperity. Similarly, investment in agriculture and rural development can help reduce regional disparities and promote inclusive growth, especially in rural areas, where economic opportunities are often limited.

However, the lack of significant results for government spending on health and pensions in relation to economic growth suggests that these sectors may require more efficient resource allocation or complementary reforms to enhance their impact. The findings of this study are inconsistent with those of previous studies. For example, Ndaguba and Hlotywa (2021) found a positive relationship between public health expenditure and economic development in South Africa, while Hamzah (2011) identified a statistically significant and beneficial relationship between health sector spending and economic growth, suggesting that investment in this sector could directly impact economic development. Given the health sector's role in supporting economic growth and worker productivity, Hamzah (2011) argued that the government should

consider increasing investment in this sector. While health and social protection programs are essential for improving the well-being of citizens, their direct contribution to economic growth may be less immediate or may depend on additional factors such as the quality and targeting of expenditures.

Table 4: Estimated long run coefficient - Model 1

	Coefficient	Std. Error	T-Statistic	p-value
LOG(AGRI)	-0.3881	0.1950	-1.9906	0.0564*
LOG(EDU)	1.3091	0.5765	2.2707	0.0310**
LOG(HEALTH)	-0.1812	0.3962	-0.4575	0.6509
LOG(PENSION)	-0.0485	0.0375	-1.2939	0.2063
LOG(CONSTANT)	2.1303	1.0128	2.1032	0.0446**

Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 5 presents the short-run dynamics for Model 1. In the short run, none of the determinants exhibit a statistically significant impact on economic growth. The error correction term (ECT) is negative, with a coefficient of less than one, and is statistically significant. This indicates that any short-run deviation gradually adjusts towards the long-run equilibrium path. Specifically, the adjustment process is expected to take approximately 2.63 years to return to long-run equilibrium. Policymakers should recognize that the effects of their decisions may not be instantly observable, but that the gradual process of adjustment could still lead to significant long-term economic outcomes.

Government spending on pensions is a significant determinant of income inequality in the short term, although it has a negative effect. This finding aligns with Gustafsson (2022), who suggested that redistributive pension plans tend to result in higher income inequality than earnings-based pension plans. According to Gustafsson (2022), a redistributive pension scheme may even exacerbate permanent inequality if the increase in wage inequality is sufficiently substantial. This finding highlights the need for sustained investments in sectors identified in the long-run analysis (such as agriculture, rural development, and education), even if their short-term effects are less pronounced. Moreover, the adjustment process also suggests that it may take time for the economy to fully integrate the impacts of government spending in these areas, necessitating patience in assessing the outcomes of such investments.

Table 5: Short run dynamic-Model 1

	Coefficient	Std. Error	t-Statistic	p-value
Constant	0.0057	0.0219	-0.2605	0.7961
ECT_{t-1}	-0.3979	0.1038	-3.8330	0.0006***
$\Delta \text{Log Agri}$	-0.0227	0.0440	-0.5164	0.6091
$\Delta \text{Log Edu}$	-0.0240	0.2208	-0.1086	0.9142
$\Delta \text{Log Health}$	0.2129	0.2030	1.0487	0.3022
$\Delta \text{Log Pension}$	-0.0019	0.0157	-0.1213	0.9042

Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

The results in Table 6 indicate that government spending on agricultural and rural development (LOG(AGRI)) is the only significant determinant of income inequality (the Gini Coefficient) at the 10% significance level in the long run. By contrast, spending on education and training (LOG(EDU)), health (LOG(HEALTH)), and pensions (LOG(PENSION)) are not significant determinants of income inequality in Malaysia in the long run. Government spending on agriculture and rural development is negatively related to income inequality in the long run.

This finding indicates that as government spending on agriculture and rural development increases, income inequality tends to decrease, which is consistent with Lian et al. (2024), who suggested that government investment in agriculture may help mitigate income inequality. This finding suggests that targeted investment in agriculture and rural development can have a meaningful impact on reducing income disparity over time. As agriculture often employs a large proportion of the population, particularly in rural areas, increasing government expenditure in this sector may improve income distribution by creating equitable economic opportunities and enhancing rural livelihoods.

In contrast, government spending on education, health, and pensions does not appear to significantly influence income inequality in the long run. This raises important questions about the effectiveness of such expenditures in addressing income distribution disparities. While these sectors are critical for overall development, the results suggest that their direct impact on reducing income inequality may be limited, unless accompanied by specific reforms or policies aimed at targeting income redistribution more effectively.

Table 6: Estimated long run coefficient - Model 2

	Coefficient	Std. Error	t-statistic	p-value
LOG(AGRI)	-0.1867	0.0982	-1.9002	0.0681*
LOG(EDU)	0.2109	0.1830	1.1527	0.2592
LOG(HEALTH)	-0.0805	0.1381	-0.5832	0.5646
LOG(PENSION)	-0.0173	0.0221	-0.7817	0.4412
LOG(CONSTANT)	-0.5711	0.4149	-1.3766	0.1800

Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 7 presents the Short-Run Dynamics for Model 2. In the short run, the only determinant that shows a significant impact on income inequality is pension payment, which is significant at the 5% level. These results indicate that government spending on education and training is an insignificant determinant of income inequality. This aligns with Seefeldt's (2018) study, which highlights that simply increasing educational expenditure does not automatically lead to a more educated population or address income inequality. Factors such as access, quality, and type of education provided are crucial. Additionally, Parui et al. (2025) argued that government spending on health and education can reduce income inequality by promoting a more equitable distribution of human capital, although the effectiveness of such investment is a key factor in determining the extent of its impact. Furthermore, Gaddah et al. (2015) suggest that the impact of government spending on different sectors can vary, with spending on primary and secondary education being more effective in reducing inequality than spending on higher education, which tends to benefit wealthier individuals.

This finding highlights the importance of public pension schemes for addressing income inequality in the short term. Pension payments, by providing financial support to retired individuals, particularly those in lower-income brackets, help to mitigate the income gap and reduce inequality. As pension systems typically target more vulnerable segments of the population, their role in reducing income disparities may be critical in the short term. The error correction term (ECT) was negative and statistically significant, with a value of -0.2244, which satisfied the criteria for falling between zero and one. This indicates that any short-term deviation adjusts to the long-run equilibrium, with the process taking approximately 4.46 years. This implies that, while pension payments play a role in reducing income inequality in the short term, the effects of other factors may take longer to materialize. Policymakers may need to focus on strengthening the pension system in the immediate term while also addressing other structural issues that affect income inequality over a longer horizon. The significance of ECT also suggests that the economy has mechanisms in place that will adjust to equilibrium over time, providing insight into the stability of income inequality in Malaysia.

Table 7: Short run dynamic - Model 2

	Coefficient	Std. Error	t-statistic	p-value
Constant	-0.0070	0.0059	-1.1865	0.2439
ECT_{t-1}	-0.2244	0.0517	-4.3439	0.0001***
$\Delta \text{Log Agri}$	0.0163	0.0153	-1.0663	0.2940
$\Delta \text{Log Edu}$	0.0979	0.0868	1.1275	0.2677
$\Delta \text{Log Health}$	0.0297	0.0790	0.3759	0.7094
$\Delta \text{Log Pension}$	-0.0144	0.0067	-2.1648	0.0377**

Notes: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

6. Conclusions

Despite substantial government spending in sectors such as pensions, education, healthcare, and rural development, Malaysia faces persistent challenges such as rising inequality, fiscal strain, and inefficiencies in public service delivery. This study aims to fill this gap by analyzing the effects of government spending in these sectors on both economic growth and income inequality in Malaysia with the goal of informing more effective fiscal policies for the country's sustainable development. Using the ARDL model, this study examines the impact of government spending on economic growth and income inequality in Malaysia, with a focus on agriculture and rural development, education and training, health, and pensions. The research problem addressed in this study revolves around understanding the relationship between government expenditures in these key sectors and their influence on both economic growth and income inequality in Malaysia. Specifically, it seeks to determine whether increased spending in these areas positively or negatively affects the nation's economic performance and distribution of income and to what extent the allocation of resources should be adjusted for maximum long-term benefits.

In terms of economic growth, government spending on education and training has long been identified as a significant driver. This is consistent with the literature that recommends the role of education as a key determinant of economic growth. The results suggest that continued investment in education, particularly vocational training, is crucial for Malaysia's economic development. Conversely, spending on agriculture and rural development, despite being a significant determinant in the long run, showed a negative coefficient. This highlights the potential risks of overspending in this sector, with diminishing returns when government expenditures exceed certain thresholds, as discussed by Can et al. (2022). The findings have several key policy implications for Malaysia. First, policymakers should prioritize and increase investments in education, especially vocational training, to drive long-term economic growth. This aligns with the critical role of education as a determinant of economic performance. Second, although agriculture and rural development remain important for Malaysia's development, there needs to be a more strategic approach to spending in this sector. Overspending beyond a certain threshold could lead to diminishing returns; therefore, future policies should focus on optimizing resource allocation and ensuring that investments in agriculture and rural development yield the highest possible returns without overburdening public finances.

The lack of significant effects of health expenditure on both economic growth and income inequality suggests that more targeted and efficient strategies are needed to enhance the health sector's contribution to the economy. Furthermore, pension payments show an immediate but negative impact on income inequality, highlighting the need for pension policy reforms to ensure long-term sustainability and effectiveness in reducing inequality. Hence, the government should prioritize the efficient allocation of health funds, focusing on targeted healthcare initiatives, such as improving healthcare access in underserved areas and investing in preventive care, to maximize the economic impact. There is also a need to review and adjust pension systems to ensure long-term sustainability, possibly by raising the retirement age, recalibrating pension benefits based on income levels, or diversifying funding sources to reduce financial strain and mitigate the negative impacts on income inequality.

From a strategic planning perspective, this study emphasizes the importance of aligning fiscal priorities with measurable outcomes. Education should remain a central focus but not at the expense of unchecked expansion in other sectors. Agricultural and rural spending requires better targeting and monitoring frameworks to maximize returns, whereas healthcare and pensions demand structural reforms and performance-based budgeting. Policymakers could shift from generalized spending to a strategic model that ties allocation to economic and distributional objectives.

In conclusion, this study provides valuable insights into the implications of government expenditures on Malaysia's economic growth and income inequality. The results suggest that targeted spending on education and reform in other sectors such as agriculture and pensions could enhance economic performance and reduce inequality. Policymakers should use these findings as a reference to guide future fiscal policies, ensuring that the allocation of resources effectively contributes to the country's long-term prosperity.

The limitation of this study is that the scope of government spending examined excluded variables such as infrastructure investment, political stability, and global economic conditions that could influence economic growth and income inequality. Future research should incorporate these factors to better understand the dynamics between government spending, growth, and inequality.

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