

# EMPIRICAL ASSESSMENT OF PENSION FUND ASSETS ON MALAYSIAN ECONOMIC GROWTH

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## Article history

**Received date** : 30-10-2025  
**Revised date** : 1-11-2025  
**Accepted date** : 27-12-2025  
**Published date** : 29-12-2025

## To cite this document:

Said Ali Batu Shah, S. S., Zahid, P. F., & Baharudin, M. H. (2025). Empirical assessment of pension fund assets on Malaysian economic growth. *International Journal of Accounting, Finance and Business (IJAFB)*, 10 (63), 213 - 221.

**Abstract:** *This study examines the contribution of pension fund assets to economic growth in Malaysia, with a diversified pension system encompassing both defined benefit and defined contribution schemes. Focusing on Malaysia's three principal pension institutions, which are the Civil Service Pension Scheme (KWAP), the Employees Provident Fund (KWSP), and the Armed Forces Pension Board (LTAT). These schemes collectively account for the vast majority of retirement savings in Malaysia and represent distinct segments of the labour force, namely the public sector, private sector, and armed forces, which is the centred novelty of this study. Using macroeconomic and combined pension funds data, the analysis evaluates the extent to which the accumulation and allocation of pension assets contribute to Malaysia's economic growth. Overall, the results highlight that capital formation, public debt, and interest rate movements play significant roles in explaining Malaysia's economic growth. At the same time, institutional fund activities (RETF) and domestic credit expansion (DCPS) exhibit negative associations that warrant further policy consideration. The model demonstrates acceptable statistical validity and provides a sound empirical basis for subsequent policy and strategic interpretation.*

**Keywords:** *Pension, KWSP, LTAT, GDP, Malaysia*

## Introduction

Economic growth in modern economies is closely intertwined with the accumulation and allocation of long-term savings, among which pension fund assets play a particularly prominent role. Pension funds constitute one of the largest institutional investors worldwide, acting as a crucial conduit between household savings and productive investment. Through their portfolio allocations across financial instruments, such as government securities, corporate bonds, equities, and real estate, so the pension funds contribute to capital formation, financial market development, and macroeconomic stability.

While pension funds provide a stable and long-term source of capital that can stimulate economic activity, their growth-enhancing potential is contingent upon prudent asset management and sound regulatory oversight. Poorly managed pension assets may instead contribute to financial inefficiencies or expose the economy to systemic risks. Consequently, understanding how pension fund investments influence macroeconomic outcomes requires a nuanced examination that accounts for institutional design, policy constraints, and market conditions. This complexity is especially relevant for emerging economies, where pension systems are expanding rapidly, and capital markets are still evolving.

In this context, Malaysia presents a particularly compelling case for analysis. Pension funds constitute a substantial component of Malaysia's financial system, and the steady expansion of pension fund assets over recent decades has played an important role in supporting financial deepening and economic growth. As one of Southeast Asia's upper-middle-income economies, Malaysia has developed a relatively diversified pension system that encompasses both defined benefit (DB) and defined contribution (DC) schemes, covering distinct segments of the labour force. Despite the growing macroeconomic significance of pension fund assets, empirical evidence on their direct contribution to Malaysia's economic growth remains limited. A systematic investigation into the relationship between pension fund investments and macroeconomic performance is therefore essential for informing policy decisions related to retirement financing, fiscal sustainability, and long-term growth.

Malaysia's pension system is primarily composed of three major schemes: the Civil Service Pension Scheme (KWAP), the Employees Provident Fund (KWSP), and the Lembaga Tabung Angkatan Tentera, (LTAT). These schemes differ fundamentally in their institutional structures, financing mechanisms, and risk-sharing arrangements. Specifically, the KWAP operates under a defined benefit framework, under which retirement benefits are determined by final salary and years of service and are fully guaranteed by the government. In contrast, both the KWSP and LTAT function predominantly as defined contribution schemes, where retirement outcomes depend on accumulated contributions and investment returns rather than predetermined benefit formulas (Barr & Diamond, 2006).

The KWAP is a dedicated pension arrangement for public sector employees and entitles eligible retirees to a monthly service pension, a lump-sum gratuity, and cash compensation for unused annual leave of up to 180 days (Jabatan Perkhidmatan Awam [JPA], 2021). This scheme is entirely financed by government allocations, with no direct contributions required from beneficiaries. In March 2007, the Retirement Fund (Incorporated), was established under the Retirement Fund Act to manage the financial sustainability of the fund. KWAP is responsible for formulating investment policies, overseeing asset allocation, managing member accounts, administering payments, and ensuring sound financial governance (KWAP, 2013). Contributions to the KWAP are made by the federal government, state governments, and statutory bodies, with statutory bodies contributing 17.5 percent of employees' salaries and the

federal government contributing up to 5 percent of the total emolument bill. The KWAP currently covers approximately 1.5 million public sector employees (JPA, 2022), representing nearly 10 percent of Malaysia's labour force (Holzmann, 2014; JPA, 2023).

In contrast, the Employees Provident Fund, also known as Kumpulan Wang Simpanan Pekerja (KWSP), is the largest retirement savings institution in Malaysia, serving primarily private sector employees. Established in October 1951, the KWSP was designed to ensure income security during old age through mandatory savings (Narayanan, 2002). Operating under a defined contribution framework, the KWSP requires contributions from both employers and employees, as mandated by the Employees Provident Fund Act of 1991. As of 2016, employers contribute 12 percent of wages for employees earning above RM5,000 per month and 13 percent for those earning below RM5,000, while employees contribute 11 percent of their wages. With coverage extending to approximately 15 million workers, the KWSP plays a dominant role in mobilizing domestic savings and influencing capital market dynamics in Malaysia (EPF, 2023).

The Armed Forces Pension Board (LTAT), established in August 1972, constitutes another significant component of Malaysia's pension landscape. LTAT operates under a defined contribution scheme and caters specifically to non-officer military personnel with less than 21 years of service. Contributions are made by both the employer and the employee, and retirement benefits are determined by accumulated contributions and investment performance. Military personnel with 21 or more years of service, as well as commissioned officers, are instead covered under the LTAT. Given its specialized mandate, LTAT covers approximately 120,000 members (LTAT, 2023).

Collectively, these three mandatory pension schemes, the KWAP, KWSP, and LTAT have formed the backbone of Malaysia's retirement system, each designed to serve a distinct segment of the workforce: public sector employees, private sector workers, and armed forces personnel, respectively. While additional schemes such as the Private Retirement Scheme and the Basic State Scheme exist, their relatively limited coverage renders them less significant in terms of aggregate pension assets and macroeconomic impact. Consequently, this study focuses on the three principal pension funds combined (RETF), which together account for the vast majority of pension-related savings and investments in Malaysia. By examining their role in economic growth, this paper seeks to contribute to the broader literature on pension finance and development economics, while offering policy-relevant insights for countries with similar institutional structures.

## Literature Review

The selection of GDP as the dependent variable is consistent with established economic literature that investigates both long-term growth determinants and short-term macroeconomic dynamics. As a comprehensive aggregate indicator, GDP provides a suitable macroeconomic measure that can be empirically modelled to assess the effects of key explanatory factors, including pension fund assets, monetary policy conditions, fiscal variables, and capital market performance (Solow, 1956; Levine & Renelt, 1992). In the context of this study, modelling GDP as a function of pension fund asset dynamics enables an empirical assessment of the extent to which long-term savings mobilization and investment structures—particularly those associated with pension funds that contribute to aggregate economic output in Malaysia within the prevailing macroeconomic environment (World Bank, 2021).

Pension Fund Assets (PFA) administered by dedicated pension institutions, these assets constitute one of the largest sources of long-term capital in both advanced and emerging economies (Morina & Grima, 2022). While the primary purpose of pension funds is to secure adequate retirement income, their mandate also emphasizes prudent investment in financial markets to preserve and enhance asset value over time, thereby supporting the sustainability of pension payouts (OECD, 2023). Their investment portfolios are typically diversified across a broad range of asset classes. Portfolio allocation decisions are generally shaped by risk–return considerations, demographic characteristics of contributors, and prevailing regulatory and institutional frameworks (Davis, 2005; Impavido, Musalem & Tressel, 2003).

Gross fixed capital formation (GFCF), captures the extent of productive investment within an economy and plays a fundamental role in explaining how economies expand their productive capacity. Both classical and neoclassical growth theories emphasize capital formation as a central determinant of economic growth (Harrod, 1939; Solow, 1956). Moreover, within the framework of endogenous growth theory, capital accumulation is closely associated with technological advancement and productivity improvements, thereby exerting a lasting influence on long-run economic growth paths (Romer, 1990).

Domestic credit to the private sector (DCPS) represents the financial resources supplied by banks and other financial intermediaries to private economic agents, including households, non-financial firms, and, in certain instances, public enterprises. Such financing is extended through a range of credit instruments, including loans, trade credits, holdings of non-equity securities, and other receivables, all of which entail obligations for future repayment (World Bank, 2021). Inflation is included as a macroeconomic control variable given its potential adverse effects on both pension fund assets (PFA) and economic growth. From a pension fund management perspective, elevated inflation erodes real investment returns, particularly for fixed-income assets such as government securities. This erosion diminishes the real value of assets under management and may weaken the capacity of pension funds to meet their long-term obligations (Impavido, Musalem & Tressel, 2003).

Within the framework of pension systems, public debt is a key factor influencing the financial sustainability of publicly financed retirement schemes. Since governments frequently depend on fiscal resources to fulfil pension commitments, increasing debt burdens can constrain their capacity to support social security systems, especially in economies facing demographic ageing and expanding pension liabilities (Holzmann, 2013).

Empirical evidence likewise suggests a positive association between demographic dynamics, the expansion of pension assets, and overall economic performance. Bloom et al. (2007) show that favourable demographic conditions—commonly described as the “demographic dividend” can significantly enhance economic development, particularly in developing economies such as Malaysia that are experiencing demographic transitions. In addition, as pension funds tend to allocate a substantial share of their portfolios to domestic markets, population growth can further energize the financial sector by expanding the scope for productive investment of pension assets (Takayama, 2005).

Finally, from a macroeconomic standpoint, interest rates influence economic growth by shaping borrowing costs faced by households and firms. Lower interest rates tend to encourage consumption and investment, thereby supporting higher output, whereas elevated rates can dampen economic activity by raising debt servicing costs (Bernanke & Gertler, 1995). Consequently, interest rates constitute a critical component of the economic environment in

which pension funds operate, affecting both the asset side through investment returns and the liability side through payout commitments and long-term obligations.

## Methodology and Analysis

**Table 1: Description of Proxy**

Variable	Description	Symbol	Proxy/unit analysis
Gross Domestic Product	Measurement of economic growth	$GDP_t$	MYR based on year 2000 (nominal)
Pension Fund Assets	Funds of KWSP, KWAP and LTAT combined	$RETF_t$	MYR based on year 2000 (nominal)
Gross Fixed Capital Formation	Gross total country's investment of capital would consist with PFA	$GFCF_t$	MYR based on year 2000 (nominal)
Domestic Credit to Private Sector	Financial resources provided to private sector	$DCPF$	MYR based on year 2000 (nominal)
Inflation	Overall price level	$INFL_t$	Consumer price Index%
Public Debt	Obligation of federal government	$PD_t$	MYR based on year 2000 (nominal)
Population	No of citizen and non-citizen in Malaysia	$POP$	Numbers of population
Interest rate	Interest rate in Malaysia	$INT_t$	Overnight policy rate %

Based on the description of the proxy in Table 1, the model estimation would be as follows:

$$GDP_t = \alpha_t + \beta_1 RETF_t + \beta_2 GFCF_t + \beta_3 DCPF_t + \beta_4 INFL_t + \beta_5 PD_t + \beta_6 POP_t + \beta_7 INT_t + e_t$$

Economic growth is measured by gross domestic product (GDP), while pension fund assets (RETF) represent the combined funds of KWSP, KWAP, and LTAT, capturing the scale of institutional investment. Gross fixed capital formation (GFCF) serves as a proxy for overall capital investment in the economy, complementing pension fund activity. Domestic credit to the private sector (DCPF) reflects the availability of financial resources to private economic agents. Inflation (INFL) is measured using the consumer price index to capture price level movements, while public debt (PD) represents the federal government's financial obligations. Population (POP) accounts for demographic influences, and the interest rate (INT), proxied by the overnight policy rate, reflects monetary policy conditions. Based on these proxies, the model specifies GDP as a function of pension fund assets, investment, credit conditions, macroeconomic stability, fiscal position, demographic factors, and monetary policy, as expressed in the estimated regression equation.

**Table 2: Descriptive Statistics**

	GDP	RETF	GFCF	INFL	POP	PD	INT	DCPS
Mean	4.664000	597332.5	6.33E+10	2.089200	29295984	5.46E+11	2.948000	116.7120
Median	5.300000	544817.9	7.40E+10	2.030000	29660212	5.02E+11	3.000000	117.2000
Maximum	8.900000	1263494.	9.93E+10	5.440000	34100000	1.30E+12	3.500000	135.0000
Minimum	-5.500000	186318.0	2.00E+10	-1.140000	22945150	1.26E+11	1.750000	96.70000
Std. Dev.	3.015499	337202.0	2.65E+10	1.303079	3532171.	3.41E+11	0.468704	9.523056
Skewness	-1.823387	0.380775	-0.501383	0.161404	-0.277062	0.635508	-1.554348	-0.078033
Kurtosis	6.876624	1.864356	1.748553	4.054462	1.814986	2.397219	4.664373	2.656901
Jarque-Bera	29.50748	1.947550	2.678813	1.266766	1.782617	2.061280	12.95222	0.147993
Probability	0.000000	0.377655	0.262001	0.530793	0.410119	0.356779	0.001540	0.928675

Sum	116.6000	14933314	1.58E+12	52.23000	7.32E+08	1.36E+13	73.70000	2917.800
Sum Sq. Dev.	218.2376	2.73E+12	1.68E+22	40.75238	2.99E+14	2.79E+24	5.272400	2176.526
Observations	25	25	25	25	25	25	25	25

Table 2 presents the descriptive statistics for GDP growth, RETF, GFCF, INFL, POP, PD, INT, and DCPS. The average GDP growth rate over the sample period is 4.66 percent, with a median value of 5.30 percent, indicating that Malaysia experienced sustained positive economic growth on average. The minimum GDP growth rate of -5.50 percent captures periods of economic downturn associated with crisis episodes, whereas the maximum value of 8.90 percent reflects phases of strong economic expansion. The variables RETF and PD exhibit mean values of RM597,332.50 and RM5.46×10<sup>11</sup>, respectively, highlighting substantial differences in scale that are consistent with their distinct institutional roles and macro-financial dimensions. Gross fixed capital formation (GFCF) records an average value of RM6.33×10<sup>10</sup>, suggesting a moderate level of investment and capital accumulation over the study period. Inflation (INFL) averages 2.09 percent, pointing to a relatively stable price environment. The mean population (POP) is approximately 29.3 million, reflecting steady demographic growth. Domestic credit to the private sector (DCPS) averages 116.71 percent of GDP, indicating a high degree of financial intermediation. Finally, the mean interest rate (INT) of 2.95 percent suggests a generally accommodative monetary policy stance during the period under review.

**Table 3: Regression analysis using RETF as the total retirement funds**

Dependent Variable: GDP

Method: Least Squares

HAC standard errors & covariance (Prewhitening with lags = 1, Bartlett kernel, Newey-West fixed bandwidth = 3.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RETF	-1.53E-05	7.18E-06	-2.136657	0.0475
GFCF	6.05E-11	9.73E-12	6.214696	0.0000
INFL	0.613185	0.467139	1.312641	0.2067
POP	2.85E-08	2.68E-07	0.106478	0.9164
PD	1.58E-11	5.42E-12	2.905847	0.0098
INT	2.870271	0.692622	4.144064	0.0007
DCPS	-0.110524	0.042393	-2.607152	0.0184
C	3.707035	10.05442	0.368697	0.7169
R-squared	0.633422	Mean dependent var		4.664000
Adjusted R-squared	0.482477	S.D. dependent var		3.015499
S.E. of regression	2.169321	Akaike info criterion		4.641043
Sum squared resid	80.00120	Schwarz criterion		5.031083
Log likelihood	-50.01304	Hannan-Quinn criter.		4.749224
F-statistic	4.196399	Durbin-Watson stat		2.492540
Prob(F-statistic)	0.007396	Wald F-statistic		43.00990
Prob(Wald F-statistic)	0.000000			

Table 3 presents the estimation results of the multiple linear regression model. Estimation is carried out using the Ordinary Least Squares (OLS) technique, with Newey–West heteroskedasticity and autocorrelation consistent (HAC) standard errors employed to correct for potential econometric issues arising from heteroskedasticity and serial correlation.

The overall regression model is statistically significant, as evidenced by an F-statistic of 4.196 ( $p = 0.007$ ), indicating that the explanatory variables jointly exert a meaningful influence on GDP growth. The R-squared value of 0.633 suggests that approximately 63.3 percent of the variation in GDP growth is explained by the model, while the adjusted R-squared of 0.482

reflects a satisfactory level of explanatory power after adjusting for the number of regressors. In addition, the Durbin–Watson statistic of 2.49 indicates no evidence of serious autocorrelation in the residuals.

An examination of the individual coefficients reveals that gross fixed capital formation (GFCF) has a positive and highly statistically significant effect on GDP growth ( $\beta = 6.05 \times 10^{-11}$ ,  $p < 0.01$ ), underscoring the central role of investment in supporting Malaysia's economic expansion. Public debt (PD) is also positively and significantly related to GDP growth ( $\beta = 1.58 \times 10^{-11}$ ,  $p < 0.01$ ), suggesting that fiscal expansion may have contributed to economic activity over the study period. Likewise, the interest rate (INT) displays a positive and highly significant coefficient ( $\beta = 2.87$ ,  $p < 0.01$ ), implying that moderate increases in interest rates are associated with stronger growth, possibly reflecting procyclical monetary policy or favourable investment conditions.

In contrast, both RETF and domestic credit to the private sector (DCPS) exhibit negative and statistically significant relationships with GDP growth. The coefficient on RETF ( $\beta = -1.53 \times 10^{-5}$ ,  $p = 0.0475$ ) indicates that an expansion in institutional investment fund activity is associated with a marginal reduction in GDP growth, which may reflect portfolio rebalancing or defensive investment behaviour during periods of economic uncertainty. Similarly, the negative and significant coefficient for DCPS ( $\beta = -0.111$ ,  $p = 0.0184$ ) suggests that excessive private sector credit expansion may not have been efficiently channelled into productive investment, lending support to the credit misallocation hypothesis in emerging market economies. Inflation (INFL) and population (POP) both display positive but statistically insignificant coefficients ( $p > 0.05$ ), indicating that these factors do not exert a strong direct influence on short-run GDP growth within the sample period.

Overall, the findings indicate that capital accumulation, public debt, and interest rate dynamics are key drivers of Malaysia's economic growth, whereas institutional fund activity (RETF) and private sector credit expansion (DCPS) are negatively associated with growth, highlighting areas that merit closer policy scrutiny. The regression model demonstrates satisfactory statistical robustness and provides a credible empirical foundation for further policy analysis and interpretation.

## Conclusion

The empirical results derived from the regression analysis yield several important policy implications for Malaysia's macroeconomic management and financial sector development. The strong and positive effect of gross fixed capital formation (GFCF) on GDP growth highlights the central role of sustained investment in infrastructure, industrial expansion, and technological advancement in supporting long-term economic growth. Accordingly, policymakers should continue to foster both public and private investment through targeted fiscal incentives, improvements in the business environment, and measures aimed at enhancing the efficiency and depth of capital markets. Although public debt (PD) is found to be positively associated with economic growth, suggesting that government borrowing has been directed toward growth-enhancing activities, it remains imperative to preserve fiscal discipline to mitigate potential risks to debt sustainability, particularly amid heightened global uncertainty and tighter financial conditions.

The positive and statistically significant relationship between the interest rate (INT) and GDP growth further suggests that moderate increases in policy rates may reflect underlying economic

resilience and investor confidence rather than exerting a contractionary effect. This outcome is consistent with Malaysia's relatively stable financial intermediation framework. Nevertheless, monetary authorities must exercise caution to ensure that higher interest rates do not crowd out private investment or constrain credit to productive sectors. In contrast, the negative coefficients associated with RETF and domestic credit to the private sector (DCPS) point to possible inefficiencies in the allocation of institutional funds and the utilization of private credit. These findings indicate that expansions in institutional investment activity or credit provision do not necessarily translate into higher economic output, potentially due to resource misallocation toward less productive or speculative uses. Enhancing governance standards, strengthening transparency in fund management, and directing credit flows toward productive sectors, particularly small and medium-sized enterprises (SMEs) could improve the growth-enhancing role of the financial sector.

Taken together, the results suggest that Malaysia's economic growth is primarily underpinned by productive investment and effective fiscal and monetary coordination, while excessive or poorly targeted credit expansion and inefficient institutional investment may dampen growth prospects. To achieve sustainable and inclusive economic development, policymakers should therefore focus on structural reforms that improve capital allocation efficiency, ensure prudent public debt management, and strengthen the linkages between financial sector development and real economic activity.

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