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Domestic debt in Low-Income Countries

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Abstract

The potential consequences of the development of domestic debt markets in Low-Income Countries (LICs) are extremely relevant for policy-makers and international financial institutions, especially in light of a scaling-up of public investment in infrastructures. This paper introduces a new dataset on the stock of domestic debt in LICs over the period 1970-2010. With respect to the existing dataset, this one expands the country and time coverage, devotes a careful attention to the problem of the zeros and addresses some inconsistencies between the existing datasets. The descriptive analysis of the evolution of domestic debt in LICs, especially over the last two decades, points out some interesting patterns. The reliance on internal financing has partially offset the reduction in external debt granted by bilateral and multilateral debt relief initiatives. Domestic debt increased at a lower and less volatile pace in countries with better policies and institutions. This pattern is mirrored by a greater capital accumulation, a faster financial development, and a stronger output growth. This descriptive evidence supports the hypothesis that the development of the domestic debt market can bring benefits only in presence of a stable macroeconomic environment, lack of political uncertainty and a developed financial system.

I gratefully acknowledge financial support from the World Bank Knowledge for Change Program. I also thank Ali Abbas and Ugo Panizza for kindly sharing their data and Aart Kraay and Marco Arnone for insightful suggestions. The dataset is available at: https://sites.google.com/site/presbitero/homepage/data

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1 Introduction

Long term economic development in many Low-Income Countries (LICs), especially in Sub-Saharan African countries, has been impaired by the accumulation of large external public debts, as a result of several exogenous internal and external shocks, bad institutions, lack of fiscal discipline and bad policies. Starting from the mid-1990s, debt relief initiatives promoted by multilateral donors led to further debt reductions in addition to traditional bilateral debt relief (Arnone and Presbitero, 2010). As a result, in 2009, public and publicly guaranteed external debt in LICs was 25 percent of GDP, far lower than the values of 84 percent in 1994. During the same period, thanks to several factors, including favorable external conditions and strengthened macroeconomic policies and institutions, LICs as a whole experienced a decade of strong growth before the 2009 global financial crisis (Schindler et al., 2011; Pattillo, Poirson and Ricci, 2011).

Even if there is not fully convincing evidence that debt relief boosted investment and growth in poor countries, debt reduction might have contributed easing institution-building and reducing debt overhang, at least in some countries (Presbitero, 2008, 2009; Pattillo, Poirson and Ricci, 2011). For these reasons, the increase of government domestic borrowing which occurred in several poor countries is often seen as a potential source of concern for debt sustainability and output growth (Arnone and Presbitero, 2010). External debt reduction has been partially offset by an increase in domestic debt following programs aimed at fostering the development of domestic markets for government securities (International Monetary Fund and The World Bank, 2001; UNCTAD, 2004; Borensztein, Levy Yeyati and Panizza, 2006). This trend, which became clear especially since the mid 1990s, has been already discussed by Panizza (2008) and Panizza (2010) with respect to a sample for developing countries.

Notwithstanding the potential impact of domestic debt on output growth, with few exceptions (Abbas and Christensen, 2010; Presbitero, 2012), the empirical research on the growth effect of public debt in poor countries has focused on external public debt, mainly because of: 1) the relative small share of domestic debt in total public debt in developing countries, and 2) the lack of available and reliable comparable data on domestic debt for a sufficiently large sample of countries (Abbas and Christensen, 2010)[1]. In fact, data availability on domestic debt in developing countries is particularly limited and for many countries the public debt data published in the official IMF and World Bank datasets "*are plagued by missing observations, limiting their use for empirical research*" (Jaimovich and Panizza, 2010).

To overcome these limitations, this note keeps on the *quest for better data* (Panizza, Sturzenegger and Zettelmeyer, 2010) in domestic government debt, focusing exclusively on LICs, and 1) presents a new, comprehensive and up-to-date dataset on domestic debt (Section 2), 2) reviews some of the reasons behind the increase in internal financing in several poor countries and its potential effects (Section 3), and 3) discusses some interesting relations between domestic debt, external debt, and macroeconomic and institutional outcomes (Section 4). Future possible lines of research are introduced in the concluding section.

2 The dataset

2.1 The existing datasets

Few datasets collect detailed data on the structure of domestic and external public debt in emerging markets (Guscina and Jeanne, 2006), Middle East (Fouad et al., 2007), and Latin

[1]Poor data availability, however, can be itself due to the limited interest of international financial institutions, at least until few years ago, on the issue of domestic debt in emerging and developing countries and to the lack of transparency of many governments in publishing time series data on domestic debt (Reinhart and Rogoff, 2009).

American countries (Cowan et al., 2006), while other recent databases gather information on domestic debt or total public debt in a broader set of industrialized and developing countries (Abbas and Christensen, 2010; Abbas et al., 2010; Panizza, 2008; Jaimovich and Panizza, 2010; Reinhart and Rogoff, 2010)[2]. Nonetheless, these sources differ in the definition of domestic debt, it being referred to central or general government[3], including just securitized debt or also advances from the Central Bank and commercial banks, and excluding or not State Owned Enterprises (SOEs) debt and contingent liabilities. One further issue is the definition of the zeros in the dataset, which could indicate either the absence of a domestic bond market, or a missing value. We refer to the working paper version (Presbitero, 2011) for the detailed discussion the most important datasets, pointing out for each of them the country and time coverage, the domestic debt definition and the sources used, and their potential weaknesses. A summary of the most relevant information is presented in Table A.1.

2.2 The 2011 LICs domestic debt dataset

On the ground of the existing data on domestic debt, a final data set has been assembled, building on the Panizza's database, but including some significant changes[4]. When possible, missing values has been filled with data collected from the IMF Article IV reports. For other countries, original missing values could be converted in actual zeros, on the basis of the evidence provided by other sources or on the narrative of the development of domestic financial market provided by Deléchat et al. (2010). However, for several countries for which capital markets do not exist, such as for the Comoros and Eritrea (Deléchat et al., 2010, Table 2), Abbas and Christensen (2010), IMF country reports and other documents show the presence of domestic debt, explicitly reporting either domestic debt stocks or interest payments on domestic debt in the government financial operations tables. Hence, in building the final dataset, information drawn from IMF sources are taken as base reference. Finally, for several countries data have been modified since the original ones significantly and strangely underestimate domestic debt with respect to other sources, often reporting domestic debt ratios equal to zero. In those cases, the data reported by Abbas and Christensen (2010) (whose definition, by contrast, should underestimate domestic debt with respect to the broader one adopted by Panizza), IMF staff reports and the updated Presbitero dataset are used to replace the Panizza's data.

In sum, the final dataset targets 44 Low-Income countries over the period 1970-2010 and includes information on the stock of government domestic debt, at best, for 41 countries (Somalia, North Korea and Afghanistan are the ones without data). All the other countries report domestic debt data for at least 10 years (Liberia), with 26 countries having 30 or more non-missing observations (Table A.1). A visual representation of country coverage and of the increase of the average domestic debt over GDP ratio (GDP weighted) over time is summarized in Figure A.1[5].

[2]The best source on public debt structure in industrialized countries is the Task Force on Finance Statistics (TFFS).

[3]The general government sector consists of all government units and all nonmarket nonprofit institutions that are controlled and mainly financed by government units, comprising the central, state, and local governments. The general government sector does not include public corporations or quasi-corporations.

[4]Ugo Panizza has built an extensive dataset on the ratios of domestic and external public debt over GDP for 176 countries from 1970 to 2010. This database is still ongoing and updates the previous datasets published by Panizza with several coauthors (Cowan et al., 2006; Jaimovich and Panizza, 2006; Panizza, 2008; Jaimovich and Panizza, 2010).

[5]The dataset is available on the website: https://sites.google.com/site/presbitero/homepage/data.

3 Domestic Debt: Benefits and Risks

Although financial globalization involved mainly advanced and emerging economies, it also affected poor countries, even if to a minor extent (International Monetary Fund, 2007). Domestic public debt started increasing in LICs from the mid-1990s, in coincidence with an upsurge in financial liberalization: the Chinn-Ito Financial Openness index in LICs increased from -0.98 in the decade 1985-1994 to -0.58 in 1995-2004 (Chinn and Ito, 2010). The greater reliance on internal financing in emerging markets was a response to the financial crisis that hit many developing countries during the nineties. LICs, instead, were forced to tap the domestic securities market to finance structural current account and fiscal deficits, given the lack of access to external commercial lending, the insufficient foreign assistance and the impossibility to adopt expansionary monetary policy for countries under an IMF lending program (Arnone and Presbitero, 2010). In some countries, the recourse to internal borrowing was also motivated by the necessity to sterilize aid inflows, at the cost of rising interest rates (Hussain, Berg and Aiyar, 2009). Domestic debt accumulation has also been the result of explicit programs aimed at fostering the development of domestic markets for government securities (International Monetary Fund and The World Bank, 2001; UNCTAD, 2004; Borensztein, Levy Yeyati and Panizza, 2006). The rationale of these policies lies is the advantages that an internal credit markets could provide to the government and the economy.

Deficit financing with domestic-currency denominated government securities is likely to reduce the vulnerability of a country to reversal in capital flows and limit the build-up of foreign-currency denominated debt, relieving the risks of exchange rate devaluations and monetary financing of budget deficits. A liquid and deep market with long-term instruments could mobilize domestic savings into the formal financial system, by providing domestic savers with an alternative to investing abroad. This could help reducing the cost of government financing and mitigate capital flight, stimulating capital accumulation. Finally, the shift from external to domestic borrowing could reduce the government's external dependence, promoting political accountability and institutional reforms.

The optimal debt structure should take into account the trade-off in terms of risks, costs and externalities between external and internal borrowing (Panizza, 2010; Abbas and Christensen, 2010). The domestic-bond maturity mismatch could substitute for the currency mismatch of foreign debt, given that many developing countries are unable to issue long-term government securities at a reasonable interest rate. The high costs of domestic debt, especially compared to concessional external financing and foreign aid, could crowd out public investment. In addition, in countries where a large share of domestic debt is non-indexed, the strong incentive to monetise government deficit may cause hyper-inflation episodes and trigger external debt crisis.

Government borrowing could also affect the real economy through its effect on the financial sector. First, public sector borrowing could harm financial deepening, since in developing country banks investing in government debt are more profitable but less efficient than the average (Hauner, 2006). Second, a growing domestic debt could crowd out lending to the private sector, especially to small and medium enterprises and rural borrowers, which have to rely on domestic savings and bank credit. This problem is intensified when banks and institutional investors are "forced" by the government to absorb "too much" domestic debt (Hanson, 2007). However, the International Monetary Fund (2005) found limited evidence that government recourse to domestic financing crowds out private sector borrowing in LICs.

The balance between benefits and costs of domestic debt depends on the presence of prerequisites, such as a stable macroeconomic environment, an efficient money market, a broad investor participation and the presence of a sound legal, regulatory and supervisory framework (Guscina, 2008; Kose et al., 2009). However, macroeconomic and policy volatility are major issues in many

LICs, making domestic debt a particular source of concern which should be addressed (Arnone and Presbitero, 2010).

4 Domestic Debt, External Debt and Macroeconomic Outcomes

4.1 The average trends

The establishment of the causal effects of domestic debt on the economy goes beyond the scope of this note, whose aim is limited at presenting some stylized facts about domestic debt accumulation in LICs. On average, the stock of government debt fluctuated around 10 percent of GDP during the 1970s and the 1980s, then it started an upward trend in the last two decades, reaching 19.2% in 2010 (Figure A.1).

A first interesting issue regards the negative correlation between the evolution of domestic and external debt since the mid-1990s (Figure A.2, panel *a*). Because of debt relief, external debt followed an opposite trend to domestic debt and shrunk from 80% of GDP in 1994 to almost 20% in 2009. As a result, the composition of total public debt was substantially altered and the share of domestic debt in total public debt increased from 11% in 1994 to 45.5% in 2009. The diagram reported in panel *b* does not corroborate the hypothesis of a reduction in bank credit due to government borrowing, but it might support the hypothesis the development of a domestic debt market could strengthen financial markets (Abbas and Christensen, 2010). In LICs, the sharp increase of domestic credit to the private sector, a measure of financial development, occurred over the last decade and followed the accumulation of domestic debt.

Panels *c*, *d* and *e* of Figure A.2 seem to suggest that the upward trend of the stock of domestic debt did not hinder domestic savings, capital accumulation and output growth, even if the lack of any counter-factual and of any control for covariates does not allow to infer any (lack of) causal relation. The diagram showed in panel *c* confirms that domestic debt can help mobilize national savings, even if the direction of causality is likely to work in both ways (Abbas and Christensen, 2010). Even if from panel *d* it is not possible to conclude that domestic debt nurtured capital accumulation, nonetheless the diagram suggests that debt service did not crowd out investment and that there has not been a debt overhang. On the contrary, domestic debt goes along with a boost in capital accumulation, indicating that internal financing could has been productively used to finance a much-needed scaling-up of investment in poor countries[6]. Similarly, the build up of domestic debt does not seem to have hold back the growth acceleration of the last 15 years (panel *e*). Finally, the descriptive evidence presented in panel *f* suggest that the fear of inflationary episodes following domestic debt accumulation is exaggerated, since LICs as a group were able to stabilize inflation below 10 percent over the last decade, notwithstanding the increase in domestic debt.

One possible interpretation of these patterns is consistent with the hypothesis that government domestic borrowing has been productively used to finance public investment and has fostered financial development, triggering private capital as well, as indicated by the increase in credit to the private sector. This mechanism might have contributed to the episodes of growth accelerations which characterized several poor countries over the last decade. As seen in the previous section, this story may be plausible. Nevertheless, it contrasts with the weak policy and institutional framework of many LICs, which should shift the balance in favor of the costs of domestic debt. Therefore, in the next section we are going to inspect whether the different institutional setting uncovers a more heterogeneous picture.

[6]The lack of data does not allow to validate the possibility of a crowding out of public investment. However, if public and private investment are complementary (Greene and Villanueva, 1991), considering total investment can provide a good approximation.

4.2 The role of the institutional setting

In order to assess whether the policy and institutional framework has an effect on domestic debt accumulation and on its potential impact on the economy, we classify countries in two groups according to their quality of policies and institutions, as measured by the Country Policy and Institutional Assessment (CPIA) index calculated by the World Bank[7]. In particular, given that the index is available since 1987, each country is classified as having good (bad) policies and institutions whether the average score over the period 1987-2009 is above (below) 3.25, which is the sample median and corresponds to one of the institutional thresholds used in the World Bank-IMF debt sustainability framework (DSF) to assess public debt sustainability (International Development Association and International Monetary Fund, 2010).

A first finding which emerges from this sample split is the different trend of domestic debt accumulation in the two sample of countries (Figure A.3). In the one with bad policies and a weak institutional framework, domestic debt increased substantially on the onset of debt relief initiatives, probably as a result of feeble alternative sources of financing, then the average stock of debt slightly declined and fluctuated around 15% of GDP. By contrast, at the end of the 1990s domestic debt was lower and more stable in countries with better institutions and policies, at least up to 2008-2009, when it increased considerably in response to the global crisis.

These contrasting trends are reflected in the different paths of savings, capital accumulation, output growth and financial development, which are much more correlated with the dynamics of domestic debt in countries with a better institutional framework than in the ones with bad policies and institutions (Figure A.4). From the 1990, the savings and investment rates are higher and less volatile in the sample of LICs with good policies and institutions (panels a and b). The strong increase in the private credit over GDP observed in the whole sample is fully attributable to countries with an average CPIA score equal to or above 3.25 (panel c): in those countries, the build-up of domestic debt did not crowd out credit to private sector, consistently with the International Monetary Fund (2005) evidence on a LICs group of 15 mature stabilizers. Hence, in the sample of good institutions countries real per capita GDP growth is stronger and less volatile (panel d).

From the mid-1990s, the upward trend in domestic debt goes hand in hand with fixed capital accumulation and a stronger output growth. By contrast, in countries with an average CPIA score below 3.25, domestic debt accumulation is reflected in a slower increase in the investment rate, in the lack of financial deepening and in a more volatile and lower growth rate.

These patterns are consistent with the fact that both domestic and foreign investors require a stable and credible government and sound fiscal and monetary policies to hold domestic securities. Poor countries with a healthy institutional framework are better equipped to develop an efficient domestic market for government debt. This translates into a greater credit availability to the private sector, a larger volume of savings and capital accumulation, a higher investment efficiency and a stronger economic growth, consistently with the findings discussed by Abbas and Christensen (2010). The lack of some prerequisites in terms of monetary and fiscal policy and institutional stability, instead, are likely to offset the potential benefits of the development of domestic debt markets.

[7]The CPIA score is a composite index measuring the extent to which country policies and institutions create a good environment for growth and poverty reduction. The CPIA indicators reflect the World Bank staff professional judgment, based on country knowledge, policy dialogue, and relevant publicly available indicators. To overcome criticisms related to lack of transparency and objectivity, in 2004 the CPIA process and methodology were extensively reviewed by an external independent panel and, starting from 2005, these data are fully disclosed and published in World Development Indicators (International Development Association, 2007).

5 Conclusions

This paper introduces a new dataset on the stock of domestic debt in Low-Income Countries over the period 1970-2010. With respect to the existing dataset, this one put together information from several different sources to expand the country and time coverage, devotes a careful attention to the problem of the zeros and addresses some inconsistencies between the existing datasets.

The descriptive analysis of the evolution of domestic debt in LICs, especially over the last two decades, points out some interesting patterns. The reliance on internal financing has partially offset the reduction in external debt granted by bilateral and multilateral debt relief initiatives; thus, in 2010 the shares of domestic and external debt in low-income countries as a group were similar. Domestic debt increased at a lower and less volatile pace in countries with better policies and institutions. This pattern is mirrored by a greater capital accumulation, a faster financial development, and a stronger output growth. This descriptive evidence is consistent with the empirical findings provided by Abbas and Christensen (2010) for a sample of low-income countries and emerging markets. The positive correlation between domestic debt and investment and output growth, conditioned on sound policies and institutions, supports the hypothesis that the development of the domestic debt market can bring benefits only in presence of a stable macroeconomic environment, lack of political uncertainty and a developed financial system (Guscina, 2008).

The potential consequences of the development of domestic debt markets in poor countries are extremely relevant for policy-makers and international financial institutions, especially in light of the much-needed scaling-up of public investment in infrastructures (Buffie et al., 2011). Given the explicit descriptive nature of the evidence presented in this paper, a more careful econometric analysis of the potential benefits and risks of domestic debt, extended to the crisis years, could be particularly useful. Besides, this dataset could be used to investigate: 1) how domestic debt accumulation affects total public debt sustainability in LICs, and 2) which factors are more likely to be related to the development of domestic markets for government securities in poor countries.

References

Abbas, Ali S. M. and Jakob E. Christensen. 2010. "The Role of Domestic Debt Markets in Economic Growth: An Empirical Investigation for Low-Income Countries and Emerging Markets." *IMF Staff Papers* 57(1):209–255.

Abbas, S. M. Ali, Nazim Belhocine, Asmaa A. ElGanainy and Mark A. Horton. 2010. A Historical Public Debt Database. IMF Working Papers 10/245 International Monetary Fund.

Arnone, Marco and Andrea F. Presbitero. 2010. *Debt Relief Initiatives - Policy Design and Outcomes*. Global Finance Farnham: Ashgate.

Borensztein, Eduardo, Eduardo Levy Yeyati and Ugo Panizza. 2006. *Living with Debt - How to Limit The Risks of Sovereign Finance.* Cambridge, MA: Harvard University Press.

Buffie, Edward F., Andrew Berg, Catherine Pattillo, Rafael Portillo and Luis-Felipe Zanna. 2011. "Public Investment, Growth, and Debt Sustainability: Putting Together the Pieces." International Monetary Fund.

Chinn, Menzie D. and Hiro Ito. 2010. "A New Measure of Financial Openness." *Journal of Comparative Policy Analysis* 10(3):309–322.

Cowan, Kevin, Eduardo Levy Yeyati, Ugo Panizza and Federico Sturzenegger. 2006. Sovereign Debt in the Americas: New Data and Stylized Facts. RES Working Papers 4480 Inter-American Development Bank, Research Department.

Deléchat, Corinne, Gustavo Ramirez, Smita Wagh and John Wakeman-Linn. 2010. "How Global Financial Markets Affect Sub-Saharan Africa." *IMF Staff Papers* 57(1):172–208.

Fouad, Manal, Wojciech Maliszewski, Martin Hommes, Hanan Morsy, Martin Petri and Ludvig Soderling. 2007. Public Debt and Fiscal Vulnerability in the Middle East. IMF Working Papers 07/12 International Monetary Fund.

Greene, Joshua and Delano Villanueva. 1991. "Private Investment in Developing Countries: An Empirical Analysis." *IMF Staff Papers* 38(1):33–58.

Guscina, Anastasia. 2008. Impact of Macroeconomic, Political, and Institutional Factors on the Structure of Government Debt in Emerging Market Countries. IMF Working Papers 08/205 International Monetary Fund.

Guscina, Anastasia and Olivier Jeanne. 2006. Government Debt in Emerging Market Countries: A New Data Set. IMF Working Papers 06/98 International Monetary Fund.

Hanson, James A. 2007. The growth in government domestic debt : changing burdens and risks. Policy Research Working Paper Series 4348 The World Bank.

Hauner, David. 2006. Fiscal Policy and Financial Development. IMF Working Papers 06/26 International Monetary Fund.

Hussain, Mumtaz, Andrew Berg and Shekhar Aiyar. 2009. "The Macroeconomic Management of Increased Aid: Policy Lessons from Recent Experience." *Review of Development Economics* 13(s1):491–509.

International Development Association. 2007. Country Policy and Institutional Assessment - 2007 Assessment Questionnaire. Technical report The World Bank.

International Development Association and International Monetary Fund. 2010. Staff Guidance Note on the Application of the Joint Bank-Fund Debt Sustainability Framework for Low-Income Countries. Technical report IMF and The World Bank.

International Monetary Fund. 2005. Monetary and Fiscal Policy Design Issues in Low-Income Countries. Technical report International Monetary Fund Washington D.C.: .

International Monetary Fund. 2007. Reaping the Benefits of Financial Globalization. Technical report International Monetary Fund Washington D.C.: .

International Monetary Fund and The World Bank. 2001. *Developing Government Bond Markets: A Handbook*. Washington D.C.: The World Bank and International Monetary Fund.

Jaimovich, Dany and Ugo Panizza. 2006. Public Debt around the World: A New Dataset of Central Government Debt. RES Working Papers 561 Inter-American Development Bank, Research Department.

Jaimovich, Dany and Ugo Panizza. 2010. "Public debt around the world: a new data set of central government debt." *Applied Economics Letters* 17(1):19–24.

Kose, M. Ayhan, Eswar S. Prasad, Kenneth S. Rogoff and Shang-Jin Wei. 2009. "Financial Globalization: A Reappraisal." *IMF Staff Papers* 56(1):8–62.

Panizza, Ugo. 2008. Domestic And External Public Debt In Developing Countries. UNCTAD Discussion Papers 188 United Nations Conference on Trade and Development.

Panizza, Ugo. 2010. Is Domestic Debt the Answer to Debt Crisis? In *Overcoming Developing Country Debt Crisis*, ed. Barry Herman, Jose Antonio Ocampo and Shari Spiegel. Number 188 Oxford: Oxford University Press.

Panizza, Ugo, Federico Sturzenegger and Jeromin Zettelmeyer. 2010. International Government Debt. Business School Working Papers 2010-03 Universidad Torcuato Di Tella.

Pattillo, Catherine A., Helene Poirson and Luca Antonio Ricci. 2011. "External Debt and Growth." *Review of Economics and Institutions* 2(3).

Presbitero, Andrea F. 2008. "The Debt-Growth Nexus in Poor Countries: A Reassessment." *Economics: The Open-Access, Open-Assessment E-Journal* 2(30).

Presbitero, Andrea F. 2009. "Debt-Relief Effectiveness and Institution-Building." *Development Policy Review* 27(5):529–559.

Presbitero, Andrea F. 2011. "Data on Domestic Debt: A Review of Existing Data Sets.".

Presbitero, Andrea F. 2012. "Total Public Debt and Growth in Developing Countries." *European Journal of Development Research* forthcoming.

Reinhart, Carmen M. and Kenneth S. Rogoff. 2009. *This Time is Different - Eight Centuries of Financial Folly*. Princeton, New Jersey: Princeton University Press.

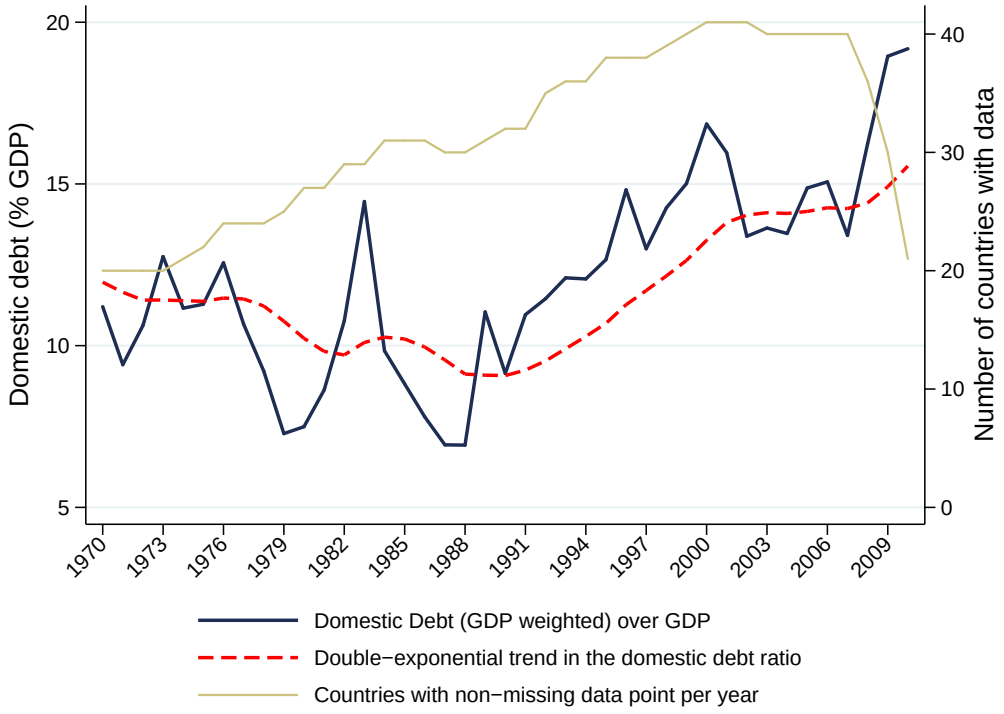
Reinhart, Carmen M. and Kenneth S. Rogoff. 2010. From Financial Crash to Debt Crisis. NBER Working Papers 15795 National Bureau of Economic Research, Inc.

Schindler, Martin, Chris Papageorgiou, Hans Weisfeld, Catherine A. Pattillo, Nicola Spatafora and Andrew Berg. 2011. Global Shocks and their Impact on Low-Income Countries: Lessons from the Global Financial Crisis. IMF Working Papers 11/27 International Monetary Fund.

UNCTAD. 2004. *Debt Sustainability: Oasis or Mirage?* New York and Geneva: United Nations.

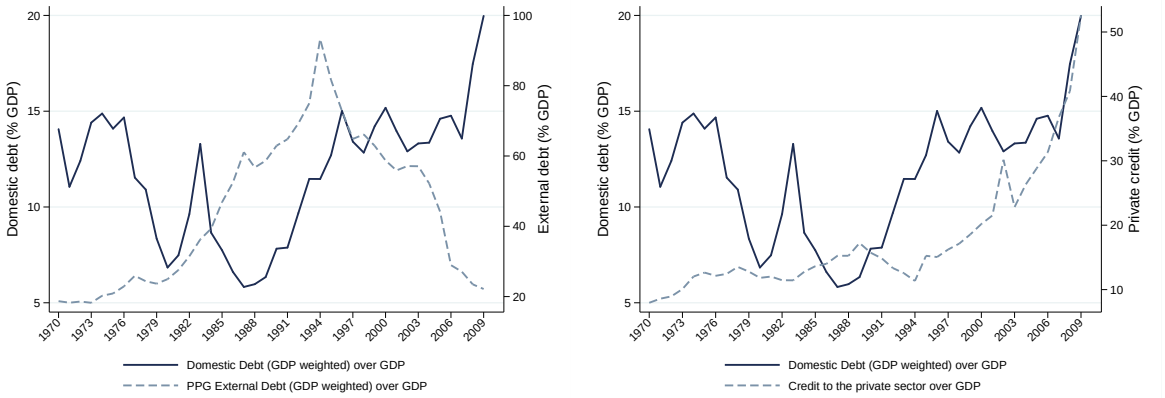
A Appendix: Figures and Tables

Figure A.1: Domestic Debt in Low-Income Countries: Evolution and Data Coverage



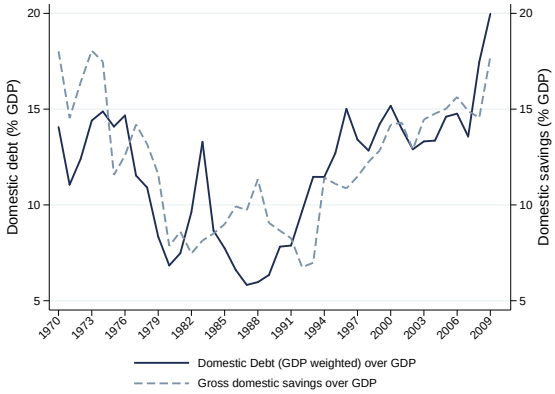
Notes: Elaboration on the domestic debt dataset.

Figure A.2: Domestic Debt, External Debt, and Macroeconomic Outcomes

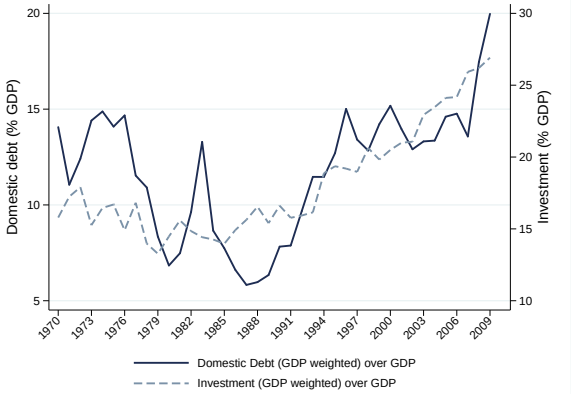


(a) domestic and external debt

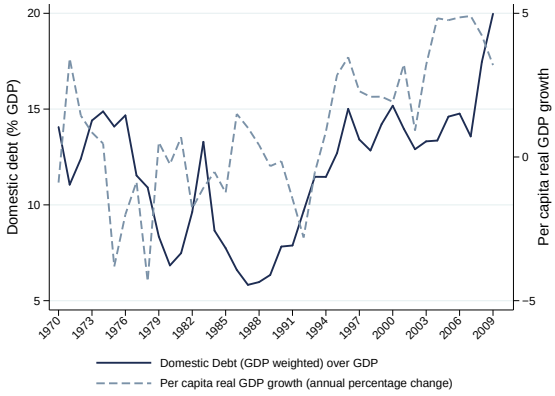
(b) domestic debt and private credit



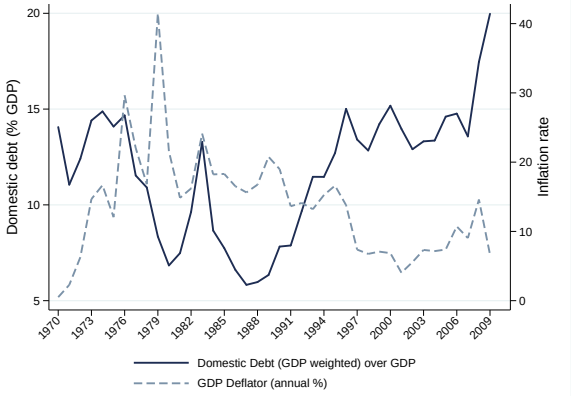
(c) domestic debt and savings



(d) domestic debt and investment



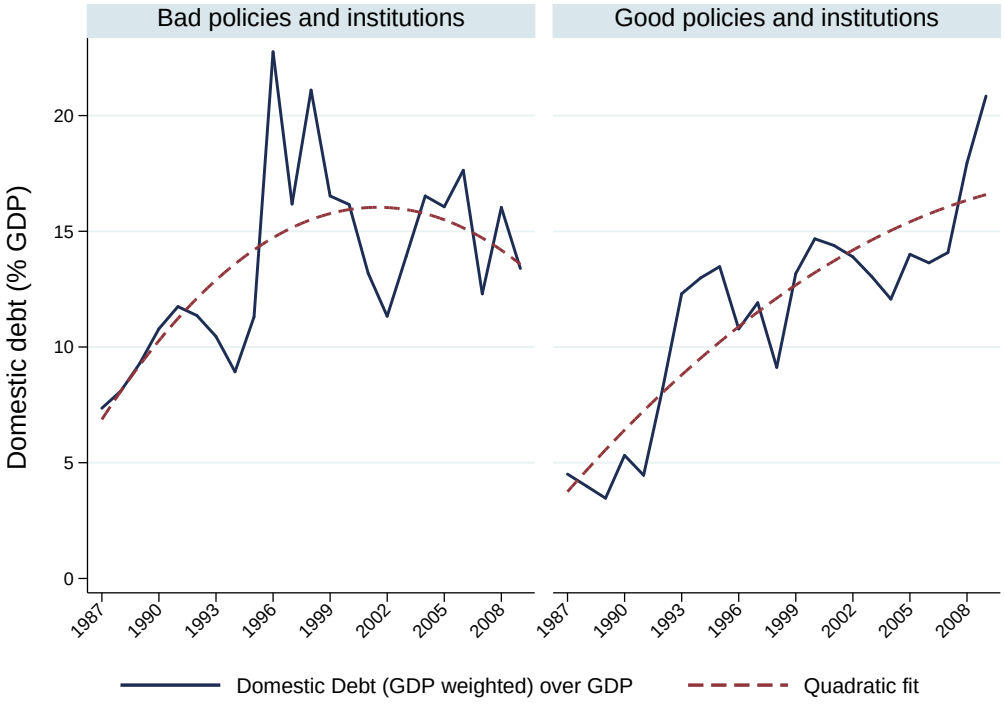
(e) domestic debt and growth



(f) domestic debt and inflation

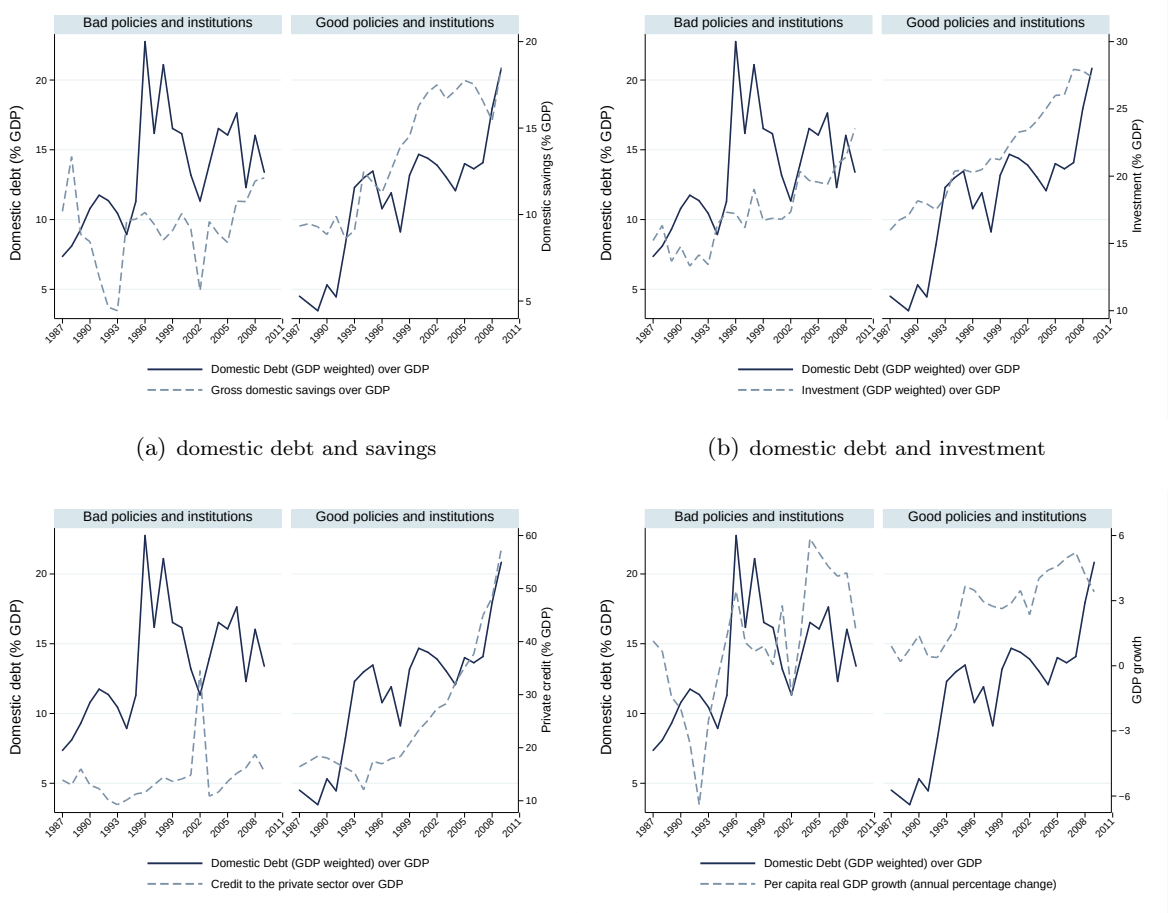
Notes: Elaboration on the domestic debt dataset. Data are all GDP weighted averages. To limit effects due to sample composition, only the observations with non missing values in all variables (domestic debt, external debt, investment, savings, GDP growth, inflation and private credit) are retained. The total number of observation is 944. With respect to inflation, 9 outliers are dropped.

Figure A.3: Domestic debt, by policy and institutional quality



Notes: Elaboration on the domestic debt dataset. Data are all GDP weighted averages. To limit effects due to sample composition, only the observations with non missing values in all variables (domestic debt, external debt, investment, savings, GDP growth, inflation and private credit) are retained. The total number of observation is 944. Countries are classified with bad (good) institutions whether the overall CPIA index is lower than (equal to or greater than) 3.5.

Figure A.4: Domestic debt and macroeconomic outcomes, by policy and institutional quality



(a) domestic debt and savings

(b) domestic debt and investment

(c) domestic debt and private credit

(d) domestic debt and growth

Notes: Elaboration on the domestic debt dataset. Data are all GDP weighted averages. To limit effects due to sample composition, only the observations with non missing values in all variables (domestic debt, external debt, investment, savings, GDP growth, inflation and private credit) are retained. The total number of observation is 944. Countries are classified with bad (good) institutions whether the overall CPIA index is lower than (equal to or greater than) 3.5.

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Table A.1: Domestic Debt Data Sets: Data Coverage in Low-Income Countries

	Datasets: debt definition and country-time coverage					
	Christensen (2005)	Abbas & Christensen (2010) **(1)**	Presbitero - WB 2005	Presbitero - 2010 update	IMF HPDD 2010	Panizza (2011)
Country	Securitized domestic government debt	Gross securitised claims on the CG (excluding the stock of Treasury securities held by the CB) plus all securities issued by the CB	CG securitized domestic debt	Different definitions, data from IMF country reports and CBs	Gross general government debt (domestic + external)	CG domestic debt (any holder), but also GG and NFPS debt when the former is not available
Afghanistan						
Bangladesh		1974-2007	1998-2004		1974-2009	1974-2010
Benin		1970-2007		2007-2010	1970-2009	1970-2008
Burkina Faso		1976-2007			1976-2009	1976-2009
Burundi	1980-2000	1970-2007	1980-2003	2000-2010	1970-2009	1970-2008
Cambodia		1993-2007			1996-2009	1996-2009
Central African Republic		1970-2007		2004-2010	1970-2009	1970-2008
Chad		1970-2007	1990-2001	2004-2010	1970-2009	1970-2008
Comoros		1982-2007			1982-2009	
Congo, Dem. Rep.	1980-2000	1970-2007			1970-2009	1970-2008
Eritrea		1995-2007			1995-2009	1995-2008
Ethiopia	1980-2000	1970-2006	1981-2003	2000-2010	1970-2009	1981-2010
Gambia, The	1980-2000	1976-2007	1984-2004	2000-2010	1976-2009	1970-2009
Ghana	1980-2000	1970-2006	1982-2004	2000-2010	1970-2009	1970-2010
Guinea	1980-2000	1991-2005			1990-2009	1990-2008
Guinea-Bissau		1986-2007		2008-2010	1986-2009	1970-2008
Haiti		1970-2007		2000-2010	1970-2009	1970-2009
Kenya	1980-2000	1970-2007	1977-2004		1970-1976 & 1979-2009	1970-2010
Korea, Dem. Rep.						
Kyrgyz Republic		1995-2007	1996-2004	2005-2010	1995-2009	1995-2008
Lao PDR		1989-2007	1994-1997		1989-2009	1984-2008
Liberia		2000-2007			1978-83 & 2000-05 & 08-09	1970-2005 & 2008
Madagascar	1980-2000	1974-2007	1992-2004	2000-2010	1974-2009	1970-2008
Malawi	1980-2000	1970-2007	1979-2004	2000-2010	1970-2009	1970-2010
Mali		1970-2007		2004-2010	1970-2009	1970-2010
Mauritania		1977-2003		2004-2010		1970-2007
Mozambique	1980-2000			2000-2010	2000-2009	1984-2010
Myanmar		1970-1980 & 1989-2007	1994-2001		1970-1980 & 1989-2009	1980 & 1989-2009
Nepal		1970-2007	1986-2004		1970-2009	1970-2008
Niger		1970-2007			1970-2009	1970-2009
Rwanda	1980-2000	1970-2005	1981-2004	2000-2010	1970-2009	1970-2008
Senegal		1970-2007		2000-2010	1970-2009	1970-2010
Sierra Leone	1980-2000	1970-2007	1979-2004	2000-2010	1970-2007	1970-2007
Solomon Islands		1980-2007	1980-2004		1980-2009	1980-2008
Somalia						
Tajikistan		1986-2006			1998-2009	1993-2010
Tanzania	1980-1999	1970-2007	1981-2004	2000-2010	1970-2005 & 2008-2009	1970-2005 & 2008-2010
Togo		1975-2007			1975-2009	1975-2008
Uganda	1980-2000	1970-1986 & 1992-2007	1979-2004	2000-2010	1970-1986 & 1992-2009	1970-1986 & 1992-2010
Uzbekistan					1998-2009	1998-2009
Vietnam		1992-2010	1996-2002		1992-2009	1992-2010
Yemen, Rep. Of		1992-2010			1992-2009	1992-2010
Zambia	1980-2000	1970-2007	1994-2004	2000-2010	1970-2009	1970-2010
Zimbabwe	1980-2000	1979-2007	1980-2003		1976-2009	1976-2005
Coverage ratio	*36%*	*89%*	*48%*	*50%*	*91%*	*91%*

Notes: **(1)** The 2007 version of the dataset by Abbas has data on Mozambique over the period 1984-2004 and on Uganda over 1978-2004(2)