

DEBT RELIEF: THE DAY AFTER, FINANCING DEVELOPING COUNTRIES

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Debt Relief: The Day After, Financing Developing Countries

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Abstract:

Two decades after the Heavily Indebted Poor Countries (HIPC) initiatives were implemented with the goal of reducing the debt burden to sustainable levels, several developing countries are again facing challenges in repaying their external public debt. Here we examine the consequences of these initiatives on recent debt accumulation in these highly heterogeneous countries. To address this heterogeneity, we employ the Iterative Bayesian shrinkage procedure to model external public debt in panel data. In a departure from the existing empirical literature, shrinkage estimators reveal contrasting debt dynamics within the HIPCs. We show that HIPCs' access to external financing was not diminished after the debt relief, but changed differently for these countries. The lending decisions of bilateral creditors are influenced by the economic conditions of HIPCs, in contrast to those of private investors. Furthermore, emerging countries, particularly those with commercial proximity, are more likely than other lenders to finance HIPCs.

Keywords: Debt Relief; External financing; Low-Income Countries; Bayesian shrinkage estimator

JEL classification: F34; H63; O16; O38

Introduction

In December 2023, Ethiopia defaulted on its external debt by failing to make a payment on an international bond. This event occurred nearly a year after Ghana defaulted on its external debt, suspending debt service payments on its Eurobonds and commercial loans. Ongoing crises, including the global pandemic, military conflicts, and a decline in the prices of certain export products, have driven these countries into severe balance of payments issues. There has been a substantial increase in the number of emerging and developing countries facing such challenges with the repayment of their public debt in recent years. This led the G20 members to introduce the Debt Service Suspension Initiative (DSSI) in April 2020, to help countries cope with pandemic-related expenditure, and the Common Framework on Debt Treatments beyond the DSSI. Ethiopia and Ghana, alongside Chad and Zambia, have sought debt treatments under the Common Framework.¹ Notably, these debt restructurings are taking place merely two decades after the implementation of the HIPC initiatives.²

Specifically, the HIPC initiative, complemented by the Multilateral Debt Relief Initiative (MDRI) in 2005, was intended to help LICs to recover sustainable debt levels and create a "fiscal space" to allow LICs to redirect resources toward increased social expenditures. The substantial debt cancellations sparked discussions regarding their impact on subsequent access to external financing. Easterly (2002, p.1683) argued that "debt relief will be met with an equivalent amount of new borrowing" emphasizing the risk of moral hazard on the part of recipient countries. That is, LICs regained their capacity to borrow following the initiatives due to their return to sustainable debt levels. It could be more difficult for them to access financing, however, as foreign creditors could be reluctant to lend to risky sovereigns that have not

¹ The Common Framework was established jointly by the G20 and the Paris Club to negotiate debt restructuring for countries with repayment difficulties, ensuring coordination between creditors.

² Of the 36 DSSI-eligible Heavily Indebted Poor Countries, only 8 countries did not apply to join the DSSI. Recent debt restructuring initiatives are being implemented in an economic and financial context that in some respects recalls the situation that preceded the implementation of the HIPC initiatives. Therefore, it is particularly important to focus on external borrowing in developing countries, especially following debt cancellations.

honored their past debts. Nevertheless some creditors, such as emerging countries, could find it worthwhile to lend to HIPCs, driven by economic and political advantages. Similarly, private investors could also contribute to borrowing opportunities, attracted by the high yields in developing countries, especially following the 2008 financial crisis which led to historically low interest rates in advanced economies. In this paper, we explore the relationship between external financing factors and the external public debt of LICs, both before and after the HIPC initiatives, country-by-country. We analyze whether the contribution of financing factors to debt accumulation changed after the HIPC initiatives and how it varies depending on the country's HIPC status.

While the empirical literature on the effects of the HIPC initiative and MDRI on external public debt is limited, a few noteworthy papers have addressed this question. Ferry et al. (2021) focus on the financing conditions of HIPCs after the debt cancellations. The authors show that HIPCs do not access credit markets at higher costs than other LICs. Bunte (2018) looks at the lending strategies of official creditors to countries benefited from debt relief and shows that creditor governments in small economies can lend to these risky sovereigns in order to become closer economically and politically. Bunte (2018) finds no empirical evidence of this strategy for large economies such as China or India. However, existing empirical studies in the literature often fall short in employing methodologies that adequately address the heterogeneity among countries. LICs exhibit heterogeneity in terms of economic development, size, commercial integration, geographical characteristics, past debt cancellations, and access to financing.³ This diversity poses challenges in implementing a robust empirical strategy.

Hence, we employ the iterative Bayesian shrinkage procedure to estimate the relationships between external financing drivers and external public indebtedness. To our knowledge, there

³ The least developed countries only have access to International Development Assistance (IDA) resources, whereas some LICs are eligible for IDA resources and can also borrow from the International Bank for Reconstruction and Development. The World Bank classifies the latter as “Blend countries”.

is currently no empirical study delving into these relationships for LICs on a country-by-country basis. Estimating coefficients for each country allows for a more nuanced evaluation of debt accumulation, acknowledging potential variations based on economic conditions, access to financial markets, and credit history. Furthermore, the shrinkage estimator yields more robust results for panel data compared to the alternative estimation methods. These alternatives involve either pooling the data or obtaining separate estimates for each cross-section, both of which rely on extreme assumptions cross-sectional homogeneity and heterogeneity of slope coefficients.⁴ Moreover, Hsiao (2022) and Hsiao et al. (1998) argued that, firstly, when the time-series dimension of panel sets is large, heterogeneous estimators are more appropriate from an econometric point of view, and secondly, in the case of panel data models with coefficient heterogeneity, the Bayesian approach performs fairly well, even when the time dimension is small.⁵

In this framework, we propose to investigate the debt dynamics of HIPCs and some low- or lower-middle-income countries with similar economic characteristics. HIPCs fully completed the debt relief initiatives between 2005 and 2015. As the post-initiative period is too short for the later ones, we consider only the countries who reached the HIPC “completion point” no later than 2006. Therefore, our study covers the period from 1988 to 2018 for 27 countries classified by the World bank as low- and lower-middle-income, and we aim to compare the period before the HIPC initiatives (pre-HIPC; 1988-1999) with the period afterward (post-HIPC; 2007-2018).

The rest of this paper is organized as follows. Section 1 describes the debt relief initiatives in detail, as well as notable studies that examined their effects on the external financing of LICs.

⁴ For example, the iterative Bayesian procedure allows for the consideration of a selection bias that lies in the impossibility of comparing the same country with and without participation in debt relief initiatives. Similarly, comparing HIPC countries with other potentially eligible countries that have refused to participate in the initiative is not relevant because they are inherently different. The results obtained by pooled estimators would be biased.

⁵ Since cross-country variability is predominant, it is necessary to take this variability into account when choosing estimators.

Section 2 explains the data and our empirical strategy. Sections 3 and 4 present our results. Section 5 concludes.

Section 1 Debt Relief and Financing Low-Income Countries

The HIPC initiative, complemented by the Multilateral Debt Relief Initiative (MDRI) in 2005, remains the most comprehensive treatment of debt in LICs. Between 2000 and 2014, these initiatives facilitated the cancellation of nearly USD 126 billion in debt (in nominal terms) by the international financial community, with USD 99 billion specifically allocated to African countries (IMF, 2014). HIPCs received debt relief under specific conditions. They were eligible to benefit from the initiative if they were restricted to borrowing solely from the International Development Association (IDA) and were facing unsustainable debt levels. Under the Enhanced HIPC initiative in 1999, external debt was deemed unsustainable if the ratio of the public debt stock (in present value terms) exceeded 150% of export value and 250% of fiscal revenues.⁶ Upon meeting these criteria and successfully completing World Bank and IMF-supported programs for a minimum of three years, countries reached the decision point and thus secured interim debt relief. Subsequently, they were required to implement Poverty Reduction Strategy Papers (PRSPs) to progress to the completion point of the HIPC process, entitling them to full and irrevocable debt stock relief (in an amount established at the decision point through a joint IMF-World Bank Debt Sustainability Analysis) from bilateral and/or commercial creditors. Ultimately, the Multilateral Debt Relief Initiative (MDRI) concluded the HIPC initiative by further canceling remaining debt stock, devoid of additional conditions.⁷ Of the 42

⁶ Initially, external debt was sustainable if the stock of debt (net present value) did not exceed 250% of exports and 280% of fiscal revenues, and if debt services were below 25% of exports. In the Enhanced HIPC initiative (1999), the thresholds were set at 150% of exports and 250% of fiscal revenues, and at 15% of exports for debt services.

⁷ Countries who reached the completion point under the HIPC initiative benefited from write-offs on the claims of multilateral institutions (the IMF, the World Bank, and the African Development Fund). These additional

countries initially considered for the initiative, 39 became eligible for debt relief. A further two, Somalia and Sudan, achieved the completion point in 2020 and 2021 respectively, while Eritrea had not yet reached the decision point.

The introduction of the HIPC initiative was based on a theoretical concept known as "debt overhang" that highlights the challenge faced by debtor governments that allocate a significant portion of their revenues to servicing debt (Krugman, 1988). Debt overhang refers to a country's difficulties in servicing their debt due to the existing substantial debt burden.⁸ This predicament diminishes the government's incentive to invest, implement reforms, or even repay the debt, ultimately leading to default. Investors anticipate that the government will impose production taxes to meet debt service obligations, often through inflationary measures, which can affect economic activity and thus reduce the debtor's ability to fulfill public debt obligations. Partial debt cancellations serve to alleviate the burden of debt service payments on the government budget (Sachs, 1989), thereby freeing up resources for investment expenditures.⁹ Furthermore, debt relief initiatives benefit creditors by preempting potential crises, which could prove costly for their investors (Copelovitch, 2010).

The effects of debt relief on the external financing of HIPCs are difficult to predict. The cancellation of a country's debt may send a negative signal to creditors. Easterly (2002) highlights the risk of moral hazard for governments benefiting from debt relief, as the expectation of future relief may lead to excessive borrowing (Romero et al., 2015). Chauvin and Kraay (2007) show that the debt reductions are not primarily motivated by countries' heavy debt burdens, but rather driven by their underlying "persistent characteristics". If the initiatives

cancellations on multilateral debt were intended help countries release resources to achieve the Millennium Development Goals, that have been superseded by the Sustainable Development Goals in 2015 (United Nations).

⁸ A significant debt burden may dissuade domestic and foreign investors who fear an increase in taxation or even capital outflows (Claessens and Diwan, 1990). High debt can also lead to a credit rationing with detrimental effects on domestic investment (Borensztein, 1990).

⁹ Of course, to release a "fiscal space", it is necessary that the debtor government repaid its previous debts prior to the debt relief, and that the country moves from a situation of debt distress to a sustainable level of debt (see Cassimon et al., 2015; Ferry and Raffinot, 2019).

do not change these “characteristics”, countries will continue to borrow as much as before, perpetuating cycles of debt cancellation. Moreover, debt relief can trigger adverse market reactions, similar to sovereign defaults, leading to temporary exclusion from international financial markets (Aguilar and Gopinath, 2006; Richmond and Dias, 2009). Gelos et al. (2011) show that a defaulting country took on average 3 years to regain access to international markets in the 1990s, whereas it took more than 5 years in the 1980s. Cruces and Trebesch (2013) highlight a slower re-access to the markets for countries that have imposed significant “haircuts”. Nevertheless, Ferry et al. (2021) find an absence of reputational effect after the HIPC and MDRI initiatives and highlight the short-term horizon of private investors.

Creditors may exercise heightened vigilance regarding the sustainability of external debt following debt cancellation. In 2005, the IMF and World Bank jointly implemented the Debt Sustainability Framework to assess (external and public) debt vulnerabilities and to guide lending and borrowing decisions. Debt Sustainability Analyses (DSAs) serve multiple purposes, including assisting borrowers in strengthening fiscal policy, enhancing debt management practices, and aligning development objectives with the aim of mitigating the risk of over-indebtedness.¹⁰ In addition, DSAs aim to foster responsible lending practices among creditors. The Low-Income Countries Debt Sustainability Framework (LIC-DSF) encompasses external debt (External DSA) and public debt (Public DSA) for LICs with long-maturity and concessional debt, as well as IDA-eligible countries.¹¹ Countries are assigned a risk rating based on their debt carrying capacity. Various debt indicators are compared against predefined thresholds, above which debt ratios enter an unsustainable range, across different scenarios.¹²

¹⁰ A recent Guidance Note from the IMF underscores the importance of the DSAs established by the IMF and the World Bank in the lending decisions of international creditors, and particularly in the context of debt restructurings (IMF, 2023). Indeed, the IMF agrees to share the information contained in the DSAs more quickly (i.e., before the official publication of the risk rating) with private creditors and China.

¹¹ There is also the Market Access Countries Debt Sustainability Framework (MAC-DSF) for developing countries that have durable access to capital markets.

¹² Baseline and stress scenarios for debt dynamics are partly determined by macroeconomic indicators (real GDP growth rate, primary deficit, real interest rate, real exchange rate depreciation) with 5-year projections.

This method leads to the assignment of a country's risk rating of debt unsustainability, which ranges from “low” to “in debt distress”.¹³

Following the HIPC and MDRI initiatives, countries regained their borrowing capacity but were then considered risky sovereigns, potentially discouraging lenders. Since 2007, however, emerging official creditors such as Brazil, Russia, India and China (BRICs) have contributed to the external debt accumulation of developing countries. The development aid policies of these countries differ from those of bilateral creditors who are members of the DAC.¹⁴ While the latter are bound by DAC principles, including peer review of their aid policies, the BRICs operate independently, having not endorsed the Paris Declaration. These countries see potential gains in political influence by lending to more “risky” countries (Bunte, 2018; Bunte and Kinne, 2021).

Private creditors may also contribute to the debt of LICs following the debt reductions. Many LICs are either regaining access to or accessing global capital markets for the first time after decades of exclusion. This return to the credit markets enables LICs to issue sovereign bonds which attract international investors in search of high returns (Tyson, 2015), particularly since the 2008 crisis, when interest rates in advanced economies reached historically low levels. Figure A.1. in the Appendix shows the increasing share of private creditors (foreign private and commercial banks and other private creditors) in the external public debt of HIPCs since 2010. Issuing sovereign bonds offers several advantages to developing countries compared to other financing sources such as loans or grants. Sovereign bonds are not subject to any conditions from international financial institutions, and large amounts of funding can be quickly obtained

Moreover, debt thresholds are also influenced by institutional quality, as measured by the Country Policy and Institutional Assessment (CPIA).

¹³ However, Lang and Presbitero (2018) find that the official rating is different from the risk rating implied by the DSF's mechanical rules. Countries that are politically aligned with the institutions' major shareholders are more likely to receive an improved rating.

¹⁴ Traditional funders are focused on a long-term vision and consider the international financial institutions' macroeconomic forecasts or debt sustainability threshold. The BRICs, on the other hand, focus on the microeconomic benefits of debt-financed development projects. Therefore, the creditors do not share the same concept of debt sustainability.

to finance large-scale investment projects (Velde, 2014; Tyson, 2015).¹⁵ Nevertheless, debt relief initiatives have raised the financing costs for HIPC, especially from foreign banks (Ferry et al., 2021).

The recent surge in Eurobond issuance, characterized by varying degrees of frequency and success, indicates that HIPC may regain access to international capital markets, depending on economic performance and credit history (Cruces and Trebesch, 2013; Trebesch and Zabel, 2017). A sound macroeconomic framework and growth prospects should help developing countries access international financial markets and borrow from official creditors. For instance, the debt crisis in Latin America during the 1980s prompted reforms and liberalization efforts, ultimately fostering an approximate 5% medium-term economic growth. The HIPC initiative centered on governance and institutional reforms, which, in turn, spurred higher GDP growth rates (Ndulu and O'Connell, 2021). Debt reduction initiatives led to an increase in domestic income, public investment and social spending on education and health (Dessy and Vencatachellum, 2007; Cassimon et al., 2015). Nevertheless, Djimeu (2018) finds no effect of the HIPC and MDRI initiatives on growth and foreign direct investment. Moreover, Ferry et al. (2021) show that private creditors' decisions to lend to HIPC have not been significantly driven by economic and institutional improvements in these countries.

This prompts us to consider the potential effects of debt relief initiatives on the re-indebtedness of low-income. In the next section, we present the panel data used to investigate the relationships between the drivers of supply and demand of external financing and the indebtedness of LICs before and after the HIPC initiatives.

¹⁵ Sovereign bonds are used to implement monetary policy but also for fiscal management purposes, including financing current and social or capital expenditure. For example, in 2014, sovereign bonds were used to finance electrification projects in Ethiopia, Senegal and Zambia. Cote d'Ivoire has issued bonds to finance public spending on education and health.

Section 2 Empirical analysis

2.1 Data

The data for outstanding external public and publicly guaranteed debt (in current USD) in total and from official and private creditors, average interest rates on new borrowing, public debt service amounts and debt reduction amounts are taken from the International Debt Statistics. Furthermore, data for GDP in current USD, real GDP growth rate, and grants received are taken from the World Development Indicators (World Bank, 2020). The dependent variable in the analysis is the indebtedness of LICs measured by the annual variation of the stock of external public debt relative to GDP by creditor, with a focus on the outstanding external public and publicly guaranteed debt (in current USD) in total and from official and private creditors. In order to capture the *supply drivers* of external financing, we selected the grants received by developing countries from international organizations or foreign governments, the average interest rates on new external borrowing, the total public and publicly guaranteed debt service amounts and the flows of foreign direct investments related to the GDP. Regarding the *demand drivers* of external financing, we retrieved from World Bank databases the real GDP growth rate, the current account balance, the natural resources rents, inflation rate, government expenditure, foreign exchange reserves (in months of imports) and tax revenues relative to the GDP from the International Centre for Tax and Development database. All data are annual, cover the period from 1988 to 2018 and pertain to 27 countries.¹⁶

The countries that have benefited from the HIPC initiatives are Benin (BEN), Burkina Faso (BFA), Ethiopia (ETH), Ghana (GHA), Guyana (GUY), Honduras (HND), Madagascar (MDG), Nicaragua (NIC), Rwanda (RWA), Senegal (SEN), Sierra Leone (SLE), Tanzania

¹⁶ We chose to end our study in 2018 to focus solely on the consequences of the HIPC and MDRI initiatives on the refinancing of developing countries. Indeed, from 2019 onwards, the tightening of financial conditions in capital markets and the consequences of the pandemic have significantly increased the external public debt of developing countries. To mitigate the risks associated with this debt, the international community has implemented a set of initiatives such as the DSSI, Common Framework, and Catastrophe Containment and Relief Trust.

(TZA), Uganda (UGA) and Zambia (ZMB). We include only HIPC who reached the HIPC completion point early and benefited from the MDRI from 2005 (see Table A.1. in the Appendix).¹⁷ This allows us to have a longer time horizon and to observe a potential re-indebtedness trend.

We include in the sample Bangladesh (BGD), Bhutan (BTN), Laos (LAO), Indonesia (IDN), Nepal (NPL), Pakistan (PAK) and Sudan (SDN). These countries are relatively comparable to HIPCs although they did not benefit from debt relief (non-HIPC highly indebted countries). The World Bank classified these countries as LICs for at least three years before the HIPC initiative and with an external public debt stock (in nominal terms) exceeding 150% of its exports in the five years preceding the HIPC decision point.

We also include the following non-HIPC African countries: Botswana (BWA), Cape Verde (CPV), Eswatini (SWA), Kenya (KEN), Lesotho (LSO) and Zimbabwe (ZWE). These countries are classified by the World Bank as low- or lower-middle-income (LMICs) and share economic characteristics, geographical position, size or trade integration with HIPCs.

Figure A.2. in the Appendix shows that the average external public debt of HIPCs has been rising since 2006, when HIPCs were granted debt relief through the MDRI, and is approaching that of the non-HIPC countries in the sample. We observe a similar dynamic for external public debt from both official and private creditors (see Figure A.3. in the Appendix). This is accentuated for external public debt from private creditors since 2009, in particular following the implementation of accommodative monetary policies in advanced economies. In order to give an overview of the levels of external public debt of the countries, Table A.2. in the Appendix gives some descriptive statistics. Using this data, we investigate the relationship between external public indebtedness and its different explanatory factors. In the following section, we first specify the models to be estimated. Then, we present the Bayesian iterative

¹⁷ For instance, some HIPCs reached the completion point after 2010. Including these countries in the sample would limit the time period of the estimates and undermine the robustness of the results.

method used to estimate the country-specific relationships for these LICs, considering the heterogeneity in the panel.

2.2 Models to be estimated

The model consists of three equations, which we estimate separately:

$$\Delta Y_{it} = c_i + \alpha_i \cdot Y_{it-1} + \beta_i \cdot DIF_{it-1} + \gamma_i \cdot G_{it-1} + \varepsilon_{it} \quad (1)$$

$$\Delta Y_{it} = c_i + \alpha_i \cdot Y_{it-1} + \delta_i \cdot R_{it-1} + \gamma_i \cdot G_{it-1} + \varepsilon_{it} \quad (2)$$

$$\Delta Y_{it} = c_i + \varphi_i \cdot S_{it-1} + \beta_i \cdot DIF_{it-1} + \gamma_i \cdot G_{it-1} + \varepsilon_{it} \quad (3)$$

where ΔY_{it} is the annual change in the ratio of external public debt-to-GDP for country i and year t ; c_i and ε_{it} are the constant and the error terms. The explanatory variables are described in detail below.

We include the countries' economic performance proxied by the annual growth rate of real GDP (variable R_1 in Tables). While a country's strong economic performance may bolster investor confidence in the government's future debt-servicing capabilities, external financing may also be used to offset a decrease in a country's assets (Easterly, 2002). However, we expect the latter case to be less common, as policymakers often require funding to catch-up with emerging economies, cope with international shocks, climate change or technological transformation. Consequently, reliance on foreign financing becomes essential. Moreover, as a country develops, its external financing shifts from a concessional and official basis to a non-concessional basis (Raffinot et al., 2020). We therefore expect a positive relationship between the change in external public debt and GDP growth rate after debt relief initiatives. Moreover, LICs can access alternative sources of external financing for public debt, reflected in the ratio of grants received from international organizations or foreign states to GDP (variable G_1).

Debt relief initiatives have most likely changed access to alternative sources of financing, particularly for HIPC. In the aftermath of the HIPC initiatives, bilateral aid donors became more responsive to countries' policies and institutional quality, with a decline in defensive lending (Claessens et al., 2009). Ferry et al. (2021) show a "MDRI netting-out effect" by the IDA, since the official development assistance to HIPCs dropped to the benefit of non-HIPCs after MDRI. They also find that the initiatives led official creditors to reduce the level of concessionality of their new loans, but allowed greater access to international financial markets. On the supply side, creditors (official or private) are particularly aware of the existing outstanding external public debt. To this end, we include the ratio of external public debt to GDP (variable Y_1) in the explanatory variables. A high level of public debt can reduce a government's ability to service its debt, as mentioned earlier with the "debt overhang". The "debt Laffer curve" puts forward the idea that at a certain level of indebtedness, investors expect that the debt will not be entirely repaid (Krugman, 1988; Sachs, 1989). It suggests that at a high level of external public debt, creditors will be increasingly skeptical about lending to developing countries. Therefore, we consider the ratio of public debt service to GDP (variable S_1) in our analysis, because creditors also monitor the country's ability to repay in the short term. Finally, the difference between the interest rate on new borrowing and the real GDP growth rate (variable DIF_1) is used as a proxy to assess the sustainability of a country's public debt. If the country is indebted at interest rates higher than its growth rate, then the debt ratio follows an unsustainable path. The explanatory variables are all lagged to avoid a reverse causality between ΔY_{it} and the various external financing factors, and thus "bad control" issues.

2.3 The Empirical Iterative Bayes estimator

We apply the Empirical Iterative Bayes estimator suggested by Maddala et al. (1997) since it provides a heterogeneous (country-by-country) estimation of these relationships and makes it

possible to establish a classification of countries according to their external public debt patterns. As noted in the introduction, in panel analysis, the problem with the two usual estimation methods of either pooling the data, or obtaining separate estimates for each cross-section is that both are based on extreme assumptions. If the data are pooled, it is assumed that the parameters are all the same. On the other hand, if separate estimates are obtained for each country, it is assumed that the parameters are all different. According to Maddala et al. (1997, p.91), “the truth probably lies somewhere in between. The parameters are not exactly the same, but there is some similarity between them”. One way of allowing for the similarities is to assume that all the parameters come from a joint distribution with a common mean and a nonzero covariance matrix. The authors argued that the resulting parameter estimates will be a weighted average of the overall pooled estimate and the separate time series estimates based on each cross-section. Thus, each cross-section estimate is “shrunk” toward the overall pooled estimate (i.e., “shrinkage estimator”). In this way, the solution relies on the use of a random-coefficient model in which the parameters are assumed to come from a common distribution.

According to Maddala et al. (1997), the shrinkage estimator should be preferred if the model contains lagged endogenous variables (as it is the case in dynamic models) because it gives much more reasonable parameter values than the heterogeneous estimators. This view has been shared by several other authors (Jobert et al., 2010, 2019). For instance, Maddala and Hu (1996) have presented some Monte Carlo evidence to suggest that an iterative procedure gives better estimates for panel data models. Trapani and Urga (2009) also show, via a series of Monte Carlo simulations, that when the level of heterogeneity is high, shrinkage/Bayesian estimators should be preferred. To conclude, in the Bayesian framework, the panel data models raise different issues from those in individual time series, such as a correct consideration of (homogeneity) heterogeneity between countries. Thus we adopt the Bayesian approach as an

alternative estimation method, in order to capture the cross-sectional heterogeneity in the external public debt relationships.

Let us consider the Bayesian approach to Eqs. (1)-(3), which can be rewritten in the framework of the random-coefficients model, with the following specification:

$$y_i = X_i \gamma_i + u_i \quad (4)$$

where y_i contains the annual change in the ratio of external public debt to GDP time series, X is the matrix with explanatory variables, and γ_i are slope coefficients. In the Bayesian framework, the *prior* distribution of γ_i is given by: $\gamma_i \sim N(\mu, \Sigma)$ where the parameters μ (mean of γ_i), Σ (variance of γ_i) and σ_i^2 (residual variance) are unknown. Therefore some assumptions have to be made on the *prior* specification of these parameters. Then we can derive the *posterior* distribution for the parameters, γ_i . On the other hand, if μ , Σ and σ_i^2 are all known, the *posterior* distribution of γ_i is normal and calculated by:

$$\gamma_i^* = \left[\frac{1}{\sigma_i^{*2}} X_i' X_i + \Sigma^{*-1} \right]^{-1} \left[\frac{1}{\sigma_i^{*2}} X_i' X_i \hat{\gamma}_i + \Sigma^{*-1} \mu^* \right] \quad (5)$$

where $\hat{\gamma}_i$ is the ordinary least squares (OLS) estimator of γ_i . The *posterior* distribution of mean γ_i and its variance are shown in Eqs. (5) and (6) respectively.

$$\mu^* = \frac{1}{N} \sum_{i=1}^N \gamma_i^* \quad (6)$$

$$V[\gamma_i^*] = \left[\frac{1}{\sigma_i^{*2}} X_i' X_i + \Sigma^{*-1} \right]^{-1} \quad (7)$$

Since in general, Σ and σ_i^2 are unknown parameters, one needs to specify priors for them. For this purpose, Smith (1973) suggested using the mode of the joint posterior distribution given by the following equations:

$$\sigma_i^{*2} = \frac{1}{T + \varsigma_i + 2} \left[\varsigma_i \lambda_i + (y_i - X_i \gamma_i^*)' (y_i - X_i \gamma_i^*) \right] \quad (8)$$

and

$$\Sigma^* = \frac{1}{T - k - 2 + \delta} \left[R + \sum_{i=1}^N (\gamma_i^* - \mu^*)(\gamma_i^* - \mu^*)' \right] \quad (9)$$

where the parameters ς_i , λ_i , δ and R arise from the specification of the prior distributions.

Moreover, Smith 1973) proposed the approximation of these parameters by setting $\varsigma_i = 0$, $\delta = 1$ and R as a diagonal matrix with small positive entries (e.g., 0.001). By doing so, the estimators take the following forms:

$$\sigma_i^{*2} = \frac{1}{T + 2} \left[(y_i - X_i \gamma_i^*)' (y_i - X_i \gamma_i^*) \right] \quad (10)$$

$$\Sigma^* = \frac{1}{T - k - 1} \left[R + \sum_{i=1}^N (\gamma_i^* - \mu^*)(\gamma_i^* - \mu^*)' \right] \quad (11)$$

$$\gamma_i^* = \left[\frac{1}{\sigma_i^{*2}} X_i' X_i + \Sigma^{*-1} \right]^{-1} \left[\frac{1}{\sigma_i^{*2}} X_i' X_i \hat{\gamma}_i + \Sigma^{*-1} \mu^* \right] \quad (12)$$

and

$$\mu^* = \frac{1}{N} \sum_{i=1}^N \gamma_i^* \quad (13)$$

$$V[\gamma_i^*] = \left[\frac{1}{\sigma_i^{*2}} X_i' X_i + \Sigma^{*-1} \right]^{-1} \quad (14)$$

Then Eqs. (10-14) must be solved iteratively, with the initial iteration using the OLS estimator $\hat{\gamma}_i$ to compute μ^* , Σ^* and σ_i^{*2} . The second and subsequent iterations are based on the empirical iterative Bayes estimator γ_i^* .

Section 3 Main results

First, we examine the contribution of external financing drivers to the external public debt accumulation (Eqs 1 and 3) before debt relief initiatives (pre-HIPC, 1988-1999). The estimated coefficients are reported in Tables S.A1. and S.A2 in the supplementary appendix. Pre-HIPC coefficients of Y_{-1} and S_{-1} are negative, indicating an increase in the external public indebtedness is related to a lower initial public debt-to-GDP ratio (or the debt service-GDP ratio). These findings are consistent with the potential implications of “debt overhang” in the external public debt of LICs. The restructuring on debt services granted by the Paris Club and the G7 from the early 1990s, aimed at slowing debt accumulation. The interest rate-growth differential (DIF_{-1}) and the received grants (G_{-1}) are positively correlated with an external public indebtedness. This result revives the "defensive grants" hypothesis, that creditors provided loans or grants to highly indebted countries in order to spread debt problems over time, although this is difficult to prove empirically (Marchesi and Missale, 2012, 2013). Moreover, in line with the traditional debt sustainability approach, a positive interest rate-growth differential is associated with debt accumulation.

Following the HIPC initiatives (post-HIPC, 2007-2018), the relationships between the external financing drivers and debt accumulation changed (see Tables S.A1. and S.A2.). The coefficients associated with the debt-to-GDP ratio (Y_{-1}), formerly negative, cease to be significant and/or become positive in most countries after the debt relief initiatives. These findings indicate a reduced vigilance among creditors concerning external public debt ratios, given the substantial decrease in debt levels following the completion of the HIPC process. The limited transparency in debt reporting further complicates creditors' ability to accurately assess external public debt-to-GDP ratios. This lack of clarity can contribute to significant debt accumulation.¹⁸ Figure

¹⁸ See the literature on hidden debts (Gelpern et al., 2023; Horn et al., 2023). Recent initiatives (such as the Common Framework) require countries to report all their borrowing.

A.4. in the Appendix compares the estimated post-HIPC coefficients of the external public debt-to-GDP ratio (on the x-axis) with each country's average pre-HIPC external public debt level (y-axis). We observe that for a few HIPCs (Guyana, Honduras, Nicaragua and Sierra Leone), the estimated coefficients remain negative and lower than for the other countries in the sample (HIPCs and non-HIPCs). These four countries obtained debt cancellations, through the MDRI, later than other HIPCs. The recency of these debt cancellations in the minds of international creditors has presented challenges for these HIPCs in securing new foreign borrowings.¹⁹

We find that the contribution of other drivers to external debt accumulation also changed after the debt relief initiatives: a positive interest rate-growth differential (post-HIPC coefficients of DIF_1) no longer leads to an external public indebtedness. Thus, we focus on the relationship between external public debt and the country's economic growth, measured by the real GDP growth rate (lagged) in the model given by Eq.2. We find that the real GDP growth (R_1) is positively correlated with external public indebtedness for most countries, as we expected (Section 2.2). Figure A.5. relates the estimated post-HIPC coefficients of real GDP growth rate (R_1) to the average external public debt before the HIPC initiative. We observe that countries, primarily HIPCs, which had high external public debt-to-GDP ratios prior to the HIPC initiatives and received DSA risk ratings of high or debt distress (red and black points, respectively, in Fig. A.5) in 2019 exhibit negative or lower estimated coefficients associated with real GDP growth (e.g., Ethiopia, Ghana, Sierra Leone, Zambia). The low sensitivity of external financing to real GDP growth can be attributed to several factors, including the delayed debt cancellations for specific countries (like Guyana, Honduras, Nicaragua), which postponed the disbursement of new loans by international creditors following the HIPC initiatives. Additionally, it may be influenced by the borrowing behavior of certain countries (Ethiopia, Ghana, Kenya, Zambia), which have engaged with creditors who show less attentiveness to the

¹⁹ We also observe a negative relationship between the GDP growth rate and external public indebtedness for these countries, which can be explained for the same reasons.

economic conditions of the borrowers.²⁰ In the following section, we identify a lack of consideration for economic performance on the part of private creditors, contributing to the rise of the risk of debt distress in these countries. Notably, this does not hold true for some HIPC countries in the sample, such as Burkina Faso, Madagascar, Rwanda, or Uganda, which show estimated coefficients similar to non-HIPCs. These countries predominantly rely on multilateral creditors, who monitor their public indebtedness, resulting in low risks of external over-indebtedness by the end of the period (i.e., in 2018 or 2019) as measured by DSAs. Despite this, they have applied to join the DSSI, suggesting that their participation in the most recent initiative is more linked to the crises affecting developing countries and the constrained financial conditions, rather than reflecting irresponsible behavior or excessive external indebtedness that would imply moral hazard on the part of these debtor countries.

Furthermore, to check the assumption that international investors may fear moral hazard on the part of some countries that have benefited from debt relief, we relate the estimated post-HIPC coefficients to the amounts (in millions of US dollars) of debt relief granted between 1988 and 2006 (see Figure A.6.). It seems that debt write-offs granted to HIPC countries are not considered by creditors as much as one might think. For some HIPC countries that have received large debt cancellations (such as Ethiopia, Ghana, Madagascar, Senegal, Tanzania, Uganda and Zambia), the estimated coefficients associated with the external public debt-to-GDP ratio (Y_1) are close to those of non-HIPC countries. Moreover, most of these HIPC countries have applied for the DSSI (shown by italics in Fig. A.6), which argues that these countries do not fear the potential reputational cost of participating in the DSSI only a decade after receiving substantial debt relief.²¹

²⁰ Figure A.8. in Appendix shows the evolution of creditors' share of LICs' external public debt. Guyana, Honduras and Nicaragua have little diversified foreign financing and rely heavily on loans from multilateral institutions, while Ethiopia, Ghana, Kenya and Zambia have significantly diversified their source of foreign financing with access to capital markets.

²¹ However, other factors drive the decision to apply for participate to the DSSI such as debt service savings, credit rating, involvement in IMF arrangement (Cassimon et al., 2023).

The results indicate that the HIPC status of debtors does not seem to impede borrowing, even as their external public debt-to-GDP ratios increase. In the following section, we investigate whether financing of HIPCs is contingent upon a country's macroeconomic environment and fiscal position. Furthermore, heterogeneity is also a feature of creditors, not only borrowing countries. We therefore explore the contribution of financing factors to external debt accumulation depending on the type of foreign creditor.

Section 4 Financing HIPCs anyway?

4.1. Economic performance and fiscal discipline

Lending decisions are influenced by debtor countries' economic outlook and the global economic situation: economic performance (or imbalances) may lead countries to borrow from abroad. Supply and demand drivers of external financing include the interest rates on new loans, interest rate-growth differential, foreign direct investment, real GDP growth, current account balance, fiscal revenues, natural resources rents, foreign currency reserves and inflation.²²

We estimate the relationships between the change in the external public debt-to-GDP ratio and the current account balance (variable CAB), foreign direct investment (FDI) and tax revenues (TAX). These three explanatory variables are lagged by one year and expressed relative to the GDP. The pre-HIPC and post-HIPC estimates are reported in Table S.A4. in the supplementary appendix. After the debt relief initiatives, the correlation between the current account balance and the change in external public debt is statistically significant and negative for all countries in the sample. In contrast, prior to the HIPC and MDRI initiatives this correlation was negative but not statistically significant for most countries. Given that commodity exports serve as the primary source of revenue for LICs, current account deficits compel these countries to seek

²² The last two indicators are not presented or included in the estimates due to lack of available data or lack of significance in the estimates.

foreign borrowing. In addition, we observe that the relationships between the change in external public debt and FDI in developing countries were negative before the HIPC initiative and become positive after the debt cuts. In the 1980s and 1990s, investors were reluctant to invest in these countries, which were accumulating large amounts of debt.²³ These findings are thus consistent with the literature, because low (or high) FDI is considered an indirect indicator of poor (or sound) policies (Easterly, 2002). Following the HIPC and MDRI initiatives, the external public indebtedness is correlated with long-term private capital flows such as FDI. This result shows the appeal of LICs to international investors during the post-HIPC period. During this time, countries aimed to enhance institutional and policy quality, achieve sustainable debt levels, and took advantage of the upswing in commodity prices. We also find that the relationship between external public debt and tax revenues becomes positive after the debt cancellations. This result highlights that the demonstration of fiscal discipline by LICs instilled confidence in international investors, particularly concerning the country's capacity to repay debt following debt relief initiatives. It is in contrast to the situation in the 1980s-1990s, when tax revenues were predominantly directed towards servicing the public debt (when the debt was repaid) that had reached historically high levels and the relationship between external public debt and tax revenues was negative. Figure A.7. in the Appendix shows the post-HIPC coefficients for tax revenues compared with the amount of debt relief granted between 1988 and 2006. We observe a higher sensitivity of external public indebtedness to fiscal revenues for countries that have recently borrowed from emerging countries (Bhutan, Ethiopia, Uganda) and HIPCs, which still have to demonstrate fiscal discipline to international creditors because of their credit history. Therefore, in the next subsection, we examine if different types of foreign investors consider the macroeconomic context differently in their lending decisions.

²³ Foreign investors feared that policymakers in heavily indebted countries would increase the tax burden to service the debt or bear the economic costs of defaulting. Moreover, the financial support provided by the IMF was an opportunity for investors to disengage from the country.

4.2. Official bilateral lending and commercial proximity

Tables S.A5. and S.A6. in the supplementary appendix report the estimates of the relationships between external public indebtedness of developing countries, to official creditors and bilateral creditors, and the macroeconomic environment in those countries, measured by economic growth (R_1) and revenues from taxes and natural resources (TAX and NAT_RENT), before and after debt relief initiatives. As for the total external public debt, the estimated pre-HIPC coefficients of economic growth and tax revenues are statistically significant and negative for all countries, for debts owed to both official and bilateral creditors. After debt write-offs, the economic growth is positively related to an external public debt accumulation owed to bilateral creditors (Table S.A6.) and is particularly significant for several countries, such as Bangladesh, Ethiopia, Kenya, Pakistan and Tanzania, that borrowed substantially from these creditors, including the BRICS. Similarly, the correlation between GDP growth and debt held by official creditors is both positive and statistically significant for countries primarily indebted to multilateral creditors, such as Burkina Faso, Lesotho, or Madagascar. In addition, tax revenues are also associated with an accumulation of external public debt owed to bilateral creditors (i.e., the estimated post-HIPC coefficients of TAX also become positive for these creditors). These findings indicate that bilateral creditors do not lend to LICs irrespective of economic performance or conditions; rather, there is a concern about the borrowers' ability to repay.

To explore whether political considerations play a role in creditors' lending strategies, particularly if HIPC receive additional loans from official bilateral lenders with close economic ties, we include a proxy for commercial proximity. This is measured by a variable gauging the trade intensity between the developing countries and major donors or lenders.²⁴

Trade intensity is defined here by the trade flows (bilateral trade) between the creditors and

²⁴ This is in line with Thacker (1999), Barro and Lee (2005), Bird and Rowlands (2009) who used trade with US or major European countries as an explanatory variable for IMF lending decisions.

each developing country (relative to their GDP). The creditors are separated into three categories: BRICS (Brazil, Russia, India, China and Saudi Arabia),²⁵ the traditional official donors (Japan, Germany, France, the United Kingdom and Spain) and only the United States. For BRICS and the official donors, we take the average value of the trade intensity measures for the countries involved. The estimates are reported in Tables S.A7. and S.A8. in the supplementary appendix. Unlike with the official donors, the relationship between the change in external public debt and trade intensity with BRICS is statistically significant and positive following the debt relief initiatives for all the countries in the sample. This argues that commercial proximity influences some creditors' lending decisions. A positive relationship between the change in external public debt and trade intensity with the United States post-HIPC is statistically significant only for some countries, such as Bangladesh, Benin, Eswatini, Laos and Nepal.²⁶

4.3. Do private creditors appeal to low-income countries?

In order to answer this question, we estimate the two following independent equations:

$$\Delta Y Priv_{it} = c_i + \alpha_i \cdot Y Priv_{it-1} + \beta_i \cdot DIF_{it-1} + \gamma_i \cdot G_{it-1} + \varepsilon_{it} \quad (15)$$

$$\Delta Y Priv_{it} = c_i + \varphi_i \cdot S_{it-1} + \beta_i \cdot DIF_{it-1} + \gamma_i \cdot G_{it-1} + \varepsilon_{it} \quad (16)$$

The dependent variable $\Delta Y Priv_{it}$ refers to the annual change in the external public debt-to-GDP ratio from private creditors. The explanatory variable $Y Priv_{it-1}$ is the ratio of external public debt-to-GDP from private creditors in the previous year (Y_1P in Tables). As in the previous subsection, we compare the relationships between external financing "supply and

²⁵ We include Saudi Arabia instead of South Africa, as the former is now the world's 6th largest bilateral lender to developing countries (World Bank, IDS 2021).

²⁶ In Figure A.8. in the Appendix, we note that, despite a drop during the last decade, these countries owe their external debt mainly to multilateral creditors (60% for Bangladesh and Benin, almost 90% for Lesotho or Nepal and 50% for Swaziland).

demand" drivers and external public debt from private creditors between countries, before and after debt reduction initiatives.

The pre-HIPC relationships between the level of initial debt owed to private creditors (Y_{1P}) and the debt accumulation from these creditors are negative for all countries in our sample. Estimated coefficients of the debt service-to-GDP ratio are also negative and significant (see Tables S.A9. and S.A10.). Due to the debt crisis in developing countries in the 1980s, private creditors were cautious and alert to the public indebtedness and the debt-servicing capacities of debtor governments, especially as the external public debt increased. High levels of previously accumulated debt made lenders reluctant to grant new loans, which explains the negative correlation between the initial debt variable and subsequent debt growth.

After the debt relief initiatives, these relationships remained negative, with some notable exceptions discussed below. Figure A.9. shows the estimated post-HIPC coefficients for the external public debt-to-GDP ratio from private creditors (Y_{1P}) compared with the amount of debt relief granted in the HIPC initiatives. For most countries, both HIPCs and non-HIPCs, the external indebtedness to private creditors declines as the initial debt-to-GDP ratio increases. This negative relationship persists even for countries that accumulated relatively small debts from private creditors between 2006 and 2019 (see Figure A.8 in the Appendix). Some countries exhibit hesitancy in accessing financial markets due to concerns about exposure to risks related to market financing conditions. For example, Uganda refrained from issuing international bonds to avoid potential debt-related issues. Meanwhile, others, constrained by their economic fundamentals, resorted to alternative funding sources (i.e., from IDA, bilateral creditors or multilateral development banks) with more favorable terms rather than accessing financial markets.

However, some HIPCs like Ethiopia, Ghana, Senegal, and Zambia show positive coefficients for Y_{1P} , indicating that they continue to borrow despite an increasing debt-to-GDP ratio, even

after receiving debt relief. This pattern indicates a lack of a reputational effect from debt reduction initiatives. Since 2007, these HIPC countries have repeatedly accessed credit markets to issue sovereign bonds, often using the proceeds to repay previous loans.²⁷ As of 2019, Ghana, Senegal, and Zambia owed a significant portion of their external public debt to private creditors, as shown in Fig. A.8. Table S.A11. reports the estimates of the relationships between public external debt to private creditors and macroeconomic indicators such as tax and natural resources revenues relative to GDP, and to real GDP growth, before and after debt relief initiatives. The relationships remain relatively unchanged. The estimated coefficients are not statistically significant, especially for GDP growth rate and natural resources rents. Therefore, international private creditors' funding is not particularly responsive to the borrowers' economic conditions.

Section 5 Concluding remarks

In this paper, we show a substantial shift in the impact of financing drivers on the accumulation of external public debt after the HIPC debt reduction initiatives, and reveal a new international landscape since 2006. Before the initiatives, a rise in the external public debt-to-GDP ratio was associated with a lower accumulation of new external debt in developing countries. During this period, creditors were hesitant to lend to these countries following the debt crisis of the early 1980s and substantial payment arrears in the 1990s, factors which led to the implementation of the debt relief initiatives. Moreover, revenues (including taxes) in the indebted countries were used primarily to service the debt if it was incurred, thus deterring investors from these countries.

²⁷ See Presbitero et al. (2016) for a more in-depth analysis of the drivers influencing bond issuance in developing countries.

After the HIPC and MDRI initiatives, the relationship between the accumulation of external public debt and the existing debt-to-GDP ratio is no longer negative for all developing countries, and is even statistically significant and positive for some HIPCs, indicating a lack of a reputational effect for these HIPCs following the debt cuts, especially from private investors. These HIPCs not only regained access to credit markets and foreign financing but also drew long-term investment through FDI. This finding explains the recent and relatively rapid build-up of new external public debt among developing countries over the last decade.

Nevertheless, this rapid accumulation of external public debt should not be interpreted as an irresponsible behavior on the part of borrowers and lenders. Some LICs, such as Burkina Faso, Lesotho and Madagascar, are still largely financed by multilateral lenders and exhibit a positive relationship between debt accumulation and economic growth. In 2019, the IMF and World Bank assessed their risk of debt distress as low or moderate. Developing countries face significant financing needs as they strive to catch up economically with emerging economies and address various global crises. Rising levels of public debt or debt servicing are not inherently problematic, as they contribute to financing economic development. The Bayesian shrinkage estimators allow for the observation of various external public debt paths between developing countries. An accumulation of external public debt, associated with favorable macroeconomic conditions, leads to a low or moderate risk of over-indebtedness, as assessed by international financial institutions. A primary economic policy recommendation would be to avoid external public debt accumulation that is disconnected from economic performance. In such cases, the debt growth rate would exceed the economy's growth rate, putting countries at risk of solvency issues.

We show that bilateral creditors, including BRICS, are cautious about the economic performance and fiscal situation of developing countries, especially for HIPCs. Other factors,

such as commercial proximity, lead emerging markets to lend to LICs. For instance, some investments and loans have been negotiated with China through the Belt and Road Initiative.²⁸ The external public debt owed to private creditors rose sharply after the debt relief initiatives, because countries regained access to capital markets.²⁹ HIPC countries attract private creditors by offering higher returns to investors, particularly since the implementation of expansionary monetary policies in 2010. Notably, some HIPC countries such as Ethiopia, Ghana and Zambia continued to borrow from private creditors despite their rising indebtedness.³⁰ Furthermore, private creditors do not seem to consider the economic performance of debtors, such as economic growth or fiscal revenues, when lending to the LICs. Additionally, LICs are exposed to the risks associated with global financial conditions, marked by volatile interest rates and widening spreads, posing substantial threats to debt sustainability. Figure A.10 in the Appendix highlights the volatility of private lenders' financing, and the significant reduction in new financing by China since 2018, coinciding with the emergence of the first debt incidents in developing countries.

Finally, countries such as Ethiopia, Ghana, Pakistan and Sudan are currently facing difficulties in debt repayment and have requested to apply for the DSSI. Ethiopia and Ghana, which suspended debt services on its external debt in December 2022, are participating in the Common Framework for Debt Treatments beyond DSSI. Zambia defaulted on its debt in 2020 and reached a debt agreement with official bilateral creditors under the Common Framework in October 2023. Figure A.11. in the Appendix shows that, since 2007, the proportion of low-income countries classified by the World Bank and the IMF as being at high risk of debt distress

²⁸ China's loans may constitute an opportunity for economic growth and investment in recipient countries (Dreher et al., 2021). However, (Morris et al., 2020) show that Chinese official loans are more expensive than other official (multilateral) creditors, particularly for African countries (Mihalyi and Trebesch, 2023), and contribute to increasing the debt repayment difficulties.

²⁹ In the last decade, some developing countries have issued Eurobonds which are denominated in strong foreign currencies such as the US dollar or the Euro. These bonds can also expose their sovereign debt to sustainability risks, particularly in the event of foreign currency appreciation.

³⁰ In 2018, Ghana issued a 10-year Eurobond that was four times oversubscribed, even though the country's external debt was rated at high risk of over-indebtedness by the IMF and World Bank.

has risen. However, the Common Framework may not be enough to solve these problems, since the number of international creditors has increased and some of them are reluctant to join these initiatives, as are some developing countries.³¹ The growing number of international creditors involved in the external debt of developing countries makes it essential for the authorities of poorer countries to ensure transparency in public debt. This constitutes a second recommendation for economic policy and debt management in developing countries. The challenge for official creditors in accurately assessing external public debt levels in these countries complicates the monitoring of risks associated with such debt. Furthermore, a full and official declaration of external public debt is required to access the benefits of the Common Framework.

The debt issues in LICs are further complicated by an uncertain macroeconomic outlook and subdued economic growth prospects. It is essential for countries to improve the management of their external public debt, particularly in a context marked by accumulating global shocks. The World Bank and IMF's initiative, known as the "Debt Management Facility," can support developing countries in strengthening their public debt management. Currently, debt management vary significantly across developing countries, both in terms of access to international capital markets and in debt recording practices. For instance, among countries eligible for IDA, only Burkina Faso meets all criteria to achieve a "full disclosure" rating for public debt transparency. The Debt Management Facility provides guidance to national authorities to enhance institutional and legal frameworks, elaborate medium-term debt management strategies, and coordination of public debt and monetary policy in developing countries. Debt Management Performance Assessments (DeMPA) reveal progress in managing public debt in developing countries.

³¹ Countries are hesitant to participate in the initiative if the gains are not sufficiently high, especially debt service savings, and they fear adverse reactions on capital markets.

References

- Aguiar, M., & Gopinath, G. (2006). Defaultable debt, interest rates and the current account. *Journal of International Economics*, 69(1), 64–83.
<https://doi.org/10.1016/j.jinteco.2005.05.005>
- Barro, R. J., & Lee, J.-W. (2005). IMF programs: Who is chosen and what are the effects? *Journal of Monetary Economics*, 52(7), 1245–1269.
<https://doi.org/10.1016/j.jmoneco.2005.04.003>
- Bird, G., & Rowlands, D. (2009). The IMF's role in mobilizing private capital flows: Are there grounds for catalytic conversion? *Applied Economics Letters*, 16(17), 1705–1708. <https://doi.org/10.1080/13504850701604169>
- Borensztein, E. (1990). Debt overhang, credit rationing and investment. *Journal of Development Economics*, 32(2), 315–335. [https://doi.org/10.1016/0304-3878\(90\)90041-9](https://doi.org/10.1016/0304-3878(90)90041-9)
- Bunte, J. B. (2018). Sovereign lending after debt relief. *Review of International Political Economy*, 25(3), 317–339. <https://doi.org/10.1080/09692290.2018.1455600>
- Bunte, J., & Kinne, B. (2021). *The Politics of Government-to-Government Loans: Competition and Power in Bilateral Lending Networks*.
- Cassimon, D., Essers, D., & Presbitero, A. (2023). *Debtor (Non-)Participation in Sovereign Debt Relief: A Real Option Approach* (SSRN Scholarly Paper 4577547).
<https://doi.org/10.5089/9798400254543.001>
- Cassimon, D., Van Campenhout, B., Ferry, M., & Raffinot, M. (2015). Africa: Out of debt, into fiscal space? Dynamic fiscal impact of the debt relief initiatives on African Heavily Indebted Poor Countries (HIPC). *International Economics*, 144, 29–52.
<https://doi.org/10.1016/j.inteco.2015.04.007>

- Chauvin, N. D., & Kraay, A. (2007). Who Gets Debt Relief? *Journal of the European Economic Association*, 5(2–3), 333–342. <https://doi.org/10.1162/jeea.2007.5.2-3.333>
- Claessens, S., & Diwan, I. (1990). Investment Incentives: New Money, Debt Relief, and the Critical Role of Conditionality in the Debt Crisis. *The World Bank Economic Review*, 4(1), 21–41. <https://doi.org/10.1093/wber/4.1.21>
- Claessens, S., Kose, M. A., & Terrones, M. E. (2009). What happens during recessions, crunches and busts? *Economic Policy*, 24(60), 653–700. <https://doi.org/10.1111/j.1468-0327.2009.00231.x>
- Copelovitch, M. S. (2010). *The International Monetary Fund in the Global Economy: Banks, Bonds, and Bailouts*. Cambridge University Press.
- Cruces, J. J., & Trebesch, C. (2013). Sovereign Defaults: The Price of Haircuts. *American Economic Journal: Macroeconomics*, 5(3), 85–117. <https://doi.org/10.1257/mac.5.3.85>
- Dessy, S. E., & Vencatachellum, D. (2007). Debt Relief and Social Services Expenditure: The African Experience, 1989–2003. *African Development Review*, 19(1), 200–216. <https://doi.org/10.1111/j.1467-8268.2007.00154.x>
- Djimeu, E. W. (2018). The impact of the Heavily Indebted Poor Countries initiative on growth and investment in Africa. *World Development*, 104, 108–127. <https://doi.org/10.1016/j.worlddev.2017.11.002>
- Dreher, A., Fuchs, A., Parks, B., Strange, A., & Tierney, M. J. (2021). Aid, China, and Growth: Evidence from a New Global Development Finance Dataset. *American Economic Journal: Economic Policy*, 13(2), 135–174. <https://doi.org/10.1257/pol.20180631>

- Easterly, W. (2002). How Did Heavily Indebted Poor Countries Become Heavily Indebted? Reviewing Two Decades of Debt Relief. *World Development*, 30(10), 1677–1696.
[https://doi.org/10.1016/S0305-750X\(02\)00073-6](https://doi.org/10.1016/S0305-750X(02)00073-6)
- Ferry, M., & Raffinot, M. (2019). Curse or Blessing? Has the Impact of Debt Relief Lived up to Expectations? A Review of the Effects of the Multilateral Debt Relief Initiatives for Low-Income Countries. *The Journal of Development Studies*, 55(9), 1867–1891.
<https://doi.org/10.1080/00220388.2018.1499895>
- Ferry, M., Raffinot, M., & Venet, B. (2021). Does debt relief “irresistibly attract banks as honey attracts bees”? Evidence from low-income countries’ debt relief programs. *International Review of Law and Economics*, 66, 105978.
<https://doi.org/10.1016/j.irle.2021.105978>
- Gelos, R. G., Sahay, R., & Sandleris, G. (2011). Sovereign borrowing by developing countries: What determines market access? *Journal of International Economics*, 83(2), 243–254. <https://doi.org/10.1016/j.jinteco.2010.11.007>
- Gelpern, A., Horn, S., Morris, S., Parks, B., & Trebesch, C. (2023). How China lends: A rare look into 100 debt contracts with foreign governments. *Economic Policy*, 38(114), 345–416. <https://doi.org/10.1093/epolic/eiac054>
- Horn, S., Mihalyi, D., Nickol, P., & Sosa-Padilla, C. (2023). *Hidden Debt Revelations*.
- Hsiao, C. (2022). *Analysis of Panel Data*. Cambridge University Press.
- Hsiao, C., Pesaran, H., & Tahmiscioglu, A. (1998). *Bayes Estimation of Short-run Coefficients in Dynamic Panel Data Models*.
- International Monetary Fund. (2014). *Regional Economic Outlook: Sub-Saharan Africa - Fostering Durable and Inclusive Growth*. IMF.
<https://www.imf.org/en/Publications/REO/SSA/Issues/2017/02/01/Fostering-Durable-and-Inclusive-Growth>

- International Monetary Fund. (2023). *Staff Guidance Note on Information Sharing in The Context of Sovereign Debt Restructurings*. IMF.
<https://www.imf.org/en/Publications/Policy-Papers/Issues/2023/06/23/Staff-Guidance-Note-on-Information-Sharing-in-The-Context-of-Sovereign-Debt-Restructurings-535203>
- Jobert, T., Karanfil, F., & Tykhonenko, A. (2010). Convergence of per capita carbon dioxide emissions in the EU: Legend or reality? *Energy Economics*, 32(6), 1364–1373.
<https://doi.org/10.1016/j.eneco.2010.03.005>
- Jobert, T., Karanfil, F., & Tykhonenko, A. (2019). DEGREE OF STRINGENCY MATTERS: REVISITING THE POLLUTION HAVEN HYPOTHESIS BASED ON HETEROGENEOUS PANELS AND AGGREGATE DATA. *Macroeconomic Dynamics*, 23(7), 2675–2697. <https://doi.org/10.1017/S136510051700092X>
- Krugman, P. (1988). Financing vs. Forgiving a debt overhang. *Journal of Development Economics*, 29(3), 253–268. [https://doi.org/10.1016/0304-3878\(88\)90044-2](https://doi.org/10.1016/0304-3878(88)90044-2)
- Lang, V. F., & Presbitero, A. F. (2018). Room for discretion? Biased decision-making in international financial institutions. *Journal of Development Economics*, 130, 1–16.
<https://doi.org/10.1016/j.jdevco.2017.09.001>
- Maddala, G. S., & Hu, W. (1996). The Pooling Problem. In L. Mátyás & P. Sevestre (Eds.), *The Econometrics of Panel Data: A Handbook of the Theory with Applications* (pp. 307–322). Springer Netherlands. https://doi.org/10.1007/978-94-009-0137-7_13
- Maddala, G. S., Trost, R. P., Li, H., & Joutz, F. (1997). Estimation of Short-Run and Long-Run Elasticities of Energy Demand From Panel Data Using Shrinkage Estimators. *Journal of Business & Economic Statistics*, 15(1), 90–100.
<https://doi.org/10.1080/07350015.1997.10524691>

- Marchesi, S., & Missale, A. (2012). *How defensive were lending and aid to HIPC?* (Working Paper 220). University of Milano-Bicocca, Department of Economics.
<https://econpapers.repec.org/paper/mibwpaper/220.htm>
- Marchesi, S., & Missale, A. (2013). Did High Debts Distort Loan and Grant Allocation to IDA Countries? *World Development*, 44, 44–62.
<https://doi.org/10.1016/j.worlddev.2012.12.011>
- Mihalyi, D., & Trebesch, C. (2023). Who lends to Africa and how? Introducing the Africa Debt Database. *Kiel Working Papers*, Article 2217.
<https://ideas.repec.org/p/zbw/ifwkwp/2217.html>
- Morris, S., Parks, B., & Gardner, A. (2020). Chinese and World Bank Lending Terms: A Systematic Comparison Across 157 Countries and 15 Years. *CGD Policy Paper 170*.
- Ndulu, B. J., & O’Connell, S. A. (2021). Africa’s Development Debts. *Journal of African Economies*, 30(Supplement_1), i33–i73. <https://doi.org/10.1093/jae/ejab021>
- Presbitero, A. F., Ghura, D., Adedeji, O. S., & Njie, L. (2016). Sovereign bonds in developing countries: Drivers of issuance and spreads. *Review of Development Finance*, 6(1), 1–15. <https://doi.org/10.1016/j.rdf.2016.05.002>
- Raffinot, M., Ferry, M., & Donnat, G. (2020). The rise in international bond issuance by low-income African countries: A shift of pattern or a fashion that already fades away? *Working Paper 2020-03, UMR DIAL LEDa*.
- Richmond, C., & Dias, D. A. (2009). Duration of Capital Market Exclusion: Stylized Facts and Determining Factors. *Available at SSRN 1027844*.
- Romero, -Barrutieta Alma Lucia, Bulir, A., & Rodriguez, -Delgado Jose Daniel. (2015). The dynamic implications of debt relief for low-income countries. *Review of Development Finance*, 5(1), 1–12. <https://doi.org/10.1016/j.rdf.2014.07.003>

Sachs, J. (1989). *Efficient debt reduction*.

[https://books.google.fr/books?hl=fr&lr=&id=FRBpZNBBm5MC&oi=fnd&pg=PA9&dq=Sachs,+J.+\(1989\).+Efficient+debt+reduction+\(No.+194\).+World+Bank+Publications.&ots=IlpNDTXJu0&sig=QVcjCpDAjYQvMaxJft6kLxon3d8&redir_esc=y#v=onepage&q&f=false](https://books.google.fr/books?hl=fr&lr=&id=FRBpZNBBm5MC&oi=fnd&pg=PA9&dq=Sachs,+J.+(1989).+Efficient+debt+reduction+(No.+194).+World+Bank+Publications.&ots=IlpNDTXJu0&sig=QVcjCpDAjYQvMaxJft6kLxon3d8&redir_esc=y#v=onepage&q&f=false)

Smith, A. F. M. (1973). A General Bayesian Linear Model. *Journal of the Royal Statistical Society: Series B (Methodological)*, 35(1), 67–75. <https://doi.org/10.1111/j.2517-6161.1973.tb00937.x>

Thacker, S. C. (1999). The High Politics of IMF Lending. *World Politics*, 52(1), 38–75. <https://doi.org/10.1017/S0043887100020025>

Trapani, L., & Urga, G. (2009). Optimal forecasting with heterogeneous panels: A Monte Carlo study. *International Journal of Forecasting*, 25(3), 567–586. <https://doi.org/10.1016/j.ijforecast.2009.02.001>

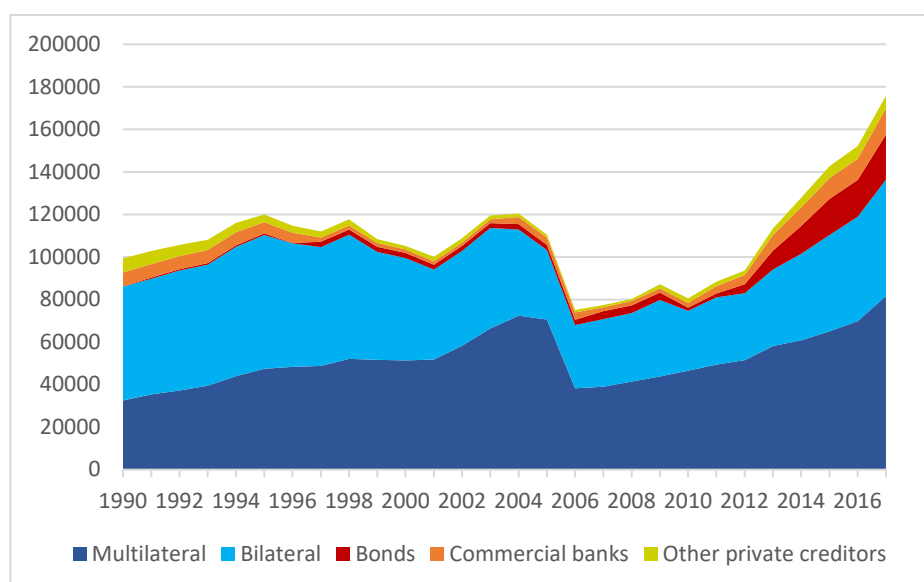
Trebesch, C., & Zabel, M. (2017). The output costs of hard and soft sovereign default. *European Economic Review*, 92, 416–432. <https://doi.org/10.1016/j.euroecorev.2016.10.004>

Tyson, J. E. (2015). Sub-Saharan Africa International Sovereign Bonds. *Overseas Development Institute*.

Velde, D. W. te. (2014, June 27). *Sovereign bonds in sub-Saharan Africa: Good for growth or ahead of time?* ODI: Think Change. <https://odi.org/en/publications/sovereign-bonds-in-sub-saharan-africa-good-for-growth-or-ahead-of-time/>

Appendix.

Figure A.1. Composition of the external public debt (in current million USD) of HIPC countries by creditors



Source: International Debt Statistics, World Bank (2020)

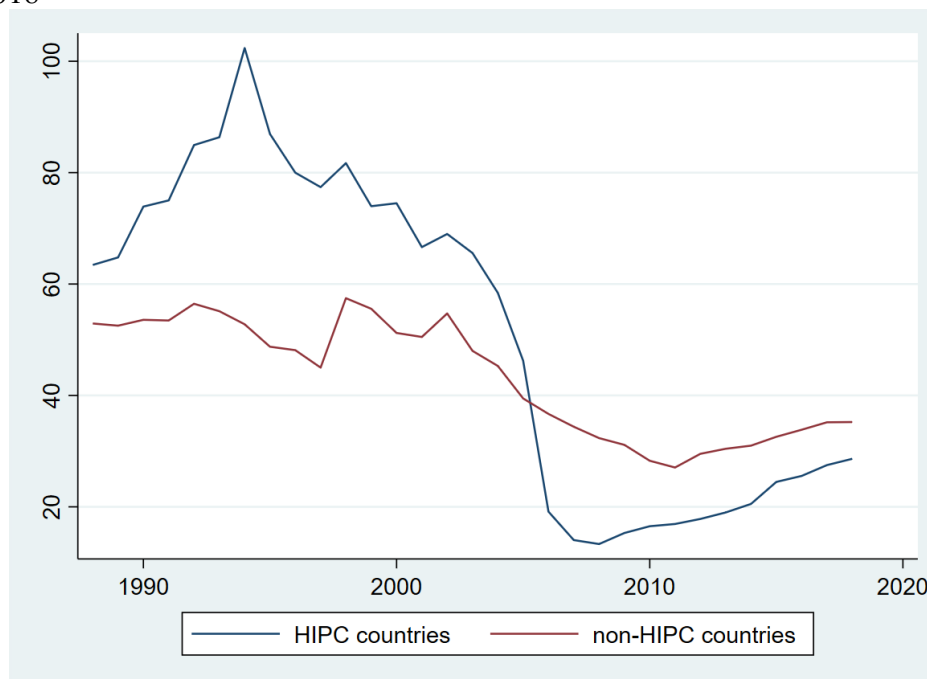
Table A.1. Heavily Indebted Poor Countries

Countries	Decision Point	Completion Point	MDRI
	Entry	Exit	
Uganda	2000	2000	2005
Tanzania	2000	2001	2005
Burkina Faso	2000	2002	2005
Benin	2000	2003	2005
Senegal	2000	2004	2005
Rwanda	2000	2005	2005
Zambia	2000	2005	2005
Guyana	2000	2003	2005
Nicaragua	2000	2004	2005
Honduras	2000	2005	2005
Mozambique	2000	2001	2005
Mauritania	2000	2002	2005
Mali	2000	2003	2005
Niger	2000	2004	2005
Madagascar	2000	2004	2005
The Gambia	2000	2007	2007
Ethiopia	2001	2004	2005
Ghana	2002	2004	2005
Sierra Leone	2002	2006	2006
Malawi	2000	2006	2006
Cameroon	2000	2006	2006
Guinea-Bissau	2000	2010	2010
Bolivia	2000	2001	2005
Chad	2001	2015	2015
Burundi	2005	2009	2009
Congo, Rep.	2006	2010	2010
Haiti	2006	2009	2009
Central African Rep.	2007	2009	2009

Liberia	2008	2010	2010
Togo	2008	2010	2010
Cote d'Ivoire	2009	2012	2012
Sao Tome & Principe	2000	2005	2005
Guinea	2000	2012	2012
Congo, Dem., Rep.	2003	2010	2010
Afghanistan	2007	2010	2010
Comoros	2010	2012	2012

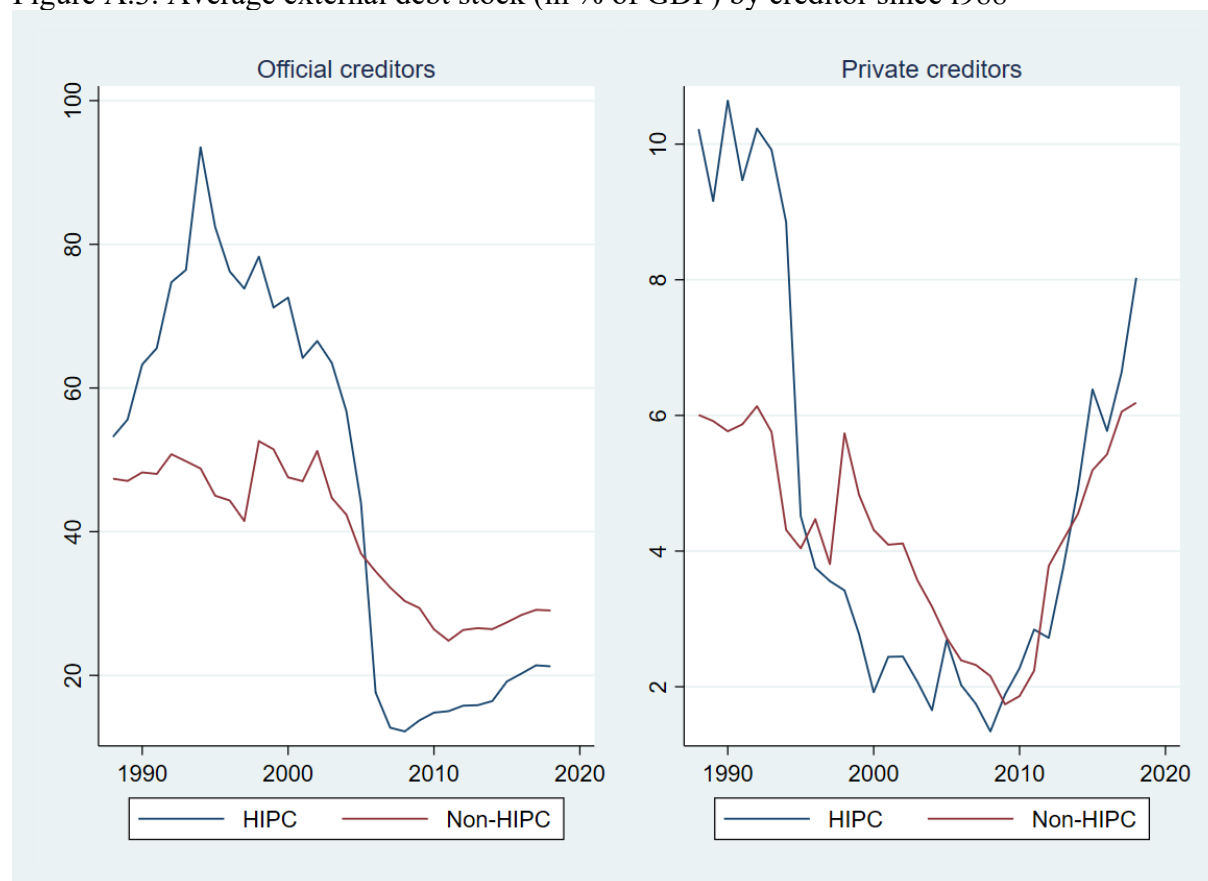
Note: Countries in bold are the HIPC countries included in the sample. Source: International Monetary Fund

Figure A.2. Average external debt stock (in % of GDP) of the countries in the sample from 1988 to 2018



Source: International Debt Statistics – World Bank (2020).

Figure A.3. Average external debt stock (in % of GDP) by creditor since 1988



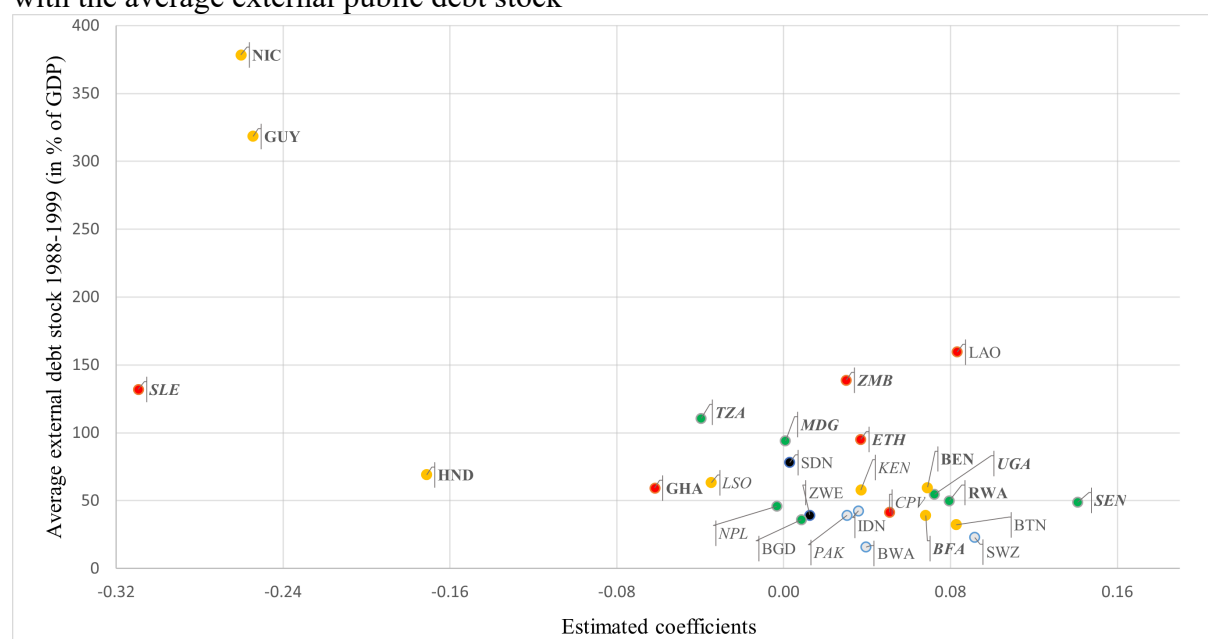
Source: International Debt Statistics, World Bank (2020); authors' calculation

Table A.2. Summary Statistics

Variable	Source	Mean		
		Full	1988-1999 (Pre-HIPC)	2007-2018 (Post-HIPC)
External Debt Stocks PPG (% of GDP)	IDS			
Total		56.0121	85.8228	26.2356
Official creditors		50.6348	76.7936	22.9157
Private creditors		5.7999	9.4675	3.6710
GDP growth (%)	WDI	4.6049	3.9495	5.1234
Grants (% of GDP)	WDI	5.8070	6.6559	3.9133
Debt Service on total ext. debt (% of GDP)	IDS	2.3537	3.7297	1.2049
Current Account Balance (% of GDP)	WDI	-5.4023	-5.8249	-6.0006
Tax revenues (% of GDP)	WDI	14.0307	13.7852	14.4265
Natural resources rents (% of GDP)	WDI	7.7155	8.5916	7.1109
Foreign Direct Investment (% of GDP)	WDI	2.5813	1.6128	3.6205

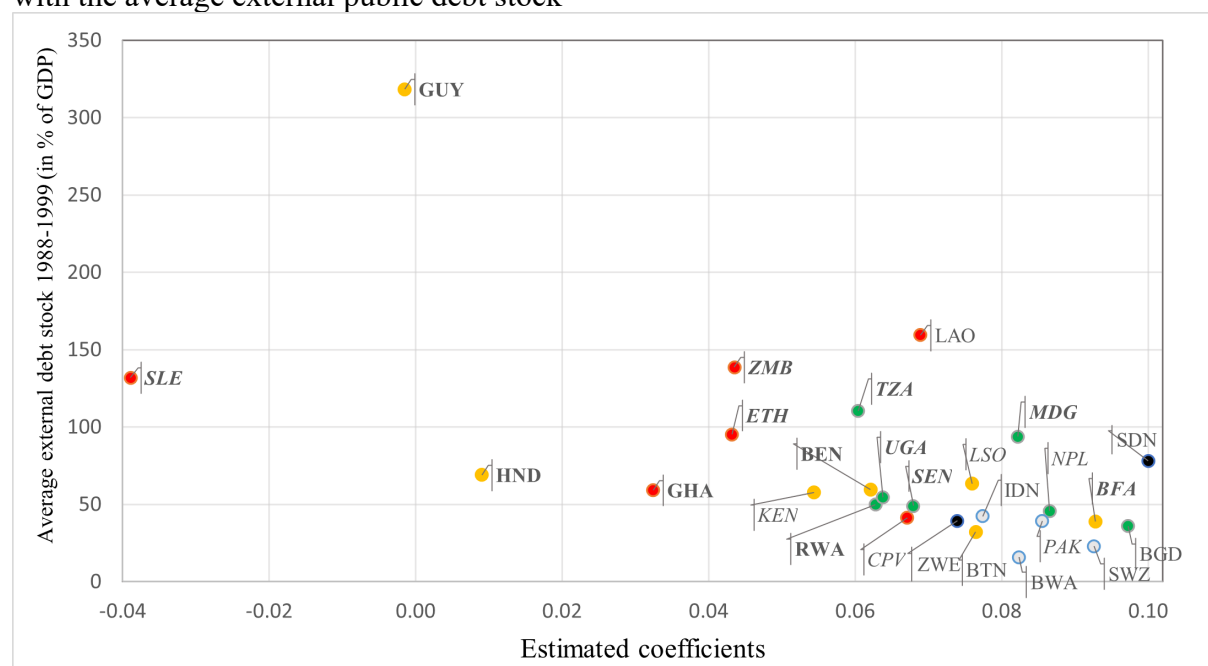
Sources: International Debt Statistics ; World Development Indicators

Figure A.4. Estimated coefficients of variable Y_{it-1} based on shrinkage estimators compared with the average external public debt stock



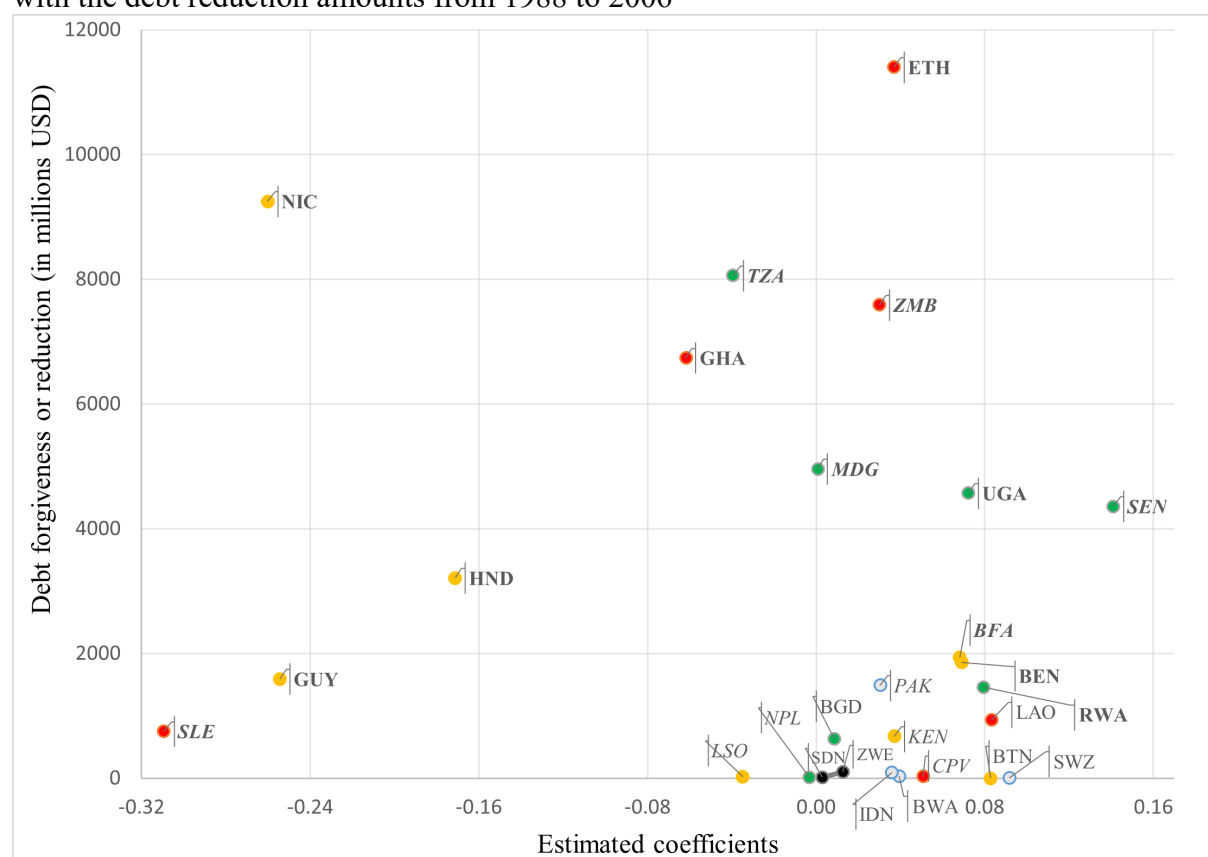
Note: The x axis shows the post-HIPC coefficients ($\hat{\alpha}_i$) associated with Y_{it-1} in Eq.1 (reported in Table S.A1. in the supplementary appendix), and the y axis shows the pre-HIPC average external public debt stock for each country. Estimated coefficients measure the relationship between the level of debt (lagged external public debt-to-GDP ratio) and the subsequent debt accumulation (change in the ratio of debt to GDP), following the HIPC initiative (post-HIPC). The points in green, yellow, red and black correspond to 2018-19 DSA risk ratings of low, moderate, high and debt distress, respectively. Countries in bold are HIPCs and those in italics are the countries that applied for the Debt Service Suspension Initiative (DSSI).

Figure A.5. Estimated coefficients of variable R_{it-1} based on shrinkage estimators compared with the average external public debt stock



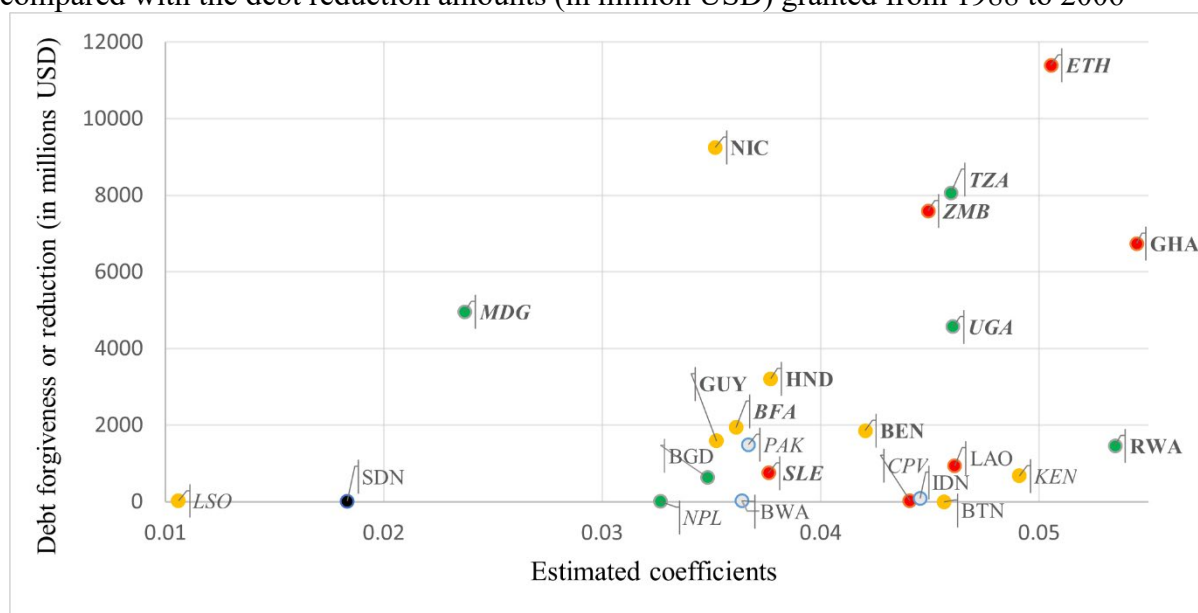
Note: The Post-HIPC coefficients ($\hat{\delta}_i$) associated with R_{it-1} , in Eq.2, are shown on the x axis and reported in Table S.A3, and the pre-HIPC average external public debt stock is shown on the y-axis. R_{it-1} represents the annual growth rate of real GDP. The points in green, yellow, red and black correspond to 2018-19 DSA risk ratings of low, moderate, high and debt distress, respectively. Countries in bold are HIPCs and those in italics are the countries that applied for the Debt Service Suspension Initiative (DSSI).

Figure A.6. Estimated coefficients of variable Y_{it-1} based on shrinkage estimators compared with the debt reduction amounts from 1988 to 2006



Note: The Post-HIPC coefficients ($\hat{\alpha}_l$) associated with Y_{it-1} , in Eq.1, are shown on the x axis and reported in Table S.A1, and the total amounts of debt forgiveness or reduction granted to the developing countries from 1988 to 2006 are shown on the y-axis. The points in green, yellow, red and black correspond to 2018-19 DSA risk ratings of low, moderate, high and debt distress, respectively. Countries in bold are HIPC and those in italics are the countries that applied for the Debt Service Suspension Initiative (DSSI).

Figure A.7. Estimated coefficients of variable TAX_1 based on Bayesian shrinkage estimates compared with the debt reduction amounts (in million USD) granted from 1988 to 2006



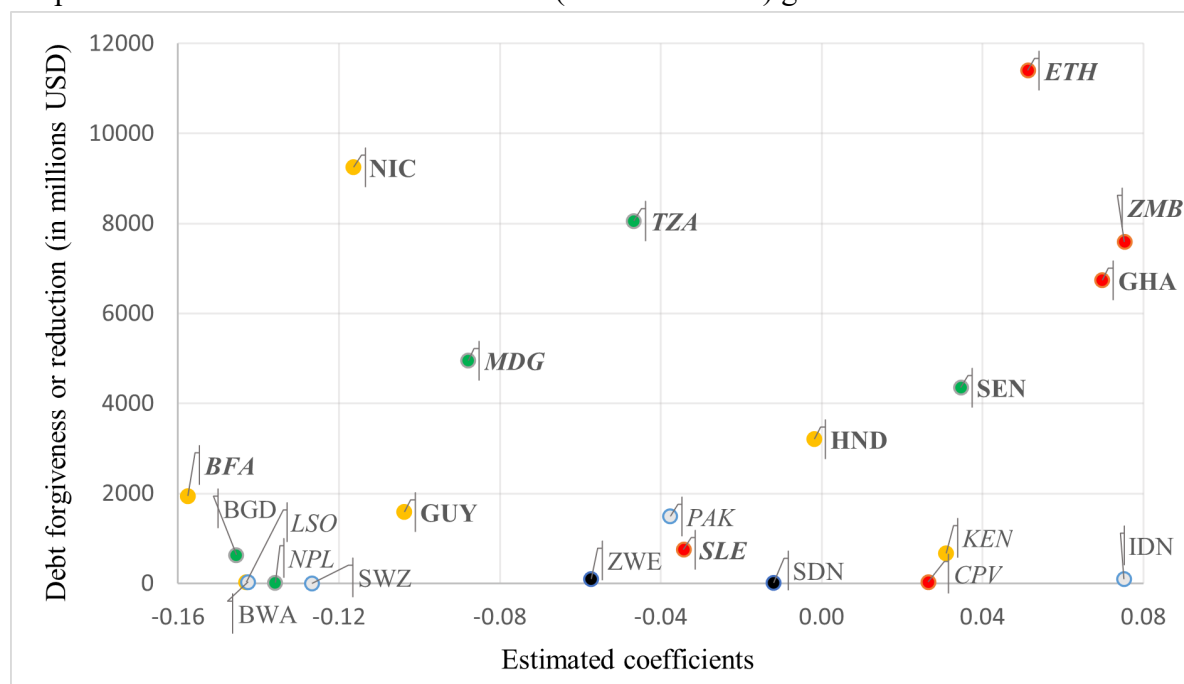
Note: The Post-HIPC estimated coefficients associated with the tax revenues variable (TAX_1) are shown on the x axis and reported in Table S.A4, and the total amounts of debt forgiveness or reduction granted to the developing countries between 1988 and 2006 are shown on the y-axis. The points in green, yellow, red and black correspond to low, moderate, high and debt distress, respectively, according to the DSA risk ratings (in 2018-19). Countries in bold are HIPCs and those in italics are the countries that applied for the Debt Service Suspension Initiative (DSSI).

Figure A.8. The external public debt composition by creditors (as a percentage of total external public debt) in 2006 and 2019



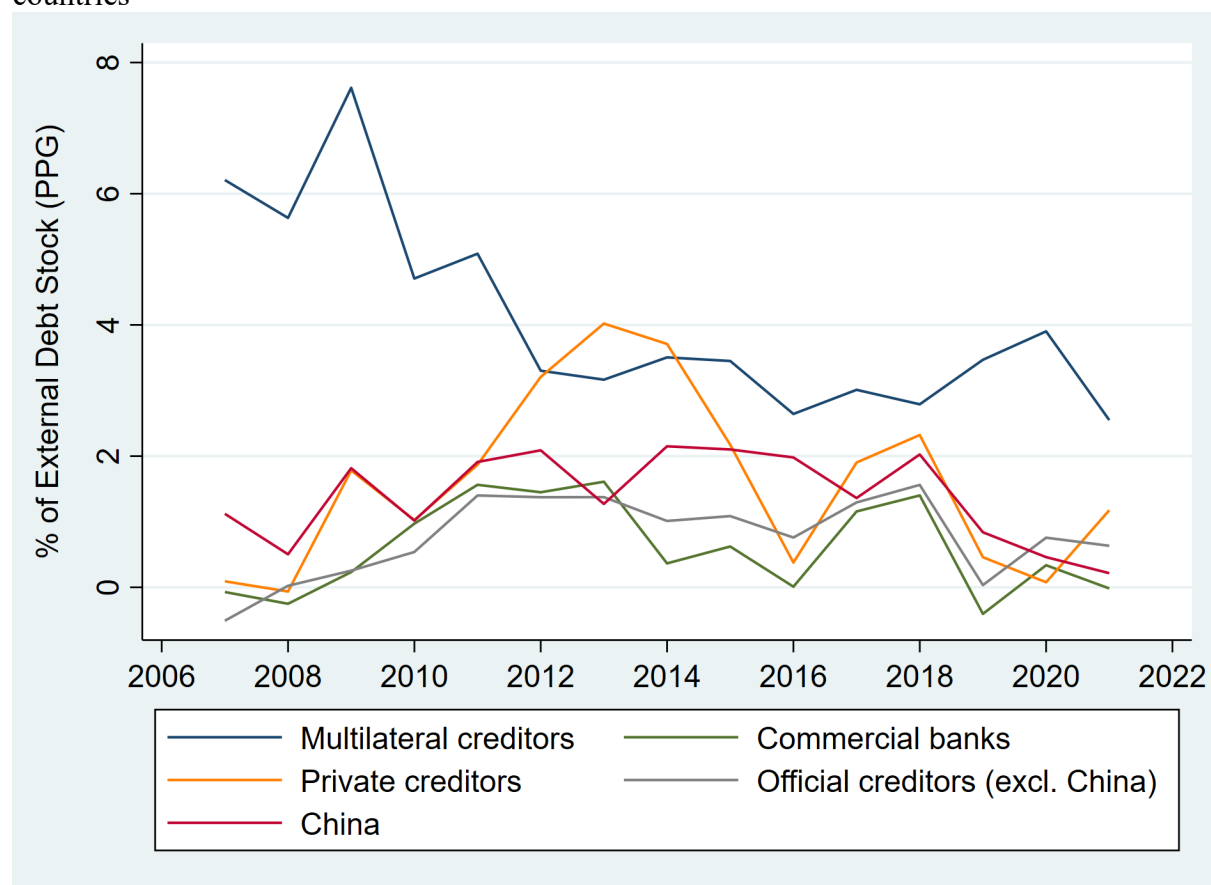
Source: International Debt Statistics (World Bank).

Figure A.9. Estimated coefficients of the variable Y_1P based on Bayesian shrinkage estimates compared with the debt reduction amounts (in million USD) granted from 1988 to 2006



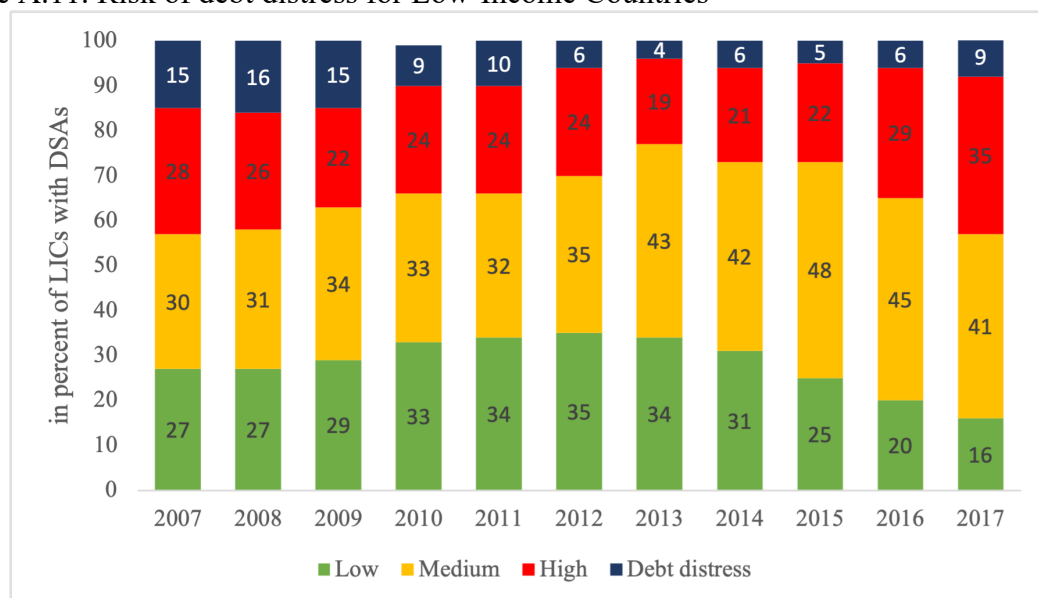
Note: Estimated Post-HIPC coefficients ($\hat{\alpha}_i$) associated with $Y Priv_{it-1}$ in Eq.15 are shown on the x axis and reported in Table S.A9., and the total amounts of debt forgiveness or reduction granted to the developing countries from 1988 to 2006 are shown on the y axis. Estimated coefficients represent the relationship between the change in and the level (lagged) of external public debt-to-GDP ratio from private creditors, post-HIPC initiative.

Figure A.10. Average net transfers following the Debt Relief initiatives in the sample of countries



Notes and source: Net transfers correspond to the difference between disbursements and repayments of principal and interest. Authors' calculation, International Debt Statistics (World Bank).

Figure A.11. Risk of debt distress for Low-Income Countries



Source: Authors' calculation; Debt Sustainability Analysis, International Monetary Fund – World Bank.

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