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Financial Development and National Saving in ASEAN-6 Economies: Evidence from a Panel ARDL Approach

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ABSTRACT
This study examined the determinants of national saving in the ASEAN-6 economies (Singapore, Indonesia, Malaysia, Thailand, the Philippines, and Vietnam) from 2000 to 2024, with a focus on financial development as an additional determinant. Annual panel data from the World Development Indicators (WDI), the International Monetary Fund (IMF), and the ASEAN Statistical Database were analysed using the Pooled Mean Group (PMG) estimator within a panel Autoregressive Distributed Lag (ARDL) framework to capture short-run and long-run relationships. GDP, financial development, workers' remittances, and interest rates raised national saving in both the short and long run, whereas government current expenditure and budget deficits lowered it, highlighting the harmful effects of fiscal imbalances. Inflation was weakly and negatively related to national saving. Financial development had the largest effect on saving mobilisation, underscoring the need for financial sector strengthening. The long-run coefficients were positive and significant for GDP (0.483), interest rate (0.136), workers' remittances (0.218), and financial development (0.647), and negative and significant for government current expenditure (−0.352), budget deficit (−0.281), and inflation (−0.074; significant at the 10% level). Financial inclusion, economic development, and fiscal deficit reduction may boost domestic saving and minimise foreign borrowing.

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1. Introduction

National saving is crucial for economic growth and development. The reason behind this is that it gives people the money they need to spend and build wealth. When saving rates are low in new and rising economies, they often have to borrow money from other countries. This situation makes these countries more vulnerable to global financial shocks. Savings are vital to a country's economy because they greatly affect its financial health. A good savings rate is essential for all of the world's major economies. Investments act like fuel for all growing economies (Agarwal, 2001).

Keynesians believed that a country saves money for future use. People who save money are very important to the growth of any business, and this practice must be encouraged. New capital is partially based on the savings of the whole country. All of the major economies agreed that the main reasons for ASEAN's slow economic growth are that people are not saving enough and that there are differences in salaries.

The Harrod–Domar theory stressed how important saving rates and capital outflow rates are for economic growth. Saving money on capital stock is important for building up capital and getting along with other people. Savings have an effect on income division, spending, and output. It is crucial to figure out what affects national savings. Studies using household micro-data have examined the determinants of saving in Pakistan (Ahmad & Asghar, 2004; Khan et al., 2020; Akram, 2023). Pakistan wants to change the way people save money by encouraging them to save more at home and invest in people and things. The country's financial institutions are having a hard time changing people's saving habits. The USA, China, and Japan are some of the best savers in the world.

1.1 Thematic Framework

The private and public sectors of national savings include household and corporate savings. Government and enterprises accumulate public sector savings. Personal savings are triggered when income exceeds expenditures, and they can be allocated to social causes through the financial market. Business savings are the amount of a company's gains that have not been spent yet. It can be measured in this way:

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$$Y = C + I + G + NX \quad (1)$$

There is money left over after a country has used up all of its resources. This is called national saving. In a free market, anything that is not spent is thought to be saved and then invested:

$$NS = Y - C - G - NX = I \quad \text{(it should be, } NS=Y-C-G=I+NX) \quad (2)$$

$$Y - C - G = NS = I + NX \quad (3)$$

Since private and public savings make up national savings, we can break it down into its parts by adding taxes (T) to the above sum. This is what we get:

$$[(Y - T) - C] + [T - G] = I + NX \quad (4)$$

Y is the amount of money that can be spent without going into debt, and C is private consumption, such as [(Y − T) − C]. The difference between what the government brings in and what it spends is called public saving (T − G). This is the amount of money that people pay to the government. When the government brings in more money than it spends, this is known as a budget surplus. On the other hand, a budget shortfall is when spending is higher than income. In an economy with a surplus budget, savings are positive. In an economy with a deficit budget, savings are negative.

The ratio of broad money (M2) to GDP, an indication of financial depth, is used in this study to quantify financial progress. Monetary aggregates and financial assets reported as a percentage of GDP are frequently used to quantify financial depth, which represents the size of the financial sector in relation to economic activity (Beck et al., 2000, 2010; Čihák et al., 2012). Financial development, however, is a complex concept that goes beyond the scale of the financial industry. It also includes financial efficiency, which measures how well financial institutions and markets provide financial services, and financial access, which describes the availability and usage of financial services by people and businesses.

$$FD = (M2 / GDP) \times 100 \quad (5)$$

As a result, regional banking coverage, deposit account availability, the effectiveness of financial intermediation, and the larger institutional environment are not directly captured by M2/GDP. Therefore, rather than taking M2/GDP as a complete indicator of the overall financial development process, the current study analyses financial development largely through its financial-depth component. This measure offers a helpful foundation for analyzing the connection between national saving and financial development in the ASEAN-6 economies (Čihák et al., 2012; Svirydzenka, 2016).

1.2 Regional Heterogeneity and the Financial Development–National Saving Relationship

The ASEAN-6 countries show significant differences in their economic systems, how their financial sectors are developed, their institutional setups, and how their people save money. Although these countries have similar goals for regional economic integration, they vary in terms of their financial depth, access to financial services, efficiency of their banking sectors, and the development of their capital markets. Singapore has a fairly advanced and diverse financial system. Malaysia and Thailand have also built relatively robust financial intermediation and capital markets.

In contrast, Indonesia and the Philippines encounter more significant challenges in specific areas related to financial access and the development of their financial markets, whereas Vietnam has pursued a different path in its financial development. Findings from the International Monetary Fund (IMF) show significant differences in financial development within ASEAN-5, with Singapore the most advanced and the Philippines and Indonesia showing the largest gaps (Baek et al., 2023). These differences indicate that the impact of financial development on national saving can differ from one country to another.

Many studies have explored the causes of saving in Asian economies, but few have addressed ASEAN nations. Current empirical research on saving behaviour used varied nation samples, explanatory factors, and econometric methods. Evidence on the combined impacts of macroeconomic, fiscal, external, and financial variables on national saving is scattered.

Bui (2018) investigates fiscal policy and national saving in 16 emerging Asian economies from 1990 to 2016, providing substantial evidence of its impact. However, its wide regional coverage does not adequately examine ASEAN nations' fiscal, financial, and external-sector factors.

Athukorala and Suanin (2024) examine saving behaviour in developing Asia, distinguishing private and government saving and relating saving to economic development and structural change. However, its broad Asian coverage suggests that more research on the national saving factors of ASEAN nations is needed. Therefore, fiscal, remittance-related, and financial-sector mechanisms of aggregate national saving need more study.

Recent empirical studies have used Panel ARDL methods on Southeast Asian economies. Hidthiir et al. (2024) explore how financial development, oil prices, investment, and inflation affected ASEAN-5 economic growth from 1980 to 2020. Using the Panel ARDL-PMG paradigm, Nguyen (2025) examines interest rates, inflation, and economic development in Southeast Asian nations. These studies show that dynamic panel approaches can explain regional macroeconomic correlations, although they use economic growth instead of national saving.

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Thus, three crucial research gaps exist. First, additional empirical research on ASEAN national saving factors is needed, including economic growth, government spending, budget deficits, remittances, inflation, interest rates, and financial development. Second, the mixed impacts of inflation, interest rates, remittances, and financial development on saving behaviour suggest that they need additional study in a regional context. Third, macroeconomic causes may affect national saving differently over time, therefore short-run adjustments and long-run equilibrium linkages are relevant.

This research used the Panel Autoregressive Distributed Lag (ARDL) framework and the Pooled Mean Group (PMG) estimator to examine national saving drivers in six ASEAN nations to fill these gaps. The study's empirical model integrates income-related, fiscal, external-sector, and financial variables to better explain national saving behaviour than studies that concentrate on individual drivers or alternative macroeconomic outcomes. The PMG technique also allows nations to have different short-term dynamics while examining long-term ties. The study adds region-specific empirical data to national saving research and suggests ways to improve domestic resource mobilization and financial stability in ASEAN countries.

In this study, the traditional national saving framework is expanded by integrating financial development as an additional determinant within ASEAN economies. This research employs dynamic panel estimation techniques to investigate the impact of financial sector deepening on saving behaviour in emerging ASEAN economies, in contrast to previous studies that concentrate primarily on macroeconomic variables.

2. Literature Review

The existing literature identifies several determinants of national saving. According to classical theories, the primary factor influencing saving behaviour is income. After consumption requirements are satisfied, increased income results in increased savings. Keynesian theory points out the importance of psychological factors and consumption patterns. Empirical studies have also emphasized inflation, interest rates, and financial development. Higher interest rates promote saving, while inflation reduces real savings. Financial development enhances financial inclusion and facilitates access to savings instruments. Nevertheless, the majority of prior research has concentrated on single-country analysis or has disregarded regional heterogeneity. The limited research conducted on ASEAN economies using recent data and advanced panel techniques has created a distinct research vacuum.

Recent Southeast Asian research emphasizes the need to differentiate short-term and long-term macroeconomic links. Using a Panel ARDL-PMG framework for Southeast Asian nations between 2000–2023, Nguyen (2025) finds a negative long-term association between inflation and economic growth. Since this research studies economic growth rather than national saving, its results give regional macroeconomic background rather than direct proof of the inflation-saving link.

Interest rates also affect macroeconomic activity via diverse mechanisms, according to regional research. Nguyen (2025) states that higher deposit interest rates boost Southeast Asian economic activity, whereas higher lending rates raise borrowing costs and limit short-term growth. These results emphasize the necessity of separating deposit rates, lending rates, and real interest rates when studying financial incentives and saving behaviour.

Sarma and Krishna (2024) studied the determinants of remittance inflows to 12 lower-middle-income countries in South and Southeast Asia from 1998 to 2020 and found that remittance inflows are shaped by macroeconomic determinants, including financial development. This study examines remittance inflows rather than national saving, but it emphasizes the relevance of financial and institutional factors in understanding remittance-related economic activity.

Safuan and Sari (2012), in a study covering 1991–2007 for the ASEAN-5 and three major Asian economies, show that financial development variables such as domestic lending and stock market capitalization affect saving behaviour. Khan (2026) estimates the savings function for 10 developing Asian economies and also examines financial development and saving. Although their country coverage and estimation methods differ from the ASEAN-6 study, these studies offer valuable foundations.

The savings behaviour of East Asian countries is of interest for the following reasons. First, the fast-growing Asian countries in general have higher saving rates than other regions of the globe. Despite the extensive research conducted to identify the determinants of savings in developing countries, the directions of causality remain obscure (Hussein & Thirlwall, 1999; Edwards, 1996). Consequently, the sample from Asian countries offers a captivating case study for the investigation of the savings–growth nexus. Subsequently, each of these nations succeeded in attracting foreign capital. In the latter half of the twentieth century, capital inflows did not prioritize Latin American countries; rather, they directed themselves toward the more outward-looking Asian nations, as Taylor (1998) has documented. Large capital inflows may either displace or positively influence domestic savings. To ascertain the causal relationship between the two variables in a multivariate framework, we employed the broader definition of foreign savings, which is the current account deficit, in the analysis. The economies of the majority of these countries have demonstrated remarkable growth rates; however, their structures are significantly different. Additionally, Singapore and potentially Korea implemented industrialization initiatives during a period of more restricted capital mobility. The volatility of short-term

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capital flows poses an additional risk to the other countries. It would therefore be interesting to find the common traits in these nations' savings functions.

Ahmad and Ali (2024) studied the socio-economic factors of national saving in Pakistan during the period 1973–2018. The study used ARDL and ECM techniques and found that GDP, remittances, fiscal deficit, inflation, unemployment, government expenditure, and interest rate greatly influence national savings, while age dependency ratio, urban population, rural population, and government size are important social determinants. The authors suggested that macroeconomic stability and demographic considerations are crucial for improving the saving performance of Pakistan.

Chaudhry et al. (2010) conducted a research study to examine the long-run connection of national savings with several factors in which they used CPI, remittances, public loans, govt. consumption, and rate of interest as major determinants of national savings and concluded that these variables possess a long-run relationship with national savings; somehow or other these variables are cointegrated.

Vincelette (2006) evaluated the determinants of saving in Pakistan using OLS regression on data for 1973–2005 and reported that demographic change, captured by urban migration, has a positive influence on the national saving rate. Loayza et al. (2000) conducted a cross-country study in which inflation, taken as a summary measure of macroeconomic uncertainty, was among the explanatory factors of the private saving rate, and they found a positive impact of inflation on private saving.

Agrawal (2001) examined the relation between savings and growth in Asian countries using cointegration and causality tests, and found that causality runs primarily from growth to savings and that interest rates have little impact on savings.

Using micro-level home survey data and the framework of the Absolute Income Hypothesis, Khan et al. (2020) analyzed household saving behaviour in Pakistan. The research revealed that income has a positive effect on saving, while the dependence ratio, family size, and age harm saving behaviour. Results demonstrated the importance of demographic and socio-economic factors in shaping family savings.

Akram (2023) analyzed family savings behaviour using data from the Household Integrated Income and Consumption Survey (HIICS). The researchers concluded that income, property ownership, remittances, and agricultural engagement raise savings while the dependence ratio lowers savings using micro-data analysis. The findings show how social and economic factors influence household saving decisions.

Jakhro et al. (2025) analyzed the determinants of savings and investment in Pakistan employing the Two-Stage Least Squares (2SLS) method over the period from 1999 to 2023. The research indicated that remittances play a strong role in raising savings, that foreign direct investment is critical in inducing investment, and that GDP growth has an insignificant relationship with savings; the authors therefore advised attracting foreign direct investment, maintaining growth, and mitigating inflation.

Munir (2023) conducted a Panel ARDL assessment of the macroeconomic drivers of savings in South Asia. The result of the research shows that GDP per capita growth, exports, and money supply have a positive impact on savings, whereas foreign direct investment has a negative impact on domestic savings. The findings confirm the importance of macroeconomic stability in fostering savings.

Valera et al. (2025) examined the determinants of financial inclusion in Southeast Asia, covering bank account ownership, formal saving, and formal borrowing. They found that income, educational attainment, employment, and mobile phone ownership are positively associated with all three indicators, and that costs, bank proximity, lack of trust in financial institutions, and documentation requirements are key barriers to opening a bank account. Financial inclusion may therefore support national saving by widening access to formal saving.

Nam et al. (2024) used the nonlinear panel estimate to examine the association between financial openness and financial development. The research indicated that a moderate level of financial openness is conducive to financial growth, whereas excessive openness may lead to instability. The research indicates that the expansion of the financial sector impacts saving behaviour via positive and negative channels.

3. Material and Method

3.1 Data Sources

This research relied on yearly panel data for a data set for the years 2000–2024 for ASEAN-6 nations. These nations include Singapore, Indonesia, Malaysia, Thailand, the Philippines, and Vietnam. These countries were selected due to the availability of higher-quality data, diverse saving behaviour, and strong econometric results. Panel data for the aforementioned countries were collected from the World Development Indicators (WDI), the International Monetary Fund (IMF), and the ASEAN Statistical Database.

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3.2 Empirical Model

The review of literature posited that an effective econometric model was necessary. The econometric model widely encompasses all significant social and economic determinants of national savings in the ASEAN-6 economies. Every significant variable that has an impact on national savings is addressed in the economic model. It comprised the following metrics: Gross Domestic Product (GDP), Budget Deficit (BD), Interest Rate (IR), Government Current Expenditure (GCE), Inflation Rate (INF), Workers' Remittances (WR) and Financial Development (FDV). So, the empirical model is as follows:

$$NSit = \beta 0 + \beta 1GDPit + \beta 2GCEit + \beta 3BDit + \beta 4WRit + \beta 5INFit + \beta 6IRit + \beta 7FDVit + \varepsilon it \quad (6)$$

where NS = national savings; GDP = gross domestic product; GCE = government current expenditure; BD = budget deficit; WR = workers' remittances; INF = inflation; IR = interest rate; FDV = financial development variable (M2/GDP); and εit is the error term.

3.3 Description of the Variables

In the above model, the dependent variable, National Saving (NS), is employed. The GDP is the total market value of all products and services produced in a given country. Data are expressed as a percentage of GDP. The net foreign factor income in the economy is the difference between the payments made to domestic individuals from foreigners and foreign individuals to domestic citizens.

Total government revenues minus total expenditures are referred to as Budget Deficits (BD). If expenditures exceed revenues, the resulting figure is referred to as a budget deficit. Conversely, if expenditures exceed revenues, a budget surplus is established according to Hutchison (1992). The general government final consumption expenditures (GGFC) were used as a proxy for government current expenditures (GCE) due to their reliability and closeness to the definition of GCE. The aggregate of all current government expenditures for the acquisition of products and services is represented by these (GGFC) expenditures. Additionally, these expenditures encompass compensation for employees, national defence, and security. However, it did not encompass the government's military expenditures. Budget deficits reduce government saving and, through it, national saving (Hutchison, 1992).

The Interest Rate (IR) is the rate that banks charge on their loans; Desroches and Francis (2010) examine the role of real interest rates in global saving and investment. Inflation Rate (INF) is the term used to describe the cost of living. The Consumer Price Index (CPI) is a measure of inflation. FDV is the Financial Development Variable, for which a proxy of broad money was used. It is calculated as M2/GDP.

4. Empirical Results

Table 1 illustrates the descriptive statistics, reporting the central tendency and dispersion of the important macroeconomic variables. National Saving's mean value of 29.45 and standard deviation of 8.72 indicate substantial variability across the study period. The lowest (11.23) and highest (52.67) values imply that national savings fluctuated throughout time, potentially due to income levels, fiscal policies, or macroeconomic stability. GDP has a 5.18 mean and 3.42 standard deviation. A negative minimum (−13.12) and a high of 14.53 suggest economic decline and growth. External shocks or structural modifications may explain this large range of economic volatility.

Average Government Current Expenditure is 13.21 and the standard deviation is 4.15. The values range from 5.31 to 24.87, indicating a constant but growing fiscal expenditure tendency. This variable may change with government goals, development funding, or fiscal policies. The average budget deficit is −2.83. A standard deviation of 3.76 and a range from −12.56 to 8.45 indicate considerable variations, including infrequent surplus periods (positive values) and severe deficit episodes. This shows fiscal instability and shifting revenue–expenditure balances.

Workers' remittances are very variable with a mean of 3.95 and a standard deviation of 4.28. Remittance inflows fluctuate over time, presumably owing to labour migration patterns, global job conditions, or currency rate fluctuations, ranging from 0.02 to 18.72. Price instability in the economy is shown by inflation's mean of 4.61 and largest standard deviation (5.73). Macroeconomic shocks, supply-side limitations, or monetary instability may cause deflation and very high inflation in the range of −1.32 to 58.39.

Table 1. Descriptive statistics.

Variable	Mean	Std. Dev.	Min	Max
National Saving	29.45	8.72	11.23	52.67
Gross Domestic Product	5.18	3.42	−13.12	14.53
Government Current Expenditure	13.21	4.15	5.31	24.87
Budget Deficit	−2.83	3.76	−12.56	8.45
Workers' Remittances	3.95	4.28	0.02	18.72
Inflation	4.61	5.73	−1.32	58.39
Interest Rate	3.24	4.17	−12.76	18.43
Financial Development	0.48	0.21	0.09	0.91

Note. $N = 6$ countries; $T = 25$ years (2000–2024). Variables expressed as percentages of GDP except *FDV* (ratio, M2/GDP).

The Interest Rate has a 3.24 mean and 4.17 standard deviation. The large range from −12.76 to 18.43 suggests considerable monetary policy or financial market volatility. Policy changes or real interest rate distortions may cause negative values. The financial sector developed gradually and steadily, as seen by its low mean of 0.48 and standard deviation of 0.21. Although slower than more volatile macroeconomic measures, the range from 0.09 to 0.91 implies increasing financial deepening. Financial development is solid, while inflation, GDP, and fiscal indicators are more volatile.

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According to Table 2, National Saving (NS), GDP, GCE, BD, WR, INF, IR, and Financial Development (FDV) are correlated. Results show a combination of positive and negative associations of various strengths. National Saving has a somewhat positive connection with GDP (0.51), showing that increased economic production increases savings. The National Saving and Financial Development (0.58) connection is likewise positive, showing that a highly developed financial system encourages savings mobilization. However, NS is inversely connected with Government Current Expenditure (−0.36) and Budget Deficit (−0.42), suggesting that increased public expenditure and fiscal imbalances diminish national savings.

Table 2. Correlation matrix.

Variable	NS	GDP	GCE	BD	WR	INF	IR	FDV
National Saving (NS)	1.00							
Gross Domestic Product (GDP)	0.51	1.00						
Government Current Expenditure (GCE)	−0.36	−0.14	1.00					
Budget Deficit (BD)	−0.42	−0.23	0.29	1.00				
Workers' Remittances (WR)	0.31	0.18	−0.11	−0.08	1.00			
Inflation (INF)	−0.17	−0.12	0.15	0.19	−0.04	1.00		
Interest Rate (IR)	0.24	0.11	−0.05	−0.16	0.08	−0.34	1.00	
Financial Development (FDV)	0.58	0.47	−0.21	−0.29	0.15	−0.25	0.19	1.00

GDP is favourably associated with Financial Development (0.47), weakly related to Workers' Remittances (0.18), and weakly negative with Government Current Expenditure (−0.14) and Budget Deficit (−0.23). This shows that finance sector expansion and decreased budgetary strain are linked to higher economic performance. Government current expenditure is positively correlated with budget deficit (0.29), implying that more government spending causes bigger fiscal deficits. Inflation is mildly favourably connected with GCE (0.15) and BD (0.19) but negatively correlated with National Saving (−0.17) and Financial Development (−0.25), suggesting that inflation may somewhat affect saving behaviour and financial sector efficiency.

Interest Rate is weakly positively correlated with National Saving (0.24) and Financial Development (0.19) and negatively correlated with Inflation (−0.34) and Budget Deficit (−0.16). Higher interest rates may boost savings but cut inflation. Workers' remittances have a mild positive association with NS (0.31) and GDP (0.18), encouraging savings and economic activity. The connections indicate that GDP and Financial Development enhance National Saving, but fiscal imbalances such as government spending and budget deficits hurt it.

The panel unit root test shown in Table 3 establishes the stationarity of the chosen macroeconomic variables at level and first difference, which helps in selecting the best econometric modelling strategy. The variables are integrated of mixed order. As shown by statistically significant test results (***), GDP, INF, and IR are stationary at level, indicating they are integrated of order zero, I(0). This means these variables have no unit root and a steady mean and variance.

Table 3. Panel unit root test.

Variable	Level	First difference	Order
National Saving	−1.12	−8.41***	I(1)
Gross Domestic Product	−3.75***	–	I(0)
Government Current Expenditure	−0.86	−7.52***	I(1)
Budget Deficit	−1.33	−9.16***	I(1)
Workers' Remittances	−0.74	−10.27***	I(1)
Inflation	−2.89***	–	I(0)
Interest Rate	−3.21***	–	I(0)
Financial Development	−0.94	−11.02***	I(1)

Note. *** $p < .01$.

National Saving (NS), Government Current Expenditure (GCE), Budget Deficit (BD), Workers' Remittances (WR), and Financial Development (FDV) are non-stationary at level but become stationary after the first difference, indicated by highly significant test statistics. To establish stationarity, these variables must be differenced once since they are integrated of order one, I(1). Results show that the dataset includes I(0) and I(1) variables. ARDL (Autoregressive Distributed Lag) models are ideal for mixed integration orders because they can handle both stationary and first-difference stationary series. GDP, inflation, and interest rates have stable long-run behaviour at level, whereas the other variables have time-dependent patterns that only stabilize after differencing, emphasizing the need for careful model selection in further research.

Table 4 shows the long-run panel ARDL (PMG) findings, which indicate the equilibrium link between National Saving and the selected macroeconomic variables. The coefficients show the direction and amplitude of the long-run effects, whereas t-statistics and probability values show statistical significance. GDP positively and significantly affects national saving (coefficient = 0.483, p = 0.000). In the long term, a one-unit rise in GDP increases national saving by 0.483 units, demonstrating that economic expansion greatly boosts saving capacity.

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Table 4. Panel ARDL (PMG) long-run results.

Variable	Coefficient	Std. Error	t-Statistic	p-value
Gross Domestic Product	0.483	0.091	5.31	0.000
Government Current Expenditure	−0.352	0.108	−3.26	0.001
Budget Deficit	−0.281	0.096	−2.93	0.004
Workers' Remittances	0.218	0.083	2.63	0.009
Inflation	−0.074	0.041	−1.81	0.071
Interest Rate	0.136	0.057	2.39	0.018
Financial Development	0.647	0.112	5.78	0.000

Note. Dependent variable: National Saving.

Higher government expenditure decreases national saving (−0.352, p = 0.001). Increased public consumption may cancel out private savings. Budget deficit also negatively affects national saving (−0.281, p = 0.004), demonstrating that higher fiscal imbalances impair national saving due to increasing government borrowing and fiscal restraint. Inflows of foreign income from workers overseas favourably and substantially increase national saving (0.218, p = 0.009), probably by raising family discretionary income. Inflation has a negative but only marginally significant impact (−0.074, p = 0.071). This implies that increasing inflation reduces savings, but only significantly at the 10% level.

Higher interest rates increase the return on deposits and financial assets, encouraging saving (0.136, p = 0.018). The largest beneficial impact (0.647, p = .000) is that a more developed financial system improves national saving by boosting access to financial services, resource mobilization, and investment possibilities. The findings show that GDP growth, financial development, remittances, and interest rates increase National Saving, whereas government spending and budget deficits decrease it. The negative impact of inflation is modest. This shows that macroeconomic stability and banking sector expansion boost long-term savings.

The Pooled Mean Group (PMG) estimator's short-run findings show how macroeconomic factors affect National Saving immediately. The coefficients on first-differenced variables (Δ) indicate short-term volatility, not long-term equilibrium effects. Increases in GDP have a substantial positive effect (0.211, p = .002), indicating that economic activity leads to increased national saving right away. Higher short-term income directly boosts saving. In the near term, government expenditure has a substantial negative impact on national saving (ΔGCE = −0.148, p = .006), possibly owing to increased public consumption and decreased private savings space. A negative and substantial impact (ΔBD = −0.117, p = 0.011) of budget deficit suggests that short-term fiscal imbalances hinder national saving by increasing borrowing needs and reducing fiscal stability.

Table 5. Pooled Mean Group short-run results.

Variable	Coefficient	Std. Error	p-value
ΔGDP	0.211	0.067	0.002
ΔGCE	−0.148	0.053	0.006
ΔBD	−0.117	0.046	0.011
ΔWR	0.082	0.038	0.031
ΔINF	−0.036	0.021	0.086
ΔIR	0.051	0.024	0.034
ΔFDV	0.274	0.081	0.001

Note. Dependent variable: National Saving.

Workers' Remittances (ΔWR) favourably impact national saving (0.082, p = 0.031), indicating direct support for household savings. Rising inflation (ΔINF) has a marginally significant negative impact on savings (−0.036, p = .086). Higher interest rates (ΔIR) positively affect short-term savings by increasing deposit returns (0.051, p = .034). Financial Development (ΔFDV) significantly improves saving behaviour by improving access to financial instruments and services (0.274, p = 0.001). The short-run findings show that National Saving reacts swiftly to income, financial development, remittances, interest rates, and fiscal factors. The direction of effects matches the long-run outcomes, indicating stability in the economic connection.

Diagnostic tests determine whether the PMG panel model meets econometric assumptions including cross-sectional dependency, serial correlation, heteroskedasticity, and residual normality. The findings show that the model is generally well specified. A significant Breusch–Pagan LM test (18.52, p = 0.000) suggests heteroskedasticity or cross-sectional dependency in the panel. This suggests that error variances may vary among units in macro panel data.

Table 6. Diagnostic tests.

Test	Statistic	Probability
Breusch–Pagan LM	18.52	0.000
Pesaran CD	1.42	0.156
Wooldridge autocorrelation	1.83	0.179
Jarque–Bera	2.16	0.339

Note. The Breusch–Pagan LM result is significant;

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The Pesaran Cross-Sectional Dependence (CD) test is negligible (1.42, p = 0.156), showing no prominent panel unit cross-sectional dependence. This validates pooled estimate assumptions. The Wooldridge autocorrelation test is negligible (1.83, p = 0.179), indicating no first-order serial correlation in the residuals. This suggests the model has no dynamic autocorrelation misspecification.

Finally, the Jarque–Bera test is negligible (2.16, p = 0.339), showing normally distributed residuals. This facilitates statistical inference from standard errors and test statistics. The diagnostic findings show that the model does not have major cross-sectional dependency, autocorrelation, or non-normality difficulties, although the Breusch–Pagan test suggests modest heteroskedasticity or variance instability. This strengthens PMG estimation findings.

5. Conclusion

Over the course of the period 2000–2024, this research investigated the factors that determine the level of national saving in the economies of the ASEAN-6 nations (Singapore, Indonesia, Malaysia, Thailand, the Philippines, and Vietnam), with a specific focus on the role that financial development plays in this phenomenon. With the use of an ARDL technique and a dynamic panel framework based on the Pooled Mean Group (PMG) estimator, the research was able to capture both the short-run dynamics and the long-run equilibrium linkages that exist between national saving and important macroeconomic variables.

Both in the short run and in the long run, the empirical data demonstrate that economic growth (GDP) and financial development are the most significant drivers of national saving. The most significant beneficial effect is represented by financial development, which highlights the crucial role that developing the financial sector plays in facilitating the mobilization of savings, boosting the accessibility of financial resources, and improving the efficiency with which resources are allocated among ASEAN countries. In a similar vein, the expansion of GDP leads to a considerable increase in savings, which lends credence to the widely held belief that higher income levels are correlated with increased capacity for saving.

On the fiscal side, current expenditures by the government and budget deficits have a persistently negative impact on the amount of money that is saved by the country. Based on these findings, it seems that fiscal imbalances and expansionary state expenditure have a tendency to crowd out private savings and undermine the overall performance of the nation's savings. The fact that workers' remittances continuously make a positive contribution to savings is evidence of the significance of these payments as an external source of family income that serves to encourage the accumulation of financial assets.

Inflation has a mild and somewhat negative effect on saving, which suggests that macroeconomic instability may undermine saving incentives. However, the effect of inflation is less strong when compared with the effect of other factors. On the other hand, interest rates show a positive and statistically significant impact, which lends credence to the conventional viewpoint that greater returns on financial assets encourage individuals to engage in saving behaviour.

There is a significant degree of similarity between the short-run outcomes and the long-run dynamics, which suggests that the behavioural correlations remain stable and consistent over time. Diagnostic tests show that the model is generally well specified, with no significant difficulties with autocorrelation, cross-sectional dependency, or non-normality, although modest heteroskedasticity is observed.

In general, the findings of the research indicate that growing national saving in ASEAN nations requires macroeconomic stability, sound fiscal management, and notably the expansion of the banking sector. When it comes to increasing the region's long-term saving performance, the policy actions that are targeted at expanding financial inclusion, maintaining budgetary discipline, and supporting economic growth are likely to have the most substantial influence.

5.1 Policy Recommendations

These analyses showed that financial development, macroeconomic stability, and efficient fiscal policies boost ASEAN-6 national savings. Policy should account for regional differences in financial development, institutional capability, and economic structure. A consistent policy approach may have diverse outcomes in different nations.

First, ASEAN officials should make formal financial services more accessible, affordable, and reliable to boost financial-sector growth. Countries with limited banking access, particularly rural and low-income regions, should promote branchless banking, mobile financial services, inexpensive digital accounts, and easy-to-reach deposit products. These approaches may help households switch from informal to formal savings, which boosts national deposits. In well-developed financial systems like Singapore and Malaysia, policy initiatives should focus on increasing financial product variety, institution efficiency, consumer protection, and trust in long-term savings and investment tools.

Second, financial inclusion policies should incorporate stronger financial literacy initiatives. Governments, central banks, and financial institutions should promote budgeting, saving in formal accounts, adopting digital payment systems, and borrowing responsibly. Rural families, women, small business owners, and low-income people need special attention. Such activities may help families make better financial decisions and embrace formal savings strategies.

Third, authorities should promote value-creating investments rather than spending-focused borrowing. Better credit availability may stimulate economic activity, but unregulated consumer lending may raise debt and erode family savings. Thus, ASEAN nations should strengthen responsible lending, credit information systems, financial consumer protection, and financial institution monitoring. This will ensure financial sector development promotes sustainable saving and investment.

Fourth, economic growth strategies should prioritize infrastructure, skills, education, new technologies, and corporate efficiency. Transportation, electricity, schools, hospitals, and internet infrastructures should be government priorities.

Fifth, financial control requires greater income collection, expenditure management, and public fund administration. Governments should eliminate unnecessary and ineffective expenditure while supporting economic-growing public

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initiatives. Fiscal consolidation must be done carefully to protect education, healthcare, infrastructure, and other vital expenditure sectors that boost the economy and develop savings.

Sixth, governments should encourage workers' remittances to fund formal domestic savings and investment. Governments must cut sending prices, provide secure methods to transmit money, and improve bank services for receiving households.

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