ASYMMETRIC IMPACTS OF PUBLIC DEBT ON ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM VIETNAM

Dung Xuan Nguyen[A], Trung Duc Nguyen[B]

IMPACTOS ASSIMÉTRICOS DA DÍVIDA PÚBLICA NO CRESCIMENTO ECONÔMICO: EVIDÊNCIAS EMPÍRICAS DO VIETNÃ

RESUMO

Objetivo: O objetivo estudar a influência da dívida pública na expansão da economia vietnamita foi objeto da pesquisa apresentada neste artigo.

Estrutura teórica: A maioria dos governos dos países em desenvolvimento tem déficits orçamentários devido a gastos excessivos e receitas inadequadas. Quando o governo opta por pagar o déficit orçamentário por meio de empréstimos, incorre em um passivo conhecido como dívida pública e dívida pública sobre o crescimento econômico.

Desenho/metodologia/abordagem: Na análise de regressão envolvendo dados de séries temporais, se o modelo de regressão contiver os valores presentes das variáveis e os valores defasados (valores passados), esse modelo é conhecido como modelo de distribuição defasado. Se as variáveis explicativas do modelo incluírem um ou mais

[A] *Ph.D Student. Lecturer. University of Finance and Marketing. Vietnam. E-mail: max.nxd@gmail.com Orcid: https://orcid.org/0009-0003-1607-5314*
[B] *Doctor Rector. Associate professor. Ho Chi Minh University of Banking. Vietnam. E-mail: trungnd@buh.edu.vn Orcid: https://orcid.org/0000-0002-4559-6966*

Intern. Journal of Profess. Bus. Review. |Miami, v. 8 | n. 5| p. 01-24 | e02157 | 2023.

1

valores defasados da variável dependente, o modelo é chamado de modelo autorregressivo. A regressão não linear Auto Regressiva Distribuída Lag foi aplicada.

Resultados: Os resultados revelam que a dívida do governo tem um efeito considerável e desproporcional sobre o crescimento econômico sustentado no curto e longo prazo usando um modelo Nonlinear Autoregressive Distributed Lag (NARDL) com dados trimestrais ao longo de vinte anos a partir de 2000.

Pesquisa, implicações práticas e sociais: Os resultados indicam uma associação desproporcional entre os níveis de dívida do setor público e o crescimento econômico de curto e longo prazos. Os resultados são consistentes com estudos empíricos recentes que mostram uma relação não linear entre a dívida pública de algumas nações e o desenvolvimento econômico.

Originalidade/valor: a dívida do governo deve apoiar o crescimento econômico de curto e longo prazo por meio do financiamento da produção. Consequentemente, a dívida do governo não deve onerar a economia quando a alta montante da dívida excede a capacidade de pagamento.

Palavras-chave: Econômico, Crescimento, Público, Dívida, NARDL, Vietnã.

IMPACTOS ASIMÉTRICOS DE LA DEUDA PÚBLICA EN EL CRECIMIENTO ECONÓMICO: EVIDENCIA EMPÍRICA DE VIETNAM

RESUMEN

Objetivo: El objetivo de estudiar la influencia de la deuda pública en la expansión de la economía vietnamita fue objeto de la investigación presentada en este artículo.

Marco teórico: La mayoría de los gobiernos de los países en desarrollo tienen déficits presupuestarios debido al gasto excesivo y los ingresos inadecuados. Cuando el gobierno elige pagar el déficit presupuestario mediante préstamos, incurre en un pasivo conocido como deuda pública y deuda pública sobre el crecimiento económico.

Diseño/metodología/enfoque: En el análisis de regresión que involucra datos de series de tiempo, si el modelo de regresión contiene los valores presentes de las variables y los valores rezagados (valores pasados), este modelo se conoce como modelo de distribución rezagado. Si las variables explicativas del modelo incluyen uno o más valores rezagados de la variable dependiente, el modelo se denomina modelo autorregresivo. Se aplicó la regresión no lineal Distributed Lag Auto Regression.

Resultados: Los resultados revelan que la deuda del gobierno tiene un efecto considerable y desproporcionado en el crecimiento económico sostenido a corto y largo plazo utilizando un modelo de retardo distribuido autorregresivo no lineal (NARDL) con datos trimestrales durante veinte años desde 2000.

Implicaciones sociales, prácticas y de investigación: Los resultados indican una asociación desproporcionada entre los niveles de deuda del sector público y el crecimiento económico a corto y largo plazo. Los resultados son consistentes con estudios empíricos recientes que muestran una relación no lineal entre la deuda pública de algunas naciones y el desarrollo económico.

Originalidad/Valor: La deuda del gobierno debe respaldar el crecimiento económico a corto y largo plazo mediante el financiamiento de la producción. En consecuencia, la deuda del gobierno no debería ser una carga para la economía cuando el alto monto de la deuda excede la capacidad de pago.

Palabras clave: Económico, Crecimiento, Público, Deuda, NARDL, Vietnam.

INTRODUCTION

Sustainable funding policies are required to finance global government budgets and foster economic growth. This includes increasing taxes or borrowing money from domestic or foreign sources. Public debt, particularly debt expenditure initiatives, is essential for rapid economic growth. The public debt consists of the government's short- and long-term loans to fund public expenditures without sufficient public revenue. According to empirical studies, public debt will have a detrimental influence on economic growth once it crosses a particular threshold or borrowing money from domestic or foreign sources. The public debt consists of

Intern. Journal of Profess. Bus. Review. | Miami, v. 8 | n. 5 | p. 01-24 | e02157 | 2023.

2

the government's short- and long-term loans to fund public expenditures without sufficient public revenue. According to empirical studies, public debt will harm economic growth once it crosses a particular threshold. Increasing national debt is a global phenomenon and a key source of concern for both monetary and financial authorities.

In the short term, debt can enhance aggregate demand and output, but it can reduce capital and output in the long run. Governments heavily rely on public debt to finance economic development. But, empirical data indicates that public debt will harm economic growth once it goes beyond a particular level. It is difficult for a nation to establish a budget surplus when its public debt includes domestic and foreign obligations. Unsustainable public debt can impede economic growth by diminishing a nation's competitiveness and heightening its financial markets' susceptibility to external shocks.

Regardless of whether it rises or falls, there are still contradictory results on the impact of the public debt on economic growth. According to economists, the issue is the mishandling of the public debt, not the debt itself. The 1970s and 1980s global debt crises were precipitated by poor debt management techniques in low- and middle-income countries.

According to empirical research, if sufficient regulations are in place and conditional lending is used to encourage conditional lending, the effort will be successful. Yet, public debt has both positive and negative effects on nations' economies, resulting in many impediments and complications. It is believed that Vietnam's national debt is under control; nonetheless, it may still impede its economic development goals. The impact of government interventions on economic growth through debt, taxation, and spending is an essential topic of global monetary policy, and it is evident that public debt has a detrimental impact on economic growth. Based on previous practice and empirical research, this study investigates the disproportionate effect of public debt on economic growth in Vietnam.

The research examines whether the debt is a barrier to economic growth and how government loans affect the economy's short- and long-term sustainability. The findings of this study will provide empirical evidence regarding the impact of government debt on the sustainable growth of the Vietnamese economy.

LITERATURE REVIEW

Studies on the Negative Impact of Public Debt on Economic Growth

Research has shown that external debt negatively impacts economic growth and that government debt restricts individuals' access to savings and capital reserves. Several studies have established a negative correlation between government debt and economic growth, such as Gómez-Puig and Sosvilla-Rivero (2015), Ahlborn and Schweickert (2016), Panizza and Presbitero (2013), Szabo (2013), Égert (2012), Afonso and Jalles (2011), Cochrane (2011a, 2011b), Kumar and Woo (2010), the International Monetary Fund (2005), Clements et al. (2003), and Diamond (1965). Between 1961 and 2013, the long-term relationships between public debt and GDP growth rates in both EU countries were evaluated using an autoregressive distributional delay (ARDL) model, and the authors concluded that public debt harms long-term GDP growth rates in euro area member states. Ahlborn and Schweickert (2016) found that public debt significantly negatively impacts GDP growth rates. Yeasmin and Chowdhury (2014) found that external debt has a significant negative impact on economic growth in Bangladesh, with the external debt servicing load retarding GDP growth by 1.3%.

Clements et al. (2003) show that per capita income growth in highly indebted poor countries (HIPCs) will increase by around 1 percentage point per year. Babu et al. and Malik et al. predict that economic growth will decline as external debt increases. Panizza and Presbitero (2013) found a negative association between the public debt-to-GDP ratio and real per capita GDP growth in OECD nations.

Szabo (2013) examined the impact of the ratio of public debt to GDP and the GDP growth rate in 27 EU nations. He found that a 1% increase in the debt-to-GDP ratio results in a 0.027% decline in the yearly GDP growth rate. Égert (2012) found a negative link between public debt and GDP growth in 20 industrialized economies from 1946 to 2009. Afonso and Jalles (2011) evaluated the impact of government debt on GDP per capita growth and productivity in 155 developing and developed countries from 1970 to 2008. Reinhart and Roggof (2010) concluded that the association between government debt and economic growth is weak for a share of GDP lower than 90 percent.

Due to the massive impact on the balance of payments of the mid-1970s oil crisis, in-debted countries are battling with their enormous debt, which harms economic development. High government spending fosters long-term economic expansion, but collecting the revenues necessary to meet their debt obligations is complex.

Increasing debt levels harm economic growth as a significant portion of their output is spent on repaying foreign lending institutions, discouraging investment. Shkolnyk et al. (2018) found that external debt harms economic growth in emerging countries primarily by inhibiting investment. Kharusi and Ada (2018) discovered a statistically significant negative relationship between Oman's external debt and economic development from 1990 to 2015. Siddique and Siddique (2016) used an automatic distribution delay (ARDL) model to observe whether debt as a ratio of public debt to GDP affected growth in 40 indebted countries from 1970 to 2007. They found that the debt variable has a negative and statistically significant effect on GDP in both the short and long run, in line with prior expectations.

Snieka and Burksaitiene (2018) evaluated the impact of changes in real public debt, real private debt, and deflationary housing prices on GDP in 24 European Union (EU) nations. Lim (2019) examined the relationship between debt and growth when total private and state debt is considered. Abubakar and Suleiman (2020) built an analytical model that evaluates the impact of public debt on economic growth in 37 OECD nations. The findings indicate that public debt has a substantial permanent and temporary positive effect on economic growth, but not all nation groups receive transitory positive impacts, while all country groups experience persistent negative consequences (Baa & Chattoraj, 2022).

Asteriou, Pilbeam, and Pratiwi (2020) investigate the short- and long-term relationships between public debt and economic growth in 14 Asian nations between 1980 and 2012. The authors employ an ARDL model and a group mean (MG) estimator to ensure consistency between short-run and long-run relationships. Long-term evidence indicates that an increase in public debt will have a significant negative impact on economic growth. Pegkas et al. (2020) found that public debt has a detrimental long-term influence on economic growth, while investment, trade openness, and human capital have a long-run unidirectional causal relationship with growth. Ghourchian and Yilmazkuday (2020) compared the impact of government consumption and government debt on economic growth in 83 countries from 1960 to 2014 using the two-stage least squares method and the same control variables as the majority existing literature.

Studies on the Positive Impact of Public Debt on Economic Growth

Saifuddin (2016) found that investment and economic growth are positively related to public debt in Bangladesh. Putunoi and Mutuku (2013) investigated the impact of domestic debt on Kenya's economic growth. Maana et al. (2008) found an improvement in the domestic

Intern. Journal of Profess. Bus. Review. | Miami, v. 8 | n. 5 | p. 01-24 | e02157 | 2023.

5

debt structure of Kenya's national debt. Sheikh et al. (2010) found that domestic debt promotes economic expansion and that public debt benefits per capita growth. Additionally, several studies have discovered a good correlation between macroeconomic factors (Al-Obaidi & Almashhadani, 2022).

Owusu-Nantwi and Erickson (2016) found a positive correlation between government debt and real GDP growth in Ghana from 1970 to 2012. Uzun et al. (2012) found an excellent long-term link between foreign public debt and per capita GDP growth in 19 transition economies. Abbas and Christensen (2007) found that the quantity of domestic public debt had a linear positive influence on GDP per capita change by boosting investment efficiency. Freeman and Webber (2009) demonstrated that government spending in Malaysia positively correlates with economic expansion. Greiner (2011) found that GDP growth rates are higher in economies where the government maintains a balanced budget or issues debt such that the debt-to-GDP ratio converges asymptotically to zero than in debt-run economies.

Abu and Hassan (2008) found that government expenditures on education, welfare, and development directly impact workers' well-being and basic welfare. Teles and Mussolini (2014) found that economic growth declines when government expenditures are allocated to inefficient expenditures such as pensions.

Studies on the Neutral Effect of Public Debt on Economic Growth

Public debt and economic growth are unrelated if a nation's institutions are of acceptable quality. Increasing government expenditure based on debt will not encourage economic growth since investors and consumers believe debt will be repaid through greater taxation. Schclarek (2004) evaluated the impact of public debt on GDP per capita growth in a sample of 24 industrialized and 59 developing nations. Panizza and Presbitero (2012) concluded that public debt does not affect GDP growth in the developed economies studied. Panizza and Presbitero (2012) also used the instrumental variable method to examine the link between public debt and GDP growth in a sample of OECD nations.

Studies on Nonlinear Effects of Public Debt on Economic Growth

Most empirical studies examine the negative causal relationship between public debt accumulation and economic growth by employing nonlinear connection models and estimating critical threshold values. Aschauer (2000) demonstrates that at every given time when government debt is utilized to finance the receipt of public monies, growth in debt has positive

Intern. Journal of Profess. Bus. Review. | Miami, v. 8 | n. 5 | p. 01-24 | e02157 | 2023.

6

benefits up to a certain threshold and negative consequences beyond the point. Patillo et al. (2002) examined the relationship between debt and economic growth using 93 nations over thirty years and found that the negative impact of debt on economic growth persists even when the net present estimate of debt levels exceeds 35-40% of GDP. Multiple panel data analyses have demonstrated a nonlinear relationship between GDP and government debt.

The relationship between government debt and GDP is inverted U-shaped, with positive effects until the debt-to-GDP ratio exceeds a specific threshold. However, there is a consensus among the results of studies regarding the nonlinear influence of government debt on economic growth. Hoang Khac Lich and Duong Cam Tu (2018) investigate the impact of public debt on the economies of 58 developed (high-income) and emerging (low- and middle-income) nations. Herndon et al. (2014) examine a sample of twenty advanced economies from 1946 to 2009, demonstrating that this nonlinearity occurs when the public debt/GDP ratio is between 0% and 30%. Presbitero (2012) analyzes the relationship between debt growth in emerging nations from 1990 to 2007 using total government debt, showing conditional convergence and threshold effects.

Baum et al. (2012) and Minea and Parent (2012) examined the effect of public debt on yearly actual GDP growth rates in 12 European nations from 1990 to 2010 using a dynamic threshold table method. The research findings indicate that the threshold value is 85% of GDP, below which public debt positively affects GDP per capita and slows economic growth. Baum et al. found that public debt harmed the annual real GDP growth rate when the public debt-to-GDP ratio reached 67% and a positive impact when it was between 90% and 115%. However, the association between public debt and real GDP growth becomes positive when debt surpasses 115 percent of GDP, whereas the relationship is not statistically significant when debt is less than 90 percent of GDP. Checherita-Westphal and Rother (2010) found consistent evidence of a nonlinear bell-shaped relationship between the variables using the quadratic specification, fixed-effects estimation, the generalized system of moments method (GMM), and two-stage least squares.

Recent research examining the applicability of the nonlinear theory of public debt to economic growth has been ambiguous due to time and geographical scope variations. Reinhart and Rogoff (2010) authored one of the most prominent studies to support the austerity measures enacted by most EU governments since 2010. Their empirical findings suggest that a high average debt-to-GDP ratio (90 percent or more) is connected with slower or negative economic growth. However, empirical studies indicate that the long-term critical threshold values for

Intern. Journal of Profess. Bus. Review. | Miami, v. 8 | n. 5 | p. 01-24 | e02157 | 2023.

7

public debt range between 85-100% for developed nations and 40-70% for developing countries. According to research (Kumar & Woo, 2010), high levels of public debt had a detrimental effect on the 5-year economic growth rates of 38 advanced and emerging economies. The authors argue that higher public debt negatively affects capital accumulation and productivity, reducing economic activity.

The projected threshold value of debt to GDP varies between 50 and 60% for "new" EU member states and 90 and 100% for advanced EU members. Caner et al. (2010) analyzed 99 nations between 1980 and 2008 and found that the debt-to-GDP growth threshold for all sampled countries is 77%. Krugman (2013) determined the impact of government debt on growth by compiling IMF and OECD data from 1946 to 2009 for 44 nations. Chudik et al. (2013) analyzed the long-term effect of public debt on economic growth using a distribution-lagged estimator and found that a 1 percentage point increase in the debt/GDP ratio, if maintained, would cut actual output by 0.048 percent. Concerning the existence of nonlinear thresholds, the authors did not identify a universally applicable threshold level, but a negative and statistically significant point for debt ratios above 60 percent is established.

Padoan et al. (2013) studied the effect of fiscal policy on economic growth in 28 OECD nations from 1960 to 2011. They found that a threshold level between 82 and 91 percent of GDP was reached, with a 1 percentage point average rise in public debt cutting the GDP growth rate by 0.012 percentage points next year and reducing the average yearly growth rate over the next five years by 0.028 percentage points. Mersinger and Topal (2014) investigated the relationship between debt and growth in 12 euro area nations using two-stage least squares estimates and a tissue threshold model. The authors found that debt levels up to 71.66 percent favorably impact growth. Afonso and Alves (2015) use OLS regression with fixed effects to explain the omitted variable bias, while a two-stage least squares estimator is employed to address the inhomogeneity issue.

The authors conclude that government debt harms economic growth in both the short and long term, with a negative impact of 20,01 percentage points for every 1 percentage point rise in public debt, although debt service has a 10 times more significant influence on economic growth. Bokemeier and Greiner (2015) employ a synthetic OLS regression to determine whether or not a nonlinear threshold exists between public debt and economic growth. Dinca and Dinca (2015) examine the relationship between the government debt-to-GDP ratio and GDP per capita growth rate for ten EU-27 countries from 1999 to 2010. All investigated countries exhibit a statistically significant nonlinear link between their government debt ratio

Intern. Journal of Profess. Bus. Review. | Miami, v. 8 | n. 5 | p. 01-24 | e02157 | 2023.

8

and GDP per capita growth rate, with a tipping point of 51%. Every 1 percentage point increase in the debt ratio above this threshold is anticipated to cancel out 0.1626 percentage points of GDP growth.

Using OLS regression, Eberhardt and Presbitero (2015) model the latent nonlinearity of countries' growth-debt relationships. Égert (2015) found a positive association between debt and growth at low debt levels, with adverse effects observed at higher debt levels. Besides, Woo and Kumar (2015) investigated the influence of enormous public debt on long-term economic development. The research is based on a cohort of countries spanning nearly four decades and employs multiple estimation techniques, including composite OLS, fixed effects, and generalized moment system regression. Gómez-Puig and Sosvilla-Rivero (2017) conducted a time series study for eleven Euro Area nations to determine whether changes in public debt damaged economic growth.

They found that a 10-point rise in debt is related to a 0.2% annual decrease in GDP per capita growth, with only high debt levels (above 90 percent of GDP) having a significant negative effect. The negative impact is predominantly attributable to a decline in labor productivity growth, primarily due to slower capital accumulation. In every country studied (except for Belgium), an increase in debt harms growth long before the termination of SGP debt. The identified limits ranged from 21 percent in France to 61 percent in Belgium.

Karadam (2018) developed a framework for panel data smooth transformation regression to determine the existence of threshold effects in the growth-public debt relationship. The results indicate that the impact of public debt on growth eventually becomes negative after a certain threshold, believed to be around 88% for poor nations and 106% for the remainder of the sample. Caner et al. (2019) tested for a nonlinear threshold link between public and private debt and GDP growth using synthetic OLS regression and the GMM approach over a more extended period and as a measure of financial and banking crises. The research found that the threshold effect of the interaction was negative and statistically significant at 137%, with the negative impact greater the more significant the private debt for a sample of 29 OECD nations. Bhimjee and Leo (2020) used quadratic polynomial regression to capture public debt's linear and nonlinear effects on economic output in 19 Euro Area nations from 1995 to 2016.

Alshammary et al. (2020) analyzed the association between public debt and economic growth for 20 Middle Eastern and North African nations from 1990 to 2016 using the fixed-effect threshold regression technique with variable control. The analysis showed that country-specific Laffer curves exist in the Euro Area for most nations' public debt and GDP trajectories.

Most nations in the sample have a debt threshold between 50 and 105 percent of GDP, but the average barrier for the Euro Area is 79 percent. The authors concluded that public debt is significant and beneficial, but when it is below 58% of GDP, it positively influences growth, but this effect becomes negative above this threshold.

Pham, Mai, and Nguyen (2020) use the bootstrapping approach to examine the presence of a debt growth threshold using World Bank data. The results indicate that public debt is not statistically significant until it exceeds 72.5%. Beyond this threshold, public debt has a statistically significant negative effect on economic growth. Swamy (2020) used the Solow growth model and panel data growth regression estimation with the country and time-specific fixed effects to identify a negative relationship between government debt and growth. Score estimates of the range of econometric parameters indicate an increase of 10 percentage points in the debt-to-GDP ratio and a decline of 23 basis points in annual growth.

Vinokurov et al. (2020) used panel regression and the GMM approach to analyze the nonlinear influence of government debt on economic growth. They found that countries with weak political institutions have a debt threshold of 37%, while those with strong institutions typically have debt thresholds exceeding 56%. They also found that, above the 100% level, a debt increase has a negative impact on economic output, while below this level, public debt will have a beneficial effect on economic growth, while above this limit, it will have a negative effect. This suggests that the connection between public debt and economic growth differs between industrialized and developing nations. The authors suggest decreasing excessive public spending, restructuring the tax system, and improving investment efficiency.

Baldacci and Kumar (2010) analyzed the effect of financial deficits and public debt on long-term interest rates from 1980 to 2008. Ghosh et al. (2013) empirically studied a sample of 23 advanced economies from 1970 to 2007 for their study. They found that the effect of public debt on economic growth is nonlinear, continuing positively at modest debt levels but beginning to deteriorate at roughly 90-100% of GDP. Gnegne and Jawadi (2013) found that public debt was disproportionate and nonlinear, leading to the conclusion that public debt appears to be based on a threshold effect. Schclarek (2004) concluded no meaningful correlation exists between government debt and economic development in industrialized nations.

Low levels of external debt are related to more substantial growth rates for developing nations. Studies on the impacts of excessive public debt have not yet yielded a consistent outcome. Besides, the existing empirical research suggests a nonlinear and concave functional link between public sector debt and economic expansion. This means that public debt and

growth have an inverted U-shaped connection so that when a threshold level of public debt is exceeded, the positive effect becomes negative. The results suggest that variable debt dynamics may raise the probability of detrimental effects on capital accumulation and productivity growth, which is likely to negatively influence economic growth.

This study will contribute to the existing empirical literature by detecting asymmetries and evaluating the impact of public sector debt on Vietnam's current economic growth. The collected results can be used to remedy the issue in time to preserve a stable macroeconomic environment.

METHODOLOGY

Methodology

In regression analysis involving time series data, if the regression model contains the variables' present values and the lagged values (past values), this model is known as the lagged distribution model. If the model's explanatory variables include one or more lagged values of the dependent variable, the model is called the autoregressive model.

The NARDL regression model will be considered and selected after conducting tests, especially testing for stationary time series. Non-stationary time series will be stationarily transformed by taking the difference at a higher order.

NARDL (Nonlinear Auto Regressive Distributed Lag) permits the determination of the disproportional influence of independent variables on the dependent variable:

$$dY_t = m + \alpha_1 \times dY_{t-1} + \alpha_2 \times dY_{t-2} + \ldots + \alpha_n \times dY_{t-1} + \beta_0 \times dX_t + \beta 1 \times dX_{t-1} + \ldots + \beta n \times dX_{t-n} + \beta_2 n \times X_{t-1} + ut$$

> Whereas dY_t and dX_t are the stationary variables after the difference, and ut is the white noise residual
> dY_{t-n} and dX_{t-n} are stationary variables at lags.
> Y_t : Dependent variable
> X_t : Independent variable

NARDL is used in regression analysis involving time series data:

$$Yt = v + \Phi_1 Y_{t-1} + \Phi_1 Y_{t-2} + \ldots + \Phi_p Y_{t-p} + P_0 X_t + P_1 X_{t-1} + \ldots + P_q X_{t-q} + u_t$$
$$Xt = A_1 X_{t-1} + \ldots + A_q X_{t-q} + \varepsilon_t$$

> $u_t \, \varepsilon_t$ are white noises with stationary covariance matrix
> Y is regressed against the lagged values of Y itself and other X variables.

According to Shin et al. (2014), the equation describing the relationship between the series can be rewritten as follows:

Intern. Journal of Profess. Bus. Review. | Miami, v. 8 | n. 5 | p. 01-24 | e02157 | 2023.

11

$$\Delta GDP_t = \alpha + \beta_1 GDP_{t-1} + \beta_2^+ EXP_{t-1}^+ + \beta_3^- EXP_{t-1}^- + \beta_4^+ IRB_{t-1}^+ + \beta_5^- IRB_{t-1}^- + \beta_6^+ LIA_{t-1}^+$$

$$+ \beta_7^- LIA_{t-1}^- + \beta_8^+ USD/VND00_{t-1}^+ + \beta_9^- USD/VND00_{t-1}^- + \sum_{i=0}^{m} (\theta_i^+ \Delta EXP_{t-i}^+$$

$$+ \theta_i^- \Delta EXP_{t-i}^-) + \sum_{i=0}^{m} (\theta_i^+ \Delta IRB_{t-i}^+ + \theta_i^- \Delta IRB_{t-i}^-) + \sum_{i=0}^{m} (\theta_i^+ \Delta LIA_{t-i}^+$$

$$+ \theta_i^- \Delta LIA_{t-i}^-) + \sum_{i=0}^{m} (\theta_i^+ \Delta USD/VND00_{t-i}^+ + \theta_i^- \Delta USD/VND00_{t-i}^-) + \varepsilon_t$$

Whereby, $\beta_i^+ (\sum_{i=0}^{m} \theta_i^+)$ and $\beta_i^- (\sum_{i=0}^{m} \theta_i^-)$ are the long-run (short-run) coefficients showing the positive and negative effects of EXP_t, IRB_t, $USD/VND00_t$, LIA_t on GDP_t.

The author constructs a NARDL research model to investigate the nonlinear impacts of public debt on Vietnam's economic growth based on related theories and previous empirical studies. NARDL is utilized because, when applied, it analyzes the sign and regression coefficient of the equation, actively assisting the analysis of the impact direction and magnitude of the variables included in the model.

Data and Model Specifications:

The study includes five variables, which are presented in detail in Table 1: economic growth, government spending, lending interest rates, USD/VND exchange rate, and government debt. The independent variable GDP symbolizes economic growth, whereas public debt reveals the government's domestic and foreign debt levels. In addition, the study employs control variables, including government expenditures, lending interest rates, and the USD/VND exchange rate. These are the transmission factors associated with monetary and fiscal policies for analyzing public debt's effect on economic growth. These model variables are consistent with theory and prior empirical research (Mencinger et al., 2015; Checherita and Rother, 2010; Bexheti et al., 2020).

Table 1: Description of the model variables

Variable	Description	Unit	Notes
GDP	Economic growth	%	Dependent variable
LIA	Public debt	Logarit	Asymmetric variable
EXP	Government Expenditures	Logarit	Control variable
IRB	Lending rate	%	Control variable
USD/VND00	USD/VND exchange rate	Logarit	Control variable

Source: Prepared by the authors (2023)

Intern. Journal of Profess. Bus. Review. | Miami, v. 8 | n. 5 | p. 01-24 | e02157 | 2023.

12

RESULTS AND DISCUSSION

Stationary Test for Data Series

To test whether Yt is stationary, the Dickey-Fuller test is conducted:

Ho: $\beta_1 = 1$

H_1: $\beta_1 < 1$

With significance level $\alpha = 0.05$, if Ho is accepted, the time series is non-stationary; if Ho is rejected, the time series is stationary. Applying the Dickey–Fuller test for data series EXP, GDP, IRB, USD/VND00, and LIA.

Table 2: Unit root test of data series (d=0)

Augmented Dickey-Fuller test statistic	t-Statistic	Prob.*
Null Hypothesis: GDP has a unit root	-2.874037	0.0529
Null Hypothesis: LNUSDVND00 has a unit root	-1.026399	0.7404
Null Hypothesis: IRB has a unit root	-1.748785	0.4032
Null Hypothesis: EXP has a unit root	-2.317600	0.1692
Null Hypothesis: LIA has a unit root	-1.534560	0.5113

* $p < 0.05$ Source: Prepared by the authors (2023)

Continue to test the series GDP, IRB, USD/VND00, EXP, and LIA stationary at the first difference. Table 2 showed that the test results, with the significance level $\alpha = 0.05\%$, all accept the hypothesis Ho. Thus, the series GDP, IRB, USD/VND00, EXP, and LIA all do not stop at difference d = 0. The test results with significance level $\alpha = 0.05\%$ reject the hypothesis Ho, so the series GDP, IRB, USD/VND00, EXP, and LIA stop at the first difference. Thus, the data series are discontinued at the first difference.

Table 3: Unit root test of data series (d=1)

Augmented Dickey-Fuller test statistic	t-Statistic	Prob.*
Null Hypothesis: GDP has a unit root	-4.759976	0.0002
Null Hypothesis: LNUSDVND00 has a unit root	-2.302451	0.0173
Null Hypothesis: IRB has a unit root	-8.221248	0.0000
Null Hypothesis: EXP has a unit root	-1.424586	0.0466
Null Hypothesis: LIA has a unit root	-6.325325	0.0000

* $p < 0.05$ Source: Prepared by the authors (2023)

Table 3 displays the outcomes of the initial unit root. The results indicate that the series GDP, IRB, USD/VND00, EXP, and LIA stop at the difference I(1). The results demonstrate that no series prevents at the second order, allowing this research to proceed to the NARDL model. Unit root testing is essential for the NARDL model because the lagged autoregressive model applies stationary series at I(0) or I(1) or a combination of I(0) and I(1). The model cannot be applied when any variable stops at second order I(2). Because the inclusion of

Intern. Journal of Profess. Bus. Review. | Miami, v. 8 | n. 5 | p. 01-24 | e02157 | 2023.

13

variable I(2) invalidates the F-statistic of the cointegration test (Ibrahim, 2015; Ouattara, 2004). In the NARDL methodology, unit root testing is essential.

The Ramsey Test

Table 4: The Ramsey RESET Test

NARLD02: GDP1 GDP1(-1) GDP1(-2) EXP1_POS EXP1_NEG EXP1_NEG(-1) IRB1_POS IRB1_NEG IRB1_NEG(-1) LIA1_POS LIA1_NEG USDVND1_POS USDVND1_NEG C			
	Value	**df**	**Probability**
t-statistic	0.443052	67	0.0065
F-statistic	0.196295	(1, 67)	0.0065
F-test summary:			
	The sum of Sq.	**df**	**Mean Squares**
Test SSR	0.113345	1	0.113345
Restricted SSR	38.80081	68	0.570600
Unrestricted SSR	38.68746	67	0.577425

Source: Prepared by the authors (2023)

Table 4 shows that the hypothesis Ho is rejected at the significance level $\alpha = 0.05$, p-value = 0.0065 < α. The model has a suitable functional form for inclusion in the regression.

The Breusch/Pagan Test

Table 5: The Breusch/Pagan test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	2.517329	Prob. F(12,68)	0.0084
Obs*R-squared	24.91492	Prob. Chi-Square(12)	0.0152
Scaled explained SS	48.44180	Prob. Chi-Square(12)	0.0000

Source: Prepared by the authors (2023)

Before estimating the NARDL, several tests, including the Ramsey test for the functional problem and the Breusch/Pagan variance test, were conducted. Table 5 shows that the results obtained from the Breusch/Pagan test show that at the significance level $\alpha = 0.05$, p-value = 0.0084 < α should reject the hypothesis Ho. The model is not subject to variance. Table 6 illustrates the NARDL model. The results demonstrate that the model does not contain any flaws mentioned above; hence, this study can be utilized to estimate NARDL.

Table 6: The NARDL model

Variables	Constant	Std. Err.	t-values	P-values
GDP1(-1)	0.181591	0.112907	1.608325	0.1124
GDP1(-2)	-0.406895	0.100292	-4.057119	0.0001
EXP1_POS	-7.792198	1.478342	-5.270904	0.0000
EXP1_NEG	-4.044499	0.943741	-4.285600	0.0001

Intern. Journal of Profess. Bus. Review. | Miami, v. 8 | n. 5 | p. 01-24 | e02157 | 2023.

14

EXP1_NEG(-1)	-3.502798	1.351912	-2.590995	0.0117
IRB1_POS	0.040734	0.123100	0.330899	0.7417
IRB1_NEG	0.169743	0.084964	1.997836	0.0497
IRB1_NEG(-1)	-0.194678	0.103401	-1.882748	0.0640
LIA1_POS	0.352669	1.051407	0.335425	0.7383
LIA1_NEG	-0.557014	1.071044	-0.520066	0.6047
USDVND1_POS	-9.718015	9.086940	-1.069449	0.2886
USDVND1_NEG	-3.628589	8.181509	-0.443511	0.6588
C	0.596055	0.288818	2.063777	0.0429
R-squared	0.564925			
Prob(F-statistic)	0.000000			
Ramsey RESET	P-value = 0.0065			
Breusch/Pagan heteroskedasticity	P-value = 0.0084			

Source: Prepared by the authors (2023)

Table 6 shows that the coefficient of determination is usually denoted as a statistic that sums up the explainability of an equation. It represents the dependent variable's rate of variation caused by the explanatory variables' total variability. R-squared is 0.564925 or 56,49% explains the interpretation of the model.

Nonlinear Cointegration Test

Table 7: Nonlinear cointegration test

Co-integrated test statistics	
F-stat: 7.357901	t_BDM: 1.608325

Source: Prepared by the authors (2023)

Table 7 shows that the F-statistic is more significant than t_BDM, demonstrating a long-term relationship between government debt and economic growth. When a nonlinear cointegration estimate is provided, the long-run connection can be studied further.

Short-Run and Long-Run Asymmetry Testing:

Other association. The activities of commercial banks are related to the construction of the national financial system and directly affect the country's economic development. Therefore, credit crisis, especially bad debt can lead to the failure of banks, threatening the whole economy and national financial security. The formation of lousy debt not only hinders the healthy development of the banking system but also affects commercial banks and the economy, causing economic recession and raising many social problems. Especially in Vietnam, most enterprises are small and medium-sized, and operating capital mainly relies on

Intern. Journal of Profess. Bus. Review. | Miami, v. 8 | n. 5 | p. 01-24 | e02157 | 2023.

15

loans from credit institutions. Meanwhile, bad debt makes commercial banks forced to tighten tight lending, causing "blockage" of working capital and significantly affecting businesses.

Table 8: Short-run and long-run asymmetry testing

Test	Asymmetric relationship in the long run		Asymmetric relationship in the short run	
	F-stat	Sig.	F-stat	Sig.
	WLR = 2.034333	0.0138	WSR = 16.74844	0.000
Results	**Asymmetrical relationship**		**Asymmetrical relationship**	

Source: Prepared by the authors (2023)

Table 8 shows that the asymmetry test was performed to assess the nonlinear impact of government debt on economic development. According to Table 8, WLR = 2.034333 (with the associated probability value of 0.0138) and WLR = 16.74844 (with the accompanying probability value of 0.000) indicate that the government debt influence on economic growth is statistically significant in both the short run and the long run.

The Wald Test

Table 9: The Wald test in the short run and the long run

The Wald test		
Value (= 0)	P	Std. Err.
C(3) = C(4) + C(5)	-0.333939	0.0261623

Table 9 shows that the Wald test is utilized to assess the disproportionate influence of government debt on economic growth. The results of Table 9 indicate that at the equilibrium level C3=C4+C5 (with a corresponding probability value of 0.02062), the influence of government debt on economic growth is statistically significant in both the short and long term.

Asymmetrical Impact of Public Debt on Economic Growth in the Long-Run

Table 10: Asymmetrical implications of public debt on economic growth in the long-run

Variables	Coef.	Std. Err.	t- Statistic	P-values
C	0.684279	0.314257	2.177453	0.0329
GDP1(-1)*	-1.249232	0.136620	-9.143850	0.0000
EXP1_POS**	-7.849069	1.487857	-5.275420	0.0000
EXP1_NEG(-1)	-7.515130	1.512799	-4.967698	0.0000
IRB1_POS**	0.066491	0.130088	0.511122	0.6109
IRB1_NEG(-1)	-0.032338	0.097176	-0.332774	0.7403
LIA1_POS**	-0.209970	1.054558	0.199107	0.8428
LIA1_NEG**	1.174791	1.250243	-0.939650	0.3507
USDVND1_POS**	-10.80028	14.13692	-0.763977	0.4475
USDVND1_NEG**	4.574194	9.746040	0.469339	0.6403

D(GDP1(-1))	0.415322	0.100250	4.142873	0.0001
D(EXP1_NEG)	-4.022579	0.960627	-4.187452	0.0001
D(IRB1_NEG)	0.140201	0.084974	1.649934	0.1036

* < 0.1; ** < 0.05; *** < 0.01 Source: Prepared by the authors (2023)

Table 10 shows that the modeling results presented in table 10 indicate that economic growth can return to long-term equilibrium following each short-term shock to government debt. A one percent increase in government debt results in negative variations of 0.209970 percent in economic growth. However, a one percent decrease in government debt results in favorable variations of 1.174791 percent in economic growth.

Accumulation of residuals in the NARDL model:

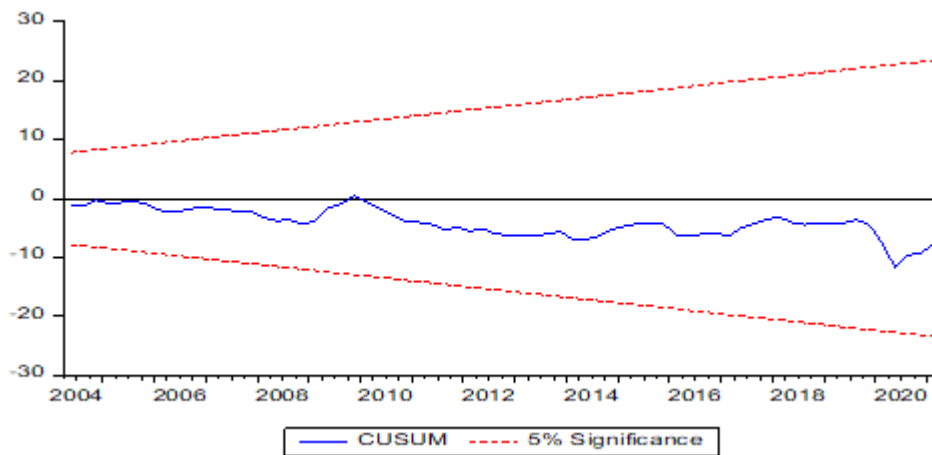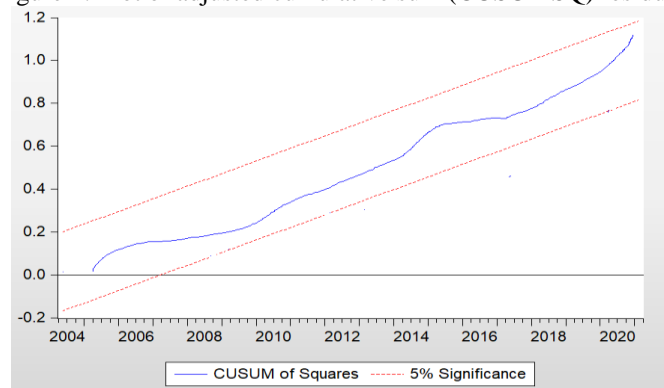Figure 1: Plot of cumulative sum (CUSUM) residuals

Figure 2: Plot of adjusted cumulative sum (CUSUMSQ) residuals

Figures 1 and 2 showed that the stability test was conducted on the predicted parameters using Cusum and Cusumsq to determine the statistical significance of NARDL. The results demonstrate that Cusum and Cusumsq lie within the critical lines with a significance level of

5%, indicating that the model is stable and does not experience unexpected shocks or structural failures.

Asymmetric Effects of Changes in Government Debt on Economic Growth:

Figure 3: Asymmetric cumulative dynamic multiplier graph of public debt and economic growth
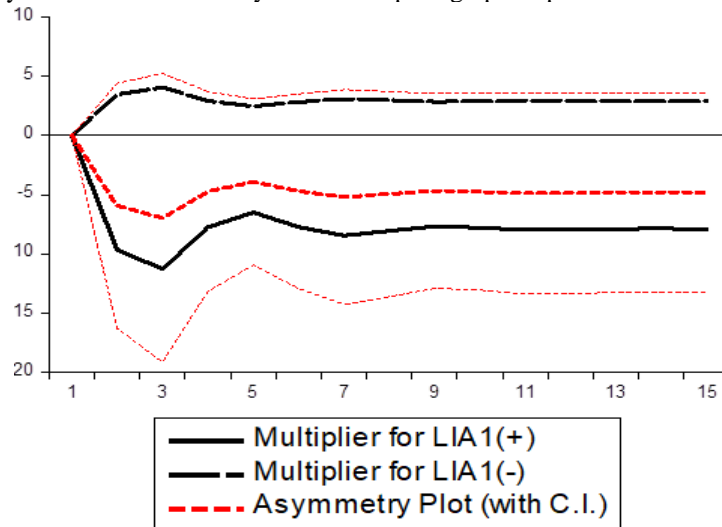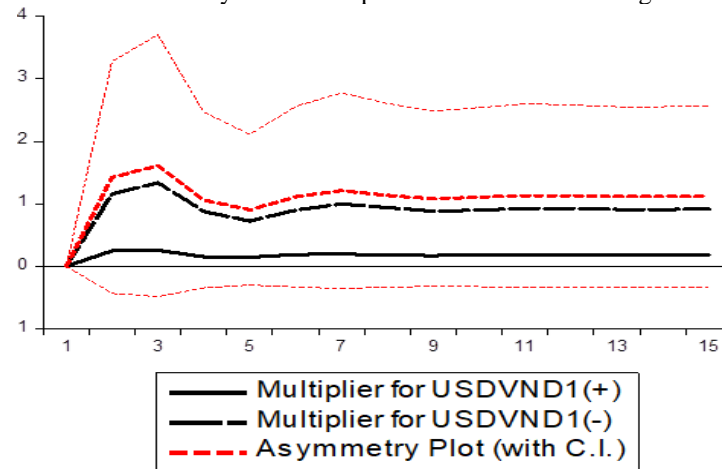

Figure 4: Asymmetric cumulative dynamic multiplier of USDVND exchange rate on economic growth

Government debt and economic growth have an inverted U-shaped relationship. To study the asymmetric effect of changes in government debt on short- and long-term economic growth, the author undertakes a cumulative dynamic multiplier analysis derived from the NARDL model. The influence of positive and negative changes in government debt on economic development is depicted in Figure 3. Economic growth responds more quickly and promptly to an increase in government debt than to a decrease in government debt during the

short term. In a long time, however, growing government debt has negative impacts on economic growth, while lowering government debt has positive effects on economic growth; this means that an increase in government debt will, to some extent, negatively influence economic growth.

Consequently, government debt has both short- and long-term asymmetric effects on economic growth. In nations with emerging economies like Vietnam, budget deficits and rising public debt are still prevalent. In the early phases of an economy's development, the production process requires substantial budgetary capital support. However, if the operational and management policies of the economy are ineffective over the long term, the budget deficit, public debt, and economic pressure will likely increase. Increasing government debt has more significant adverse effects on the economy at this time, consistent with earlier empirical studies: Kumar and Woo (2010); and Reinhart and Rogoff (2007) and (2010). Especially in developing nations such as Vietnam, the link between government debt and economic growth is asymmetrical. The difference between the growing and decreasing changes (red dashed line) is statistically significant throughout the whole cycle in question. Thus, government debt has both short- and long-term unbalanced consequences for economic growth.

The exchange rate is one of the government's tools for achieving its monetary policy and economic growth objectives. Figure 4 illustrates the effect of favorable USD/VND exchange rate fluctuations on economic expansion. In the short term, economic growth responds more quickly and visibly to an increase in the exchange rate than it does to a reduction in the exchange rate. On the other hand, in the long run, both an increase in the exchange rate and a fall in the exchange rate will positively affect the economy's growth. A positive influence on economic growth will also be caused by a neutral exchange rate. This is consistent with the State Bank of Vietnam's present exchange rate control system.

Nevertheless, budget deficits and rising public debt are common in nations with growing economies, such as Vietnam. Especially in developing countries such as Vietnam, the link between government debt and economic growth is asymmetrical. The budget must constantly provide a sizable quantity of capital assistance to the economy's manufacturing process in its early phases. However, if the economy's operational and management strategies are ineffective, it will typically drag down the budget deficit, increase public debt, and pressure the economy. Rising government debt has more significant adverse effects on the economy now. Consistent with prior experimental research by Checheri-ta-Westphal and Rother (2010), Kumar and Woo

(2010), and Reinhart and Rogoff (2005), the current study's findings correspond to Checcherita-Westphal and Rother (2010), Kumar and Woo (2010) (2010b).

CONCLUSION

The study investigates and analyses the direct influence of public debt on economic growth in Vietnam. The results indicate a disproportional association between public sector debt levels and short- and long-term economic growth. The results are consistent with recent empirical studies showing a nonlinear relationship between some nations' public debt and economic development. The NARDL model demonstrates that public debt and yearly GDP growth have a nonlinear relationship with the probable critical threshold; surpassing the public sector debt ratio hurts developing economies like Vietnam.

This empirical research on Vietnamese economies demonstrates that public debt has a favorable effect on economic growth at low levels. Nonetheless, this influence grows more negative when public debt increases over a certain threshold. Consequently, the results are compatible with hypothesis H1.

The research results are also compatible with hypothesis H2, based on the broad theoretical premise that higher public debt harms economic growth. Increasing governmental debt hurts economic expansion. The results are consistent with prior empirical evidence regarding developing and emerging nations.

The effect of public debt on economic growth is subjected to research, testing, and empirical evaluation. As a result, the NARDL regression model demonstrates that economic growth and public debt have a nonlinear relationship. Low public debt positively affects economic growth, while rising public debt harms economic growth in Vietnam, as determined through regression analysis. The findings align with broad theoretical assumptions and previous research. The government must create a business-friendly environment to promote economic growth and attract significant investment.

REFERENCES

Abu, B., & Hassan (2008). Empirical evaluation on the external debt of Malaysia. *International Business & Economics Research Journal*, 7(2), 95-108.

Abubakar, A. B., & Suleiman, O. M. (2020). Permanent and transitory effect of public debt on economic growth. *Journal of Economic Studies*, 48(5), 1064-1083.

Adam, C. S., & Bevan, D. L. (2005). Fiscal deficits and growth in developing countries. *Journal of Public Economics*, 89(4), 571-597.

Al-Obaidi, M. B. M., & Almashhadani, A. N. (2022). Assessment of the financial sustainability of external debt in Iraq: An econometric analysis. *International Journal of Professional Business Review*, 7(5), 1-24.

Alshammary, M. D., Karim, Z. A., Khalid, N., & Ahmad, R. (2020). Debt-growth nexus in the MENA Region: Evidence from a panel threshold analysis. *Economies*, 8(4), 1-12.

Ardagna, S., Caselli, F., & Lane, T. (2007). Fiscal discipline and the cost of public debt service: some estimates for OECD countries. *Journal of Macroeconomics*, 7(1), 1-33.

Baa, R., & Chattoraj, A. K. (2022). The significance, role, and need for public sector enterprises in economic growth. *International Journal of Professional Business Review*, 7(5), 1-16.

Babu, J. O., Kiprop, S., Kalio, A. M., & Gisore, M. (2014). External debt and economic growth in the East Africa community. *African Journal of Business Management*, 8(21), 1011-1018.

Barro, R. J. (1989). The Ricardian approach to budget deficits. *Journal of Economic Perspectives*, 3(2), 37-54.

Baum, A., Checherita-Westphal, C., & Rother, P. (2012). Debt and growth: New evidence for the Euro Area. *ECB Working Paper*, 1450(1), 1-22.

Bökemeier, B., & Greiner, A. (2015). On the relation between public debt and economic growth: an empirical investigation. *Economics and Business Letters*, 4(2), 137-150.

Buchanan, J. M., & Roback, J. (1987). The incidence and effects of public debt in the absence of fiscal illusion. *Public Finance Quarterly*, 15(1), 5-25.

Buffie, E. F., Berg, A., Pattillo, C., Portillo, R., & Zanna, L. F. (2012). *Public investment, growth, and debt sustainability: Putting together the pieces (IMF Working Paper No. 12/144)*. Washington, DC: International Monetary Fund.

Caner, M., Grennes, T., & Koehler-Geib, F. (2010). *Finding the tipping point: When sovereign debt turns bad. In C. Braga & G. Vincelette (Eds.), Sovereign debt and the financial crisis: Will this time be different?* Washington, DC: The World Bank, 1-460.

Checherita-Westphal, C., & Rother, P. (2010). *The impact of high and growing government debt on economic growth. An empirical investigation for the Euro Area*. ECB Working Paper. No. 1237. August 2010.

Choong, C. K., Lau, E., Liew, V. K. S., & Puah, C. H. (2010). Do debts foster economic growth? The experience of Malaysia. *African Journal of Business Management*, 4(8), 1564-1575.

Christensen, J. E. (2004). *Domestic debt markets in Sub-Saharan Africa (IMF Working Paper No. 04/46)*. Washington, DC: International Monetary Fund.

Intern. Journal of Profess. Bus. Review. | Miami, v. 8 | n. 5 | p. 01-24 | e02157 | 2023.

21

Claessens, S. (1990). The debt Laffer curve: Some estimates. *World Development*, 18(12), 1671-1677

Clements, B., Bhattacharya, R., & Nguyen, T. Q. (2003). *External debt, public investment and growth in low-income countries (IMF Working Paper No. 03/249)*. Washington, DC: International Monetary Fund.

Cochrane, J. H. (2011b). Understanding policy in the great recession: Some unpleasant fiscal arithmetic. *European Economic Review*, 55(4), 2-30.

Cordella, T., Ricci, L. A., & Ruiz-Arranz, M. (2010). Debt Overhang or Debt Irrelevance?. *IMF Staff Papers*, 57(1), 1-24.

Cox, D., & Jappelli, T. (1990). Credit rationing and private transfers: Evidence from survey data. *Review of Economics and Statistics*, 72(4), 445-454.

Diamond, P. A. (1965). National debt in a neoclassical growth model. *American Economic Review*, 55(5), 1126-1150.

Donayre, L., & Taivan, A. (2017). Causality between public debt and real growth in the OECD: a country by country analysis. *Journal of Applied Economics and Policy*, 36(2), 156-170.

Eberhardt, M., & Presbitero, A. F. (2015). Public Debt and Growth: Heterogeneity and Non-linearity. *Journal of International Economics*, 97(1), 45-58.

Égert, B. (2012). Public debt, economic growth, and nonlinear effects: Myth or reality?. *OECD Economic Department Working Paper*, 9(3), 1-23.

Égert, B. (2015). Public Debt, economic growth, and nonlinear effects: myth or reality?. *Journal of Macroeconomics*, 43(4), 226-238.

Freeman, S., & Webber, D. J. (2009). Basic needs, government debt, and economic growth. *The World Economy*, 32(6), 965-994.

Greiner, A. (2006). Human capital formation, public debt, and economic growth. *Journal of Macroeconomics*, 30(3), 415-427.

Greiner, A. (2011). Economic growth, public debt, and welfare: Comparing three budgetary rules. *German Economic Review*, 12(3), 205-222.

Gulde, A., Pattillo, C., & Christensen, J. (2006). *Sub-Saharan Africa: Financial sector challenges*. Washington, DC: International Monetary Fund.

Herndon, T., Ash, M., & Pollin, R. (2013). *Does high public debt consistently stifle economic growth? A critique of Reinhart and Rogoff (PERI Working Paper No. 322)*. Amherst: Political Economy Research Institute, University of Massachusetts.

Herndon, T., Ash, M., & Pollin, R. (2014). Does high public debt consistently stifle economic growth? A critique of Reinhart and Rogoff. *Cambridge Journal of Economics*, 38(4), 257-279.

International Monetary Fund. (2005). *Monetary and fiscal policy design issues in low-income countries*. Washington, DC: Author.

Intern. Journal of Profess. Bus. Review. | Miami, v. 8 | n. 5 | p. 01-24 | e02157 | 2023.

22

International Monetary Fund. (2013). *Public sector debt statistics: A guide for compilers and users*. Washington, DC: Author.

Karadam, D. Y. (2018). An investigation of nonlinear effects of debt on growth. *Journal of Economic Asymmetries,* 18(2), 1-13.

Kharusi, S. A., & Ada, M. S. (2018). External debt and economic growth: the case of emerging economy. *Journal of Economic Integration*, 33(1), 1141-1157.

Kirchner, M., Cimadomo, J., & Hauptmeier, S. (2010). *Transmission of government spending shocks in the Euro Area: Time Variation and Driving Forces (ECB Working Paper Series No. 1219)*. Frankfurt: ECB.

Krugman, P. (1988). Financing vs. forgiving a debt overhang. *Journal of Development Economics*, 29(3), 253-268.

Krugman, P. (1989). *Financing vs. forgiving a debt overhang*. NBER Working Paper Series N 2486.

Krugman, P. (2013). *How the case for austerity has crumbled*. New York Review (June 6).

Krumm, L. K. (1985). *The external debt of Sub-Saharan Africa: origins, magnitude, and implications for action*. Working Paper, 741, World Bank, Washington, DC.

Kumar, M. S., & Woo, J. (2010). *Public debt and growth (IMF Working Paper 10/174)*. Washington, D.C.: IMF.

Lim, J. J. (2019). Growth in the shadow of debt. *Journal of Banking and Finance*, 103(3), 98-112

Lybeck, J. A. (1988). *Comparing government growth rates: The non-institutional vs. the institutional approach*. In J. A. Lybeck, & M. Henderson (Eds.), Explaining the growth of government (pp. 29-48). Amsterdam, the Netherlands: North-Holland.

Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of financial economics*, 5(2), 147-175.

Ndikumana, L. & Boyce, J. K. (2003). Public debts and private assets: Explaining capital flight from Sub-Saharan African countries. *World Development*, 31(1), 107-130.

Ndikumana, L., & Boyce, J. K. (2015). Africa's odious debts: How foreign loans and capital flight bled a continent. *Journal of Economic and Social Thought*, 3(2), 217-223.

Ogunmuyiwa, M. S. (2011). Does external debt promote economic growth in Nigeria? *Current Research Journal of Economic Theory*, 3(1), 29-35.

Owusu-Nantwi, V., & Erickson, C. (2016). Public debt and economic growth in Ghana. *African Development Review*, 28(3), 116-126.

Panizza, U., & Presbitero, A. F. (2012). *Public debt and economic growth: Is there a causal effect*? POLIS Working Paper. No. 198. April 2012.

Intern. Journal of Profess. Bus. Review. | Miami, v. 8 | n. 5 | p. 01-24 | e02157 | 2023.

23

Pattillo, C., Poirson, H., & Ricci, L. (2002). *External debt and growth (IMF Working Paper No. 02/69)*. Washington, DC: International Monetary Fund.

Pham, T. H. A., Mai, B. D., & Nguyen, T. T. (2020). The Impact of Public Debt on Economic Growth of ASEAN 1 3 Countries. *International Journal of Economics and Business Administration*, 8(4), 87-100.

Presbitero, A. F. (2010). *The debt-growth nexus in Jamaica*. Rome, Italy: Università Politecnica delle Marche.

Reinhart, C. M., & Rogoff, K. S. (2010). Growth in a time of debt. *American Economic Review*, 100(2), 1-9.

Reinhart, C. M., & Rogoff, K. S. (2012). From the financial crash to the debt crisis. *American Economic Review*, 101(5), 1676-1706.

Saifuddin, M. (2016). Public debt and economic growth: Evidence from Bangladesh. *Global Journal of Management and Business Research: Economics and Commerce*, 16(5), 65-73.

Shin, Y., Yu, B., & Greenwood-Nimmo, M. (2014). *Modeling asymmetric cointegration and dynamic multipliers in a nonlinear ARDL framework*. In Festschrift in Honor of Peter Schmidt, pp. 281-314. Springer New York

Shkolnyk, I., & Koilo, V. (2018). The relationship between external debt and economic growth: empirical evidence from Ukraine and other emerging economies. *Investment Management and Financial Innovations*, 15(1), 387-400.

Stambuli, P. K. (1998). Causes and consequences of the 1982 world debt crisis. *Predoctoral Research Paper Department of Economics University of Surrey Guildford*, 3(2), 1-35.

Swamy, V. (2020). Debt and growth: Decomposing the cause and effect relationship. *International Journal of Finance and Economics*, 25(2), 141-56.

Teles, V. K., & Mussolini, C. C. (2014). Public debt and the limits of fiscal policy to increase economic growth. *European Economic Review*, 66(5), 1-15.

Topal, P. (2014). *Threshold effects of public debt on economic growth in the euro area economies*. SSRN Working Paper, Social Science Research Network.

Uzun, A., Kabadayi, B., & Emsen, O. S. (2012). The impacts of external debt on economic growth in transition economies. *Chinese Business Review*, 11(3), 491-499.

Vinokurov, E., Lavrova, N., & Petrenko, V. (2020). *Optimal debt and the quality of institutions*. Eurasian Development Fund for Stabilization and Development Working Paper No. 20/4, Eurasian Development Bank.

Woo, J., & Kumar, M. S. (2015). Public debt and growth. *Economica,* 82(328), 705-739.

Yeasmin, F., & Chowdhury, M. N. M. (2014). Impact of foreign debt on economic growth in Bangladesh: An econometrics analysis. *International Journal of Developing and Emerging Economics*, 2(4), 1-23.