



Key drivers of international debt in South Asia: Insights and analysis

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Abstract

This study evaluates the factors of international indebtedness in some selected South Asian nations. Employing panel data for eight South Asian countries in a time period from 2000 to 2023, a study employed the CS-ARDL method. In this case, the dependent variable is external debt stock, while the independent variables are GDP growth, inflation rate, current account deficit, capital account deficit, gross domestic savings, and public expenditure. According to the results, GDP growth and gross domestic savings are significant negative determinants of external debt stock, which indicates that economic growth and savings reduce dependence on external borrowing. In contrast, a higher inflation rate, current account deficit, capital account deficit, and public expenditure increase the demand for external financing. Consequently, these factors will increase the external debt stock.

Keywords: External Debt, Economic Growth, Savings, Current Account, Capital Account

1. Introduction

Macroeconomic instability has garnered significant attention to the past debt crisis in emerging nations like South Asia. All economies' capital structure financing depends upon several fundamental factors, including low earnings and productivity, foreign debt, and a deficiency of

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savings. More importantly, these factors contribute significantly to the insufficiency of domestic capital in developing South Asian countries. Such as the global financial crisis of 2007–2008 and the European sovereign debt crisis of 2008 (Ahmad & Majeed, 2021). The high costs of stabilizing led to industrialized nations accumulating large amounts of debt. Therefore, the extraordinary rise in public debt brought on by these crises poses a danger to economic growth (Law et al. 2021).

Moreover, governments have prioritized maintaining debt sustainability since it is anticipated that debt would also impact developing nations, spreading fiscal sustainability through more established economies. Growing debt levels have a negative impact on a nation's ability to prosper economically. Recent research has shown the relevance of GDP, the debt ratio threshold, and the nonlinear effects of public debt on economic development (Kharusi & Ada, 2018).

According to Figure 1, which shows the foreign debt stock as a proportion of GDP for 8 South Asian countries from 2000 to 2021, Afghanistan's trend keeps on rising, whereas Bangladesh shows fluctuations with an overall decrease towards the end of the period. Bhutan's stock of external debt is growing rapidly, while India's stock is reducing at a slow pace.

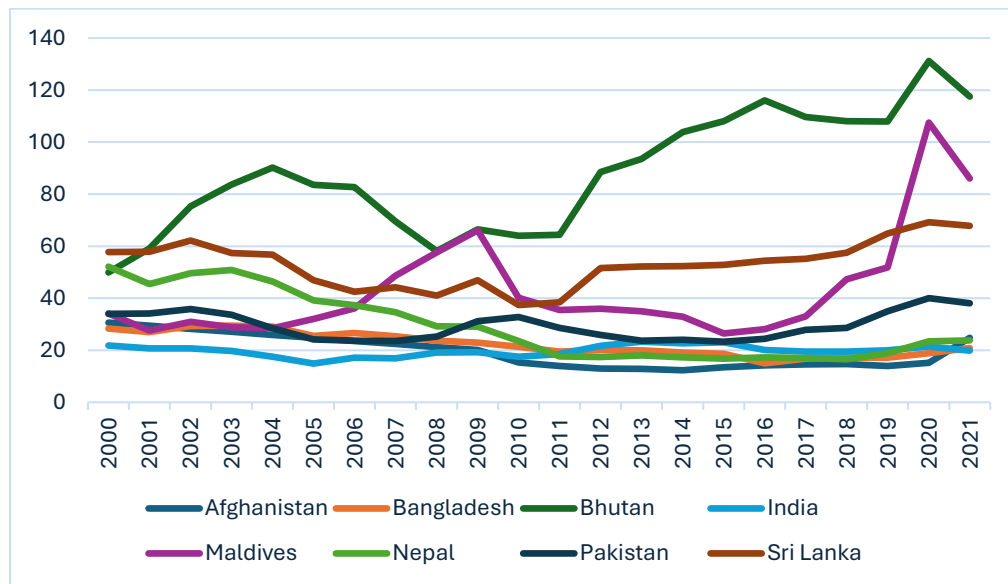


Figure 1: Trends of external debt stock in South Asian countries

The Maldives saw a sharp increase initially, which has declined recently. Nepal is showing a persistent decline, and Pakistan is on a marginal declining trend with fluctuations. Sri Lanka, meanwhile, shows an upward trend with some fluctuations in general.

This study is significant for several reasons. To begin with, there is limited literature on the determinants of global debt. Secondly, while previous studies have predominantly relied on traditional methodologies such as ARDL, OLS, and fixed and random effects models—considered first-generation approaches, this study employs the second-generation CS-ARDL method. This advanced technique is particularly valuable as it accounts for cross-sectional dependence and slope homogeneity, offering a more nuanced and accurate analysis of the data.

2. Literature Review

Table 1: Summary of the Literature Review

Reference(s)	Country/Area	Time Period	Methodology	Main Findings
Al-Fawwaz (2016)	Jordan	1990-2014	ARDL	Trade (+ve), GDP per capita (-ve)
Lau and Lee (2016)	Thailand and the Philippines	1976-2013	VECM and Granger Causality	Inflation ↔ ED
Adamu and Rasiah (2016)	Nigeria	1970-2013	ARDL	Oil Price(+ve), Loan repayment (+ve), Savings (+ve), exchange rate (+ve), Fiscal deficit (+ve)
Sa'ad et al. (2017)	Nigeria	1973-2013	ARDL	Inflation (-ve), Economic growth (-ve), Interest rate (+ve), Money supply (+ve)
Waheed (2017)	oil and gas importing and exporting countries	2004-2013	OLS	GDP (-ve), Forex reserve (-ve), GGR (-ve), Oil Price (-ve), Investment (-ve), SAD (+ve), GGE (+ve), inflation (+ve)
Brafu-Insaidoo et al. (2019)	Ghana	1970-2012	ARDL	External borrowing regulation (+ve), interest rate gap (+ve), GDP growth (+ve), Financial deepening (+ve)
Sağdıç and Yıldız (2020)	Central Asian and Caucasus nations	1995-2017	PCSE Panel Regression Model	Debt service (+ve), Public expenditure (+ve), Balance of payments (-ve), Inflation (-ve), Savings (-ve)
Mulugeta (2020)	Ethiopia	1982-2018	ARDL	Trade(-ve), infrastructure (-ve), GDP growth (+ve), Budget Deficit (+ve), Financial Development (+ve), Dependency ratio (+ve), Political Stability (+ve)
Beyene and Kotosz (2020)	Ethiopia	1981-2016	ARDL	Saving investment gap (+ve), Trade deficit (+ve), Fiscal Deficit (+ve), Debt Service (+ve), Growth rate (-ve), Trade (-ve), Inflation (-ve)
Lubis (2020)	Indonesia	1998-2017	ECM method	Interest rate (-ve), GDP (-ve), Budget deficit (+ve), Exchange rate (-ve), Inflation (+ve)
Demikha et al. (2021)	Ottoman Empire	1881-1913	ARDL	Growth rate (-ve), FDI (+ve), Government expenditures (+ve), Trade openness (+ve)
Dawood et al. (2021)	Asian developing and transitioning nations	1995-2019	GMM	Growth (-ve), Investment (-ve), Inflation (-ve), Exchange rate (+ve), trade (+ve), Government Expenditures (+ve)
Azolibe (2021)	HIPCs	1996-2018	FMOLS	Corruption (+ve), Government expenditures (+ve), Population growth (+ve), Unemployment (+ve), Foreign aid (-ve), foreign reserve (-ve), economic growth (-ve)
Mahara (2021)	Nepal	1975-2019	ARDL	Fiscal deficit (+ve), Trade (+ve), foreign aid (+ve)

3. Model Specification Data and Methodology

This section shows model specifications, data, and methodology. The model analyses the factors of international debt. The dependent variable is external debt stock, while the independent variables are economic growth (indicated by GDP growth), inflation rate, current and capital account deficits, savings, and public expenditure.

Economic growth has been incorporated in the model because it shows the extent to which the income of a country influences its dependencies; normally, when the income of a country rises, then the level of external dependency comes down. Inflation is also another factor that is used in evaluating external debt because high rates of inflation may affect a country's power in managing and repay the debt. A country's current and capital account deficits are also crucial because they reflect the dependence of a country on the external world for financing. Likewise, the level of savings is also crucial since increased savings would free a country from foreign capital, as there will be enough internal funding for investment and other economic activities. Likewise, public expenditures of the host country play a crucial role, as higher expenditures can indicate increased dependency on external resources. The functional form is given as:

$$EDST = f(GDP, INF, CAD, KAD, SAV, PEXP) \quad (1)$$

The econometric specification of the model is structured as follows:

$$EDST_{i,t} = \beta_0 + \beta_1 GDP_{i,t} + \beta_2 INF_{i,t} + \beta_3 CAD_{i,t} + \beta_4 KAD_{i,t} + \beta_5 SAV_{i,t} + \beta_6 PEXP_{i,t} + \varepsilon_{i,t} \quad (2)$$

The study used the panel data of South Asian countries from 2000 to 2021. Table 2 shows the detailed description of the variables. The study employed the CS-ARDL method.

Table 2: Details of the Variables

Variables	Description	Unit of Measurement	Data Source
EDST	External Debt Stocks	(% of GDP)	World Development Indicators
GDP	GDP Growth	(Annual %)	
INF	Inflation, GDP Deflator	(Annual %)	
CAD	Current Account Deficit	(% of GDP)	
KAD	Capital Account Deficit	(% of GDP)	
SAV	Gross Domestic Savings	(% of GDP)	
PEXP	Public Expenditures	(% of GDP)	

4. Results and Discussions

4.1. Summary Statistics

Table 3 shows the summary statistics of the variables used in this study. The EDST has a mean value of 38.67 with relatively high variability, with a standard deviation of 25.57 and a right-skewed distribution, suggesting occasional extremely high observations. The GDP growth averages 5.07 but ranges widely from -32.91 to 37.69 and is left skewed with extremely high kurtosis, implying a fat tail. INF has a mean value of 7.51 but shows very large fluctuation and is

highly right-skewed with very high kurtosis, meaning inflation spikes occur in a few periods. Both CAD and KAD have negative mean value with left skewness implying that the deficit side outcomes dominate and extreme negative values appear more frequently.

Table 3: Summary Statistics

	EDST	GDP	INF	CAD	KAD	SAV	PEXP
Mean	38.670	5.065	7.506	-6.649	-0.019	20.834	19.329
Median	28.706	5.456	5.998	-2.795	-0.004	21.056	17.443
Maximum	131.192	37.687	68.010	-0.055	0.000	47.795	59.485
Minimum	12.305	-32.909	-11.775	-35.755	-0.137	-19.457	7.494
Std. Dev.	25.571	6.265	7.970	8.240	0.034	12.051	9.463
Skewness	1.501	-0.637	4.097	-1.588	-1.996	-0.261	1.764
Kurtosis	4.728	15.577	26.997	4.415	5.848	3.148	6.778
Jarque-Bera	86.969	1258.503	5063.605	87.596	146.253	1.728	144.764
Probability	0.000	0.000	0.000	0.000	0.000	0.421	0.000

SAV averages 20.83 and is the only variable with an insignificant JB test. It shows that it is extremely normally distributed, whereas all other variables reject normality, reflecting strong non-normal behavior driven by skewness and excess kurtosis. EXP, which is also right-skewed with notable tail thickness.

4.2. Correlation Analysis

Table 4 shows the result of the correlation between the key variables. EDST shows a weak negative correlation with GDP and INF.

Table 4: Correlation Analysis

	EDST	GDP	INF	CAD	KAD	SAV	PEXP
EDST	1.000						
GDP	-0.296	1.000					
INF	-0.025	-0.268	1.000				
CAD	-0.723	0.017	0.096	1.000			
KAD	0.728	0.059	-0.128	-0.811	1.000		
SAV	0.491	0.227	-0.161	-0.503	0.533	1.000	
PEXP	0.552	-0.183	0.031	-0.463	0.356	0.114	1.000

The variables SAV and PEXP have a moderate positive correlation with EDST. The CAD shows a strong negative while the KAD shows a strong positive correlation with EDST.

4.3. Cross-Sectional Dependence Test

Table 5 shows the results of the cross-section dependence test. The result shows that there exists cross-sectional dependence for all variables.

Table 5: CD Test

Variable	CD-test
EDST	3.439***
GDP	7.725***
INF	2.396***
CAD	3.356***
KAD	2.910***
SAV	16.570**
PEXP	2.362***

4.4. Unit Root Analysis

Table 6 presents the unit root analysis. The result reveals mixed results across variables, with varying orders applied. EDST is non-stationary in both specifications with order I (1), indicating it contains a unit root. GDP is stationary at I (1). INF is stationary with order I (0), suggesting they are stable over time.

Table 6: Unit Root Analysis

CSDIPS Unit Root Test				
Variables	Without Trend		With Trend	
	Lags	Zt Statistics	Lags	Zt Statistics
EDST	1	-0.329	1	0.101
GDP	1	-4.143***	1	-4.577***
INF	0	-6.218***	0	-5.710***
CAD	0	-1.803**	0	0.126
KAD	1	-0.386	1	0.610
SAV	1	-3.961***	1	-2.121**
PEXP	0	-4.876***	0	-4.977***

CAD is stationary without a trend and with order I(0), but non-stationary with a trend and with order I(0), indicating some instability when trends are considered. KAD remains non-stationary with order I(1) in both specifications, implying the presence of a unit root. SAV is stationary with order I(1) in both cases, showing stability over time. PEXP is also stationary with order I(0) in both specifications.

4.5. Cointegration Test

This section presents the results of cointegration tests. Table 7 shows strong evidence of cointegration based on the Westerlund test.

Table 7: Panel Cointegration Tests

Westerlund Test	Gt	Ga	Pt	Pa
	-1.061**	-1.660***	-2.128***	-1.603***

4.6. CS-ARDL Estimates

This section presents the empirical results of the CS-ARDL model, detailing both long-run and short-run effects of the determinants of international debt in South Asian countries. Table 8 displays the CS-ARDL (Cross-Sectional Autoregressive Distributed Lag) model estimates for both short-run and long-run effects. In the short run, the Error Correction Term (ECT (-1)) is -0.940 and statistically significant at the 1% level, indicating a strong and significant adjustment towards equilibrium. The study used external debt stock as a dependent variable, while GDP growth, inflation measured by GDP deflator, current account deficit, capital account deficit, gross domestic saving, and public expenditures are used as independent variables.

In the long run, GDP growth has an adverse impact on external debt stock. There are several reasons behind this adverse effect. Firstly, a country's entire economic output rises with GDP growth, strengthening its domestic economy. The government will be able to fulfil its financial needs with less external borrowing if it continues to prosper and create more money domestically. Instead of depending on foreign loans, a strong economy can frequently finance expenditures such as development projects with its own funds (Sa'ad et al. 2017).

Secondly, growth in GDP broadens the tax base, increasing revenue for the government. Governments can better pay their current external debt due to this increased revenue, which also lessens the need for future external borrowing. An improved fiscal capacity brought about by higher tax revenues makes it easier for a nation to control and maybe even lower the amount of its foreign debt (Waheed, 2017).

Table 8: CS-ARDL Estimates

Variables	Coefficient	Std. Err.
Short-Run		
Δ ECT(-1)	-0.940***	0.172
Δ GDP	-0.625***	0.150
Δ INF	0.328**	0.134
Δ CAD	0.496***	0.141
Δ KAD	0.369*	0.210
Δ SAV	-0.429**	0.165
Δ PEXP	1.635***	0.0739
Long-Run		
GDP	-0.331***	0.106
INF	0.176*	0.085
CAD	1.940***	0.172
KAD	0.614**	0.269
SAV	-1.496***	0.141
PEXP	0.853***	0.114
R-squared	0.346	

Thirdly, there may be an increase in foreign direct investment because of the enhancement of investors' confidence due to economic growth. A source of funds that can reduce the need to borrow from outside is foreign direct investment, FDI. An expanding economy attracts direct

investment from investors, and this reduces the necessity of borrowing from foreign countries to support the needs of the country's growth (Dawood et al., 2021).

Last of all, the result of economic growth could be the strengthening of national currencies. Since it is cheaper to service a foreign currency debt, a stronger currency therefore makes it easier to manage and to service a debt that is denominated in foreign currency. Moreover, this appreciation of the currency might also contribute to the reduction of the stock of external debt and the demand for new foreign borrowing by improving the balance of payment (Waheed & Abbas, 2021). In this connection, our findings are in harmony with Sa'ad et al. (2017), Waheed (2017), Dawood et al. (2021), and Waheed and Abbas (2021).

The variable inflation is positively associated with external debt stock, which is highly statistically significant. An increase in inflation has a positive impact on external debt stock due to several reasons. First of all, currency depreciation is often provoked by higher inflation rates in the country. The price of servicing and/or meeting external obligations, which is normally in foreign currency, increases when the domestic currency weakens. The cost of satisfying debt commitments abroad rises as a result of this depreciation, hence raising the stock of foreign debt (Abogan et al., 2014).

Secondly, central banks typically increase interest rates in response to inflationary pressures to reduce inflation. In spite of its raised risks, overseas debt might become more alluring when domestic interest rates rise and make borrowing within the nation more expensive. As a result, corporations and governments may borrow money from abroad more frequently, which would raise the stock of foreign debt (Memon et al. 2015).

Last but not least, considering that the value of money decreases owing to inflation, the given weight of the national debt is not so great. When inflation does not reduce the real value of obligations in the same way as it does with internal debt, governments may decide to shift the costs of debt elsewhere. This may again lead to an increase in the stock of external debt as a strategy to manage the total amount of debt (Lubis, 2020). This study is in accord with the following studies (Abogan et al., 2014; Memon et al., 2015; Lubis, 2020; Dawood et al., 2021).

The coefficients of both current account balance and capital account balance are positive and highly statistically significant as to their effect on the external debt stock for the following reasons. First, more goods are imported than exported, that is a higher current account deficit for the country. The nation might have to look for funds from other sources in order to meet this deficit, and that would add to the total liabilities to be paid to the foreign entities. This is a general trend in the South Asian countries because import requirements are normally higher than export requirements (Waheed, 2017).

To boost the current account deficit, one has to buy foreign exchange to meet import bills. This is often done through the drawing of external resources, which results in an addition to the stock of external debt. Trade deficits in many developing countries, and those in South Asia in particular, are often financed by foreign debt. A deficit in the capital account means that more capital is leaving the nation than entering it. The nation may have to borrow money from outside sources in order to close this deficit and stabilize the economy, which would raise the stock of

foreign debt. By bringing in foreign cash, this borrowing aids in balancing the outflow of capital. Refunds of capital can be exhausted by a nation's foreign exchange reserves. In order to preserve sufficient reserve levels and guarantee financial stability, governments may have to borrow money from abroad. While this borrowing increases the amount of external debt, it also restores foreign reserves (Waheed & Abbas, 2021). Our results are consistent with the following studies (Waheed, 2017; Waheed & Abbas, 2021).

The gross domestic saving has a negative impact on the external debt stock, which is highly statistically significant. An increase in gross domestic savings has a negative impact on external debt stock for several reasons: firstly, increased domestic savings provide the nation's citizens with more money for consumption and investment. There is less of a need to borrow money from outside sources when local savings are adequate to fund economic activity and development initiatives. As a result of this drop in borrowing requirements, the stock of foreign debt declines (Sağdıç & Yıldız, 2020).

Reliance on foreign funding for investments is decreased by rising domestic savings. It is not necessary to seek funding from outside when a country has its own resources to use in financing its infrastructural and developmental programs. This financial efficiency reduces the foreign debt as it does not depend on foreign borrowing. There has also been a close connection between the improvements in stability and the resilience of the financial systems and the levels of domestic savings. Larger amounts of local capital can be used to improve control of the financial system and minimize the impact of external shocks. This stability means there is little requirement for foreign borrowing in case of an emergency, thus reducing the external debt (Beyene & Kotosz, 2020). The following also confirms the inverse relationship between saving and external debt stock (Beyene & Kotosz, 2020; Sağdıç & Yıldız, 2020).

The last determinant is public expenditure, which is expected to have a positive relationship with external debt stock, which is confirmed to be highly statistically significant for several reasons. First of all, usually the increase in the public sector's expenditure by the government demands additional funds. External borrowing may be required to meet the budgetary deficit in case savings and domestic resources are not sufficient to meet the requirements. This leads to an increase in the stock of foreign debt as a result of this new borrowing (Sağdıç & Yıldız, 2020).

Secondly, huge amounts of money are required for public spending in development and infrastructure, especially on a large scale. Especially, a number of countries in the developing world may not be able to mobilize the required resources domestically to finance such undertakings; consequently, they resort to grants and loans from other sources. These have led to a rise in the stock of foreign debt due to these outside sources (Le Van et al. 2019).

Finally, higher borrowing demands may stem from higher governmental expenditure on social expenditures and economic stimuli, especially in periods of economic downturns and crises. In order to finance these programs and provide the populace with a social protection net and to foster economic growth, governments may borrow money from other countries, thus raising the level of the foreign debt (Mahdavi, 2004). Our findings support the following studies (Mahdavi et al. 2004; Le Van et al. 2019; Sağdıç & Yıldız 2020).

5. Conclusions and Policy Recommendations

This study provides detailed empirical evidence on the determinants of external debt stock in South Asian countries. The quantitative research design of the study is applied to the eight South Asian countries (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka) over a period of two decades, from 2000 to 2021.

First, we determined the descriptive measures and performed the correlation analysis to examine the preliminary associations between the variables. Second, we used the second-generation unit root tests in order to test the data for stationarity and found that the data were of mixed order. Thirdly, the cross-sectional dependence test, Pesaran's CD test, shows that there is evidence of cross-sectional dependence among the variables. Fourth, we did the delta and delta-adjusted slope homogeneity tests, and both of them showed that the slope coefficients are homogenous across countries. Finally, we used Westerlund, Pedroni, and Kao tests, which are panel cointegration tests, and all these tests yielded results that supported the notion that the variables were cointegrated. Finally, we have also employed the CS-ARDL model to determine both the short and long-term relationships. In this model, external debt stock has been considered as the dependent variable and GDP growth, inflation rate, current account deficit, capital account deficit, gross domestic saving, and public expenditure as independent variables.

The regression output shows that both GDP growth and gross domestic saving are significant and negative determinants of external debt stock, meaning that economic growth and saving lead to less borrowing from external sources. On the other hand, the inflation rate, current account deficit, capital account deficit, and public expenditure have a positive relationship with the external debt stock, which shows that these factors raise the need for external borrowing. Based on the results, the policy implications are given as:

The study findings indicate that GDP growth negatively impacts the external debt stock. Therefore, policymakers should implement strategies that stimulate economic growth to reduce dependency on external debt. The results reveal a positive relationship between the inflation rate and external debt stock. It is recommended that planners adopt policies aimed at stabilizing prices and controlling inflation to manage external debt levels. The analysis shows that both current account and capital account deficits positively affect the external debt stock. It is suggested that the government develop policies to address and balance these deficits to minimize reliance on external debt. The study indicates that gross domestic saving has a negative effect on external debt stock. Policymakers are encouraged to promote higher saving rates to reduce dependency on external debt. The findings suggest that public expenditures positively impact external debt. Therefore, it is recommended that the government focuses spending on development projects to foster economic growth and reduce debt dependency.

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