Precarious Tightrope Between External Debt and Economic Growth: A Comparative Analysis of Bangladesh and Sri Lanka

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Abstract

In recent years, the foreign debt in South Asian economies has risen to concerning levels, suggesting that these governments are unable to generate enough revenues to finance their budget, which could most likely increase the risks of a debt crisis. *This study looks at the relationship between foreign debt and the economic growth of two South Asian countries—Sri Lanka and Bangladesh—using Autoregressive Distributed Lag (ARDL) models from the period of 1984 to 2022. The comparative results demonstrate a persistent detrimental impact of foreign debt on both countries' economic growth trajectories. Moreover, our research emphasizes the importance of the debt-to-GDP ratio, suggesting that a higher percentage of external debt increases the adverse impact on GDP growth. The study compares the external debt levels of both countries and its consequences on their economies. Both Bangladesh and Sri Lanka suffer negative consequences from external debt. However, the study indicates that Sri Lanka, burdened with heavier debt, experiences a more pronounced impact on its economic growth trend as compared to Bangladesh. The study aims to address the pressing issue of rising foreign debt in South Asian economies, provide empirical evidence of its impact on economic growth, and offer policy recommendations. The findings have implications for both Sri Lanka and Bangladesh, emphasizing the importance of managing debt effectively*.

Keywords: External Debt, Economic Growth, ARDL Approach, South Asian Economy.

Introduction

The primary focus of economic policy in emerging countries is to achieve sustainable growth in the economy via infrastructure development and reducing poverty. When the government is unable to fulfill its economic growth requirements, they are compelled to seek financial help from the outside world, often in the form of loans. These nations have to depend on debt and continue to rely on foreign debt to address the gap between savings and investments and fiscal imbalance since gaining independence.

From the perspective of a developing nation, the issue of accumulating debt has several elements. A nation that lacks its reserves or needs foreign currency to achieve its development objectives often borrows from other countries. External borrowings are mostly in foreign currency and are subject to exchange rate risk. In a severe global economic downturn, repaying foreign debt might be significantly difficult, particularly for developing countries, since their interest expenses are anticipated to increase due to the rising interest rates (Aliber, 1984). Therefore, debtor countries must effectively utilize the borrowed cash for activities that

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generate revenue in order to handle repayments of their debts unless it hinders sustainable economic development and poverty reduction objectives.

Within the context of a thorough historical analysis of the influence of foreign capital, it is evident that external indebtedness has both positive and negative impacts on the economy. Developing nations are importing capital goods to enhance production efficiency and achieve self-sustainable economic development amidst financial challenges in the economic growth process. The primary expense associated with borrowing is repaying the loan together with interest, which hinders economic development and leads to higher tax rates. The varied results of debt sometimes result in a vague overall effect of borrowing on economic growth, influenced by interest rates and the efficient utilization of borrowed funds (Lin & Sosin, 2001).

An Overview of Economic Growth

For over seven decades, Sri Lanka and Bangladesh have traversed a complex journey of development fueled by ambitious aspirations and aided by external debt. While initial borrowing undoubtedly spurred economic growth, concerns regarding its long-term sustainability have become increasingly prominent.

This research delves into the historical evolution of external debt in these two South Asian nations, examines the impact on their economic growth, explores the reasons behind persistent challenges, and outlines potential solutions for a more sustainable future. The financial position of Bangladesh is less precarious than that of Sri Lanka. The International Debt Statistics (2023) study indicates that growth experiences in South Asia have undergone significant changes. Key debt indicators of South Asian nations have lately deteriorated, with foreign debt stocks increasing rapidly. Sri Lanka's external debt to GNI ratio is notably greater than that of similar emerging nations. In 2022 and 2023, Sri Lanka's GDP growth rate was around -7.8 and -2.3 percent (Central Bank of Sri Lanka, 2023). The outstanding foreign debt stock of Sri Lanka has climbed by more than 80% since 2011. The recent increase in the debt-to-export ratio is a strong indication of potential debt repayment problems in the area.

Significant disparities characterize the foreign debt situation in Sri Lanka. Debt made up 19% of its GDP in 1950 but increased significantly to 70.7% by 2022. During the decades that followed, there was a notable dependence on IMF loans, which led to defaults and restructurings, ultimately resulting in the present catastrophic economic crisis. Conversely, Bangladesh has seen a gradual increase in its foreign debt, growing from 3% of GDP in 1970 to 32.4% in 2022. Nevertheless, issues such as currency devaluation and inflation persist in both countries but more intensely in Sri Lanka (International debt statistics).

Bangladesh's foreign debt surpassed $100 billion in 2023. The country's foreign debt is 22.1% of its GDP, which amounts to $456 billion International debt statistics (2023). In 2016, this figure was $41 billion, or 16% of the GDP. Over the last six years, the country's foreign debt increased by 14%, while the average annual GDP growth was 6.55%.

When debt increases faster than GDP, it indicates instability and the effects are already evident. Seventy percent of the current debt was accumulated in the last decade, a time marked by significant progress in Bangladesh. This raises doubts about the practice of funding development via external borrowing. Bangladesh's overall debt-to-GDP ratio, including both domestic and external debt, is around 45%, making it the lowest in Southeast Asia. In comparison, India's ratio is 55%, Pakistan's is 76%, and Sri Lanka's is a high 118%. Bangladesh has a lower overall debt-to-GDP ratio compared to its bordering nations. However, the assessment should not be as simplistic as this.

External debt contributed to the early economic expansion in both nations, but its long-term impacts are more complex. Research indicates that there is a direct association between modest amounts of debt and economic development, but if a certain threshold is surpassed, this correlation becomes negative. In Sri Lanka, the high costs of repaying debt have reduced the

availability of funds for critical areas such as health and education, affecting human development. Bangladesh has improved its management of debt but still needs help from swings in global markets and variable interest rates.

Multiple reasons contribute to the ongoing issue of debt in various nations. Inefficient use of borrowed money, often caused by poor governance and corruption, has resulted in low returns on projects, reducing the effectiveness of debt utilization. Moreover, depending too heavily on certain export goods makes both economies susceptible to financial instability and obstructs the process of diversification, so restricting the possibility of sustained development. Poor institutional structures and ineffective resource management worsen the issue. The weight of excessive debt manifests in various detrimental ways. High debt servicing costs not only limit government spending on essential sectors but also divert resources away from productive investments.

This, in turn, hampers economic growth and development. Additionally, external shocks like rising interest rates and global economic downturns can significantly exacerbate debt burdens, triggering currency depreciation, inflation, and reduced investor confidence, creating a vicious cycle.

Research Objective

The main objective of this study is to investigate the impact of foreign debt on GDP growth in Bangladesh and Sri Lanka, offering a comparative analysis of the effects of external debt on GDP growth in these two countries from the duration (1984 to 2022).

Therefore, the following are the primary research goals of this study:

1. To determine the effects of external debt on GDP growth of the selected countries.
2. The study uses ARDL modeling approaches to provide light on how different amounts of external debt in association with population growth affect a country's economic stability.
3. To highlight important policy ramifications and offer recommendations to boost growth in the economy.

By providing comparative insights that highlight the particular difficulties and dynamics of managing external debt in developing nations, this research adds to the body of knowledge already in existence. This study differs from the majority of studies on this subject because most of them have focused on a certain nation that limits the impact of external debt. This will help to inform policy discussions and deepen our understanding of the complex relationship between debt sustainability and economic growth.

This introduction is one of the five subsections that make up the general framework of this research. The theoretical background of the study is discussed in the second section. Then, the section moves on to discuss the empirical findings and then moves on to address the empirical findings. After identifying the relevant variables, the third part discusses the statistical approaches employed in this study and outlines the data sources.

The final section provides a concise analysis of the empirical results. The conclusion of the study utilizes the full research to derive appropriate policy implications and suggestions. This study's primary conclusion is that external borrowing negatively affects national income, providing statistically significant evidence supporting the debt overhang theory in observed rising nations.

Literature Review

The relationship between growth in the economy and levels of foreign debt has been thoroughly researched in the field of economics. Mosley and Rosendorff (2023) examine how favorable interest rates caused developing countries to accumulate unprecedented amounts of foreign debt following the 2008 global financial crisis. Further, it highlights the risk of default that arises when central banks increase interest rates to counteract worldwide inflation and the

difficulties in restructuring their debt due to a combination of public and private creditors and uncertain terms of loans. Ultimately, the paper concludes that emerging economies will need help managing their foreign debt as global interest rates continue to rise. Ando et al. (2023) investigated the efficacy of several strategies in decreasing debt-to-GDP ratios. They drew three key findings based on econometric models that incorporate debt restructuring, fiscal consolidation, and measures aimed at promoting economic development. Nevertheless, the ability of budgetary consolidations to decrease debt ratios depends on variables such as growth-promoting structural changes and robust institutional frameworks. Historically, economic growth and inflation have played a significant role in lowering debt ratios.

Rais and Anwar (2012) suggest that foreign borrowing can have varying effects on national income, with both positive and negative outcomes, especially in emerging countries. When policymakers use borrowed cash in initiatives focusing on power generation, production, and agriculture sectors, foreign loans can help drive positive economic development and growth.

If these resources are allocated to economic activities that generate revenue, preliminary studies examining the relationship between foreign debt and economic growth have produced varied results. Some demonstrate negative correlations, suggesting that an increase in external debt leads to a decrease in economic growth. On the other hand, some research has shown a positive correlation, indicating that foreign debt might potentially have a favorable effect on economic growth (Sumanaratne, 2022; Zuhroh & Pristiva, 2022).

The studies emphasize the importance of efficiently handling debt and preserving financial stability in assessing the impact of foreign debt on economic growth. Nations must keep foreign debt at sustainable levels and direct financing towards sectors that can improve productivity. Moreover, decreasing the total debt load might positively impact economic development. The connection between foreign debt and economic development is complex and depends on factors like debt levels, debt management strategies, and debt distribution, or else it might negatively impact the country's income (Okonkwo et al., 2022).

Fosu (1999) researched how external debt affected the GDP in 35 African nations from 1980 to 1990. the results show that net outstanding debt negatively impacted the economic development of these nations. The analysis indicated that the economic development of selected countries would have been 50% better if there was no foreign debt. In the short term, both total foreign indebtedness and project loans were shown to impact economic development positively. At the same time, Geiger's (1990) and Cunningham's (1993) results showed a negative association between the level of debt and economic growth.

Additionally, Bornschier et al. (1978) state that development remittance inflow can create problems as external debt can impose a significant burden on developing countries through debt service obligations. Debt servicing commitments have the potential to redirect a substantial amount of a nation's resources away from investments that are beneficial for the economy, impeding economic progress. Subsequent studies (Warner, 1992; Cohen, 1993) could not find conclusive evidence to support the notion that debt has a detrimental influence on economic growth in emerging economies.

Chowdhury (1994) performed Granger causality tests in seven Asian countries between 1970 and 1988 to examine the Bulow-Rogoff hypothesis. The findings show that all countries have dismissed the notion of foreign debt in rising countries as a sign of economic deceleration. Chowdhury (1994) discovered that a 1 percent increase in foreign debt leads to around a 20% rise in Bangladesh's Gross National Product (GNP) in the long term. Sri Lanka's statistics show no direct link between GNP development and the accumulation of external debt.

Amaya and Rowland (2004) researched the factors influencing investment flows in developing markets. The findings indicate that implementing effective fiscal policies and maintaining modest levels of debt leads to increased foreign investment. Akinwunmi and Adekoya (2018) studied how foreign borrowing affects economic development in developing countries, using

Nigeria as a specific example. The study determines that capital investment, exports, and debt service payments influence economic growth, whereas external debt and exchange rates do not. Contradictorily, Cohen (1996) argues otherwise; Iyoha (1999), Clements et al. (2003), and Panizza and Presbitero (2014) contend that foreign loans have a detrimental effect on economic development.

Jeločnik et al. (2016) analyzed the factors and patterns of foreign borrowing in eight transition European economies. The study found that while there was a favorable relationship between foreign debt and economic development in the early stages of transition, continued debt accumulation posed increased threats to macroeconomic stability. In their study, Kharusi and Ada (2018) assessed the causal link between government foreign borrowing and economic development in Oman. The investigation was launched in response to Oman's increasing external debt, which was utilized to finance its annual budget. The report proposed maximizing the utilization of foreign-borrowed funds to promote favorable economic growth. Abdelaziz et al. (2019) investigated whether foreign debt influences investment and economic development in low-income nations.

The regression models' empirical findings showed that foreign debt had a substantial negative impact on investment and economic growth across the overall sample and sub-samples. Several studies have investigated the causal relationship between foreign debt and development in the economy and have identified a one-way causation from external debt to economic growth (Hüseyin, 2021; Mohd Daud, 2020). As the studies above suggest, there has been much research in the economic literature on the relationship between the process of economic development and foreign debt consequences.

Most studies conducted are in the form of panel data which gives an overview of the economies as a whole rather than individually asses their economies with constant variables for comparative analysis. To the best of our knowledge, no research has looked at this causal link specifically for the economies of Bangladesh and Sri Lanka with comparative analysis. Therefore, using the ARDL approach, this research aims to close the gap in the empirical literature by examining the causal link between GDP and foreign debt for Bangladesh and Sri Lanka.

H1: A causal relationship exists between external debt and growth in the economy of Bangladesh.

H2: A causal relationship exists between external debt and growth in the economy of Sri Lanka.

Nonetheless, the majority of research concluded that a high level of debt and economic growth is detrimental (Wanniarachchi, 2020; Safdari & Mehrizi, 2011; Paudel & Perera, 2009). Other studies found a positive effect of external debt on economic growth.

Theoretical Background

The disparities between current economic and classical economic viewpoints on foreign debt analysis are mainly due to their theoretical frameworks and focus on distinct elements impacting economic events. Classical economists such as Adam Smith and David Ricardo focus on market mechanisms and fiscal discipline when analyzing external debt. In contrast, modern economists consider government intervention, market imperfections, and distributional effects in a more detailed manner. Their different viewpoints suggest unique policies and understandings of the consequences of foreign debt on emerging nations. Classical economics emphasizes concepts like free markets, minimal government involvement, and the influence of supply and demand on economic results. The economic theory about foreign debt is based on the Keynesian paradigm, which suggests that government involvement in economic activities may boost economic growth. In emerging economies, policymakers encounter structural constraints that highlight the need for foreign loans for economic development and growth.

Foreign loans can stimulate domestic investment, leading to increased revenue and economic expansion (Hejazi & Safarian, 1999; Rahman & Shahbaz, 2013; Yusoff & Nuh, 2015).

The growth-cum-debt model is a theoretical framework that emphasizes the sustainability of debt in a country. According to this model, a country is more likely to borrow funds if it can stimulate economic growth through these borrowed funds. This borrowing occurs when there is a lack of sufficient domestic savings during the initial stage of the investment process, leading to an increase in external debts. These borrowed funds are utilized not only for financing investments but also for covering loan amortization and debt servicing. However, the increase in domestic savings still needs to be improved to completely cover the amortization and debt servicing of the accumulated loans throughout the second stage of development, which starts with the use of domestic resources to fund national projects.

But in contrast, the domestic savings is increasing more slowly as compared to the previous stage. In the final stage, domestic funds are used to fund national investments and are sufficient to pay off the accrued foreign debt (Avramovic, 1964), Josten (2001), Stein (2005), and Cohen & Sachs (1985). The final stage is the debt overhang theory, which posits that a high debt ratio in an economy negatively affects investment motivation due to the assumption made by investors that future taxes on capital returns will be utilized to repay the loan. Debt overhang theory, particularly in low-income countries, is influenced by initial economic conditions and total factor productivity (Koeda, 2008). Moreover, the increasing uncertainties resulting from negotiations surrounding debt rescheduling in heavily indebted nations further exacerbate the negative impact on investment by deterring funding (Moss & Chiang, 2003). The maturity of debt also plays a role, with shorter-term debt generally imposing lower overhang but with more volatile future investment incentives (Diamond & He, 2014).

Empirical Model

In this study, we analyze the causal relationship between foreign debt and economic growth in association with population growth of selected Southeast Asian countries Bangladesh and Sri Lanka during the period 1984–2022 by implementing ARDL research techniques. In order to prevent the bias caused by variable specification, population growth is used as a control variable. The variables applied in the present study were taken from the World Bank's World Development Indicators. Foreign debt is quantified by the ratio of external debt to GDP, whereas GDP growth is measured as a percentage of the yearly increase in GDP. The population rate of growth was determined by considering the annual shifts in midyear population statistics.

As noted earlier, our paper is based on Wanniarachchi's (2020) concepts by using a lengthier period of approximately 38 years for Bangladesh and Sri Lanka, running from 1984 to 2022. To empirically investigate the relationship, we regress GDP growth on external debt and population growth.

Methodology

This study employs quantitative techniques, and this method derives results through data analysis utilizing statistical techniques (Akhtar & Butt, 2022; Butt & Yazdani, 2023). The ARDL cointegration method is employed to determine if there exists long-term and short-term cointegration among the variables being analyzed. Given that the equations mentioned above include time series variables, it is necessary to estimate using the time series approach. OLS estimators of these equations may yield false results if the long-term relationship between these variables needs to be properly examined. Hence, it is necessary to analyze if the chosen explanatory variables in the model exhibit a long-term correlation or cointegrating relationship with GDP growth. The autoregressive distributed lag (ARDL) bounds test was used in this study to check for cointegration.

The ARDL cointegration tests may be applied to variables regardless of the order of integration, whether it is I(0) or I(1). However, these tests are not suitable for variables with order of integration I(2). The study uses the unit root tests (ADF, PP, ADF-GLS) to determine the level of integration of the variables that are integrated of orders I(0) and I(1). The var model can be used to identify the optimal lag length for each variable in an ARDL model. Next, the unrestricted error correction (EC) model is estimated using a single equation, with the estimated lags, and the econometric form of the functions (eq. 1) is expressed as:

$$\Delta Y_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta \mathrm{Y}_{t-i} + \sum_{i=0}^{p} \beta_2 \Delta \mathrm{ED}_{t-i} + \sum_{i=0}^{p} \beta_3 \Delta POPG_{t-i} + \beta_4 \mathrm{Y}_{t-i} + \beta_5 \mathrm{ED}_{t-i} + \beta_6 \mathrm{POPG}_{t-i} + \varepsilon_t \quad (1)$$

where, Δ is the operator for the first difference and p is the estimated lag length. The parameters β_1, β_2 and β_3 are the short-run dynamics while the parameter β_4, β_5 and β_6 are the corresponding long-run parameters of the selected model. Y represents the annual GDP growth rate of Bangladesh and Sri Lanka.

ED is the external debt, which is the exogenous variable, and population growth is the control variable represented by the symbol POPG of the respective countries. The Wald test is performed on the coefficient of error correction term (ECT) variables to derive the F-statistics value and compared with Pesaran's critical value at the 5% significance level. These statistics are then used to determine long-run cointegration.

If an F-statistic exceeds the upper bound value, we reject the null hypothesis of no cointegration and establish a long-term association among variables. If the F-statistic falls below the lower bound, we accept the null hypothesis of no cointegration, and if the result falls between the boundaries, it remains inconclusive. Short-term co-integration of variables can lead to disequilibrium, which the error correction model corrects. The error correction model to determine the short-run dynamic with the estimated lags is presented as follows:

$$\Delta Y_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta \mathrm{Y}_{t-i} + \sum_{i=0}^{p} \beta_2 \Delta \mathrm{ED}_{t-i} + \sum_{i=0}^{p} \beta_3 \Delta POPG_{t-i} + \beta_4 ECT_{t-i} \quad (2)$$

Where β_4 represents the speed of adjustment for short-run parameters to achieve equilibrium and ECT_{t-i} represents the error correction term

Regression Results

Stationarity Test

The ARDL model is used to evaluate the relationship between GDP growth and external debt and population growth, however before estimating this model we conduct some preliminary tests including stationarity. The unit root tests (ADF, PP, DFG) are used to determine if the six variables are stationary considering that the variables are integrated of either of order zero (I(0)) and order (I(1)) or both. The findings in Table 1 indicate that Y_{BG} and Y_{SL} are stationary at a level, while the rest of the variables are stationary after the first difference, signifying that these variables are integrated of order 1(1).

Table 1: Unit root tests

Variables	Levels			First difference		
	ADF	*PP*	*DF-GLS*	*ADF*	*PP*	*DF-GLS*
Y BG	0.018	0.022	0.312	0.000	0.000	0.000
ED BG	0.187	0.192	0.083	0.000	0.000	0.000
POP BG	0.562	0.325	0.719	0.004	0.005	0.003
Y SL	0.000	0.000	0.000	0.000	0.000	0.00
ED SL	0.244	0.719	0.079	0.0001	0.000	0.00
POP SL	0.599	0.549	0.609	0.018	0.000	0.012

ARDL Bounds Test

We obtain the long-run relationship between debt and growth by performing the bound test which tests the null hypothesis that there is no cointegration using Auto Regressive Distributed Lag (ARDL) approach. The maximum lag length criteria is crucial for selecting the F-test. The study included 38 yearly observations for two selected countries, each with three parameters. Following Pesaran, et al. (2001), the length of 2 lags was used due to the limited data available. The findings of the F-test are given in Table 2. The findings indicate that the computed F-statistic exceeds the upper-bound critical value at a 95% confidence level which shows that there is co-integrating between the variables

Table 2: ARDL bounds Test

		90% level		95% level		99%level		
	F-Statistic Value	***I(0)***	***I(I)***	***I(0)***	***I(I)***	***I(0)***	***I(I)***	
F-Y_{BG} (ED_{BG} / POP_{BG})	5.48	3.17	4.14	3.79	4.85	5.15	6.36	Co-integration
F-ED_{BG} (FY_{BG} /POP_{BG})	2.69	3.17	4.14	3.79	4.85	5.15	6.36	no Co-integration
F-POP_{BG} (FY_{BG} / ED_{BG})	3.23	3.17	4.14	3.79	4.85	5.15	6.36	no Co-integration
F-Y_{SL} (ED_{SL} / POP_{SL})	8.35	3.17	4.14	3.79	4.85	5.15	6.36	Co-integration
F-ED_{SL} (Y_{SL} / POP_{SL})	5.67	3.17	4.14	3.79	4.85	5.15	6.36	Co-integration
F-POP_{SL} (Y_{SL} / ED_{SL})	3.52	3.17	4.14	3.79	4.41	5.15	6.36	no Co-integration

Long and Short Run Estimates

The empirical analysis begins with calculating the equation without the error correction term (ECM). Subsequently, this term is included in the ARDL model. Based on AIC, the ideal number of lags for each variable in Bangladesh is (3,1,1) and for Sri Lanka as (1,3,3), respectively. The results support the hypothesis that there is a negative impact of external debt on GDP growth for Bangladesh and Sri Lanka

Table 3: Long-run estimates

Dependent variable	**Y_{BG}**	**Selected Model**	**ARDL(3,1,1)**	
Regressor	***Coefficient***	***Std. Error***	***t-Statistic***	***Prob.***
ED_{BG}	-0.06	0.02	-2.71	0.01
POP_{BG}	-1.29	0.46	-2.79	0.01
Durbin-Watson stat	1.97			
R-squared	0.70			
Adjusted R-squared	0.63			

Dependent variable =	**Y_{SL}**	Selected Model:	ARDL(1,3,3)	
Regressor	***Coefficient***	***Std. Error***	***t-Stat***	***Prob.***
ED_{SL}	-0.16	0.05	-3.18	0.00
POP_{SL}	5.52	2.08	2.65	0.01
Durbin-Watson stat	2.02			
R-squared	0.72			
Adjusted R-squared	0.64			

The results in table 3 show that a 1% rise in external debt causes Bangladesh's GDP growth to decline by 0.06 percent, while a 1% rise in external debt causes Sri Lanka's economic growth to decline by 0.16 percent. This suggests that the performance of GDP growth is significantly affected by external debt. As the external debt of Sri Lanka is greater than the external debt of Bangladesh, we observe that the negative impact of external debt is more for Sri Lanka than for Bangladesh. This verifies the concept that higher levels of external debt have a bigger negative influence on economic growth.

Sri Lanka's population growth contributes positively to GDP growth, increasing by 5.5 percent for a 1% rise in the country's total population. Sri Lanka is characterized as a labor-rich country with over 20 million people. Therefore, it is improbable that more unskilled labor would lead to a rise in the country's production level, as the economy is unable to accommodate a larger population given its existing low rates of economic development. However, the results indicate that there is potential for enhancing labor productivity by increasing spending on human capital which can have a significant impact on long-term GDP growth (Wijeweera et al., 2005; Maitra, 2021).

Sen (2011) conducted studies that suggested that welfare-improving policies in a country's new steady-state equilibrium, may improve the economy of a country. Additional research by Paudel and Perera (2009) and Maithreerathna et al. (2019) has established a positive relationship between Sri Lanka's economic growth and population growth. Population growth in Bangladesh has a detrimental effect on GDP growth, resulting in a 1.29% decline in economic growth for every 1% rise in population. This finding supports the Malthusian theory. The population growth can have both positive and negative effects on the GDP growth of the economy, contingent upon the sector of the economy it influences. If the growth population does not contribute positively to the economy, it will have a detrimental effect on economic growth. In developing countries, a growing population may increase the labor force, hence resulting in enhanced productivity and GDP growth.

Moreover, it can lead to the development of a bigger domestic market, which in turn can boost the demand for products and services in the local economy. Nevertheless, it is crucial to acknowledge that the correlation between population increase and economic growth is complicated and can fluctuate based on economic conditions and global market trends (Tsen & Furuoka, 2005).

The research conducted by Coale and Hoover (1958) and Naqvi (2010) showed that foreign debt hinders private investment, hence impeding the process of economic progress. Inadequate governance during the economic transition process, bad management of foreign financial resources, structural rigidities, and incompetent institutions in these countries are all potential explanations for the problems present in the observed developing countries. These factors ultimately led to a lack of capital available to service the external debt (Wanniarachchi, 2020). The Durbin-Watson statistic exceeds the R-squared value, suggesting that the short-run model is not invalid.

Table 4: Short run estimates

Dependent variable	= Y_{BG}			
Regressor	**Coefficient**	**Std. Error**	**t-Stat**	**Prob.**
C	14.08	3.70	3.81	0.00
$D(Y_{BG}(-1))$	0.44	0.34	1.28	0.21
$D(Y_{BG}(-2))$	0.20	0.28	0.72	0.48
$D(Y_{BG}(-3))$	0.30	0.21	1.44	0.16
$D(ED_{BG})$	-0.13	0.06	-2.02	0.05
$D(POP_{BG})$	-3.92	1.56	-2.51	0.02
CointEq(-1)*	-1.57	0.41	-3.81	0.00

Dependent variable = Y_{SL}				
Regressor	***Coefficient***	***Std. Error***	***t-Stat***	***Prob.***
C	7.72	1.54	5.00	0.00
$D(ED_{SL})$	-0.21	0.08	-2.71	0.01
$D(ED_{SL}(-1))$	0.03	0.08	0.43	0.67
$D(ED_{SL}(-2))$	-0.12	0.07	-1.65	0.11
$D(POP_{SL})$	4.40	2.02	2.18	0.04
$D(POP_{SL}(-1))$	-5.74	3.22	-1.78	0.09
$D(POP_{SL}(-2))$	-8.99	3.49	-2.58	0.02
CointEq(-1)*	-0.90	0.17	-5.20	0.00

The final part of the research is to assess the short term estimated between external debt and explanatory variables for both countries. This helps to determine if the impact of external debt is long-term or temporary. If there are significant responses in both the long and short term, then there will be both temporary and long-term effects.

Additionally, the ECM coefficient can validate the results of the cointegration equation. Once the presence of a long-term model is confirmed, estimating the short-term model using Error Correction Model (ECM) becomes straightforward.

Table 4 presents the short-term estimates derived from the Error Correction Model (ECM) of the ARDL model. The ECM coefficient measures the speed at which variables return to their equilibrium state, and the coefficient should be a significant negative value. Banerjee et al., (1998) argue that the presence of a highly significant negative ECM term provides evidence for the existence of a stable long-term association.

The calculated coefficient of the ECM_{t-1} for Bangladesh indicates that any divergence from the long-term GDP trajectory is corrected by around -1.56 percent in the subsequent quarter. Similarly, for Sri Lanka ECM_{t-1} is -0.90. This indicates that the speed of adjustment happens at a faster rate for Bangladesh in comparison to Sri Lanka.

Diagnostic Tests

Table 5 summarizes the findings of the diagnostic testing. The ARDL bounds test includes a heteroskedasticity test. Heteroskedasticity indicates that the variance of the errors in the model is not constant over time. This can make the results inaccurate. The ARDL test uses the White test or the Breusch-Pagan test for this problem. The ECM terms of the short-run models for both countries have been determined to be free of heteroskedasticity. The ARDL model also includes a test for serial correlation. This test is conducted to ensure that the residuals from the estimated model are not correlated with each other over time. If there's a serial correlation, it suggests that past errors influence present errors, making the results unreliable. The results demonstrate that there is no serial correlation.

The normality test examines the skewness of the distribution of errors and kurtosis statistics in the model, and results show that the residuals are normally distributed, which increases the validity of the ARDL cointegration test results.

Table 5: Short-run diagnostics

	Bangladesh		**Sri Lanka**	
Test	***F-stat***	***P-value***	***F-stat***	***P-value***
Normality	5.09	0.08	0.24	0.88
Heteroskedasticity	0.32	0.93	0.22	0.72
Serial correlation	0.47	0.63	2.22	0.67

CUSUM and CUSUMSQ tests are used to identify structural breaks in time-series data, specifically in ARDL models. These tests assess if there are variations in the coefficients in time series data, suggesting the necessity to modify the model because of the presence of structural breaks.

The reliability of the long-run parameters was assessed by testing for the CUSUM and CUSUMSQ. The findings are shown in Figures 1a and 1b and 2a and 2b. The results fail to reject the null hypothesis at 5% significance because the distribution of these tests falls within the critical range. Thus, it is evident that the ARDL model we have chosen is stable.

Figure 1a: CUSUM Bangladesh

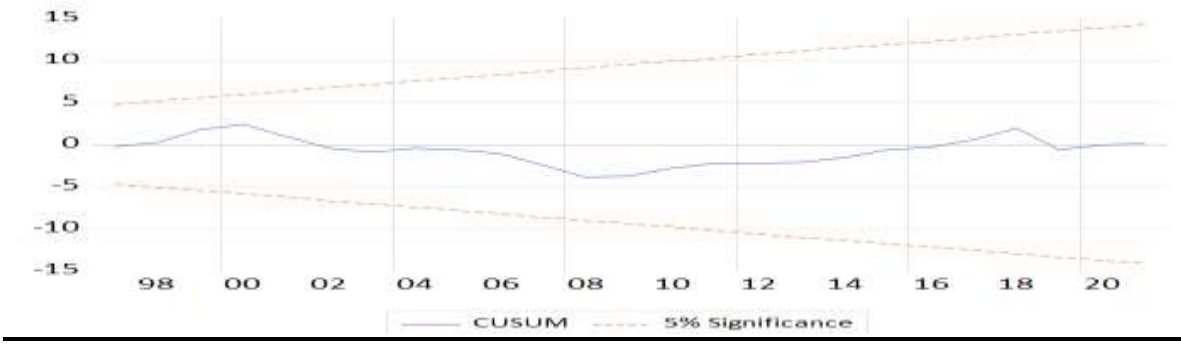


Figure 1b: CUSUMSQ Bangladesh

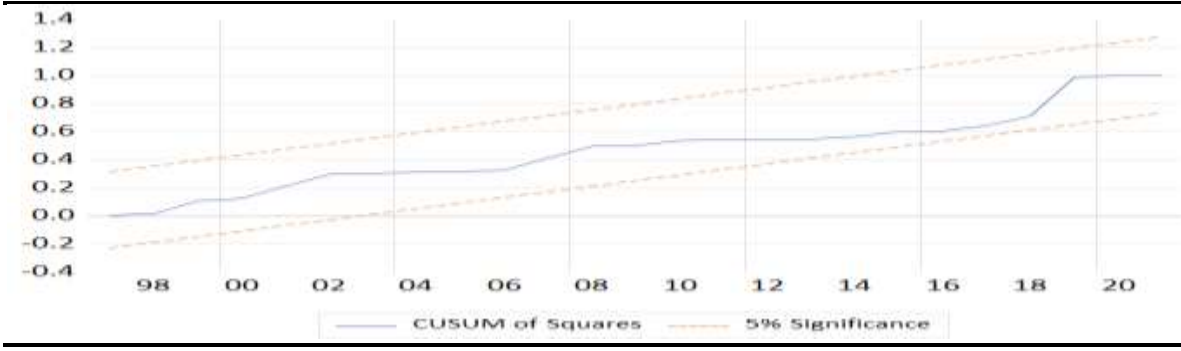


Figure 2a: CUSUM Sri Lanka

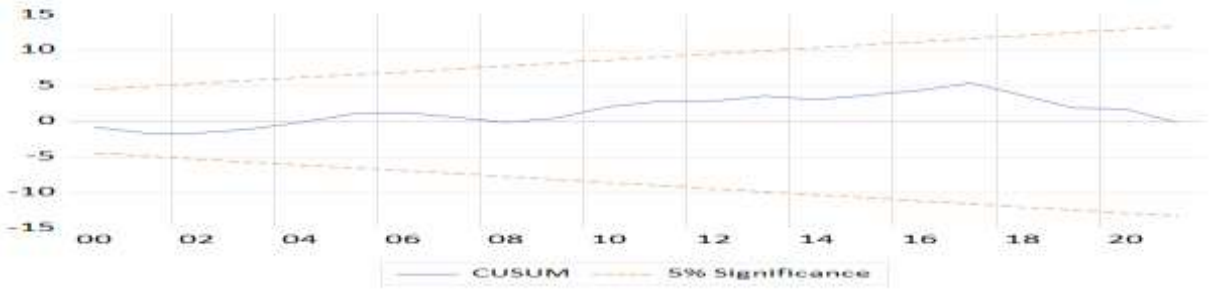
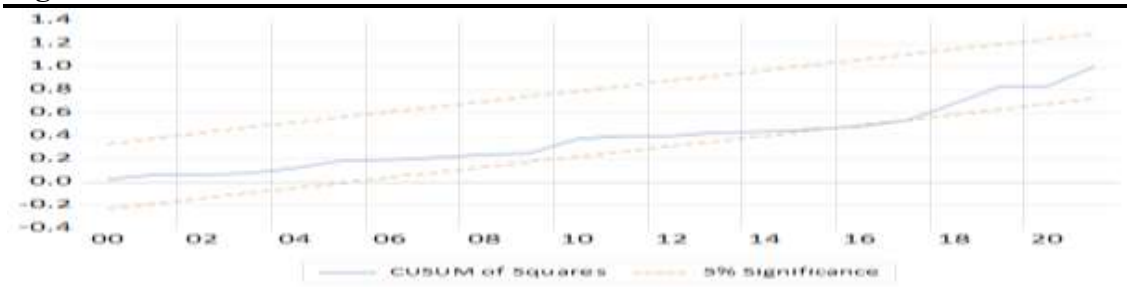


Figure 2b: CUSUM Sri Lanka



Discussion

The results show that there is a long-term and short-term relationship between GDP growth and the explanatory variables. Furthermore, the debt variable is statistically significant with a negative sign, which aligns with studies that have reported a significantly negative coefficient. A negative coefficient on external debt is an indicator of a debt overhang problem (Wijeweera et al., 2005). From this standpoint, it can be argued that Bangladesh and Sri Lanka have reached a stage where external debt is causing harmful long-term consequences for economic growth. However, because Sri Lanka has a higher negative coefficient value than Bangladesh, the impact of external debt on Sri Lanka will be greater. These finding corresponds with the results of studies conducted by Yasar, (2021), Akram (2011), Wanniarachchi (2020) Calderon and Fuentes (2013), and Ada et al. (2016) who have conducted similar studies.Debt overhang refers to the situation where the debt servicing effects the economic development of a country. A portion of the profits generated from economic growth are allocated towards repaying debts. A substantial portion of the capital invested is allocated to creditors rather than being directed towards the country itself. This might potentially deter governments from implementing economic policies that promote growth. Nevertheless, in the event of an economic expansion, the problem of debt overhang will not pose a significant concern due to the substantial returns on investment (Lamont, 1995).

Bangladesh has managed to maintain a robust economic development rate while enduring prolonged civil instability in the country. Consequently, the proportion of external debt to GDP had a progressive decrease during the decade until 2017 but has increased to 24% in 2023. Unfortunately, it is not the same for Sri Lanka as the country has struggled to achieve a sustainable growth rate in its export revenues to manage the increasing level of foreign debt. Sri Lanka's foreign debt has experienced a twofold increase between the years 2010 and 2020. High import reliance has worsened this problem.

Over the past two decades, import dependency averaged 75% of total imports. Over the last six years, there has been a 14% increase in the country's foreign debt. Debt growth outpacing GDP growth is an obvious indicator of vulnerability, the effects of which are already visible. Bangladesh's notable economic growth during the previous ten years produced 70% of this debt load. However, this clearly calls into question the strategy of using outside funding to finance development.

Conclusion and Policy Recommendations

In this study, we examine the impact of external borrowing on economic growth for selected South Asian countries, Bangladesh and Sri Lanka, for the period 1984–2022 by employing ECM estimation and the ARDL model, which will help to understand the possible issues of external borrowing.

In this study, the GDP growth rate is selected as the dependent variable, whereas external debt and population growth are considered the exogenous variables. The research begins by

examining the potential long-term and short-term co-integration relationships between the observed variables. The results indicate that a long-run negative relationship exists between external debt and GDP growth in both countries. This study utilizes the Error Correction Model (ECM) to analyze the short-term dynamics among the series. The suitable lag lengths are selected based on the AIC. According to the regression analysis, it is clear that the ECT coefficient is statistically significant at the 0.05 significance level. These findings imply that an increase in foreign debt has a decelerating effect on the selected countries' GDP growth.

The primary outcome of the study indicates that foreign loans have an adverse effect on GDP growth, providing compelling evidence in support of the debt overhang theory for the observed developing economies. The results also show that the higher the amount of external debt will have a more adverse effect on the economy. It is evident that the economy of Sri Lanka is in a more precarious situation when compared to Bangladesh. Given that the primary catalyst for economic growth in certain transitioning economies is the export of resource-intensive sectors. it can be concluded from the policy implications of this study that foreign capital is not effectively utilized in the majority of emerging countries. They should refrain from utilizing foreign loans to address economic deficits. Instead, they should exhibit greater resolve in channeling this money into sectors that would generate national value-added output and, consequently, potential revenue.

It is insufficient to analyze the trade imbalance on its own. To prevent the negative effects of foreign debt and its influence on GDP, a nation must increase exports, foreign direct investment, and foreign reserves. To escape the debt trap, a combination of well-coordinated and multi-faceted measures are necessary. It is essential to implement strong fiscal reforms focused on effective resource allocation and reducing corruption. Expanding export markets and prioritizing high-value goods may strengthen resilience and provide stable revenue sources. Enhancing institutions, advocating for good governance, and encouraging transparency are crucial for managing debt and bringing foreign investment.

Seeking Sustainable Solutions

To ensure sustainable development through responsible debt management, several policy recommendations can be explored. Initially, by prioritizing concessional loans and integrating debt sustainability analysis into economic planning, it is possible to establish a more manageable debt profile. This will allow for the allocation of resources towards investments in sustainable development initiatives. Furthermore, directing debt-financed investments towards industries that can generate employment, especially for marginalized communities, and promoting skill development can promote inclusive economic growth.

Furthermore, the analysis of debt to fund green technologies and projects, in conjunction with conducting assessments of the environmental consequences of all debt-funded projects, can foster a harmonious equilibrium between economic advancement and economic growth.

Advocating for more transparency in debt management, which involves civil society participation and monitoring the effects of debt-funded projects, enhances accountability and assures compliance with sustainable development objectives. By implementing these suggestions, Bangladesh and Sri Lanka may effectively employ foreign debt as a strategic instrument to attain sustainable and inclusive economic growth.

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