

Long-Term and Short-Term Impact of External Debt on Economic Growth in Laos: An ARDL Model Analysis

Keoudone Keotheaphar^{1*}, Vilayvanh Srithilat¹, Khammai Bounphone¹

¹School of Economics and Trade, Hunan University, Changsha, China

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*Corresponding author: Keoudone Keotheaphar

School of Economics and Trade, Hunan University, Changsha, China

Abstract

This study investigates the impact of external debt on the economic growth of Laos, with a specific focus on the evolving structure of external debt in the country spanning 1995 to 2020. It employs an Autoregressive Distributed Lag (ARDL) model to establish long-term cointegration among key economic variables. The variables under scrutiny include human capital, labor force participation, external debt, inflation, and exchange rates, which are analyzed for their roles in shaping economic growth in Laos. In the long term, the study identifies robust and statistically significant relationships. Notably, human capital and the labor force emerge as influential drivers of economic growth, with coefficients of 2.0594 and 0.0591, respectively. Conversely, there is a substantial negative correlation between the external debt ratio per GDP and inflation rate with economic growth. This indicates that increases in these variables are associated with diminished economic expansion over time. In the short term, the study reveals that human capital and labor force participation positively impact Laos' economic growth. In contrast, the short-term effects of the external debt ratio, inflation rate, and exchange rate are adverse, indicating potential economic challenges that need to be addressed promptly. Based on findings, this study provides valuable insights into the determinants of economic growth in Laos, both in the long and short terms. These findings can inform policymakers and researchers in the development of more effective economic strategies, taking into account Laos' unique economic context.

Keywords: External Debt, Economic Growth, ARDL Model Analysis, Lao PDR.

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I. INTRODUCTION

In the ever-changing landscape of global economics, nations constantly grapple with the intricate web of financial decisions that underpin their development trajectories. One such critical factor that plays a central role in shaping the economic destiny of countries is external debt. The Lao People's Democratic Republic (Lao PDR), like many other developing nations, stands at a crossroads in its pursuit of sustainable economic growth. The prudent management of external debt has become a pivotal component of this journey.

The concept of external debt, often characterized by loans and financial obligations owed to foreign creditors, transcends the boundaries of mere fiscal transactions. It represents a strategic lever for nations seeking to bridge resource gaps, invest in critical infrastructure, and stimulate economic expansion. However, the reliance on external borrowing is a double-edged sword, as it necessitates a careful balancing act.

This research embarks on a journey to explore the multifaceted relationship between external debt and economic growth within the context of Lao PDR. In a nation striving to achieve rapid economic transformation while grappling with limited fiscal resources, the management of external debt becomes a matter of paramount importance.

Lao PDR has faced unique economic challenges and opportunities. The nation's revenue streams, particularly from taxation, remain modest, necessitating innovative financial strategies. To fuel its ambitious development plans, Lao PDR has sought external borrowings, often characterized by favorable terms such as long repayment periods and low-interest rates. These financial instruments have the potential to supercharge

infrastructure development, stimulate investment, and trigger widespread prosperity.

However, the burgeoning external debt, when not judiciously managed, could trigger a domino effect with potential consequences for economic growth. This paper aims to investigate whether the escalating external debt, particularly when surpassing internationally recognized benchmarks, casts a shadow over Lao PDR's economic growth prospects.

Our research seeks to shed light on the nuances of this relationship, drawing from theoretical insights and empirical data. By examining the impact of external debt on economic growth in Lao PDR, we endeavor to provide invaluable insights for both policymakers and researchers. The findings of this study have the potential to serve as a compass for guiding economic decisions, facilitating sustainable growth, and supporting the broader development aspirations of Lao PDR.

This introduction establishes the foundation for our research, emphasizing the critical role of external debt in the economic growth of Lao PDR. It sets the stage for a thorough exploration of the subject, as we delve into existing research, our research methodology, data analysis, and the eventual findings and recommendations that will enrich our understanding of this dynamic relationship.

II. LITERATURE REVIEW

Extensive research has been conducted by scholars to examine the intricate connection between public debt and economic growth, yielding diverse outcomes. This literature review spotlights some noteworthy findings in both favorable and unfavorable directions.

Positive Impact: Chulalongkorn Tribe (2022): A positive association between public debt and economic growth was discovered in this study, although with a negative long-term consequence.

Karadam (2018): Karadam's research also reveals a positive effect of public debt on economic growth. Obademi Olalekan Emmanuel (2012): Emmanuel's findings align with the notion of a positive link between public debt and economic growth. Alshammary *et al.*, (2020): This study contributes to the optimistic viewpoint on the impact of public debt, particularly in terms of economic development.

Negative Impact: Jack Salmon (2021): Salmon's research supports a negative correlation

between public debt and economic growth. Pham *et al.*, (2020): The study by Pham and colleagues emphasizes the detrimental effect of public debt on economic growth. Brida *et al.*, (2017): Brida and their team also suggest an adverse correlation between public debt and economic growth. Mufaro *et al.*, (2018): Mufaro and fellow researchers find that public debt has an adverse impact on economic growth. Tawfiq *et al.*, (2017): Tawfiq and their study point to the negative repercussions of public debt on economic growth. Ahmed *et al.*, (2015): The research by Ahmed and associates supports the idea that public debt hampers economic growth. Woo *et al.*, (2015): Woo and colleagues report an unfavorable influence of public debt on economic growth. Baglan *et al.*, (2016): Baglan and their research team echo concerns about the negative impact of public debt, especially external debt, on economic growth. Babu *et al.*, (2014): Babu's research also finds a detrimental relationship between public debt and economic growth. Rabia *et al.*, (2012): The study by Rabia and associates highlights the adverse consequences of public debt, particularly external debt, on economic growth.

Mixed Findings: Stella Spilioti *et al.*, (2015): Spilioti and colleagues indicate mixed findings regarding the impact of public debt on economic growth. Treasury Department (2012): The Treasury Department's research shows an increasing trend in foreign debt creation in conjunction with domestic economic development, with loans primarily directed toward economic infrastructure development.

The literature presents a spectrum of viewpoints on the connection between public debt and economic growth, with findings that range from positive to negative. It is essential to consider these diverse perspectives when assessing the influence of public debt on economic development, as they may be influenced by specific economic conditions and policy choices in different contexts.

III. MATERIALS AND METHODS

3.1 Data Sources

The study explores the the impact of external debt ratio (DR)_t, Human capital (HU)_t, Labor force participation (LAB)_t, Official Exchange rate (EXR)_t, and Inflation rate (INF)_t, and economic growth in Lao PDR using annual time series data spanning from 1995 to 2020. The data for this research has been sourced from reputable international databases, including the World Development Indicator (WDI) for various variables.

Table 1: presents the variables used in this study

Variables	Description	Source
RGDP	Gross domestic production (constant 2015, US\$)	WDI
DR	the ratio of External debt to the gross domestic product at constant price (RGDP)	WDI
ED	External debt stocks (PD) public and publicly guaranteed (current US\$)	WDI
INF	Inflation, consumer prices (annual %)	WDI
LAB	Labor force participation rate, total (% of total population ages 15+) (modeled ILO estimate)	WDI
HU	Human capital (School enrollment, secondary (% gross))	WDI
EXR	Official exchange rate (LCU per US\$, period average)	WDI

Source: World Development Index, 2022

3.2. Data Analysis

3.2.1 Autoregressive Distributed Lag (Ardl) Model

The advantage of the ARDL (Autoregressive Distributed Lag) bound test approach, as proposed by Pesaran *et al.*, in 2001, lies in its ability to analyze variables with mixed orders of stationarity, including I(0) and I(1). In contrast, the well-known Johansen (1990) and Johansen and Juselius (1990) cointegration tests require that all selected variables be stationary at I(1) to determine the existence of a long-term association. The ARDL bound test overcomes this limitation.

The ARDL model will be utilized to establish the existence of a long-run relationship between infrastructure investment and economic growth. The F-statistic will be employed to assess the intensity of cointegration. Additionally, diagnostic tests will be conducted to validate the model's underlying assumptions, including the Jarque-Bera test for normality, the Breusch-Godfrey Serial Correlation LM test, the Breusch-Pagan-Godfrey test, and the Harvey test.

3.2.2. Error Correction Model (ECM)

An Error Correction Model (ECM) will be utilized to investigate the short-term dynamics and the rate of adjustment toward long-term equilibrium between infrastructure investment and economic growth. The adjustment speed is encapsulated by the error correction term (ECTt-1) in Model 03. The ECTt-1 value must be not only negative but also statistically significant at the 5% level, signifying the importance of the short-term to long-term equilibrium adjustment process.

3.2.3. Model Stability Assessment

To ensure the stability of the models utilized, CUSUM and CUSUMQ tests will be conducted, which will assist in the identification of potential structural changes or instability in the relationship between

$$\log(RGDP)_t = \beta_0 + \beta_1 \log(DR)_t + \beta_2 \log(HU)_t + \beta_3 \log(LAB)_t + \beta_4 \log(EXR)_t + \beta_5 \log(INF)_t + u_t \quad (3)$$

In the model, $RGDP_t$ represents the gross domestic product at constant price, Human capital (HU_t), Labor force participation (LAB_t), DR_t is the ratio of External debt to the gross domestic product at constant price (RGDP), Official Exchange rate (EXR_t), and Inflation rate (INF_t). β_0 denotes the constant parameter, while β_1 to β_5 correspond to the variables in the model.

infrastructure investment and economic growth. It is stressed that diagnostic tests hold significant importance for ARDL models and stability checks will be executed to validate the robustness of the findings.

3.2. Hypothesis Testing

To examine the causal relationships among the variables, we will conduct a series of statistical tests, including unit root tests such as the Augmented Dickey-Fuller (ADF) test, to ensure the stationarity of the time series data. We will also employ the ARDL cointegration approach to assess the long-term relationships between the variables and determine the direction of causality.

3.3. Econometric Models

The research will incorporate models based on the works of Barro (1990) and Robelo (1991) to scrutinize the influence of public debt on economic growth.

Additionally, the study will employ the Cobb-Douglas production equation to analyze the impact of various factors on economic growth.

$$GDP = AK^\alpha L^\beta \quad (1)$$

From the above production equation, we put the logo on both parts of the equation to obtain the following new results:

$$\log GDP = \log A + \alpha \log K + \beta \log L \quad (2)$$

So, the model expects the impact of External debt and the appropriate size of External debt on the expansion of the country's economy is:

Lastly, u_t stands for the model's expected value. These models are structured to investigate the relationships between these variables and economic growth in Laos. The logarithmic versions are utilized to examine the elasticities of these variables.

IV. RESULTS AND DISCUSSION

1) Unit Root Test Results

Table 2: Data integrity test results by ADF method

Variables		Level (I0)	First Difference(I1)
LOGRGDP	Intercept	-0.7112	-4.9164***
	Trend and Intercept	-0.2914	-5.3099***
LOGDR	Intercept	-1.2312	-5.2809***
	Trend and Intercept	-0.5355	-6.6485***
LOGLAB	Intercept	-3.0963***	0.7252
	Trend and Intercept	0.5058	0.5353
LOGHU	Intercept	-3.3780**	-0.9999
	Trend and Intercept	-2.5750	-2.4068
LOGEXR	Intercept	-11.444***	-2.0645
	Trend and Intercept	-4.2958***	-3.1357
LOGINF	Intercept	-2.5683	-6.8055***
	Trend and Intercept	-3.8167**	-6.6570***
			-4.39430

Note: *, **, *** indicates statistical confidence levels at 90%, 95% and 99% respectively.

The results presented in Table 2 shows that 4 variables (LAB, HU, EXR & INF) display stationarity at the Level (I(0)), whereas the remaining 2 variables (RGDP and DR) demonstrate stationarity at the First Difference (I(1)). Importantly, 1 variable (INF) exhibit stationarity at both the Level (I(0)) and the First

Difference (I(1)). These unit root findings suggest the appropriateness of the ARDL bound test approach for our analysis.

2) COINTEGRATION TEST RESULTS

2.1. Optimal Lags Test

Table 3: Lags order set results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	175.1090	NA	1.66e-14	-14.70513	-14.4089	-14.6306
1	405.5991	320.6819	8.43e-22	-31.61732	-29.5438	-31.0958
2	477.5531	62.5686*	8.10e-23*	-34.7437*	-30.8929*	-33.7752*

It turns out that optimal lags in our test is equal to 2 by the number of Lags selected is the minimum value of Akaike Information Criterion (AIC) and Schwarz Information Criterion (SC) or the value seen as marked*

and here we see that the test results of other indicators are seen to be totally consistent.

2.2. Bounds Test for Cointegration

Table 4: Results ARDL bounds test

	Test Statistic			Critical Value Bound	
	Value	k	Sigif	Lower bound	Upper bound
F-statistic	40.9766***	5	10%	2.08	3
			5%	2.39	3.38
			1%	3.06	4.15

Note: *** Indicates statistical conviction levels at 90%, 95% and 99% respectively.

The cointegration bound test is utilized to ascertain the presence of a long-term cointegration relationship among the variables. When the F-statistic computed exceeds the upper bound values, the null hypothesis can be rejected, and the existence of a long-

term association among the variables can be inferred. As shown in Table 5, the computed F-statistic is 37.1984, surpassing the upper bound values at the 1%, 5%, and 10% critical levels according to the criteria established by Pesaran *et al.*, (2001)

Table 5: The particular results of the long-run ARDL Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(DR) _t	-0.0791***	0.0180	-4.3749	0.0024
LOG(HU) _t	2.0594***	0.5381	3.8266	0.005
LOG(LAB) _t	0.0591*	0.0294	2.0045	0.08
LOG(EXR) _t	-0.0032	0.0025	-1.2747	0.2382
LOG(INF) _t	-0.0081***	0.0017	-4.5541	0.0019
C	-9.9778***	2.7421	-3.6386	0.0066

Note: *, **, *** indicates statistical confidence levels at 90%, 95% and 99% respectively.

The F-statistics in Table 4, when compared with upper and lower bounds, confidently reject the null hypothesis, confirming the presence of long-term cointegration among the chosen variables in our ARDL model. The optimal lag length for these variables was determined using the Akaike Information Criterion (AIC).

Table 5 outlines the long-term relationships within our ARDL model. The critical variable "DR" exhibits a significant Human capital exerts a strong, positive, and statistically significant influence, with a coefficient of 2.0594. A 1% increase in human capital leads to an 2.0594% increase in economic growth. The labor force similarly has a positive and significant effect,

with a coefficient of 0.0591, indicating that a 1% increase in the labor force results in a 0.0591% increase in economic growth.

Conversely, there is a significant negative relationship between External debt ratio per GDP usage and economic growth in Laos, with a coefficient of 0.0791. A 1% increase in External debt ratio per GDP in Laos usage reduces economic growth by 0.0791%, and there is a significant negative relationship between Inflation rate usage and economic growth in Laos. A 1% increase in Inflation rate usage reduces economic growth by 0.0081%.

3) Error Correction Model: ECM

Table 6: The particular results of the Short-run ARDL Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGDR)	-0.0371***	0.0087	-4.2417	0.0028
D(LOGDR(-1))	0.0374***	0.0087	4.2937	0.0026
D(LOGHU)	11.529***	1.4106	8.1726	0.0000
D(LOGHU(-1))	2.4446	1.4551	1.6801	0.1315
D(LOGLAB)	5.4120***	0.2593	20.8650	0.0000
D(LOGEXR)	-0.0356***	0.0036	-10.0405	0.0000
D(LOGEXR(-1))	0.0485***	0.0034	14.0096	0.0000
D(LOGINF)	-0.0037***	0.0005	-7.1382	0.0001
D(LOGINF(-1))	0.0032***	0.0006	5.3501	0.0007
CointEq(-1)*	-1.5653***	0.0699	-22.4046	0.0000

Note: *, **, *** indicates statistical confidence levels at 90%, 95% and 99% respectively.

The results of the short-run and error correction model estimation are presented in Table 6. The coefficient for ECT (Error Correction Term) is -1.5653, and its p-value is 0.000, indicating statistical significance at the 1% level. This implies that around 10% of the disequilibrium in Laos' economic growth from the previous year will move towards long-run equilibrium, and the adjustment speed is approximately 156.53%.

In the short run, Human capital and Labor force participation have a positive impact on Laos' economic growth, significant at the 1% level. However, the short-run effect of the External debt ratio and Inflation rate contradicts the long-run result. A 1% increase in the External debt ratio and Inflation rate in the Laotian economy leads to a 0.10% decrease in economic growth. On the other hand, the short-run impact of the Exchange

rate has a negative impact on economic growth, significant at the 1% level.

4. Diagnostic Test Results of the ARDL Model

The ARDL bound test model was subjected to several diagnostic tests, the outcomes of which are displayed in Table 7. These tests affirm that there are no concerns regarding serial correlation or heteroskedasticity at the 5% significance level. The residuals derived from the model follow a normal distribution. To evaluate the stability of the model, CUSUM and CUSUMSQ tests were utilized. Figure 2 illustrates that the estimated coefficients of the model maintain their stability, as the blue line falls within the red lines at the 5% significance level, a pattern observed in both figures.

Table 7: Diagnostic test results of ARDL model

Types of tests	Statistical value	Prob
Normality	2.7226	0.2563
Serial Correlation	F (1,7) = 0.0029	0.9579
	Chi-Square (2) = 0.0102	0.9194
Heteroskedasticity	F (15,8) = 1.1489	0.4388
	Chi-Square (15) = 16.3912	0.3565

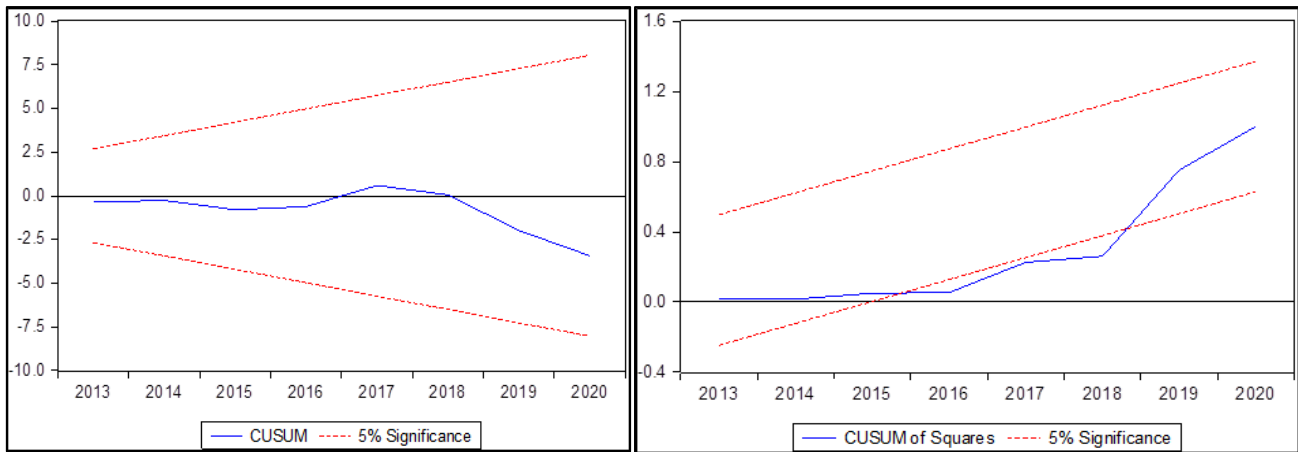


Figure 1: displays the outcomes of the CUSUM and CUSUMQ Square tests.

5. DISCUSSION

The innovation in the study's results lies in the specific context of Laos and its exploration of the drivers of economic growth in the country. By employing advanced analytical techniques and focusing on infrastructure investment, human capital, labor force, external debt, inflation, and exchange rates, the study sheds light on the dynamics of Laos' economic development. The key findings can be summarized as follows:

The study identifies strong and significant relationships in the long term. Human capital and the labor force emerge as powerful drivers of economic growth. These findings underscore the importance of education, skills, and workforce participation in fostering sustainable development in Laos. In contrast, a high external debt ratio and inflation rate are associated with reduced economic growth, highlighting potential challenges that policymakers need to address.

The short-term analysis reveals that human capital and labor force participation have positive effects on economic growth, emphasizing their immediate contributions. Conversely, the short-term effects of the external debt ratio, inflation rate, and exchange rate are adverse, indicating potential short-term economic challenges that need to be managed.

In comparing these results to the existing literature on the relationship between public debt and economic growth, it is evident that the study's focus on specific variables and the unique context of Laos provides a distinct contribution. While the literature presents a spectrum of viewpoints on the impact of public debt on economic growth, this study diverges by concentrating on a broader set of economic determinants and their influence on economic growth in Laos.

The study's findings can serve as a valuable resource for policymakers and stakeholders in Laos seeking to formulate effective strategies for economic development. Furthermore, they contribute to the

broader discourse on economic growth determinants, emphasizing the importance of considering specific economic conditions and policy choices in diverse contexts.

5. CONCLUSION

5.1 Conclusion

The study's ARDL model confirms long-term cointegration among selected variables, supported by decisive F-statistics that reject the null hypothesis. The optimal lag length was determined using the Akaike Information Criterion (AIC).

In the long term, the study reveals significant relationships within the ARDL model. Notably, human capital and the labor force have a positive and substantial impact on economic growth, with coefficients of 2.0594 and 0.0591, respectively. Conversely, there is a significant negative association between the external debt ratio per GDP and inflation rate with economic growth, indicating that an increase in these variables results in reduced economic growth.

The short-term analysis, indicates that human capital and labor force participation positively influence Laos' economic growth, while the external debt ratio, inflation rate, and exchange rate have adverse short-term effects on economic growth.

The model's stability is confirmed through diagnostic tests, which demonstrate the absence of serial correlation or heteroskedasticity at the 5% significance level. Additionally, the residuals from the model follow a normal distribution. The CUSUM and CUSUMSQ tests illustrate the stability of estimated coefficients within the 5% significance level boundaries, ensuring the model's reliability.

5.2 RECOMMENDATION

Based on the study's findings, policymakers in Laos should consider the following recommendations:

Invest in Human Capital Development

Given the strong and positive long-term relationship between human capital and economic growth, policymakers should prioritize investments in education and skills development. This includes improving access to quality education, vocational training, and initiatives to enhance the skills and knowledge of the workforce. By fostering a more skilled and knowledgeable labor force, Laos can stimulate sustainable economic growth.

Manage External Debt Prudently

The study highlights a significant negative association between the external debt ratio per GDP and economic growth in the long term. To mitigate the adverse effects, policymakers should adopt a prudent approach to external borrowing. This might involve carefully evaluating the terms and conditions of loans, ensuring that borrowed funds are invested in projects that generate economic returns, and managing debt repayment schedules effectively.

Control Inflation

The study reveals a negative impact of inflation on economic growth, emphasizing the need for inflation control measures. Policymakers should aim to maintain price stability through effective monetary and fiscal policies. This can help create a conducive environment for investment and economic expansion.

Address Short-Term Challenges

While the long-term analysis emphasizes the importance of human capital and the labor force, the short-term findings indicate that variables like the external debt ratio, inflation rate, and exchange rate can have immediate adverse effects on economic growth. Policymakers should be prepared to address short-term challenges through timely policy interventions. This could involve strategies to manage inflation, control exchange rate fluctuations, and ensure the responsible use of external debt.

Infrastructure Investment

While not explicitly mentioned in the recommendations, the study underscores the importance of infrastructure investments, particularly in electricity and other sectors like air transport. To boost economic growth, policymakers should continue to prioritize and encourage investments in infrastructure development, which can reduce transportation costs and stimulate economic activities.

Consider Specific Context

It's essential for policymakers to recognize that the study's findings are specific to the context of Laos. When formulating and implementing policies, they

should consider the unique economic conditions, challenges, and opportunities within the country.

Further Research

The study's contribution to the understanding of economic growth determinants in Laos should encourage further research in this area. Policymakers should support and engage with ongoing research efforts to continually refine and enhance economic development strategies.

REFERENCE

- Abdullahi, H. (2016). External Debt-GDP nexus in Ghana: An Application of Autoregressive Distributed Lag Model. *European Journal of Business, Economics and Accountancy*, 4(6).
- Adepoju, A. A., Salau, A. S., & Obayelu, A. E. (2007). The effects of external debt management on sustainable economic growth and development: Lessons from Nigeria.
- Ahmed, Y., Saeed, S., & Saed, S. (2015). The Impact of External Debt on Economic Growth: Empirical Evidence Iraq. *International Journal of Science and Research*, 4(8), 1506-1516.
- Ahmed, M., & Shakur, M. (2011). Debt (a real hurdle in the economic growth of Pakistan): A time series analysis. *African Journal of Business Management*, 5(28), 11532.
- Ajayi, L. B., & Oke, M. O. (2012). "Effect of External Debt on Economic Growth and Development of Nigeria," *International Journal of Business and Social Science*, (3)12.
- 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.
- Andrea, F. P. (2010). "Total public debt and growth in developing countries," Università Politecnica delle.
- Arai, R., Takuma, K., & Keigo, N. (2012). "Is Public Debt Growth-Enhancing or Growth-Reducing?" Working Paper 2012037, *Department of Economics and Finance*, City University of Hong Kong.
- Atique, R., & Malik, K. (2012). Impact of domestic and external debt on the economic growth of Pakistan. *World Applied Sciences Journal*, 20(1), 120-129.
- Atique, R., & Malik, K. (2012). Impact of domestic and external debt on the economic growth of Pakistan. *World Applied Sciences Journal*, 20(1), 120-129.
- Babu, J., Symon, k., Aquilars, M., & Mose, G. (2014). External debt and economic growth in the east Africa Community. *African Journal of Business Management*, 8(21), 1011-1018.
- Baglan, D., & Yoldas, E. (2016). Public debt and macroeconomic activity: a predictive analysis for advanced economies. *Studies in Nonlinear Dynamics & Econometrics*, 20(3), 301-324.

- Bamidele, T. B., & Joseph, A. I. (2013). Financial crisis and external debt management in Nigeria. *International Journal of Business and Behavioural Sciences*, 3(4), 16-24.
- Baum, A., Checherita-Westphal, C., & Rother, P. (2013). Debt and growth: New evidence for the euro area. *Journal of international money and finance*, 32, 809-821.
- Bittencourt, M. (2012). *Economic growth and government debt: Evidence from the young democracies of Latin America* (No. 201203).
- Bräuning, M. (2005). The budget deficit, public debt, and endogenous growth. *Journal of Public Economic Theory*, 7(5), 827-840.
- Brida, J. G., Gómez, D. M., & Seijas, M. N. (2017). Debt and growth: A non-parametric approach. *Physica A: Statistical Mechanics and Its Applications*, 486, 883-894.
- Chanthasin, P. (2012). Study ing the state of foreign debt creation of india and the role of foreign debt to economic growth from 1990- 2010, *Faculty of Economics and business administration.NUOL*.
- Checherita-Westphal, C., & Rother, P. (2012). The impact of high government debt on economic growth and its channels: An empirical investigation for the euro area. *European economic review*, 56(7), 1392-1405.
- Indermit, G., & Brain, P. (2015). Public debt in developing countries. Has the market based model worked? Would bank policy Res. *Work paper 3677 August*.
- Karadam, D. Y. (2018). An Investigation of Nonlinear Effects of Debt on Growth. *Journal of Economic Asymmetries*, 18, 1–13.
- Kasidi, F., & Said, A. M. (2013). Impact of external debt on economic growth: A case study of Tanzania. *Advances in Management and Applied economics*, 3(4), 59.
- Malik, S. (2010). External Debt and Economic Growth: Empirical Evidence from Pakistan, *International Research Journal of Finance and Economics*, 44, 88-97.
- Marche (Italy), MoFiR Working Paper No. 44, (2010). Available at: <http://docs.dises.univpm.it/web/quaderni/pdfmofir/Mofir044.pdf> accessed on 15.02.2013.
- Matiti, C. (2013). The relationship between public debt and economic growth in Kenya, *International Journal of Social Sciences and Project Planning Management*, 1(1), 65- 86.
- Momodu, A. A. (2012). Effect of debt servicing on economic growth in Nigeria. *Reiko Journals of Business and Finance*, 4(3), 116-124.
- Mousa, T. A., & Shawawreh, A. M. (2017). The impact of public debt on the Economic Growth of Jordan: An Empirical Study (2000-2015). *Accounting and Finance Research*, 6(2), 114-114.
- Mufaro, A. M., & Josephine, T. (2018). Public Debt and Economic Growth Nexus in Zimbabwe. *Journal of Economics and Sustainable Development Journal*, 9(2), 2018.
- Obademi, O. M. (2012). An Empirical Analysis of the Impact of Public Debt on Economic Growth: Evidence from Nigeria 1975-2005. *Canadian Social Science Journal*, 8(4), 154-161.
- Obansa, S. A., Okoroafor, O. K. D., Aluko, O. O., & Millicent, E. (2013). Perceived relationship between Exchange rate and Economic growth in Nigeria, 1970-2010. *American Journal of Humanities and Social Sciences*, (3), 116-124
- Ogege, S., & Ekpudu, J. E. (2010). The Effect of Debt Burden on the Nigerian Economy, *Journal Of Research in National Development*, 8(2).
- Ogunmuyiwa, M. S. (2011). Does External Debt Promote Economic Growth in Nigeria?, *Current Research Journal of Economic Theory*, 3(1), 29-35.
- Paudel, R., (2009). Foreign Debt, Trade Openness, Labor Force and Economic Growth: Evidence from Sri Lanka. *The ICAFI Journal of Applied Economics*, 8(1), 57-64.
- Pham, T. H. A., Mai, B. D., & Nguyen, T. T. (2020).The Impact of Public Debt on Economic Growth of ASEAN _ 3 Countries. *International Journal of Economics and Business Administration*, 8(4), 87–100.
- Rocha, F. (2006). Are error correction models the best alternative to assess capital mobility in developing countries?. *Economia Aplicada*, 10, 267-285.
- Siddique, M. A. B., Selvanathan, E. A., & Selvanathan, S. (2015). *The impact of external debt on economic growth: empirical evidence from highly indebted poor countries*. University of Western Australia, Economics.
- Spilioti, S., & Vamvoukas, G. (2015). The impact of government debt on economic growth: An empirical investigation of the Greek market. *The Journal of Economic Asymmetries*, 12(1), 34-40.
- Sulaiman, L. A., & Azeez, B. A. (2012). Effect of external debt on economic growth of Nigeria. *Journal of Economics and sustainable development*, 3(8), 71-79. www.iiste.org
- Thakoun, C. (2022). Study the ratio of public debt / GDP to economic growth is a warning sign of Thailand's economic threat. *Parliamentary Budget Journal*.
- Todaro, M. P., & Smith, S. C. (2009). *Economic Development*. (10thedn.). United Nations Conference on Trade and Development. (UNTAD/ITCD/203/1). Essess, England: *Pearson Education Ltd*.
- Were, M. (2001). The Impact of External Debt on Economic Growth in Kenya, *Discussion Paper*

2001/116, United Nations University/World Institute for Development Economics Research.

- Wijeweera, A., Dollery, B., & Pathberiya, P. (2005). Economic growth and external debt servicing: a cointegration analysis of Sri Lanka, 1952 to 2002. *University of New England working paper series in economics*, 8.
- Woo, J., & Kumar, M. S. (2015). Public debt and growth. *Economica*, 82(328), 705-739.
- World Bank. (2010). Finding the Tipping Point—When Sovereign Debt Turns Bad. Retrieved 11

January 2022 from
<https://openknowledge.worldbank.org/bitstream/handle/10986/3875/WPS5391.pdf>

- World Development Indicators, World Bank (WB), Lao People's Democratic Republic, www.wb.org/statistics.