Sovereign Bonds and a Feminist Fiscal Space in Low and Middle-Income Countries?

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Introduction & Research Questions

Many low- and middle-income countries face financing gaps for the infrastructural and social spending required to pursue a rights-based and feminist approach to development. Oxfam calculates that an additional $3.9 trillion will be needed each year to fill this gap (Seery and Jacobs 2023). Concomitantly, sovereign bond issuance by low-and middle-income countries is on the rise. Can this rise help expand the fiscal space of these countries, particularly for social infrastructure?

Research Questions

1. Has sovereign bond issuance increased for low (LIC), lower-middle (LMIC), and upper-middle-income (UMIC) countries between 2010 and 2022, and how does this differ for low-income, lower-middle-income, and upper-middle-income countries?
2. Over time, and on average, are increases in sovereign bonds issuance correlated with increases in investments in social infrastructure?

Literature Review

In principle, sovereign bonds could help low and middle-income countries finance infrastructure projects and social spending programs for which financing gaps exist (Dittmar & Yuan 2008; Arteta & Hale 2008). Moreover, some argue that despite their risks, sovereign bonds could finance these gaps without some of the conditionalities imposed by traditional development financing options, which have often demanded constrained public spending or austerity measures (Gevorkyan and Kvangraven 2016).

At the same time, in order to attract investors, many low and lower-middle-income countries must issue high yield and longer-term bonds, increasing the cost of borrowing (Munevar 2021). This can consequently increase the risks of default and also impact their ability to increase budgetary spending. Past research indicates that emerging market's reliance on sovereign bond markets may require countries to constrain spending and debt accumulation in order to maintain continued access to international capital markets (Ahwireng-Obeng and Ahwireng-Obeng 2020; Gevorkyan and Gevorkyan 2012; Soudis 2017; Wajebo 2022).

Methods & Data

The dataset include 42 countries* between 2010 and 2022. The analysis utilizes a fixed effects model with lagged (up to 2 years) and non-lagged versions of the independent variable: sovereign bond volume as a proportion of GDP. Fixed effects models can help account for the bias that occurs due to the omission of time-constant variables that are correlated with the outcome and independent variables.

Outcome Variable	Description	Data Source
Health expenditures as a percentage of GDP	Current health expenditures include healthcare goods and services excludes capital health expenditures.	World Health Organization Global Health Expenditure Database.
Education expenditures as a percentage of GDP	Government expenditure on education includes current, capital, and transfers from international sources to government.	UNESCO Institute for Statistics (UIS).
General government consumption expenditure as a percentage of GDP	General government final consumption expenditure includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security excluding government military expenditures that are part of government capital formation.	World Bank national accounts data, and OECD National Accounts data files.
Military Expenditures as a percentage of GDP	Includes all current and capital expenditures on the armed forces, including peacekeeping forces; defense ministries and other government agencies engaged in defense projects; paramilitary forces, if these are judged to be trained and equipped for military operations; and military space activities.	Stockholm International Peace Research Institute (SIPRI), Yearbook: Armaments, Disarmament and International Security.

Independent Variable	Description	Data Source
Sovereign Bond Volume as a percentage of GDP	Annual average of sovereign bond volume (USD) for each country as a percentage of GDP.	Cbonds (private database). GDP data from World Bank.
Lagged Sovereign Bond Volume as a percentage of GDP	Sovereign bond volume variable lagged by 1 and 2 years.	Cbonds (private database). GDP data from World Bank.
GDP per capita	GDP per capita, constant 2015 USD.	World Bank national accounts data, and OECD National Accounts data files.
Net ODA	Net official development assistance per capita is disbursement flows (net of repayment of principal) that meet the DAC definition of ODA and are made to countries and territories on the DAC list of aid recipients.	Development Assistance Committee of the Organization for Economic Co-operation and Development,
Revenue as a percentage of GDP	Revenue includes taxes, social contributions, and other revenues such as fines, fees, rent, and income from property or sales and excludes grants.	International Monetary Fund, Government Finance Statistics Yearbook and data files, and World Bank and OECD GDP estimates.

*Countries include Low-income (LIC), lower-middle income (LMIC), and upper-middle-income (LIC) in Africa, Asia, and Latin America. Countries in the Middle East, Central Asia, and Eastern Europe are excluded. Mexico and India are not part of this analysis. Countries in the dataset are: Angola, Argentina, Belize, Benin, Bolivia, Brazil, Cameroon, Colombia, Costa Rica, Cote d'Ivoire, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, Gabon, Grenada, Honduras, Indonesia, Jamaica, Kenya, Laos, Malaysia, Morocco, Mozambique, Namibia, Nigeria, Pakistan, Papua New Guinea, Paraguay, Peru, Philippines, Rwanda, Senegal, South Africa, Sri Lanka, Suriname, Tanzania, Turkey, Vietnam, Zambia.

The analysis includes 3 Fixed Effects Models with four outcome variables (listed above), with robust and clustered standard errors. The independent variables of interest are: sovereign bond volume to GDP, a one-year lag of sovereign bond volume to GDP, and a two-year lag of sovereign Bond volume to GDP. The analysis also models the relationship between these variables for different income categories the countries: UMIC, LMIC, and LIC. Models were checked successfully for multicollinearity.

References

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Arteta, C., & Hale, G. (2008). Sovereign Debt Crises and Credit to the Private Sector. *Journal of International Economics, 74(1),* 53-69.
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Munevar, D. (2021). Sleep now in the fire: Sovereign bonds and the COVID-19 debt Crisis. Eurodad.
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Soudis, D. (2017). Determinants of Sovereign Bonds Ratings: A Robustness Analysis. *Bulletin of Economic Research, 69(2),* 164-177.
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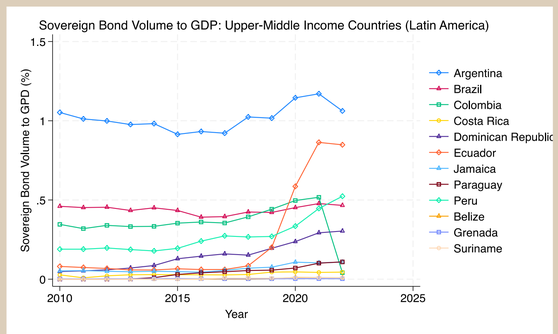
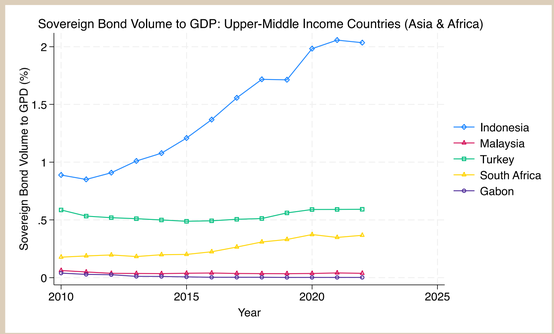
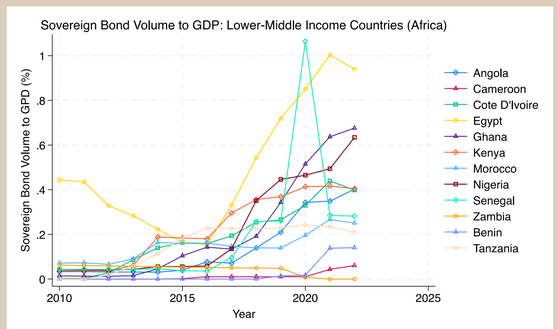
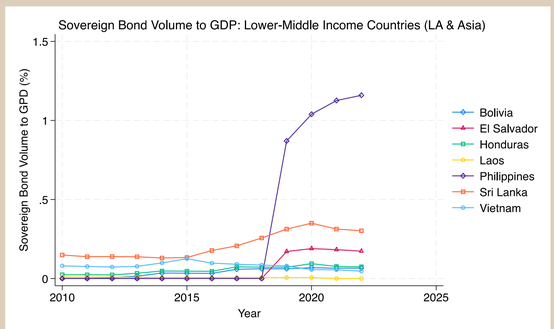
Results

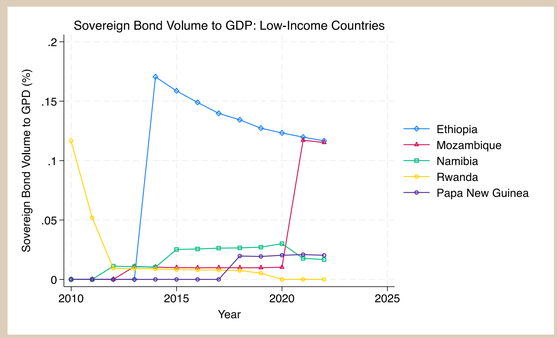
Increase in Sovereign Bond Volume, 2010-2022











Within this dataset the growth in sovereign bond volume as a proportion of GDP is most visible within LMICs in Africa, some limited growth in UMICs in Latin America, and significant growth in Indonesia.

The table below summarizes the statistically significant associations between sovereign bond volume as a proportion of GDP and two outcome variables—health expenditures and total consumption expenditures. On average, there is a positive association between sovereign bond volume and health and total consumption expenditures across the countries. For LMICs borrowing through sovereign bond has a positive association with increasing health expenditures but no statistically significant association with education, military, or total consumption expenditures. For LICs, the two year lag of sovereign bond volume to GDP ratio is associated with an increase in total consumption expenditures. There is no statistically significant relationship for UMICs in this analysis.

On average, across all countries, holding constant GDP, net ODA, and total revenues as percentage of GDP:

- A 1% increase in sovereign bond volume to GDP ratio is associated with a 0.71%** increase in health expenditures as a percentage of GDP and 1.9%** increase in total consumption expenditures as a percentage of GDP.
- A 1% increase in the one-year lag of sovereign bond volume to GDP ratio is associated with 0.88%** increase in health expenditures and 2.15%** increase in total consumption expenditures as a proportion of GDP.
- A 1% increase in the two-year lag sovereign bond volume to GPD ratio is associated with and 2.16%** increase in total consumption expenditures as a percentage of GDP.

For LMIC, holding constant GDP, net ODA, and total revenues as percentage of GDP:

- A 1% increase in sovereign bond volume to GDP ratio is associated with a 0.87%*** increase in health expenditures as a percentage of GDP.
- A 1% increase in the one-year lag of sovereign bond volume to GDP ratio is associated with 1.24%*** increase in health expenditures as a proportion of GDP.
- A 1% increase in the two-year lag sovereign bond volume to GPD ratio is associated with 1.32%*** increase in health expenditures as a percentage of GDP.

For LIC, holding constant GDP, net ODA, and total revenues as percentage of GDP:

- A 1% increase in the one-year lag of sovereign bond volume to GDP ratio is associated with 5.07%* increase in total consumption expenditures as a percentage of GDP.

Outcome variables	Model 1: Sovereign Bond Volume as a Proportion of GDP (coefficient)				Model 2: 1 Year Lag, Sovereign Bond Volume as a Proportion of GDP (coefficient)				Model 3: Fixed Effects- 2 Year Lag, Sovereign Bond Volume as a Proportion of GDP (coefficient)			
	All	UMIC	LMIC	LIC	All	UMIC	LMIC	LIC	All	UMIC	LMIC	LIC
Health expenditure	0.71** (.25 SE)	0.79* (.54 SE)	0.87** (.34 SE)	-4.54 (1.9 SE)	0.88** (.40 SE)	0.55 (.45 SE)	1.24** (.36 SE)	-3.8 (1.8 SE)	0.77 (.48 SE)	0.43 (.26 SE)	1.32** (.54 SE)	-4.08 (1.9 SE)
	(n=34)	(n=15)	(n=15)	(n=4)	(n=34)	(n=15)	(n=15)	(n=4)	(n=34)	(n=15)	(n=15)	(n=4)
Total consump-tion expenditure	1.90** (.79 SE)	1.29 (.86 SE)	1.24 (1.65 SE)	2.98 (1.14)	2.15** (.97 SE)	0.91 (.85 SE)	2.15 (1.41)	5.07** (1.2 SE)	2.16* (1.1 SE)	0.96 (.97 SE)	1.92 (1.8 SE)	7.8 (3.7 SE)
	(n=32)	(n=15)	(n=14)	(n=3)	(n=32)	(n=15)	(n=14)	(n=3)	(n=32)	(n=15)	(n=14)	(n=3)

**significant at the 0.05 level, *significant at the 0.1 level

SE= robust standard errors

N is countries for 12 year period

Next Steps

1) Improve capturing social infrastructure and add additional outcome variables—Social Protection spending (16 countries) and capital expenditures.

2) Improve modeling:

- The results indicate that there may be short-term and long term effects, suggesting that a Autoregressive Distributed Lag Stationary (ARDL) model might be necessary.
- Additional control variables related to bonds to include: Average credit ratings, average yield rates, average maturity rates.

3) Explore why there are differences in results for health and education expenditures.