Debt and Fiscal Sustainability

An Empirical Evidence from Low and Middle Income Economies

By

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ABSTRACT

The linkages between debt and economic growth has been one of the most important concerns that have recently attracted the attention of policymakers and eminent scholars. The proposed study broadly focuses on three key aspects: (a) to examine the linkages between external debt and economic growth; (b) public debt and fiscal sustainability; and (c) fiscal policy for a resilient economy. The study is primarily based on the secondary data covering time-period from 2011-2020. A sample of 58 countries has been selected from the group of low and middle income countries (as per the IMF classification of countries). For analysis purpose, cointegration analysis has been adopted to determine the causality between external debt and economic growth. Further, in order to examine effects of fiscal shocks, Blanchard and Perotti and Auerbach and Gorodnichenko approaches have been proposed. The study also discusses some of the possible fiscal measures to be adopted in managing the public finances of the government and suggest certain fiscal strategies and tools to address external shocks for building a fiscal resilient economy.

Key Words: Cointegration, Economic Growth, External Debt, Fiscal Policy, Fiscal Sustainability, Low Income economies, Middle Income economies, Public Debt

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I. Introduction

The linkages between debt and economic growth has been one of the most important concerns that have recently attracted the attention of policymakers and eminent scholars. Due to the dominance of financial capital and debt crisis in international relations since 1982, the question arises on various aspects related to debt and economic growth such as: how debt and exports affects development and economic growth in an economy.

In addition to it, the prolonged uncertainties like recession and the countercyclical fiscal measures adopted to address it have lead to substantial increases in public debt and external debt of the leading economies. These elevated debt levels raise several important questions about the conduct of fiscal policy, such as, to what extent does the increase in public debt and high debt-to-GDP ratios limit the fiscal space and strength of fiscal multipliers; or whether expansionary policy and fiscal consolidation leads to decline in debt-to-GDP ratios, even during a period of economic weakness. These issues have become a central question, particularly, in low and middle income economies, since the fiscal outlook is at major risk in these economies due to limited policy support.

Keeping the above view into consideration, the proposed study broadly focuses on three key aspects: (a) to examine the linkages between external debt and economic growth; (b) public debt and fiscal sustainability; and (c) fiscal policy for a resilient economy. The structure of the paper is as follows: In the next section, the causality between external debt and economic growth is being analyzed. Section III discusses the growing challenge of public debt and fiscal sustainability issues. Section IV lays out the framework for fiscal policy for a resilient economy. Section V presents concluding remarks.

II. Causality between External Debt and Economic Growth

The recent available literature and empirical analysis on the relationship between external debt, investment and economic growth has provided mixed and inconclusive results. A substantial

number of studies have been conducted so far which can be further classified into three broad categories. The first classification provided evidences supporting the argument that external debt decreases investment and growth. Scholars such as (Borensztein 990, Iyoha 2000, Were 2001, Lopes 2002, Maghyereh and Omet 2002, Berensmann 2004, Hameed et al. 2008, Presbitero 2012, Guei 2019) sustained the above proposition. Studies by various scholars from the other group showed that external debt has a positive effect on investment and growth (Jayaraman and Lau 2009, Ahlborn and Schweickert 2015, Egbetunde 2012, Sánchez-Juárez and García-Almada 2016, Owusu-Nantwi and Erickson 2016). Finally, no significant impact has been reported by few empirical studies. An important aspect of the research in this area indicates that the relationship between external debt and growth could be nonlinear. However, there is no consensus in theoretical and empirical literature about the external debt and economic growth relation. The present study uses a comprehensive approach to analyse the linkages between external debt, debt service and economic growth in low income and middle income economies.

Data and Methodology: The study is primarily based on the secondary data extracted from World Development Indicators for the period 2011 – 2020. Based on the data availability, a sample of 58 countries has been selected from the group of low and middle income countries (as per the IMF classification of countries) for the analysis purpose. Some of the countries are excluded from the sample list due to the non-availability or non-continuity of data over the selected time-period. The main indicators selected for the study includes: (a) External debt; (b) GNI (Constant 2015 US$); (c) Total debt service as % of exports of goods, services and primary income. GNI (Constant 2015 US$) has been used as a performance indicator of economic growth on account of following reasons: (1) it takes into account net income earned from abroad; (2) continuity and availability of data in constant terms for all countries. Total debt service as % of exports of goods is used as proxy variable for measuring granger causality

between external debt and economic growth. Further, log values are computed to normalize the data accounting for abnormal changes/fluctuations. For exploring the interplay between various aspects related to external debt and economic growth, Cointegration analysis has been conducted for the empirical investigation in the present study.

Using the Engel-Granger causality test framework, it has been found that there exists cointegration between external debt and GNI as an indicator of economic growth in low income economies. In contrast, no evidence of cointegration exists between external debt and GNI in middle income economies. Similar results were obtained for the combined group of low and middle income economies. The above findings revealed absence of long-term relationship among the variables in both low and middle income economies (**Table 1**).

III. Public Debt and Fiscal Sustainability

This section addresses the questions about the fiscal sustainability in Low and Middle Income Economies. The study will be based on three main propositions. First, effects of fiscal shocks on macroeconomic aggregates. Second, level of public debt influencing the ability of government spending to stimulate the economy. Third, sustainability of fiscal policies across time and across countries.

Data and Methodology: For empirical analysis, the study is based on secondary data, extracted from IMF database, World Development Indicators, Bank for International Settlements (BIS) and OECD database. Main indicators selected for the analysis purpose are: (a) GDP (Constant 2015 US$); (b) General Government Debt; (c) Real Interest Rate; (d) Credit Default Swaps (CDS); (e) Government spending; (f) Inflation rate and; (g) Unemployment rate. Debt-to-GDP ratio is taken as a proxy variable to measure fiscal sustainability. Further, in order to measure country's fiscal imbalances - fiscal gap is taken into considered which is generally expressed as a share of GDP.

To examine unanticipated shocks to government spending, several approaches are being proposed such as: (1) the standard recursive ordering identification as in Blanchard and Perotti (2001); (2) professional forecasts to remove predictable changes in government spending as in Auerbach and Gorodnichenko (2012, 2013); and (3) narrative identification as in Devries et al. (2011).

The preliminary results of the study suggest that fiscal stimulus in a weak economy could be an effective tool to boost the economy. Expansionary fiscal policies adopted when the economy is weak may not only stimulate output but also reduce debt-to-GDP ratios as well as interest rates and CDS spreads on government debt.

IV. Fiscal Policy for a resilient economy – New approaches

This section discusses the possible fiscal measures to be adopted in managing public finances of the government, especially, during the times of unprecedented external shocks, such as, great depression, economic recession, recent covid-19 pandemic. In addition, the global economy has been affected by a sequence of disturbances like high inflation, rising deficit levels, higher debt levels, and rising interest rates in recent times.

It has been evident that the government debt in low and middle income economies enormously rose during the pandemic period (**Table 2; Annexure I**). However, fiscal deficits have fallen after economic recovery in 2021 and 2022, yet it still remains higher than the pre-pandemic levels. The gross financing needs of the government increased considerably, especially post-pandemic period (**Figure 1**) and is likely to increase in future in times of external shocks. Thus, it is critical to design a policy response in this scenario so as to navigate the effects of external shocks in the economy.

New fiscal policy requires prioritizing spending among competing needs and mobilizing revenues in a growth-friendly way. A number of government initiatives can foster resilience in the economy by helping households and firms recover from or adjust to adversity. Fiscal

actions need to be swift to protect people's households from external shocks. Some of the fiscal strategies and tools to address external shocks are listed in **Annexure II**.

V. Conclusion

To conclude, appropriate fiscal framework, backed by fiscal transparency and credibility, is desirable in order to attain fiscal sustainability in long run among low and middle income economies. Both public debt and external debt levels need to be monetized for greater fiscal resilience in these economies. The government must thrive to ensure fiscal consolidation and a consistent medium-term policy framework to attain fiscal sustainability in the near future. Further, the scope of the research work can be elaborated with more detailed historical time series, covering greater variation in levels of public debt, disaggregated categories of government spending, etc. The spectrum of research can be widened by taking into consideration trends in advanced economies as well. This will help to provide more conclusive and comprehensive policy solutions.

Table 1a. Cointegration Regression results – Low Income Economies

OLS, using observations (T = 320)
Dependent variable: External debt

	coefficient	std. error	t-ratio	p-value
const	5.65339e+08	3.41383e+08	1.656	0.0987 *
Income	0.275678	0.0113194	24.35	1.39e-074 ***
time	1.56733e+06	1.69139e+06	0.9267	0.3548

Mean dependent var	3.86e+09	S.D. dependent var	4.72e+09
Sum squared resid	2.47e+21	S.E. of regression	2.79e+09
R-squared	0.651707	Adjusted R-squared	0.649509
Log-likelihood	−7412.606	Akaike criterion	14831.21
Schwarz criterion	14842.52	Hannan-Quinn	14835.73
rho	0.833146	Durbin-Watson	0.340588

Source: Researcher's own estimations

Table 1b. Cointegration Regression results – Middle Income Economies

OLS, using observations (T = 840)
Dependent variable: External debt

	coefficient	std. error	t-ratio	p-value
const	−2.67271e+09	1.96120e+09	−1.363	0.1733
Income	0.214327	0.00329148	65.12	0.0000 ***
time	1.66891e+07	3.94420e+06	4.231	2.58e-05***

Mean dependent var	2.95e+10	S.D. dependent var	6.82e+10
Sum squared resid	6.43e+23	S.E. of regression	2.77e+10
R-squared	0.835358	Adjusted R-squared	0.834964
Log-likelihood	−21388.28	Akaike criterion	42782.55
Schwarz criterion	42796.75	Hannan-Quinn	42788.00
rho	0.898405	Durbin-Watson	0.203182

Source: Researcher's own estimations

Table 1c. Cointegration Regression results – Low & Middle Income Economies

OLS, using observations (T = 1160)
Dependent variable: External debt

	coefficient	std. error	t-ratio	p-value
const	11.3877	0.599779	18.99	3.40e-070 ***
Income	0.463216	0.0255331	18.14	6.23e-065 ***

Mean dependent var	22.20314	S.D. dependent var	2.537438
Sum squared resid	5810.795	S.E. of regression	2.240080
R-squared	0.221316	Adjusted R-squared	0.220644
Log-likelihood	−2580.521	Akaike criterion	5165.042
Schwarz criterion	5175.155	Hannan-Quinn	5168.858
rho	0.879872	Durbin-Watson	0.240271

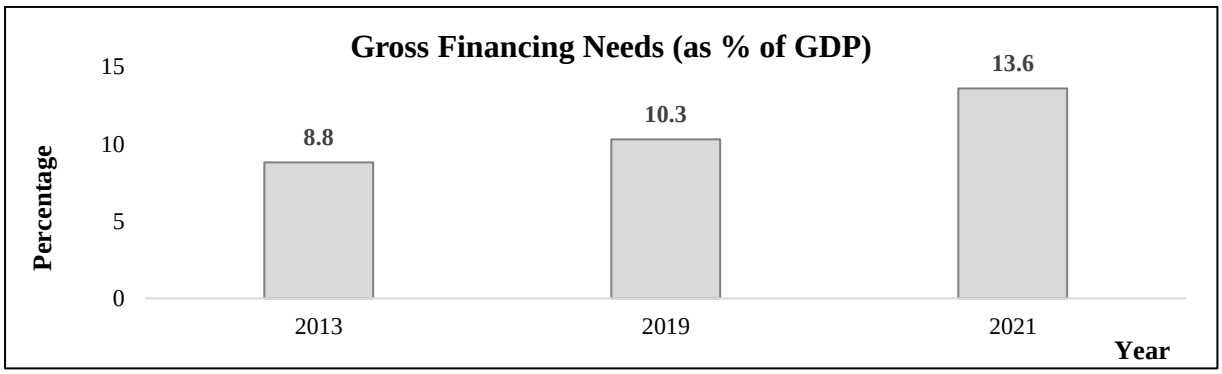
Source: Researcher's own estimations

Table 2: General Government Overall Fiscal Balance and Government Debt (2013-26) Selected Low Income and Middle Income Economies (as % of GDP)

Year	Low Income Economies			Middle Income Economies		
General Government Fiscal Balance						
	Kenya	**Nigeria**	**Vietnam**	**China**	**India**	**Brazil**
2013	-5.1	-2.7	-6.0	-0.8	-7.0	-3.0
2014	-6.7	-2.4	-5.0	-0.9	-7.1	-6.0
2015	-7.4	-3.8	-5.0	-2.8	-7.2	-10.3
2016	-7.8	-4.6	-3.2	-3.7	-7.1	-9.0
2017	-7.5	-5.4	-2.0	-3.8	-6.2	-7.9
2018	-7.0	-4.3	-1.0	-4.7	-6.4	-7.1
2019	-7.3	-4.7	-3.3	-6.3	-7.4	-5.9
2020	-8.1	-5.8	-3.9	-11.2	-12.8	-13.4
2021	-8.0	-6.1	-4.7	-7.5	-11.3	-6.2
2022	-6.7	-6.0	-4.7	-6.8	-9.7	-7.4
2023	-4.9	-5.5	-4.5	-6.2	-8.8	-6.4
2024	-4.0	-5.6	-4.2	-5.6	-8.3	-5.4
2025	-3.2	-5.9	-3.9	-5.0	-8.1	-4.8
2026	-2.5	-6.1	-3.6	-4.5	-7.8	-4.4
General Government Debt						
2013	39.3	18.3	41.4	37.0	67.7	60.2
2014	38.6	17.5	43.6	40.0	67.1	62.3
2015	44.4	20.3	46.1	41.5	69.0	72.6
2016	46.7	23.4	47.6	48.2	68.9	78.3
2017	54.8	25.3	46.3	51.7	69.7	83.6
2018	57.3	27.7	43.7	53.8	70.4	85.6
2019	59.0	29.2	43.6	57.1	74.1	87.7
2020	67.6	35.0	46.3	66.3	89.6	98.9
2021	69.7	35.7	47.9	68.9	90.6	90.6
2022	70.2	36.9	47.8	72.1	88.8	90.2
2023	69.6	37.7	47.8	74.5	88.1	91.7
2024	68.3	39.1	47.0	76.6	87.3	92.4
2025	70.9	40.6	46.1	78.5	86.3	92.6
2026	69.6	42.0	45.3	80.1	85.2	92.4

Source: IMF Database, October 2021

Figure 1: Gross Financing needs in Middle Income Economies pre-pandemic and post-pandemic levels (as % of GDP)



Source: IMF, Fiscal Monitor Database, 2013, 2019, 2021

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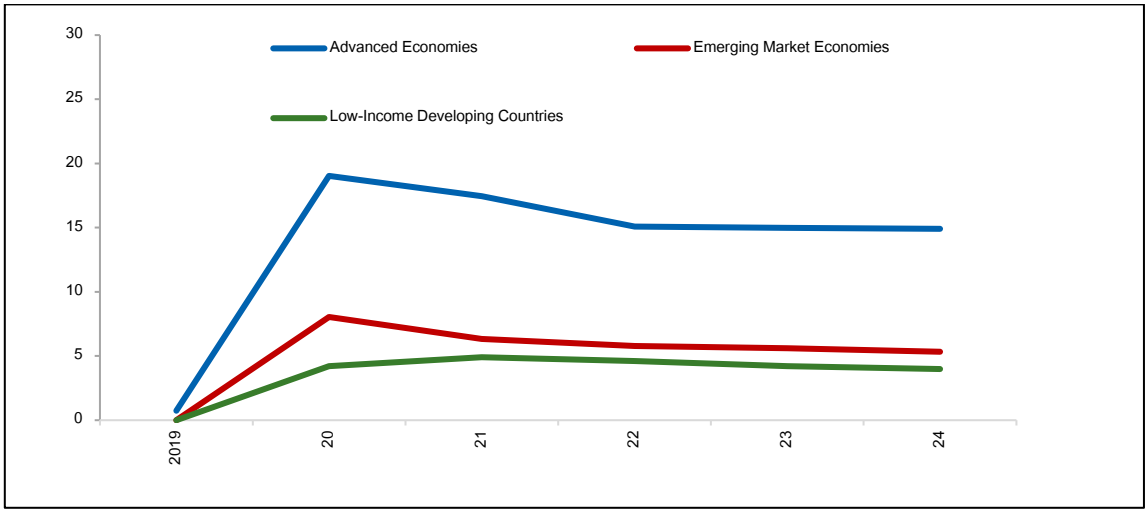
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Annexure I

Figure 2: Effect of Covid-19 Pandemic on General Government Debt, 2019-24 (% of GDP)



Source: IMF, World Economic Outlook Database and IMF staff estimates

Annexure II

Table 3: Fiscal Strategies and Tools to address External Shocks

External Shock	Possible impact	Fiscal Strategy to Counter	Fiscal Tools
Fiscal Stress	Rise in fiscal debts, high interest rates, higher public and external debts; fiscal unsustainability	Fiscal consolidation and ensuring debt sustainability	Strengthening medium-term expenditure framework Reduction in deficit indicators Reduction in outstanding liabilities and contingent liabilities Curtailing wasteful expenditures Progressive taxes; widening tax base
Unprecedented crisis like Covid-19 pandemic	Slow economic growth, rise in inflation and unemployment – possibility of stagflation, adverse impact on trade and commerce; loss of human lives	Leveraging Fiscal stimulus packages; strengthening infrastructure facilities especially in health, education, focus on job creation	Scale up of social protection Job retention schemes Unemployment income-support Targeted cash transfers
Domestic shock in the form of drought	The rise in the inflation rate, fall in growth rate & decline of agricultural production	Mitigation methods, pre-disaster activities to improve readiness, Maintain food security	Scale up of social protection Unemployment income-support Targeted cash transfers
Commodity Price shock	The rise in the Domestic inflation rate	Cuts in public investment could be appropriate	
Oil Price Shock	Fall in the long-run growth rate & greater long-run impact on the growth of the agricultural and tertiary sector	Reducing energy subsidies, automatic formula-based adjustments, restrictions on withdrawing resources from oil funds	Discretionary support to firms if severe externalities exist
World Trade Shock	This leads to a fall in exports demand and this brings down the industrial and tertiary growth rates	Trade agreements like GATT, FTA, and RTAs	Discretionary support to firms if severe externalities exist Tax deferral, particularly if limited access to finance before shock
Exchange rate fluctuations	Impact on investment performance, interest rates, and inflation	Foreign exchange intervention	Fiscal deficits need to be monetised Expansionary fiscal policies
Capital Flow Shock	A sharp fall in the foreign exchange reserves as a result of the shock gives rise to some instability in growth from the external sector.	Restricting capital flows, **Reserve option mechanism**-automatic FX intervention	Fiscal deficits need to be monetised Expansionary fiscal policies Financing measures (for example, direct lending and public guarantees)

Source: Researcher's own compilation from IMF research publications