GOVERNANCE PERSPECTIVES ON BUDGET DEFICIT AND ECONOMIC GROWTH: EMPIRICAL INSIGHTS FROM ASEAN ECONOMIES

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Abstract

The paper investigates the relationship between budget deficits and economic growth in Vietnam and the Association of South East Asian Nations (ASEAN) countries from 2011 to 2022. Given the increasing fiscal imbalances, particularly exacerbated by the COVID-19 pandemic, understanding the influence of budget deficits on economic performance is crucial for policymakers. Using panel data regression models such as ordinary least squares (OLS), fixed effects model (FEM), random effects model (REM), and feasible generalized least squares (FGLS), the study examines three main questions: the relationship between budget deficits and economic growth, the effect of budget deficits on economic performance, and recommendations for improving economic performance in Vietnam and other ASEAN countries. The results reveal that budget deficits have a significant negative impact on economic growth in the ASEAN region. Specifically, there is a clear inverse relationship between government expenditure and budget deficits. The study suggests that reducing budget deficits could boost economic growth. Additionally, the study examines other variables affecting economic growth, such as domestic savings, investment, inflation, government spending, and domestic credit. The findings provide strong justification for enacting measures to lower budget deficits and promote sustainable economic growth in Vietnam and ASEAN countries.

Keywords: Budget Deficit, Economic Growth, Government Expenditure, National Savings, Vietnam

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1. INTRODUCTION

The state budget is not only an economic category but also a historical one. The formation, along with the development of the state budget, is associated with the emergence of the state and the introduction of a commodity-monetary economy. The state budget serves to carry out the functions and responsibilities of the government and is used as a macroeconomic tool in multiple nations. Several theoretical and empirical studies have been conducted to examine the correlation between budget deficits and macroeconomic indicators. However, there are varying schools of thought on how government budget deficits impact economic growth. According to neoclassical economics, budget deficits result in a short-term increase in current consumption but a long-term decline in private investment. Keynesian economists, conversely, advocate government intervention through greater

government spending or tax reductions to stimulate aggregate demand, hence increasing output and reducing unemployment. In contrast to the perspectives of neoclassicism and Keynesianism, the Ricardian equivalence theory asserts that macroeconomic conditions are not influenced by government decisions.

The COVID-19 pandemic, starting in December 2019, has negatively affected economies globally owing to the high level of integration and interdependence in the global supply networks. Rasul et al. (2021) found that COVID-19 is expected to raise fiscal deficit and monetary burden, thereby increasing the risks of macroeconomic instability. This is expected to exacerbate poverty, raise unemployment rates, increase the likelihood of hunger and food insecurity, and hinder economic progress. According to statistics from the Asian Development Bank (ADB, 2021), several Asian developing countries are facing significant negative fiscal balances because of the effects of the coronavirus pandemic. A fiscal imbalance arises when a government's expenditures exceed its income from taxes and other sources of revenue. In 2020, the pandemic negatively impacted several economies in the area by causing a substantial decrease in government income due to delayed industry and trade, along with notable increases in government spending to address the health, economic, and social consequences of the virus. Myanmar and Brunei are examples of countries experiencing considerable fiscal deficits in 2020 and 2021. During this period, the gross domestic product (GDP) of these nations fell substantially in comparison to other nations with smaller budget deficits. This implies that the effective allocation of the state budget will positively affect the economy. Considering the COVID-19 pandemic, it is crucial to examine the effect of budget balance on economic growth to stimulate the economic development of the Association of South East Asian Nations (ASEAN) nations in general and Vietnam in particular. Moreover, in Vietnam, there is hardly any literature on the relationship between economic growth and budget deficit. Van and Sudhipongpracha (2015) conducted an inquiry into the effects of fiscal deficits on economic development from 1989 to 2011. However, their findings showed the absence of a correlation between budget deficit and economic growth. On the contrary, some studies in Vietnam concluded that budget deficits negatively affect economic growth, while some even showed that fiscal deficit can foster economic growth. It is noticeable that the conclusions about the impact of budget deficits on economic growth are inconsistent. Therefore, the research topic was chosen for this paper.

In this study, the focus is on analyzing the impact of budget deficits on economic growth in Vietnam and ASEAN. Firstly, we built an empirical model to examine the effect of budget deficits on economic performance. Secondly, we utilized a regression model with panel data from ASEAN over the period 2011–2022 to analyze the impact of fiscal deficit on the economy. Based on the regression model, the study focused on answering the following questions:

RQ1: Is there a relationship between budget deficit and economic growth in ASEAN?

RQ2: How does the budget deficit affect the economic performance in ASEAN?

RQ3: What are the recommendations to improve the economic performance in Vietnam and other countries in the coming period?

In the context of deepening economic integration, Southeast Asian countries share significant cultural, economic, and social similarities with Vietnam, making this region a compelling focus for studying the broader and more nuanced impacts of budget deficits. Previous research within the ASEAN region has often been constrained by limited datasets, capturing only partial spatial and temporal dimensions, or neglecting critical factors such as national savings, government expenditure, and domestic credit to the private sector. This study addresses these shortcomings by incorporating data from all 10 ASEAN countries, rather than restricting the scope to just a few nations. By adopting this comprehensive approach, the research not only enhances the accuracy of the findings but also deepens the understanding of the relationship between budget deficits and economic growth. Moreover, this study introduces an innovative interaction term — budget deficits and political stability and absence of violence or terrorism (BDPOL) — which captures the interplay between budget deficits and political stability, a novel variable that has not been explored in prior studies. By integrating this unique factor into the model, the research provides new insights into the mitigating role of political stability in fiscal challenges. Consequently, the findings not only improve the accuracy of the results but also deepen understanding of the complex relationships between fiscal variables and economic growth. Additionally, these contributions provide valuable insights that inform practical policy recommendations, enhancing the academic discourse and policymaking processes for Vietnam and the ASEAN region as a whole.

The paper is structured as follows. Section 2 presents the theoretical framework and an overview of previous studies related to budget deficits and economic growth. Section 3 outlines the research methodology, including data collection and econometric models employed. Section 4 discusses the key findings derived from statistical and econometric analyses. Finally, Section 5 provides conclusions and policy recommendations to optimize fiscal management and promote sustainable economic growth.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. Theoretical basis

Economic growth theory is a pivotal branch of economics that seeks to elucidate the causes, conditions, and implications of increases in a nation's wealth and output. Within this field, there is significant debate among economic schools regarding the relationship between budget deficits and economic growth. Historically, many economists have proposed notable hypotheses on the connection between budget deficits and economic expansion. Each hypothesis, influenced by variations in space, time, and context, possesses its own strengths and weaknesses, rendering it challenging for any single hypothesis to explain all aspects of this phenomenon comprehensively. One school of thought suggests that budget deficits can spur economic growth by boosting aggregate demand. Conversely, another perspective argues that budget

deficits may hinder economic growth by crowding out private investment and driving up interest rates. The empirical data on this topic is diverse and reliant on a number of factors, such as the size, timing, and composition of the deficit, prevailing economic conditions, and the monetary policy position. Several well-known theories of economic growth are categorized according to their time of inception and development.

2.1.1. Keynesian theory

The Keynesian school, founded on the ideas of John Maynard Keynes (1936), argues that fiscal stimulus is essential during economic downturns to boost output and employment. In this view, budget deficits can be beneficial, particularly when the economy operates below its full potential. By increasing government spending or reducing taxes, the government stimulates aggregate demand, leading to higher consumption and investment. This process triggers a multiplier effect, where each unit of deficit spending generates more than a one-unit increase in income and output. However, as government debt accumulates over time, interest payments rise, potentially diminishing the positive effects.

2.1.2. Neoclassical theory

The neoclassical perspective, rooted in rational expectations, efficient markets, and price flexibility, asserts that budget deficits negatively impact economic growth in both the short and long run (Swan, 1956). When government spending surpasses tax revenues, borrowing becomes necessary, creating competition for financial resources between the public and private sectors. This crowding-out dynamic leads to rising interest rates, discourages private sector investments, and reduces capital stock. Furthermore, expectations of higher future taxes discourage labor participation and entrepreneurship, ultimately slowing potential output and economic growth. Unlike Keynesian theory, which emphasizes short-term stimulus, the neoclassical school highlights the long-term consequences of fiscal imbalances, arguing that sustainable growth requires balanced budgets and prudent fiscal management.

2.1.3. Ricardian equivalence theory

Originating from the work of David Ricardo, the Ricardian equivalence theory suggests that budget deficits have no substantial impact on economic growth (Barro, 1989). It posits that when governments borrow, rational economic agents anticipate future tax increases to repay the debt and consequently adjust their savings and consumption behavior. Any increase in government spending or reduction in tax rates is offset by a corresponding decrease in private expenditure, leaving aggregate demand unchanged. This theory implies that fiscal policy is largely ineffective in stimulating economic growth, placing greater importance on monetary policy for macroeconomic stabilization. However, Ricardian equivalence relies on unrealistic assumptions, such as perfect foresight and efficient financial markets. Empirical evidence challenges this theory, showing that fiscal policies do influence consumption and output, particularly in the short term (Blanchard & Perotti, 2002).

2.1.4. Endogenous growth theory

Endogenous growth theory explains economic growth as driven by internal factors such as human capital, technological advancement, and investment in innovation. Unlike traditional growth models, which emphasize external factors like capital accumulation, this theory suggests that government policies can directly influence long-term growth. Budget deficits, when used effectively, can enhance economic expansion by financing critical public goods and services, such as infrastructure, education, and healthcare, which improve productivity and foster innovation. Additionally, government spending on research and development can generate positive spillover effects, benefiting the private sector and increasing overall economic efficiency.

However, if deficits are mismanaged, they can hinder growth by increasing public debt burdens and reducing private-sector investment. Excessive borrowing may raise interest rates, limit access to capital, and weaken investor confidence, ultimately slowing economic progress. To ensure fiscal sustainability, policymakers should adhere to the "golden rule" of public finance, which states that government borrowing should not exceed public investment. By following this principle, governments can balance short-term economic stimulus with long-term fiscal responsibility, fostering stable and sustainable growth.

2.2. Literature review

Over several decades, many economists have employed diverse methodologies to examine the relationship between state budget deficits and economic expansion. Yet, due to differences in scope, research objects, and dissimilar contexts and conditions, there is a lack of consistency in the research findings. A few international studies pertinent to the subject are examined and summarised in the following section.

Utilizing data from 70 developing nations spanning two time periods (1970–1979 and 1980–1989), Nelson and Singh (1994) examined the effect of budget deficits on GDP growth rate. GDP growth rate serves as the dependent variable. The study's explanatory variables include budget deficit, revenue, defense spending, domestic public and private investment, population, growth rate, per capita income, education, and inflation rate. Ghura (1995) examined the impacts of macroeconomic policies on nominal income growth, inflation development, and output growth by collecting data from 33 low-income countries in Africa spanning 1983 to 1970. As indicated by empirical findings, a rise in the budget deficit ratio exhibits an adverse influence on the expansion of economic output within the examined nations throughout the specified time frame. Fatima et al. (2012) examined their findings regarding how the budget deficit affected Pakistan's economic growth from 1978 to 2009. The research was carried out by using a regression model comprising the following variables: gross domestic investment, budget deficit, inflation, exchange rate, real interest rate, and GDP. Hassan and Akhter (2014) conducted an extensive investigation into the correlation between the GDP, inflation rate, real interest rate, real effective exchange rate, budget deficit, and gross domestic investment in Bangladesh. The researchers used the error correction vector model to analyze this relationship. Mrwebo (2013), who examined the effect of budget deficits on

economic growth in South Africa using the error correction vector model, also reached the conclusion that budget deficits have a negative long-term influence on economic growth, although an insignificant one. The author obtained data spanning from 1990 to 2012, and the model incorporates the following variables: trade openness, budget deficit, GDP, domestic activities, and government debt. Masheed et al. (2024) utilized data spanning the period 1973–2022 for Pakistan and 2002–2022 for Afghanistan, alongside the autoregressive distributed lag (ARDL) procedure, to estimate their model and investigate the impact of the fiscal deficit on economic growth. The study revealed that, over the long term, the fiscal deficit negatively influenced GDP growth in Pakistan. Similarly, the national debt exerted an adverse effect on GDP growth in Afghanistan. Furthermore, in the short term, the fiscal deficit exhibited a negative impact on GDP growth in Pakistan, while the national debt demonstrated a similar detrimental effect on GDP growth in Afghanistan. Consequently, the study concluded that the fiscal deficit harmed GDP growth and contradicted the Keynesian theory regarding fiscal deficits in both Pakistan and Afghanistan. The study therefore recommended that governments should increase revenues to address expenditures, aiming to eradicate or mitigate fiscal deficits and national debt. In contrast to the above studies, using the ordinary least squares (OLS) regression model to study the impact of budget deficits and interest rates on the economic growth of East African countries from 2004 to 2013, research conducted by Magehema (2015) concluded that budget deficits have a positive impact on economic growth and the results are consistent with the Keynesian school. Particularly, the model calculates the GDP growth rate using the variables budget deficit, inflation rate, foreign exchange rate, and interest rate. Furthermore, the author intends to further investigate the influence of government spending on economic growth in order to validate Keynes's assertion that government spending effectively stimulates economic growth. Bhari et al. (2020), in accordance with the findings of previous research, highlighted the positive and significant impacts of budget deficits on the economy, which aligns with the Keynesian perspective. A research model comprising the dependent variable GDP, the budget deficit, the real exchange rate, the real interest rate, and gross domestic investment is applied to data collected in Malaysia between 1980 and 2017. More specifically, at the 5% significance level, the budget deficit has a significant impact on economic growth. Similarly, at the 1% significance level, both the real interest rate and gross domestic investment exhibit signs of significance. Musa et al. (2023) applied a newly developed econometric model, namely panel quantile regression via moment conditions, which took into account the scale and location effects resulting from the high heterogeneity in their panel time series data spanning the period 1990–2020. The empirical investigation demonstrated that the budget deficit promoted the sustainability of economic growth in the overall sample of countries. The comparative analysis confirmed that the budget deficit enhanced economic growth in welfare countries, while it hindered growth in non-welfare countries. Furthermore, the study assessed the comparative impact of budget deficits on economic growth by incorporating the moderating role of the quality of governance for both welfare and non-welfare countries. According to a recent study conducted by Nimpagaritse et al. (2025), a 1% increase in the budget deficit results in a 0.66% increase in GDP per capita, demonstrating that the budget deficit has a positive and significant long-term impact on economic growth. In the near run, however, a delayed detrimental impact is noted, indicating a transient adverse consequence, whereas the immediate effect is statistically negligible. The study used an ARDL model to analyze how budget deficit policies affected Burundi's economic development dynamics between 1990 and 2022.

There exists a limited quantity of domestic scientific works that determine the relationship between fiscal deficit and economic growth in Vietnam.

During the period from 1989 to 2011, Van and Sudhipongpracha (2015) analyzed the relationship between Vietnam's budget deficit and economic performance. The dependent variable, GDP, is incorporated into the regression alongside the independent variables: real interest rate, budget deficit, and foreign direct investment. The findings of the research, however, indicate that the budget deficit does not have a direct impact on the economy. Research by Dao (2013) examines in depth the impact of the budget deficit on Vietnam over the long term in relation to other macroeconomic variables. Data from the first quarter of 2003 to the fourth quarter of 2012 are analyzed using the ARDL method. The finding suggests a long-term relationship between the budget deficit and how government expenditure influences economic growth. The above results are inconsistent with the research results of Đặng and Phạm (2015). The primary aim of the research is to examine the effects of budget deficits on Southeast Asian economic growth while accounting for inflation, foreign investment, and domestic investment as control variables. Using the pooled least square model, fixed effects model (FEM), random effects model (REM), and feasible generalized least squares model (FGLS) to analyze data from 2001 to 2013, the authors conclude that economic growth is adversely affected by domestic credit to the private sector and budget deficit, while foreign investment has a positive effect on the economy. In line with the previous result, Tung (2018) analyzed quarterly data from 2003 to 2016 in Vietnam regarding the impact of budget deficits on economic growth using the error correction model. Both short-term and long-term economic growth are adversely affected by the Budget Deficit, according to empirical findings. Tran (2022), in contrast to the previous studies, applied panel data regression to forty-eight Asian countries from 2000 to 2019. According to the research, budget deficits have a positive effect on economic growth in Asian countries. In addition, the author has determined the optimal deficit criterion for achieving the most effective economic growth and analyzed the nonlinear relationship using the threshold regression method. The data suggest that the smaller the budget deficit, the faster the economy grows.

It is evident from different research conducted globally, including in Vietnam, that the conclusions regarding the effect of budget deficits on economic development are contradictory. Regarding Vietnam, there is a scarcity of research on this subject. Moreover, aside from variations in descriptive statistical methods, disparities also exist in data processing techniques, which can lead to conflicting outcomes in quantitative research. Budget deficits in Southeast Asian nations have been notoriously large and persistent for decades. However, economic

growth in these countries has recently received a lot of attention. Therefore, this research paper is conducted with a combination of descriptive statistical and quantitative methods, with the expansion of the scope of the study to include Vietnam and other ASEAN countries. Crucially, the research integrates Government Expenditure as a key variable alongside the interaction term BDPOL, which captures the interplay between budget deficits and political stability — a novel addition not found in previous studies. By including these factors in the model, alongside other critical variables such as gross domestic savings and domestic credit to the private sector, the study aims to provide robust empirical evidence. This model is expected to bring more empirical evidence as well as useful policy suggestions and suggestions to relevant state agencies.

Overall, regarding the budget deficit, it seems a bit vague to predict exactly its impact on economic growth. While liberal economists argue that budget deficits have a negative impact on the economy, Keynesian economists, on the other hand, support the opposite view. Additionally, other schools of economics contend that budget deficits have no effect on economic growth. These discrepancies are further supported by empirical research. In particular, most studies in Asia conclude that budget deficits have a negative impact on economic growth. Therefore, the relationship between budget deficits and economic growth is expected to be negative:

H1: Budget deficit has a negative impact on economic growth.

3. METHODOLOGY

3.1. Empirical model

Based on the research model developed by earlier authors, this study uses a regression equation to identify the components that influence the regression models in order to ascertain the effects of state budget deficits and other factors on economic growth.

$$GDP_{it} = \beta_0 + \beta_1 * BD_{it} + \beta_2 * NS_{it} + \beta_3 * INV_{it} + \beta_4 * INF_{it} + \beta_5 * GE_{it} + \beta_6 * DC_{it} + \beta_7 * BD * POL + \varepsilon_{it} \qquad (1)$$

where, $i = 1, 2, …, N$, i denotes the country in the model; $t = 1, 2, …, T$, t denotes the observation time in the model, and an unobserved random component is ε_{it}.

Economic growth is the dependent variable measured by *GDP*. The explanatory variables consist of *BD, NS, INV, INF, GE*, and *DC*. *BD* is budget deficit, *NS* refers to national savings, *INV* stands for gross domestic investment, inflation is represented by *INF*, *GE* denotes government expenditure, *DC* is an abbreviation for domestic credit to the private sector, and *BD * POL* is the interaction variable between budget deficit and political stability and absence of violence or terrorism (*POL*). *POL* measures perceptions of political stability and the absence of violence or terrorism, with scores ranging from -2.5 to 2.5 on a standard normal distribution. All the variables and measurements are indicated in the Appendix.

3.2. Research data

This study employed panel data from 2011 to 2022, encompassing 10 ASEAN countries: Brunei Darussalam, Burma, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, and Vietnam. The data is collected from the World Bank, ADB, International Monetary Fund (IMF), China Economic Information Center, and the General Statistics Office of Vietnam.

3.3. Research methods

Descriptive and quantitative statistical methodologies are adopted in this paper. In the realm of descriptive statistical research methods, both synthetic and analytical approaches are employed. By applying the synthetic method to aggregate research pertaining to economic growth, the theoretical foundation for the thesis topic is established upon the theories of budget deficit and economic growth. Furthermore, it highlights shortcomings in previous studies and supports the need for additional research to explore the relationship between budget deficit and economic growth. For quantitative research, the study employs a multivariate regression model to measure and assess factors affecting economic growth. Given the combination of spatial and temporal dimensions in the dataset, panel data regression is identified as a suitable methodology. This approach enables the exploration of relationships over time while accounting for variations across entities. The analysis considers three primary models: the pooled OLS regression, the FEM, and the REM. The Hausman test is utilized to determine the most appropriate model by evaluating the correlation between independent variables and the error term, ultimately assisting in choosing between FEM and REM models. Once the optimal model is selected, diagnostic tests are performed to ensure that the regression model is free from issues such as heteroscedasticity or autocorrelation. In cases where the assumptions are violated, the FGLS model is applied to address these issues and improve the reliability of the results.

4. RESEARCH RESULTS AND DISCUSSION

4.1. Descriptive statistics

Table 1 below provides a summary of the descriptive statistics for the key variables.

Table 1. Results of descriptive statistics

Variable	Obs.	Average	Std. dev.	Min	Max
GDP	120	4.138333	3.923987	-17.9	8.9
BD	120	2.111867	5.250291	-25.632	21.68
NS	120	32.62623	14.25366	8.814382	68.49762
INV	120	28.03443	5.734522	17.098	48.362
INF	120	3.42674	3.89851	-1.260506	26.79954
GE	120	12.98652	5.074489	4.806798	26.47721
DC	120	4.081447	0.9071288	1.269279	5.445444
BDPOL	120	0.9109788	6.03597	-24.75895	27.81569

Source: Authors' elaboration.

The dependent variable, *GDP*, shows that the Southeast Asian countries in the study had a good growth rate during the survey period, when an average value was about 4.14%. However, the economic growth gap between countries is large. Based on the information provided in Table 2, the upper limit of real *GDP* is 8.9%, while the lower limit of *GDP* growth rate is -17.9%.

In terms of *BD*, Southeast Asian nations maintain an average budget deficit of approximately 2.11% of their *GDP*, with a standard deviation of 5.25%, showing considerable variability in fiscal performance. The values range from -25.63% to 21.68%, indicating both surplus and large deficits in the dataset.

The *NS* variable reveals that the average savings rate in Southeast Asian countries during the 2011–2022 period is relatively high, at over 32% of *GDP*. The savings rate ranges from a maximum of 68.49762% to a minimum of 8.81% of GDP, resulting in a substantial standard deviation of 14.25%.

The *INV* variable shows that the highest investment is 48.36% of *GDP*, and the smallest is 17.01% of *GDP*. The average level reaches 28.03% of *GDP*, and the standard deviation is about 5.73% of *GDP*. It can be said that the gross domestic investment in Southeast Asian countries is quite high.

The *INV* variable shows that the Southeast Asian countries in the study have an average inflation rate of 3.43%. The highest and lowest inflation values are 26.8% and -1.26%, respectively. The standard deviation of 3.9% also shows that the price gap between countries in the region is still large.

The *GE* variable shows that the Southeast Asian countries in the study have an average spending per *GDP* of 12.99% of *GDP*. Spending ranges from a minimum of 4.81% to a maximum of 26.48%, with a standard deviation of 5.07%.

The logarithm of *DC* averages 4.08, with a standard deviation of 0.91. Values range from a minimum of 1.27 to a maximum of 5.45, showing a wide dispersion in credit availability.

Finally, the interaction variable *BDPOL* has an average value of -0.91, a standard deviation of 6.04, and values spanning from -27.82 to 24.76. This variable captures the nuanced relationship between budget deficits and political stability, reflecting how governance conditions influence fiscal performance.

4.2. Correlation coefficient matrix

The paper utilizes a matrix to analyze the univariate correlation between the independent variables and the dependent variable in the study. Moreover, the focus of the study is on the correlation coefficient between the independent variables to determine if there is multicollinearity in the thesis. The result mentioned above is displayed in Table 2. The correlation coefficients among the independent variables in the study model have values lower than 0.8. Franke (2010) discovered that when the correlation among the independent variables is less than 0.8, there is no substantial indication of multicollinearity.

Table 2. Matrix correlation between variables

Variable	GDP	BD	NS	INV	INF	GE	DC	BDPOL
GDP	1.0000							
BD	-0.1794	1.0000						
NS	-0.2838	-0.3141	1.0000					
INV	-0.1744	0.1741	0.3990	1.0000				
INF	0.1607	0.0779	-0.2197	0.0646	1.0000			
GE	-0.4384	0.2476	0.3496	0.4679	-0.1373	1.0000		
DC	-0.1217	-0.1437	0.2586	-0.4442	-0.3788	-0.2347	1.0000	
BDPOL	0.0845	0.0984	-0.0963	0.1837	-0.1312	0.1641	0.0064	1.0000

Source: Authors' elaboration.

To enhance the trustworthiness of the assertion above, the study utilizes the variance inflation factor (VIF) multiple as an additional method for detecting multicollinearity. If the VIF exceeds 4 or the value of 1/VIF is less than 0.25, it indicates that multicollinearity may be present and requires further investigation. When the VIF is greater than 10 or the value of 1/VIF is less than 0.1, there is significant multicollinearity present and requires corrective action. As can be seen in Table 3, the VIF coefficients of all the independent variables are below 4. This means that there is no significant multicollinearity in the model.

Table 3. Variance inflation factor test results

Variable	VIF	1/VIF
BD	2.78	0.359940
NS	2.49	0.400828
INV	2.30	0.435640
BDPOL	2.19	0.456317
DC	2.19	0.456884
GE	1.69	0.591984
INF	1.33	0.753987
Mean VIF	2.14	

Source: Authors' elaboration.

4.3. The impact of the budget deficit on economic growth

Table 4 summarizes the regression model results and the selection process for the optimal model. As can be seen in Table 4, the REM appears to be a better fit for the study than the pooled OLS model, according to the Breusch-Pagan Lagrangian test. The findings of the Hausman test, however, show that the FEM is more appropriate than the REM; the null hypothesis (H_0) is rejected with a p-value of 0.0000. As a result, the FEM is found to be most appropriate for this study. To further validate the suitability of the FEM, additional diagnostics for heteroscedasticity and autocorrelation were performed. A Prob > F result of 0.0790, which indicates no substantial autocorrelation, is obtained from the Wooldridge test for autocorrelation in panel data. Heteroscedasticity is confirmed by the Wald test for groupwise heteroscedasticity, which yields a Prob > chi2 value of 0.0000.

Given these diagnostic results, the study addresses model shortcomings by employing FGLS, a widely used technique to correct for heteroscedasticity and improve the robustness of the results. This approach ensures the reliability and accuracy of the final estimates.

Table 4. The outcomes of the research model

Explanatory variable	(1) OLS	(2) FEM	(3) REM	(4) FGLS
BD	-0.426***	-0.599***	-0.426***	-0.416***
	(-4.67)	(-5.77)	(-4.67)	(-4.75)
NS	-0.0555*	-0.0568	-0.0555*	-0.0465
	(-1.74)	(-0.60)	(-1.74)	(-1.52)
INV	-0.0263	0.0666	-0.0263	-0.0599
	(-0.35)	(0.63)	(-0.35)	(-0.90)
INF	0.111	-0.00809	0.111	0.135*
	(1.30)	(-0.10)	(1.30)	(1.78)
GE	-0.256***	-0.123	-0.256***	-0.278***
	(-3.48)	(-0.56)	(-3.48)	(-4.65)
DC	-0.900*	-1.931	-0.900*	-0.760*
	(-1.92)	(-1.58)	(-1.92)	(-1.66)
BDPOL	0.351***	0.495***	0.351***	0.359***
	(4.98)	(5.89)	(4.98)	(4.84)
_cons	14.53***	15.35***	14.53***	14.67***
	(4.46)	(2.78)	(4.46)	(4.66)
N	120	120	120	120
F-test	Prob > F = 0.0000			
Breush-Pagan test	Prob > chibar2 = 0.0000			
Hausman test	Prob > chi2 = 0.0000			
Heteroskedasticity	Prob > chi2 = 0.0000			
Autocorrelation	Prob > F = 0.0790			

*Note: t-statistics in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.*
Source: Authors' elaboration.

Firstly, the *BD* variable consistently shows a negative impact on economic growth across all models, and this relationship is highly significant. In OLS, REM, FEM, and FGLS, the *BD* coefficients are negative and statistically significant at the 1% level, reflecting the detrimental effect of fiscal imbalance. The FGLS model confirms this robust relationship, with a coefficient of -0.416, reaffirming that budget deficits hinder economic performance. This result aligns with the study hypothesis and prior research, emphasizing the importance of fiscal discipline in driving sustainable economic growth.

Secondly, the *NS* variable shows a consistent negative relationship with economic growth across all models, but its statistical significance varies. In OLS and REM, *NS* is weakly significant at the 10% level, whereas in FEM and FGLS, it is not significant.

Thirdly, the *INV* variable exhibits varying relationships with economic growth across the models. In the FEM model, *INV* shows a slightly positive coefficient of 0.0666 but lacks statistical significance. Conversely, in the OLS, REM, and FGLS models, the coefficients are negative, with the FGLS model reporting a value of -0.0599. However, the p-values in all cases exceed standard significance levels, indicating that the variable is not statistically significant. These findings suggest that the influence of investment on growth is minimal and may depend on external factors like the efficiency and quality of investment allocation. Fifthly, the p-values associated with the inverse relationships between *GE* and *GDP*, as determined by the OLS, REM, and FGLS regression model analyses, are approximately 0.00. This indicates that the *GE* variable satisfies the hypothesis in terms of statistical significance at the 1% level.

Fourthly, the *INF* variable exhibits a positive relationship with economic growth across all models but is statistically significant only in the FGLS model. In OLS, REM, and FEM, the coefficients are positive but lack significance, whereas in FGLS, the coefficient of 0.135 is significant at the 10% level.

Fifthly, the *DC* variable shows mixed results in its relationship with economic growth across the models analyzed. In the OLS, REM, and FGLS models, *DC* has a negative coefficient, such as -0.760 in the FGLS model, but it is only statistically significant at the 10% level in FGLS. In contrast, the FEM model yields a larger negative coefficient of -1.931, though it remains insignificant. The consistently negative direction of the coefficients indicates that domestic credit may have a detrimental effect on economic growth, which could be attributed to inefficient allocation of credit or challenges within the financial sector.

Finally, the variable *BDPOL*, which represents the interaction between *BD* and *POL*, consistently shows a positive and statistically significant relationship with economic growth across all models. The coefficients remain strong, with values such as 0.359 in the FGLS model, and are significant at the 1% level in all cases. These results highlight the critical role of political stability in mitigating the adverse effects of fiscal imbalances. By ensuring stable governance, countries may be able to better manage budget deficits and leverage them more effectively for economic growth. The FGLS model reinforces the importance of this interaction, providing robust evidence of the stabilizing influence of political factors on fiscal outcomes and growth dynamics.

5. CONCLUSION

Budget deficits have long been recognized as complex macroeconomic issues by policymakers and economic scholars, presenting significant challenges for numerous nations. According to Keynesian economists, government deficits have a "crowding-in" effect on the economy, where increased government expenditure leads to a rise in GDP. Conversely, neoclassical economists argue that private investment will be hindered, and government legislation will "crowd out" such investments. The Ricardian school, on the other hand, contends that the correlation between economic growth and the budget deficit is not significant. To support these differing viewpoints, numerous international and regional studies have been conducted. This paper investigates the relationship between budget deficits and economic growth in 10 ASEAN countries

from 2011 to 2022. Given the increasing fiscal imbalances, particularly exacerbated by the COVID-19 pandemic, understanding the influence of budget deficits on economic performance is crucial for policymakers. Using panel data regression models such as OLS, FE, RE, and FGLS, the study examines three main questions: the relationship between budget deficits and economic growth, the effect of budget deficits on economic performance, and recommendations for improving economic performance in Vietnam and other ASEAN countries. The results reveal that budget deficits have a significant negative impact on economic growth in the ASEAN region. The study suggests that reducing budget deficits could boost economic growth. Additionally, the study examines other variables affecting economic growth, such as domestic savings, investment, inflation, government spending, and domestic credit. The findings provide strong justification for enacting measures to lower budget deficits and promote economic growth in Vietnam and ASEAN countries.

The attribution model results reveal the impact of budget deficits on the economic growth of 10 ASEAN countries from 2011 to 2022. Notably, the budget deficit variable consistently exhibits a significant and negative effect on economic growth across all models, with the FGLS model confirming this robust relationship through a coefficient of -0.416. This underscores the critical importance of maintaining fiscal discipline to ensure sustainable economic development. Furthermore, the interaction term BDPOL highlights a strong and positive association with growth in all models, emphasizing the vital role of political stability in mitigating the harmful effects of fiscal imbalances. Meanwhile, other variables — such as national savings, investment, inflation, government expenditure, and domestic credit — show varying degrees of influence, though their significance is less consistent. Ultimately, the FGLS model emerges as a reliable framework, reinforcing the importance of stable governance and prudent fiscal policies in fostering economic growth.

By drawing insights from neighboring countries, the following recommendations are suggested for policymakers to implement to improve the budget balance situation for Vietnam specifically and the region as a whole: Firstly, enhancing fiscal discipline and efficient debt management is crucial. Governments must ensure that borrowed funds are used productively for development projects rather than for repaying past debts or covering recurrent expenditures. Strengthening public financial management and adopting a debt sustainability framework will also help mitigate risks associated with excessive borrowing. Secondly, Vietnam must undertake comprehensive tax reforms and enforce stringent regulations to improve the efficiency and transparency of state budget collection. Strengthening the tax system is crucial to ensuring fiscal sustainability, reducing reliance on public debt, and fostering a more equitable economic environment. To achieve this, the government should prioritize the modernization of tax administration by leveraging digital tools and automation to streamline tax collection, minimize errors, and enhance compliance. Additionally, enhancing surveillance mechanisms is essential for effectively monitoring budget allocation and preventing revenue leakages. Robust enforcement measures should be implemented to address key issues such as smuggling, trade fraud, delayed tax payments, and tax evasion, which significantly undermine state revenues. Strengthening coordination between tax authorities, law enforcement agencies, and financial institutions will facilitate early detection and prompt intervention in cases of tax fraud and illicit financial activities. Furthermore, a comprehensive evaluation of tax exemption and reduction policies is necessary to assess their long-term implications on business growth, production efficiency, and overall economic stability. While tax incentives can serve as a tool to attract investment and stimulate key industries, excessive or poorly targeted exemptions may lead to unintended fiscal imbalances and distort market competition. Policymakers should carefully review existing tax policies to determine their effectiveness and make data-driven adjustments to ensure that tax benefits are aligned with national development priorities. In addition, Vietnam should consider broadening the tax base by reducing dependency on a narrow range of revenue sources and diversifying tax collection streams. Expanding indirect taxes, such as value-added tax, while ensuring that taxation remains progressive and equitable, can help generate stable revenues. A well-balanced tax structure, coupled with stronger enforcement mechanisms, will not only enhance revenue collection but also promote a more transparent and accountable fiscal system, ultimately strengthening Vietnam's economic resilience in the face of future challenges. Thirdly, as global attention gradually shifts to sustainable development, ensuring sustainable economic growth becomes increasingly more vital. Vietnam should integrate green fiscal policies, such as carbon taxes, emission reduction incentives, and climate adaptation funding, to ensure economic growth does not come at the expense of environmental degradation. Investing in biodiversity conservation, sustainable land use, and circular economy initiatives will also help mitigate long-term fiscal risks associated with climate change and resource depletion. At the same time, Vietnam must work toward a low-carbon transition by promoting renewable energy development and sustainable infrastructure projects that align with global sustainability goals. Fourthly, another recommendation is reducing government expenditures on state-owned enterprises (SOEs). Many SOEs continue to operate at a loss, placing a significant strain on national budgets. Vietnam should accelerate the restructuring, equitization, and privatization of non-strategic SOEs, shifting their management to the private sector to enhance competitiveness and efficiency. Additionally, strengthening corporate governance frameworks for remaining SOEs will ensure better oversight, reduce mismanagement, and improve financial discipline. This transition can unlock substantial cost savings, which can be redirected toward more productive sectors of the economy. Finally, to maximize the positive impact of the interaction between budget deficits and political stability, governments should prioritize fostering political stability through transparent governance, effective law enforcement, and anti-corruption measures. Political stability reduces uncertainty, enabling better fiscal management and more effective policy implementation. Strengthening institutional frameworks to oversee fiscal policies can amplify the stabilizing effects of political factors. Countries with stable political environments should also leverage this advantage to attract

foreign investment and introduce economic reforms that drive sustainable growth. By aligning fiscal strategies with governance stability, nations can effectively manage budget deficits while promoting robust economic development.

This study provides important insights into the relationship between budget deficits and economic growth. Specifically, it holds substantial importance for future research as it addresses critical gaps in the existing literature and provides a foundation for more comprehensive investigations into fiscal policy and economic growth. First, by including government expenditure and the interaction term BDPOL, which captures the interplay between budget deficits and political stability, this study contributes fresh empirical evidence and presents a unique perspective not explored in previous research. These additions provide a solid basis for future scholars to further analyze the critical role of governance and institutional quality in moderating fiscal outcomes. Second, by expanding the scope to include data from all 10 ASEAN countries, our research ensures a broader, more representative analysis compared to prior studies, which often focus on limited geographic or temporal scopes. This comprehensive approach allows for greater generalizability of findings and a nuanced understanding of fiscal dynamics in the ASEAN region. Finally, this research integrates key variables, such as national savings and domestic credit to the private sector, providing robust insights into the complex relationships between fiscal policies and economic growth. These contributions offer valuable academic and practical perspectives for policymakers and serve as a solid foundation for advancing discussions in the field.

However, there are still numerous areas for further research that could deepen our understanding of this complex issue. First, future studies could expand the scope of analysis by incorporating additional macroeconomic variables such as population growth, labor market dynamics, and technological advancements. Examining how these factors interact with budget deficits would offer a more comprehensive perspective on the key drivers of economic growth. Second, analyzing the sector-specific effects of budget deficits — particularly in healthcare, education, and infrastructure — could provide valuable guidance for policymakers. Understanding how fiscal policies impact these critical areas would allow governments to design more targeted and effective budget strategies. Third, as the global economy increasingly prioritizes sustainable development, future research should explore how climate change and environmental policies influence economic outcomes. Investigating the effects of carbon taxation, green investments, and climate-related fiscal policies could help determine the best approaches for balancing economic growth with environmental sustainability. Fourth, employing advanced econometric models such as the threshold regression model could help identify optimal levels of government spending and budget deficits that maximize economic growth. This approach would be particularly useful in understanding the nonlinear relationships between fiscal policy and economic performance. Fifth, further research should assess the long-term benefits of investments in technology and education, particularly in how they can offset the negative impacts of budget deficits. For developing economies, understanding how advancements in human capital and innovation drive sustainable growth would be especially valuable. By exploring these areas, future studies can provide deeper insights into how fiscal policy can be optimized to support long-term economic stability and prosperity.

This study adds significantly to our knowledge of the relationship between budget deficits and economic growth. It does have some restrictions, though. The methodology may oversimplify the more complex reality of fiscal dynamics because it is predicated on a comparatively small collection of macroeconomic data and assumes linear correlations. Additionally, it ignores more general financial concerns related to sustainability and fails to differentiate between various forms of government spending.

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APPENDIX. VARIABLES IN THE RESEARCH MODEL

Variable	Abbreviation	Measurement	Hypothesis	Explanation for the hypothesis
Dependent variable				
Gross domestic product	GDP	Real GDP_t / real GDP_{t-1} - 1		
Explanatory variables				
Budget deficit	BD	Budget deficit / GDP	-	Regarding the budget deficit, it seems a bit vague to predict its impact on economic growth. While liberal economists argue that budget deficits have a negative impact on the economy, Keynesian economists, on the other hand, support the opposite view. Additionally, other schools of economics contend that budget deficits have no effect on economic growth. These discrepancies are further supported by empirical research. In particular, most studies in Vietnam conclude that budget deficits have a negative impact on economic growth. Therefore, the relationship between budget deficits and economic growth is expected to be negative.
National savings	NS	National savings / GDP	+	Both classical and neoclassical theories emphasize the significance of national savings in relation to economic activity. When investment financing is taken into consideration, national savings help sustain productivity growth. Aghion et al. (2006) stated that savings should have an effect on growth, but only marginally in relatively wealthy countries that depend less on foreign investment to adopt new technologies. Their study showed that average savings from previous periods have a significant and robust impact on the productivity growth of impoverished countries over the next ten years, while their effect is significantly smaller for wealthy countries. Similarly, research conducted by Tran (2022) demonstrated comparable findings. Consequently, national savings are expected to positively influence economic expansion.
Explanatory variables				
Gross domestic investment	INV	Gross domestic investment / GDP	+	Gross domestic investment includes net adjustments for inventory levels and spending on additions to the economy's fixed assets. Fixed assets include the purchase of plant, machinery, and equipment; improvements to land; and the building of roads, railroads, and buildings used for commercial, industrial, and residential uses. According to studies by Đặng and Phạm (2015) and Fatima et al. (2012), domestic investment plays a major part in boosting economic growth. It is, therefore, expected that the *INV* variable's regression coefficient will be positive.
Inflation	INF	CPI_t / CPI_{t-1}	-	Inflation is another important factor influencing economic growth. In general, rising inflation may hinder growth by increasing company borrowing costs and reducing consumer expenditure, while steady, moderate, and sustained inflation rates might promote economic expansion. Fatima et al. (2012) found that inflation and economic growth have an inverse relationship, suggesting a negative correlation between the two. Therefore, the following hypothesis is proposed: Inflation harms economic growth.
Government expenditure	GE	Government expenditure / GDP	-	Similar to budget deficits, the effect of government spending on economic growth varies based on context, socioeconomic characteristics, rate, and timing. According to recent research by Tran (2022), an increase in government expenditure is likely to reduce economic growth in the current period. This suggests that a negative relationship between government spending and economic growth is anticipated.
Domestic credit to the private sector	DC	Ln (domestic credit to private sector / GDP)	-	Logarithmic transformation is used to reflect diminishing marginal effects, stabilize variance, and improve the interpretability of coefficients. Domestic credit to the private sector pertains to monetary provisions extended by financial institutions to the private sector. These provisions may take the form of trade credits, accounts receivable, loans, or purchases of non-equity securities, all of which create a legitimate expectation for repayment. Credit plays a crucial role in the circulation of money because it provides the means to finance capital formation, production, and consumption, all of which have an impact on economic activity. Empirical research carried out by Đặng and Phạm (2015) has shown that domestic credit to the private sector has an adverse impact on economic growth. Therefore, we expect a negative sign for this variable.
Interaction variable (*BD * POL*)	BD * POL	BD * POL	+/-	Political stability fosters a secure environment that boosts investment, trade, and economic growth, while instability deters investments and hinders development. Instead of using *POL* independently, this study incorporates the interaction term *BD * POL* to examine how political stability moderates the impact of budget deficits on growth. In stable countries, deficits may have less adverse effects due to stronger fiscal management, whereas instability amplifies uncertainty and negative outcomes.

Source: Authors' elaboration.