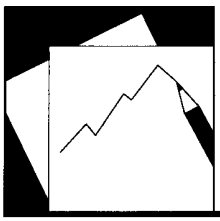
WP/14/230



IMF Working Paper

DOES LOWER DEBT BUY HIGHER GROWTH? THE IMPACT OF DEBT RELIEF INITIATIVES ON GROWTH

Sandra R. Marcelino and Ivetta Hakobyan

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Abstract

In 1996, the IMF and the World Bank introduced the Heavily Indebted Poor Countries Initiative—a comprehensive debt relief program aimed at reducing the external debt burden of eligible countries to sustainable levels, provided they carry out strong programs of macroeconomic adjustment and structural reforms designed to promote growth and reduce poverty. Now that the HIPC Initiative is nearly completed, this paper investigates whether the initiative managed to spur growth, either directly or indirectly through investment. In contrast to earlier studies, we conclude that there is some evidence of positive effects of the HIPC Initiative on growth. Such evidence suggests that the HIPC Initiative and MDRI have helped HIPC-eligible countries to reach higher growth, but it remains unclear whether this is through higher investment or another channel. Also, the analysis illustrates that it is hard to disentangle pure debt-relief effects from other concurrent factors.

JEL Classification Numbers: E22, F34, F43, O11, O19

Keywords: HIPC Initiative, Debt relief, Growth, Investment

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I. INTRODUCTION [1]

1. Several debt relief efforts to low-income countries (LICs) by the international community had been provided since the end of World War II in order to reduce the debt burden of the debtor countries and to help them to avoid "imminent default".[2] Since the debt crisis of the 1980s the focus of the debt restructuring efforts by the international financial community has changed to providing help to debtor countries in reducing their external debt burdens in order to foster growth, reduce poverty, and attain external viability.[3] While the Paris and London clubs have been providing debt relief since the 1950s and 1970s, respectively, multilateral debt relief was instituted in 1996 when the International Monetary Fund (IMF) and the World Bank jointly launched the Heavily Indebted Poor Countries (HIPC) Initiative. The goal of the HIPC Initiative was to reduce the external debt burden to eligible low-income countries to a sustainable level and to promote implementation of a comprehensive poverty reduction strategy, including key structural and social reforms and a macroeconomic framework designed to promote growth. In 1999, the HIPC Initiative was modified to Enhanced HIPC Initiative to provide faster, deeper, and wider debt relief. Simultaneously, the IMF's Enhanced Structural Adjustment Facility (ESAF) was replaced by a new Poverty Reduction and Growth Facility (PRGF) aimed at making poverty reduction efforts a key and more explicit element of a growth-oriented economic strategy. Moreover, in 2006, the Enhanced HIPC Initiative was complemented by the Multilateral Debt Relief Initiative (MDRI), under which the participating International Financial Institutions (IFIs) have been providing additional debt relief to free up more resources to help eligible countries further reduce poverty and reach the Millennium Development Goals.[4]

2. Now that the HIPC Initiative is nearly completed,[5] it is appropriate to assess if it has delivered on its objectives. Specifically, one may ask if the removal of the debt overhang via implementation of the HIPC Initiative has fostered higher growth. The objective of this paper is to answer this question by estimating both the direct impact of debt relief on growth and the indirect effects on investment from a lower debt burden. This paper updates previous studies on the impact of debt relief on growth with the most recent data on the nearly completed HIPC Initiative and MDRI (hereinafter the "Initiatives").

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[1] We express our special gratitude to Chris Geiregat, Henry Mooney, Robert Powell, and Saad Noor Quayyum for their insightful comments and suggestions and gratefully acknowledge useful comments from José Daniel Rodríguez-Delgado, Manrique Saenz, Maxwell Opoku-Afari, Andrew Berg, and Grace Bin Li. The paper also benefited from comments at the IMF, Finance Seminar.

[2] Debt Relief to Low-Income Countries: A Retrospective, Gamara et al., World Bank, *Debt Relief and Beyond: Lessons Learned and Challenges Ahead*, Part I (1), 2009, pp. 35-36.

[3] IMF Pamphlet Series No. 51 (1999) "*Debt Relief for Low-Income Countries: The Enhanced HIPC Initiative*". http://www.imf.org/external/pubs/ft/pam/pam51/contents.htm

[4] Under the MDRI, the International Monetary Fund, the International Development Association (IDA) of the World Bank, the African Development Fund (AfDF), and the Inter-American Development Bank provide 100 percent relief on eligible debt claims to a group of low-income countries. The initiative is intended to help them advance toward the United Nations' Millennium Development Goals (MDGs), which are focused on halving poverty by 2015. See The Multilateral Debt Relief Initiative, IMF Factsheet.

[5] To date, 35 countries out of 39 identified as HIPC-eligible have reached completion point and received irrevocable debt relief under the both HIPC Initiative and MDRI.

3. In contrast to earlier studies, we conclude that there is some evidence of positive effects on growth associated with debt relief and, presumably, implementation of the HIPC Initiative floating completion point triggers and the IMF-supported programs' conditionality. However, no significant results are found to substantiate the impact of debt relief on higher investment. Such evidence suggests that the Initiatives have helped eligible countries to reach higher growth, but it remains unclear whether this is through higher investment or another channel.

4. The rest of the paper is organized as follows. Section II provides an overview of theoretical aspects and empirical evidence derived from the literature review. The impact of debt relief on macroeconomic and social developments in post-completion point (CP) HIPCs is examined in Section III.[6] Section IV describes the model, analyzes the empirical findings, and discusses the robustness of the results. The conclusions are summarized in Section V. The appendix tables provide details on the sample, the variables, the summary statistics and the results of the study. Finally, the annex presents selected post-CP HIPC cases to illustrate anecdotal evidence supporting the conclusions of this paper.

II. Literature Review

5. Both the theoretical and the empirical literature on the growth effects of debt relief have so far been inconclusive. The following section outlines the main findings in the literature.

Theoretical Literature

6. The theoretical literature can be divided into three main strands: i) the debt overhang theory; ii) the crowding-out theory; and iii) the reputational effect theory.

i) **The debt overhang theory**: According to this strand, reducing the debt overhang stimulates growth through improved incentives to invest and potential new capital inflows (Krugman 1988 and Sachs 1989). Some earlier papers (among others, Elbadawi, Ndulu and Ndung'u, 1997; Pattillo, Poirson and Ricci, 2002, 2004; Clements, Bhattacharya and Nguyen, 2003) found that the debt-growth relationship follows a bell-shaped curve where, beyond a certain threshold, the impact of debt on growth becomes negative. This suggests that debt relief can reduce the debt stock below that peak threshold, which helps reinstate the incentives to invest. Based on this theory, Pattillo et al. (2002) predict that halving the debt burden of highly indebted poor countries from the levels in 2000 would raise real GDP per capita growth by about one percentage point. Moreover, they show that, in a lower debt environment, the uncertainty about the actions and policies of the government to meet its debt service obligations decreases.

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[6] The HIPC Initiative is a two-step process where eligible countries must meet certain criteria, commit to poverty reduction through policy changes and demonstrate a good track-record over time. The first step is the decision point to be considered for HIPC Initiative assistance. The Fund and Bank can provide interim debt relief after this initial stage. The second step is to reach completion point which allows the country to receive the full and irrevocable debt relief once it has met all commitments. See *Debt Relief Under the Heavily Indebted Poor Countries (HIPC) Initiative*, IMF Factsheet.

ii) **The crowding-out theory**: Under this strand, debt relief increases growth by freeing resources used for productive investments (Cohen 1993). In the case of a country with a high debt burden, debt service payments crowd out investment and thereby impede growth. Under these conditions, debt relief increases public investment and thus growth by easing the government budget constraint. Of course, resources are only freed if and only if the country was previously servicing its debt. Moreover, debt relief has to be provided in addition to aid; otherwise the debt relief will only substitute for aid and will not ease the government budget constraint (Bird and Milne 2003). At the same time, higher public investment has not always been associated with better performance on social indicators as a result of inefficiencies in allocating resources to pro-poor spending. It is therefore critical that debt relief be directed to public spending for the poor, such as primary education and preventive health care in order to reduce poverty (Gupta, Clements, Guin-Siu, and Leruth 2001).

iii) **The reputational effect theory**: This third strand of the literature argues that debt relief does not enhance growth or trigger higher investment because of the impact of debt relief on a country's reputation in international financial markets and the uncertainty about future debt service payments. A debtor's reputation will be negatively affected by debt relief as it confirms an unsustainable debt burden (Bulow and Rogoff 1989). In fact, as the debt burden of HIPCs consists mainly of official and concessional debt, Bird and Milne (2003) show that debt relief would only have a minimal impact on net resource transfers. A growth-enhancing effect is therefore muted. Debt relief can also increase the uncertainty related to the government's ability to meet its debt service obligations in the future which dampens investment efforts in the country (Servén 1997). Moreover, Arslanalp and Henry (2004) argue that the investment channel, which plays a central role in the debt overhang theory, is absent in low-income countries. Hence, without a private sector with potential investment projects, it is unlikely that debt relief will stimulate capital inflows, investment, and growth in HIPCs.

7. Overall, these contrasting theories suggest that debt relief or increased government spending does not necessarily lead to growth in low-income countries. In fact, Romero-Barrutieta, Bulíř and Rodríguez-Delgado (2011) argue that the currently designed debt-relief mechanisms would distort low-income countries decisions by encouraging them to carry larger debt, consume more, and invest less than what they would have chosen in the absence of debt relief. Thus it is clear that the Initiatives could have significant effect on growth only if HIPCs are able to increase investment, reorient the freed resources to pro-poor spending, carry out needed structural reforms, and achieve external debt sustainability over the long term (Burnside and Fanizza 2004). In addition, debt sustainability may be achieved only if sound macroeconomic policies, improved institutional capacity, and better governance are achieved.

Empirical Evidence

8. Since the global economic crisis of 2008-09, there has been resurgence in the literature on the debt-growth relationship in advanced and emerging economies. However, few empirical studies explicitly assess the growth effects of debt relief in low-income countries and, to our knowledge, none of them finds clear evidence that a reduction in the debt stock through debt relief raises growth or investment (Depetris and Kraay 2005, Hepp 2005, Johansson 2007 and Presbitero 2008). Depetris and Kraay (2005) conclude that the lack of a positive impact of debt relief on growth is the result of the small value of debt relief compared with other forms of development aid or measures to increase domestic revenues. Presbitero (2008) concludes that debt relief could trigger economic growth exclusively in countries with sound economic and political institutions. Moreover, Bandiera, Cuaresma and Vincelette (2009) found that decreases in the overall debt level is associated with higher growth only for non-fragile post-CP HIPCs, as this subgroup is more responsive to improvements in health, investment, and exports.

9. Recent studies have also shown evidence of a nonlinear effect of external debt on growth. Kumar and Woo (2010) find a negative correlation between initial government debt and subsequent growth of real GDP per capita for a panel of advanced and emerging economies. According to this study, a 10 percentage point increase in the initial debt-to-GDP ratio is associated on average with a subsequent slowdown in per capita GDP growth of 0.25 percentage point, with only high (above 90 percent of GDP) levels of debt having a significant effect. However, so far we are not aware of any study that has found the same nonlinear effect in low-income countries.

III. The Impact of Debt Relief

10. This section describes the progress made under the Initiatives since 1996 and compares the main macroeconomic indicators between post-CP HIPC and non-HIPC LICs. It shows that the Initiatives have been successful in lowering debt burdens, reducing the risk of debt distress, and increasing poverty-reducing expenditures in recipient countries. A comparative analysis shows improved economic performance and positive developments in institutional quality for post-CP HIPCs. Nevertheless, for the latter group challenges remain to preserve debt sustainability through improved debt management capacity and higher quality of public investment as measured by the Public Investment Management Index (PIMI).[7]

Progress under the Initiatives

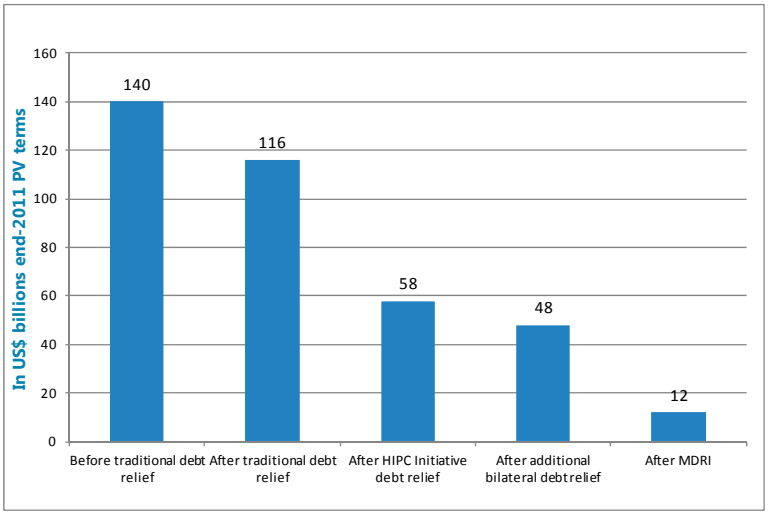
11. Substantial progress has been made toward completing the Initiatives. As evidenced by the regular reporting of progress under the HIPC Initiative and MDRI over the last two decades, the Initiatives have broadly achieved the objectives to lower the debt burdens and to reduce the

[7] *Investing in Public Investment: An Index of Public Investment Efficiency*, Dabla-Norris et al., IMF Working Paper 11/37, February 1, 2011. http://www.imf.org/external/pubs/cat/longres.aspx?sk=24651.0

debt-service payments in HIPC-eligible countries while increasing poverty-reducing expenditures.[8]

- **Reduced debt burden and risk of debt distress**: Debt relief provided under the Initiatives has considerably alleviated debt burdens in post-CP HIPCs. Overall, assistance to these 35 countries amounted to US$126 billion in nominal terms, representing on average 47 percent of 2012 nominal GDP of post-CP HIPCs. The external debt stock has been reduced by an average 90 percent of the pre-HIPC levels (Figure 1). The Initiatives have also significantly reduced the risk of future debt distress.[9] No post-CP HIPCs is currently assessed to be in debt distress, 17 percent of them are at high risk of debt distress, and 83 percent are either facing low or moderate risk of debt distress. In fact, the number of post-CP HIPCs classified as having low risk of debt distress almost tripled between 2006 and 2012 (from 5 countries in 2006 to 13 countries in 2012). In addition, the number of countries at high risk of debt distress fell during the same period from 17 to 8 (Figure 2).

Figure 1. Post-Completion Point Heavily Indebted Poor Countries: Debt Stock After Debt Relief

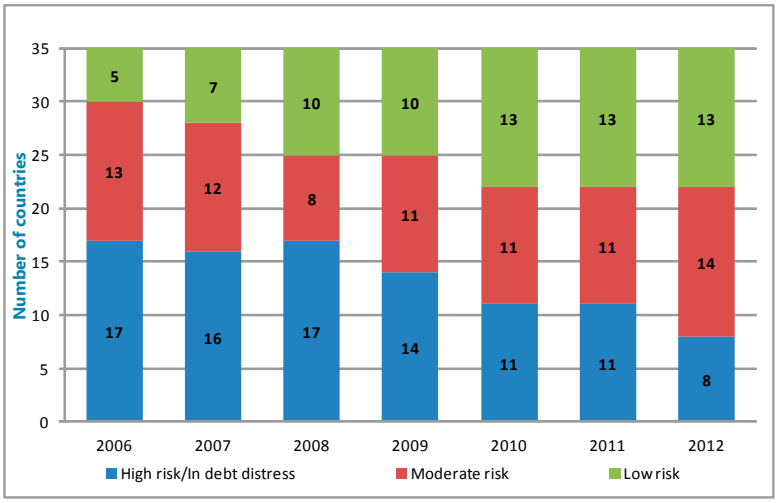


Source: *Update on the HIPC/MDRI Initiatives*, Multilateral Development Banks (MDB) on Debt Issues, July 11 & 12, 2013, http://siteresources.worldbank.org/INTDEBTDEPT/Resources/468980-1208804666078/4918561-1373297266264/MDB2013_02_Merotto.pdf

[8] IMF and IDA staffs have closely monitored progress under the HIPC Initiative since its inception through regular reports. See *Heavily Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI) – Status of Implementation*, November 8, 2011, IMF Policy Paper; and *Heavily Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI) – Statistical Update*, December 19, 2013, IMF Policy Paper.

[9] As measured by the risk of debt distress under the low-income country debt sustainability framework, see *Review of Facilities for Low-Income Countries - Proposals for Implementation*, March 18, 2013, IMF Policy Paper; and The Joint World Bank–IMF Debt Sustainability Framework for Low-Income Countries, IMF Factsheet.

Figure 2. Post-Completion Point Heavily Indebted Poor Countries: Risk of Debt Distress, 2006-12



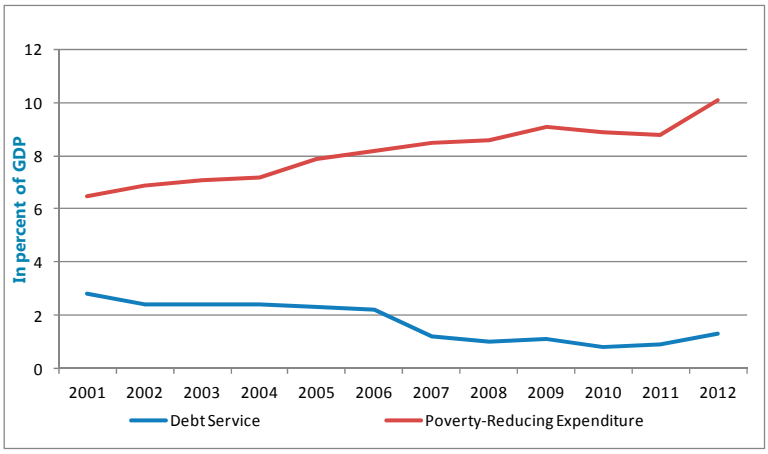
Source: *Update on the HIPC/MDRI Initiatives,* Multilateral Development Banks (MDB) on Debt Issues, July 11 & 12, 2013, http://siteresources.worldbank.org/INTDEBTDEPT/Resources/468980-1208804666078/4918561-1373297266264/MDB2013_02_Merotto.pdf

- **Debt service relief and poverty-reducing expenditures:** Debt relief under the Initiatives also seems to have enabled recipient countries to increase their poverty-reducing expenditures. From 2001 to 2012, poverty-reducing expenditures by HIPCs increased by more than 50 percent on average, while debt service payments declined by a similar amount (Figure 3). This suggests that the resources freed by the Initiatives were mostly used for poverty–reducing expenditures, primarily on education and health. The poverty-reducing expenditure was also enforced by a linkage of the Poverty Reduction and Growth Trust (PRGT) arrangements to Poverty Reduction Strategy (PRS) documents and program implementation.[10] The IMF staff research on social spending in IMF-supported programs evidenced a positive and significant effect of the latter on governments' spending for education and health in low-income program countries: both as a share of GDP—increase by about 0.8 and 1 percentage points, respectively—and as a share of government spending.[11]

[10] See *Review of Facilities for Low-Income Countries—Proposals for Implementation*, IMF Policy Paper, March 15, 2013.

[11] See *What Happens to Social Spending in IMF-Supported Programs?*, B. Clements, S. Gupta, and M. Nozaki, IMF Staff Discussion Note, August 31, 2011

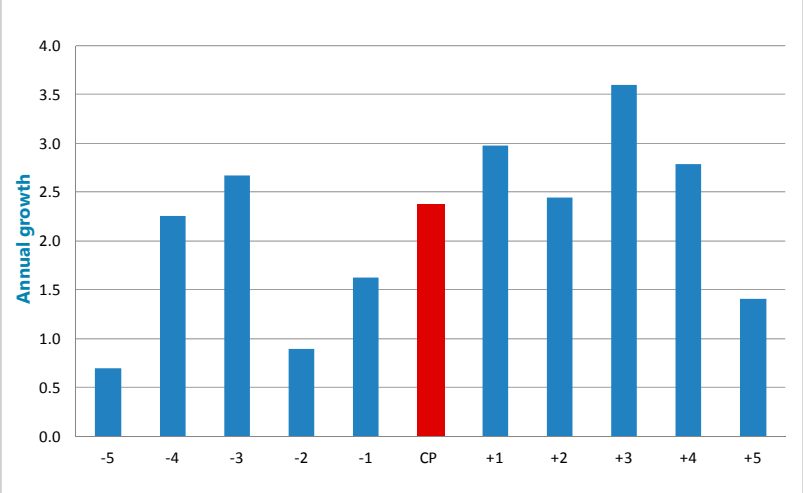
Figure 3. Heavily Indebted Poor Countries: Average Poverty Reducing Expenditure and Debt Service, 2001-12 1/



Source: *Heavily Indebted Poor Ccountries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI) - Statistical Update,* IMF and World Bank, December 2013, http://www.imf.org/external/np/pp/eng/2013/121913.pdf
1/ Data refer to 36 post-decision point HIPCs.

12. An alternative way to assess the effect of debt relief on growth is to compare real GDP-per-capita growth, averaged across countries, for the period of five years before and after the year of completion point. In Figure 4, the average growth at completion point—after a full delivery of irrevocable debt relief under the HIPC Initiative and MDRI—reached 2.4 percent and remained above the completion point level during the next four years. The average five-year growth after completion point is calculated at 2.6 percent, resulting to 1 percentage point increase compared to the average five-year growth before completion point.

Figure 4. Real GDP-per-Capita Growth



Post-CP HIPCs vs. non-HIPC LICs: A Comparative Analysis

13. Next we consider whether there was a noticeable change in the broad macroeconomic performance of LICs that benefited from debt relief (Figure 5). To allow for the time needed to see the effects of sound macro-policies and debt strategies, we considered 21 countries that

reached completion point under the HIPC Initiative by end-2006. The short time frame after 2006 made it inappropriate to consider the remaining 14 countries that reached the completion point after that date. The choice of 2006 as the dividing line between the two groups is also motivated by the fact that considerable debt relief was provided that year through MDRI to the first 21 countries, which further eased their debt burden. However, it is worth considering that the countries that reached completion point by end-2006 were (i) the strongest performers with respect to the established institutional capacity and policy frameworks, (ii) the least affected by conflicts, and (iii) with lower starting levels of debt than those that reached completion point after 2006.[12] Accordingly, the comparative analysis of this group of post-CP HIPCs with the non-HIPC LICs could have combined effect of debt relief under the Initiatives and existing economic and political preconditions.[13]

14. Figure 5 shows the economic performance of 21 post-CP HIPCs from 1996 to 2011, in comparison to non-HIPC LICs. The following key indicators are worth mentioning:

- **Real GDP per capita growth** for post-CP HIPCs increased from an average 1.9 percent between 1996 and 2005 to an average 2.6 percent in 2006-11, following the substantial decline of their stock-of-debt in percent of GDP after 2006. This represents a 0.7 percentage point increase, which is only 0.2 percentage point less than increase of the average growth of GDP per capita of non-HIPC LICs over the same period, from 2.3 percent to 3.3 percent. This suggests that, albeit the observation of in general higher average real GDP per capita growth in non-HIPC LICs than in post-CP HIPCs throughout the whole period between 1996 and 2011, debt relief may have contributed to higher real GDP per capita growth for the group of LICs that benefited from it.

- **External PPG debt** in percent of GDP fell in average by 37 percentage points for post-CP HIPCs from end-2005 to end-2011 owing mainly to the additional debt relief received under the MDRI. During the same period, the average debt stock of non-HIPC LICs (also in percent of GDP) decreased by 11 percentage points. In 2006, the average debt stock of post-CP HIPCs dropped 13 percentage points below the level of average debt stock of non-HIPC LICs. The difference between two compared debt stocks reached a peak of 16 percentage points in 2007, before slowly narrowing to 8 percentage points in 2011. The latter could be explained by reduced external borrowing activities of non-HIPC LICs after the 2008-09 global crisis compared to their domestic borrowing, while post-CP HIPCs continued borrowing on concessional and, to a lesser-extent, on non-concessional terms.

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[12] See *Heavily Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI)—Status of Implementation*, September 12, 2008, IMF Policy Paper, page 21 and Figures 3 and 4. http://www.imf.org/external/pp/longres.aspx?id=4278

[13] Appendix Figure 1 shows the interim period from the decision point to the completion point for all 35 post-CP HIPCs, and a red line drawn at end-2006 provides the split of countries into two groups, as described in this paragraph.

- **Government expenditure** in percent of GDP in post-CP HIPCs increased from an average of 12 percent in 1996-2005 to an average of 14 percent in 2006-11, while government expenditure for non-HIPC LICs decreased from an average of 17 percent of GDP to an average of 14 percent of GDP for the same period. This could be the result of freed up resources for post-CP HIPCs due to debt relief allowing for higher poverty-reducing expenditure; whereas, non-HIPC LICs could have tighter fiscal policies due to the 2008-09 global crisis.

- **Gross capital formation** as a share of GDP, which captures the volume of both domestic and foreign investment, increased for post-CP HIPCs from an average of 19 percent between 1996 and 2005 to an average of 26 in 2006-11. Over the same period, the average gross capital formation of non-HIPC LICs increased from 23 percent of GDP to 27 percent of GDP. Slightly higher increase in the volume of investment in low-income countries that benefited from debt relief under the Initiatives could possibly be explained by an inflow of donors' money (and perhaps foreign investments to post-HIPC resource-rich countries) owing to a catalytic effect of Fund-supported programs and the significant reduction of outstanding debt-stocks.

- **Inflation** indices data indicate similar trends in both post-CP HIPCs and non-HIPC LICs: CPI increases from an average of 78 and 76, respectively, in 1996-2005 to an average of 133 and 134 in 2006-11. These inflation dynamics could be a reflection of the influence of similar external and monetary policy conditions across low-income countries.

- **The budget balance** fluctuations averages in percent of GDP in the compared periods of time (1996-2005 and 2006-11) did not show major differences between the two groups of countries. The positive balance for post-CP HIPCs in 2006 was due to the considerable debt relief provided at that time through MDRI.

- **The current account deficit** as a share of GDP of post-CP HIPCs on average remained higher than that of non-HIPC LICs. The average current account deficit in 1996-2005 for post-CP HIPCs was 7 percent of GDP compared to 5 percent of GDP for non-HIPC LICs over the same period. Similarly, in 2006-2011, the post-CP HIPCs' average current account deficit in percent of GDP was 8 percent compared to 7 percent for non-HIPC LICs.

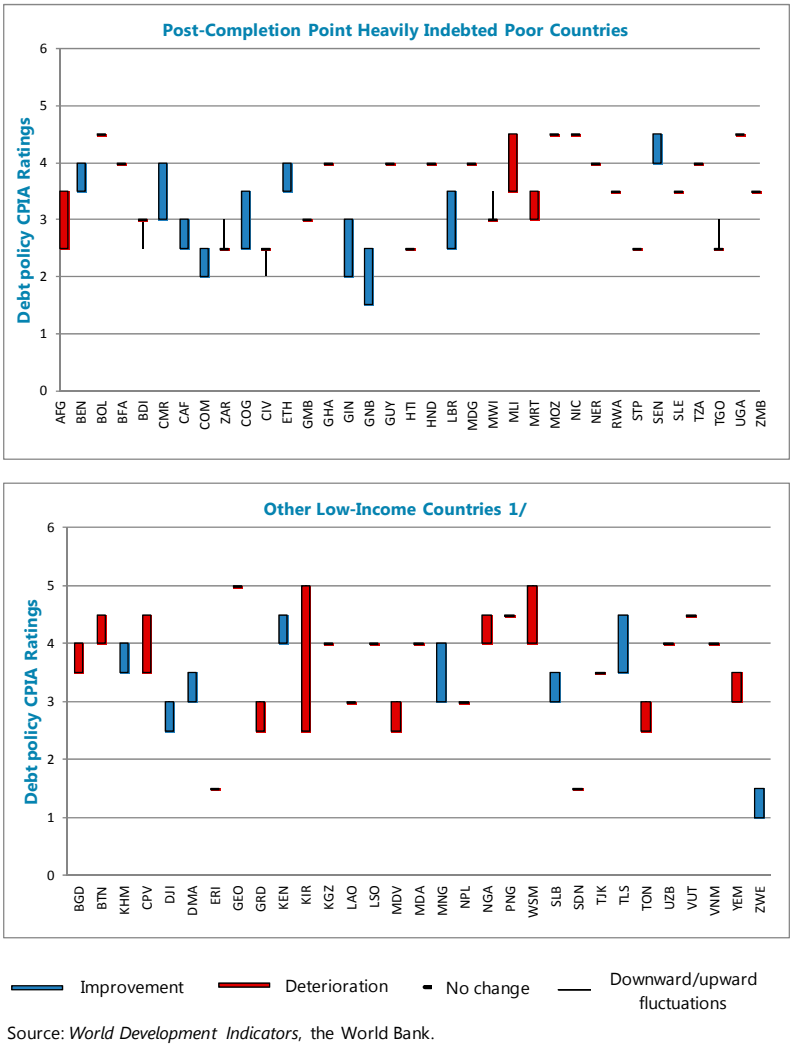
- **Reserves** in months of next-year imports, based on average data for 1996-2005 and 2006-11, did not indicate major differences between two groups of countries, either. In 2009-11, reserves in months of next-year imports for post-CP HIPCs were higher by 0.6 points on average compared with non-HIPC LICs. One of possible explanations could yet be debt relief that has enabled these countries to build the necessary buffers to sustain shocks that could affect their economic stability.

Figure 5. Selected Macroeconomic Indicators, 1996-2011

Source: *World Development Indicators*, the World Bank; and *World Economic Outlook*, IMF.
1/ Excludes Zimbabwe from Low-Income Countries due to outlier data.
2/ Covers Heavily Indebted Poor Countries that reached completion point by end-2006.

15. For the comparative analysis of post-CP HIPCs' and non-HIPC LICs' policy and institutional framework, we consider the group of all 35 post-CP HIPCs. According to the World Bank's Country Policy and Institutional Assessment (CPIA) ratings, the policy and institutional framework improved faster in post-CP HIPCs compared with non-HIPC LICs. Indeed, the scores have improved from 2009 to 2011 for 57 percent of post-CP HIPCs compared with improvement in 47 percent of non-HIPC LICs. More specifically, the rating of the debt policy CPIA, which is one of the sub-components of overall CPIA ratings and is measured as a combination of debt sustainability and debt management, improved for 10 countries out of the 35 (28.6 percent) post-CP HIPCs compared with 7 countries out of 37 (18.9 percent) non-HIPC LICs from 2009 to 2012. Over the same period, only 3 (8.6 percent) post-CP HIPCs registered deterioration in their debt policy CPIA ratings against 10 (27 percent) non-HIPC LICs (Figure 6). These data suggest positive development and implementation of sound debt management strategies in post-CP HIPCs and could be attributed to the fact that the CPIA criteria were reflected in both the floating CP triggers and the underlying Fund-supported programs' conditionality.

Figure 6. Debt Policy Development Between 2009 and 2012



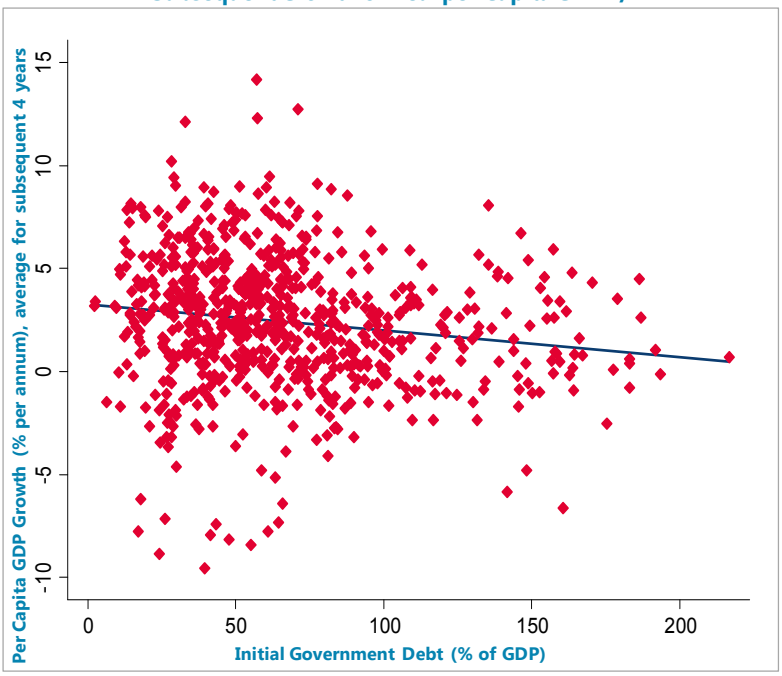
Source: *World Development Indicators*, the World Bank.
1/ Excludes Marshall Islands, Micronesia, Myanmar, Somalia, and Tuvalu, for which data were not available.

Remaining Challenges for Debt Sustainability for post-CP HIPCs

16. Notwithstanding the success of the Initiatives, ongoing challenges for post-CP HIPCs remain, including preserving debt sustainability—achieved by debt relief under the Initiatives via a concerted effort of all creditors—while allowing access to adequate external financing and improving debt management capacity to foster economic growth. (See also *Annex. Selected Post-Completion Point HIPCs: Country Profiles*)

17. First, post-CP HIPCs still face a trade-off between higher debt and lower economic growth, just like in advanced and emerging markets. Following the approach of Kumar and Woo (2010), we also find a negative relationship between the initial external debt and subsequent growth of real GDP per capita based on our panel of 72 HIPCs and LICs for the period 1996 to 2011 (Figure 7). According to the regression in the figure, a 10 percentage point increase in initial debt-to-GDP ratio is associated with a subsequent slowdown in per capita GDP growth of 0.13 percentage points for LICs with an initial government debt to GDP ratio of less than 250 percent. The magnitude of the impact is about half of that estimated by Kumar and Woo (2010) for advanced and emerging economies, but still significant.

Figure 7. Low-Income Countries: Initial Government Debt and Subsequent Growth of Real per Capita GDP 1/



Source: *World Development Indicators*, the World Bank.
1/ Low-income countries with an initial government debt lower than 250% of GDP.
Fitted line: Growth=3.27-0.013*Initial debt, where the initial debt coefficient is significant at 1%.

18. Second, to meet large infrastructure needs in an era when concessional sources of financing may be constrained (perhaps due to tight donor budgets), LICs may decide to resort more to nonconcessional borrowing. To the extent that much borrowing has not been well-vetted, it may jeopardize hard-won gains to debt sustainability.

19. Third, post-CP HIPCs may need to develop their public management institutions to improve the quality of their public expenditure. In general, post-CP HIPCs have relatively weak public investment management processes, as measured by the Public Investment Management Index (PIMI) (Dabla-Norris et al 2011).[14] For example, Table 1 illustrates the overall scores for four sub-groups of countries (country-by-country scores are available in ibidem, Table 1a). Not surprisingly, the weakest performers are largely low-income countries, with a mean overall index score of 1.49. However, dividing the latter group between HIPCs and non-HIPC LICs reveals that HIPCs in the sample generally score slightly better than non-HIPC LICs. Although, HIPCs scores are still well below those of middle-income countries.

Table 1. PIMI Overall Index by Sub-Groups

Sample	Number of countries	Mean	Standard deviation
Developing countries	71	1.68	0.66
Low-income countries	40	1.49	0.51
HIPCs	26	1.51	0.53
non-HIPC LICs	14	1.47	0.49

1/ includes 31 middle-income countries and 40 low-income countries.

Source: Dabla-Norris et al. (2011), Investing in Public Investment: An Index of Public Investment Efficiency, IMF Working Paper 11/37.

20. Dabla-Norris et al. (2011) suggest that assessing the quality and efficiency of public investment will help capture the specific weaknesses that contribute to poor outcomes and will guide appropriate institutional and technical processes to achieve higher sustainable growth. This highlights the importance of going beyond discussions of spending levels and addressing issues of the broad institutional framework underpinning the provision of investment. Hence, well-designed institutions for managing public investment need to be complemented with other pertinent economic and political institutions in order to produce higher growth dividends.

IV. Empirical Analysis

Data and Model Specification

21. In line with earlier studies, our empirical analysis estimates the effect of debt relief on growth using both a growth model and an investment model (Barro 1999, Borensztein et al. 1998, Hansen and Tarp 2001). The growth model follows the basic empirical set-up in Barro (1991), augmented by debt and aid variables. One of the implications of the theoretical model is conditional convergence, which means that poor economies tend to catch up with rich ones. This is captured by including real GDP per capita the year prior to the beginning of each four-year

[14] The efficiency of the public investment process is proxied by constructing indices that aggregate indicators across four key stages of the investment process (appraisal, selection, implementation, and evaluation) to reflect institutional arrangements that can d2eliver the required growth benefits of scaled-up investment. In particular, the PIMI seeks to identify the institutional features that minimize major risks and provide an effective process for managing public investments.

period so as to avoid cyclical fluctuations (see below). We also extended the growth model by adding the following proxies for the role of government policies and institutions: inflation as a measure of the effectiveness of monetary policy; the government primary balance as a measure of fiscal policy; trade openness (exports plus imports as a share of GDP) to capture the trade policy environment; and the CPIA score as an indicator of institutional capacity. [15] The impact of external shocks is measured by the global growth rate and the commodity price index variables.

22. To estimate the effects of debt relief on growth and investment, we use a HIPC CP dummy variable as an indicator for the occurrence of debt relief, which provides for some explanation on the signaling factors, such as improved macroeconomic policies and institutional capacity to manage debt, maintain the debt at sustainable level, and in turn spur economic growth as emphasized in both the debt overhang literature and the crowding-out theory. In addition to the HIPC CP dummy variable as the proxy for debt relief, the initial present value of public external debt stock is included in the regressions to capture the effects of a high debt burden on growth and investment (Johansson 2007, Kumar and Woo 2010).[16] Finally, following the aid literature, potential diminishing returns of debt relief are assessed by including aid squared as a variable.

23. The specification of the investment model is the same as of the growth model, with the exception of the dependent variable. The growth model is used to estimate the impact of HIPC debt relief on economic growth and uses average real GDP per capita growth as the dependent variable. The investment model instead provides an assessment of the effect of debt relief on the volume of investment, thus the gross capital formation as a share of GDP is the dependent variable.

24. The sample period covers annual observations from 1996 to 2011. The main data sources are the World Bank World Development Indicators (WDI) and the IMF World Economic Outlook (WEO). The entire sample consists of 72 countries: 35 post-CP HIPCs, one pre-CP HIPC, and 36 non-HIPC LICs (Appendix Table 1). To avoid short run cyclical movements, the sample is divided into four-year-periods, a technique widely used in the aid effectiveness literature. The sub-periods are 1996-99, 2000-03, 2004-07, and 2008-11.

25. The growth and investment models, where countries are indexed by i and time by t, can be formulated as:

$$Y_{i,t} = \emptyset HIPC_{i,t} + Z_{i,t}\beta + \alpha X_{i,t} + \epsilon_{i,t} \qquad (1)$$

where, $Y_{i,t}$ is the dependent variable of interest (the growth rate or investment);
$\emptyset$ is the coefficient that measures the effect of debt relief on the level of growth or investment;

[15] In addition, a number of interacted terms between aid and the main variable of interest–HIPC CP, aid*policy, and HIPC CP*policy were tested in the regressions for potential endogeneity of the variables, but the results were not significant and therefore were left out from the specifications.

[16] When substituting initial debt stock for a lagged debt stock variable, the results were broadly unchanged and were not significant. The initial debt stock variable instead appeared to be somewhat significant for the non-HIPC LICs.

$HIPC_{i,t}$ is a dummy variable identifying countries that benefitted from debt relief, with the value of zero prior to CP and the value of one for the entire post-CP period;
$Z_{i,t}$ represents a vector of control variables (global growth rates, macroeconomic variables, and institutional capacity);
$X_{i,t}$ is the set of explanatory variables and potential transmission channels through which debt relief help foster economic growth or investment (see Appendix Table 2 for a detailed list of variables and their description); and
$\epsilon_{i,t}$ is a random error term.

26. Following the growth literature, we use Blundell and Bond (1998) System-Generalized Method of Moments (GMM) estimator developed for dynamic models of panel data, which addresses the potential endogeneity of the variables and also takes care of country fixed effects. This estimation method is preferred over the Difference-GMM estimator, since in this study the time dimension is not rich enough to provide for highly-relevant instruments.[17] The System-GMM method involves the joint estimation of equation (1) in levels and first differences, with first differences instrumented by lagged levels of the dependent and explanatory variables and levels instrumented by first differences of the regressors. First-differencing the equation removes the unobserved individual-level effects, thus eliminating a potential source of omitted variable bias in estimation. In the regression analysis, the HIPC dummy is treated as exogenous as it refers to a period indicator which enables to differentiate the estimates post-CP. All other variables are defined as predetermined or endogenous and therefore instrumented by at least one lag of the variable.

27. The regression results reported below cover different country groups and different specifications to ascertain that the impact of debt relief is specific to post-CP HIPCs. The regressions are estimated for three country groups: 1) the complete sample comprising 72 LICs; 2) all 35 post-CP HIPCs; and 3) 36 non-HIPC LICs. They are also estimated under three different specifications: 1) a baseline model as specified above (columns [1], [4] and [7]), 2) the baseline model substituting the inflation for commodity prices to avoid multicollinearity while testing for the effect of world commodity prices on growth and investment for LICs (columns [2], [5] and [8]), and 3) a reduced-form model to improve the degree of freedom by increasing the number of countries while decreasing the number of instruments. The reduced-form model is also meant to focus on the impact of Initiatives on growth and investment by excluding from these estimations macroeconomic variables which are considered possible transmission channels for the longer-term effect of the Initiatives (columns [3], [6] and [9]).

Regressions Results

28. The results of the growth regression partly support the hypothesis that HIPC debt relief has a positive growth effect. However, there is no statistically-significant evidence that debt

[17] An alternative estimator is the Difference-GMM estimator (Arellano and Bond 1991). However, in the context of estimation of empirical growth models, the System-GMM estimator is preferred when the time dimension is not rich enough (Bond et. al. 2001).

relief has an effect through increased investment, although the sign is positive under all specifications and country groupings.

29. The Arellano-Bond test for autocorrelation, the Hansen J test, and the Sargan test for over-identifying restrictions shown at the bottom of the tables support the validity of the model. In particular, the Hansen J and Sargan tests are sensitive to the number of instruments and tend to improve in the reduced form model as the number of countries increases and the number of instruments is reduced.

Growth Regressions (See Appendix Table 5)

30. From the growth regressions the following three main impacts on real per capita GDP growth can be highlighted: i) a positive effect of debt relief (as proxied by *HIPC CP*) on growth for the subgroup of 35 post-CP HIPCs; ii) a positive, robust, and statistically significant effect of *investment* on growth in all country groupings and specifications, and iii) a positive and statistically significant effect of *institutional capacity* on growth, although not robust to alternative groups or specifications.

i) The growth regressions suggest a positive effect of the *HIPC CP* on real per capita GDP growth for the complete sample of 72 LICs and the post-CP HIPCs subsample in both specifications. Furthermore, this result is statistically significant under the reduced model for the post-CP HIPCs subsample when control variables are excluded. These results suggest that debt relief has a positive impact on growth[18], although—as noted above—it is hard to isolate a pure debt-relief effect from other concurrent influences.

ii) The coefficient on *investment* is robust and significant, independently of the subgroup and specification. This result reconfirms that the ratio of investment to GDP is a significant determinant of real per capita GDP growth, as postulated in the standard empirical growth literature. Although it is not clear from the result that the significant and positive effect on growth from the higher investment can be associated with debt relief, we note however that resources freed by the Initiatives were mostly used for poverty–reducing expenditures (Figure 3 and Annex).

iii) Another interesting result comes from the coefficient on *institutional capacity*, indicating that CPIA scores may have a direct growth effect. As highlighted in previous studies, this result could suggest that improved institutional capacity is a determinant to higher growth (Presbitero 2008). However, the result is not robust, possibly due to the small size of the time-dimension of the sample period.

31. Among the control variables, the coefficient estimates are in line with expectations. The positive coefficients for *Trade openness* and *global growth rate* variables are essentially in accordance with other studies.

[18] See also Annex, which presents the country profiles of selected post-CP HIPCs.

32. Finally, the effect of the aid squared variable turns out to be insignificant suggesting that there are no diminishing returns to debt relief.

Investment Regressions (See Appendix Table 6)

33. The investment regressions present the effect of debt relief on the investment ratio, using the same specifications as for the growth equations regressed on the ratio of investment to GDP. Amongst the independent variables, *investment* is substituted by real per capita GDP growth.

34. Similarly to the growth regression results, the coefficient on the HIPC CP is positive in both the complete sample and the post-CP HIPCs subsample under all specifications. However, it is not statistically significant. In addition, the positive coefficient of institutional capacity suggests that the impact on the investment ratio is higher in countries with good institutions. However, these results are also not significant. Meanwhile, the positive and significant coefficient of the commodity price variable highlights the important effect of world commodity prices on investments for LICs. The results indicate that high commodity prices may lead to higher investments in the commodity producing sector of the economy (e.g., hydrocarbon sector).

V. CONCLUSIONS

35. Since its creation in 1996, the HIPC Initiative has achieved many of its objectives, including reducing the external debt burden to eligible low-income countries to a sustainable level. As evidenced by our comparative analysis between post-CP HIPCs and non-HIPC LICs, the former group also shows improved economic performance and positive developments in institutional quality, even if challenges remain to preserve debt sustainability.

36. When estimating the impact of debt relief on growth, our econometric results suggest that for HIPCs the post completion point period has indeed been associated with higher growth. While the earlier study by Bandiera, Cuaresma and Vincelette (2009) found a conclusive and positive impact of debt relief on growth only for non-fragile post-CP HIPCs, our results do not differentiate post-CP HIPCs by fragility, suggesting that the direct impact of debt relief on growth have benefited even fragile post-CP HIPCs. That said, the analysis also illustrated that it is difficult to disentangle pure debt-relief effects from other concurrent factors.

37. However, no significant results are found for investment. In particular, we do not find an association between debt relief and higher investment levels suggesting that once other flows adjust to debt relief, net official resource additionality may not be so significant.

38. Overall, the evidence tentatively suggests that the HIPC Initiative and MDRI have helped HIPC-eligible countries to reach higher growth, based most likely on some combination of the factors that allowed the completion point to be reached (i.e., the so-called HIPC triggers) rather than debt relief in isolation. However, it remains unclear whether this is through higher investment or another channel (employment, total-factor productivity), which could become a topic of further research and investigation.

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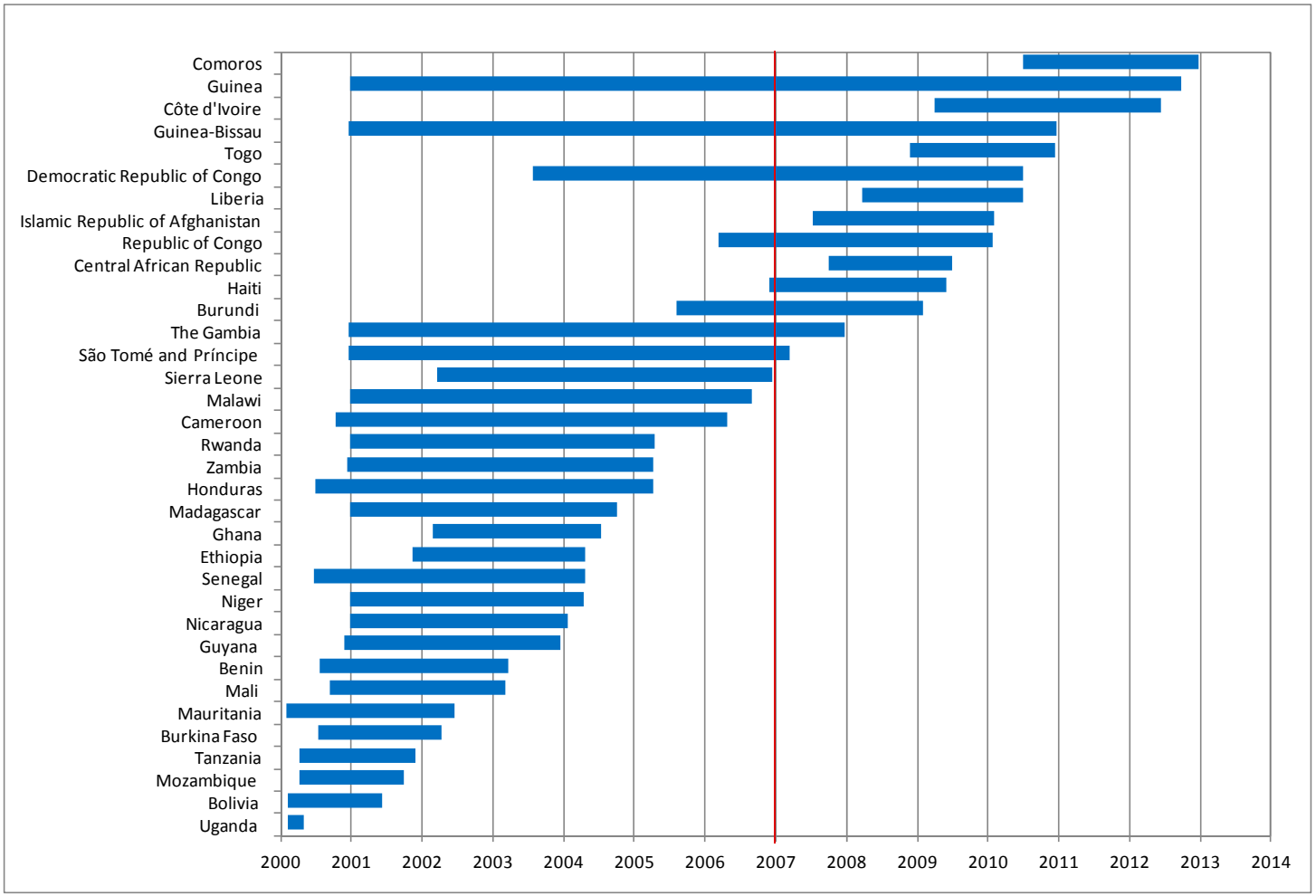
Appendix Figure 1. Post-Completion Point HIPCs: Duration of Interim Period
(As of end-November 2014)



Appendix Table 1. List of Sample Countries
(As of end-November 2014)

35 Post-Completion-Point HIPCs 1/		
Afghanistan	Gambia, The	Mozambique
Benin	Ghana	Nicaragua
Bolivia	Guinea	Niger
Burkina Faso	Guinea-Bissau	Rwanda
Burundi	Guyana	São Tomé and Príncipe
Cameroon	Haiti	Senegal
Central African Republic	Honduras	Sierra Leone
Congo, Democratic Republic of the	Liberia	Tanzania
Congo, Republic of	Madagascar	Togo
Comoros	Malawi	Uganda
Côte d'Ivoire	Mali	Zambia
Ethiopia	Mauritania	
1 Interim HIPC 2/		
Chad		
36 non-HIPC LICs 3/		
Bangladesh	Lao People's Democratic Republic	Solomon Islands
Bhutan	Lesotho	Somalia
Cambodia 4/	Maldives	Sudan
Cape Verde	Marshall Islands, Republic of the	Tajikistan 4/
Djibouti	Micronesia, Federated States of	Timor
Dominica	Moldova	Tonga
Eritrea	Mongolia	Tuvalu
Georgia 5/	Myanmar	Uzbekistan
Grenada	Nepal	Vanuatu
Kenya	Nigeria	Vietnam
Kiribati	Papua New Guinea	Yemen, Republic of
Kyrgyz Republic	Samoa	Zimbabwe

Source: International Monetary Fund.

1/ Countries that qualified for irrevocable debt relief under the HIPC Initiative and MDRI.
2/ Chad qualified for interim assistance under the HIPC Initiative by reaching decision point in May 2001.
3/ Countries that are PRGT-eligible but not included in the HIPC Initiative.
4/ Cambodia and Tajikistan received MDRI debt relief from the IMF in 2006 as non-HIPCs with per capita income below US$380 and outstanding debt to the IMF.
5/ Georgia was PRGT-eligible until April 2014.

Appendix Table 2. List of Variables and Description

Variables	Definition
Real GDP per Capita Growth	GDP data in constant local currency unit.
Debt stock	Public and publicly guaranteed external debt in percent of GDP.
Aid	Net official development assistance and official aid received as a share of GDP.
Investment	Gross capital formation as a share of GDP.
Initial GDP	GDP per capita in constant 2005 U.S. dollars.
Government primary balance	The local currency government primary balance in percent of GDP.
Inflation	Natural logarithm of consumer price index.
Trade openness	Sum of exports and imports as a percentage of GDP.
Institutional Capacity	Country Policy and Institutional Assessment: CPIA Ratings from 1=low to 6=high.
Share of Health and Education	Public spending on education and health as a share of total government expenditures.
Global Growth Rates	World GDP growth rate.
Commodity Price Index	Natural logarithm of world commodity price index.
HIPC CP Dummies	Based on HIPC Completion Point year: onward=1, before=0.

Sources: World Bank, World Development Indicators (WDI) and IMF, World Economic Outlook (WEO).

Appendix Table 3. Summary statistics, 1996-2011

Appendix Table 3 provides the summary statistics of the variables included in the analysis for our complete sample of 72 LICs, including HIPCs. On average, the growth rate of per capita GDP is about 2.3 percent for the period 1996-2011. We note that HIPCs register a lower growth rate on average (1.8 percent) compared to non-HIPC LICs (2.7 percent) for the period. Liberia, Myanmar, and Georgia show the highest growth rates with 13, 9 and 7 percent on average, respectively. Liberia is also amongst the countries that on average received the most aid in percent of GDP during the period. The countries with the most negative growth rates are Zimbabwe, Eritrea, and Comoros. The investment ratio averages around 40 percent over the period, with a similar lower profile for HIPCs compared to non-HIPC LICs. While the average of aid as a percentage of GDP is about 15 percent for HIPCs, a little more than 1 percentage point above the mean for non-HIPC LICs, the debt stock for HIPCs in percent of GDP during the period is on average 35 percentage points higher than that of the non-HIPC LICs.

Variables	Obs	Mean	Standard Deviation	Min.	Max.
Real per capita GDP growth	1106	2.3	5.5	-34.0	91.7
Debt stock	1026	63.3	57.5	1.9	690.8
Aid	1107	14.3	14.6	0.4	147.2
Investment	697	39.8	120.8	1.3	1109.2
Gov primary balance	867	-1.0	7.5	-46.9	126.8
Inflation 1/	967	403.1	9429.4	0.1	293000.0
Trade openness	1011	78.7	37.6	0.0	223.1
Institutional capacity	598	3.2	0.6	0.0	4.4
Share of health and education	1120	16.3	9.9	0.0	54.3
Global growth rate	1152	2.8	1.5	-2.2	4.3
Commodity price index	1152	96.0	45.4	47.6	191.9

1/ Inflation statistics is affected by the hyperinflation data in Zimbabwe which peaked in 2008.

Appendix Table 4. Correlation Matrix

Appendix Table 4 shows the pairwise correlation coefficients of the variables included in the analysis. The correlation between the aid variable and the HIPC CP dummy variable is null, verifying that the measures capture different aspects of debt relief and this supports the approach to study the effect of debt relief separately. The HIPC CP dummy variable is negatively correlated with the debt stock variable, indicating that countries that received debt relief have a lower debt burden. It is important to note also that this measure of debt relief is positively, even if only weakly, correlated with GDP growth and the investment ratio.

Variables	Real GDP per capita growth	HIPC CP	Aid	Investment	Debt stock	Inflation	Government primary balance	Trade openness	Institutional capacity	Share of health and education	Global growth rate	Commodity price index
Real GDP per capita growth	1.00											
HIPC completion point	0.03	1.00										
Aid	0.01	0.00	1.00									
Investment	0.09	-0.08	-0.15	1.00								
Debt stock	-0.02	-0.26	0.41	-0.16	1.00							
Inflation	-0.04	-0.02	-0.01	0.23	0.00	1.00						
Government primary balance	0.06	0.05	-0.08	0.10	-0.04	0.00	1.00					
Trade openness	0.09	-0.13	-0.01	-0.02	0.00	0.03	0.01	1.00				
Institutional capacity	0.22	0.28	-0.15	-0.02	-0.22	-0.11	-0.03	0.13	1.00			
Share of health and education	-0.02	0.24	0.01	-0.14	-0.18	0.16	0.03	0.04	0.18	1.00		
Global growth rate	0.07	-0.07	0.01	-0.01	0.10	0.02	0.10	0.02	-0.02	-0.07	1.00	
Commodity price index	0.08	0.39	-0.01	0.05	-0.38	0.03	0.03	0.11	0.15	0.15	-0.12	1.00

Appendix Table 5. Growth Regressions

Dependent variable:	Total LICs sample			Post-CP HIPCs			Non-HIPC LICs		
Growth	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
HIPC CP	0.100	0.494	0.154	-0.310	0.450	1.582**			
	(0.740)	(0.729)	(0.937)	(2.145)	(1.804)	(0.624)			
Initial real per capita GDP	-0.001	0.000	0.003	-0.003	-0.002	0.004*	-0.006	-0.002	-0.001
	(0.001)	(0.001)	(0.003)	(0.003)	(0.002)	(0.002)	(0.010)	(0.001)	(0.001)
Initial debt stock	-0.023	-0.014	-0.008	-0.029	-0.023	-0.003	0.057	0.078	0.046*
	(0.015)	(0.019)	(0.010)	(0.020)	(0.021)	(0.007)	(0.088)	(0.025)	(0.024)
Aid	0.117	0.112	0.056	0.129	0.133	0.151	0.363	-0.422	-0.161
	(0.087)	(0.097)	(0.121)	(0.133)	(0.126)	(0.134)	(0.999)	(0.365)	(0.445)
Aid^2	0.000	-0.001	0.000	0.000	-0.001	-0.001	0.005	0.003	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.052)	(0.009)	(0.014)
Investment	0.077**	0.006***	0.005***	0.034*	0.029*	0.025*	0.388**	0.122**	0.004*
	(0.035)	(0.001)	(0.001)	(0.019)	(0.015)	(0.015)	(0.370)	(0.007)	(0.002)
Institutional capacity	1.273*	1.405*	0.893	2.801**	2.709**	0.021	0.444	9.476***	6.736***
	(0.809)	(1.219)	(1.479)	(1.269)	(1.157)	(1.530)	(4.069)	(2.636)	(1.109)
Share of health and education	-0.003	0.028		0.049	0.043		-0.299	-0.071	
	(0.040)	(0.038)		(0.054)	(0.058)		(0.266)	(0.072)	
Inflation	-0.909			-1.054			-0.534		
	(1.659)			(2.046)			(6.288)		
Gov primary balance	0.015	0.066		0.225	0.166		0.596	0.335	
	(0.079)	(0.110)		(0.131)	(0.088)		(0.921)	(0.152)	
Trade openness	0.052**	0.048**		0.056**	0.049**		0.153	0.023	
	(0.018)	(0.017)		(0.023)	(0.014)		(0.234)	(0.039)	
Global growth rate	0.542**	0.497**		0.442	0.464*		0.763	0.751*	
	(0.165)	(0.181)		(0.372)	(0.276)		(2.727)	(0.396)	
Commodity price index		0.006			-0.853			2.875	
		(0.941)			(0.679)			(0.589)	
Observations	118	126	141	78	80	83	38	44	55
No. of countries	43	45	50	28	28	29	14	16	20
No. of instruments	39	36	25	39	36	25	36	35	24
Hansen-J test	0.65	0.36	0.03	0.92	0.85	0.29	0.95	0.87	0.82
Sargan test	0.25	0.32	0.46	0.33	0.45	0.39	0.10	0.17	0.21
AR (1)	0.05	0.08	0.02	0.04	0.04	0.06	0.34	0.42	0.37

Notes: The table reports regression coefficients and the robust two steps estimates of the standard errors, in parenthesis. * significant at 10%; ** significant at 5%; *** significant at 1%. The model is estimated by Two-Step System GMM, using Stata 12 SE package with XTABOND2 command. The collapse option of the instrument matrix is used to avoid the bias that arises as the number of instruments climbs toward the number of observations. The initial debt stock, aid, investment, share of health and education, budget balance, and trade openness variables are expressed in percent of GDP. As diagnostic, the table reports the p-values of the Sargan and Hansen-J tests for overidentifying restrictions (OIR, the null is the validity of the instrument set), and of the Arellano and Bond autocorrelation tests of first order (AR (1), the null is no autocorrelation).

Appendix Table 6. Investment Regressions

Dependent variable:	Total LICs sample			Post-CP HIPCs			Non-HIPC LICs		
Investment	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
HIPC CP	3.099	1.805	4.754	0.125	0.091	2.189			
	(2.810)	(11.021)	(15.360)	(4.946)	(7.552)	(3.360)			
Initial real per capita	-0.002	-0.004	0.007	0.001	0.013	0.019	0.109	0.064	0.004
GDP	(0.006)	(0.067)	(0.030)	(0.015)	(0.029)	(0.015)	(0.080)	(0.313)	(0.060)
Initial debt stock	-0.002	-0.020	0.078	-0.032	-0.052	-0.053*	0.459	-1.337	-0.006
	(0.053)	(0.293)	(0.230)	(0.052)	(0.099)	(0.030)	(0.216)	(1.986)	(0.698)
Aid	-0.305	-0.374	-0.219	0.148	0.451	0.475	0.718	-0.402	-0.291
	(0.378)	(2.064)	(3.240)	(0.379)	(1.149)	(0.390)	(12.465)	(38.583)	(15.050)
Aid^2	0.000	0.000	-0.001	-0.003	-0.005	-0.005	-0.601	0.590	0.022
	(0.003)	(0.013)	(0.030)	(0.003)	(0.008)	(0.005)	(0.573)	(0.920)	(0.452)
Real per capita GDP	0.060	0.704	3.727	0.177	0.039	0.066	9.513	2.154	3.288
growth	(0.382)	(4.512)	(4.090)	(1.062)	(1.172)	(0.510)	(12.515)	(69.392)	(10.352)
Institutional capacity	-6.367	-6.209	-14.960	3.109	3.363	1.548	-14.172	14.567	3.079
	(1.508)	(37.701)	(28.270)	(12.941)	(15.689)	(6.680)	(104.468)	(112.265)	(146.460)
Share of health and	-0.144	-0.080		-0.075	-0.070		-0.647	-8.072	
education	(0.144)	(0.800)		(0.295)	(0.399)		(0.624)	(8.203)	
Inflation	4.121			4.420			29.046		
	(3.268)			(7.760)			(24.967)		
Gov primary balance	-0.320	0.109		-0.037	-0.204		4.357	-4.363	
	(0.197)	(2.974)		(0.859)	(1.324)		(3.567)	(13.001)	
Trade openness	0.032	0.021		0.096	0.063		0.550	0.471	
	(0.057)	(0.533)		(0.136)	(0.148)			(4.790)	
Global growth rate	0.076	0.153		0.024	0.300		6.681	7.908	
	(0.400)	(6.990)		(1.832)	(2.338)		(7.400)	(56.379)	
Commodity price		4.883			2.104**			36.086*	
index		(18.787)			(4.007)			(18.296)	
Observations	118	126	140	78	80	83	38	44	55
No. of countries	43	45	50	28	28	29	14	16	20
No. of instruments	31	28	17	31	28	17	30	27	16
Hansen-J test	0.45	0.99	0.99	0.88	0.48	0.56	1.00	1.00	0.98
Sargan test	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.04	0.00
AR (1)	0.47	0.32	0.33	0.97	0.82	0.63	0.30	0.47	0.30

Notes: The table reports regression coefficients and the robust two steps estimates of the standard errors, in parenthesis. * significant at 10%; ** significant at 5%; *** significant at 1%. The model is estimated by Two-Step System GMM, using Stata 12 SE package with XTABOND2 command. The collapse option of the instrument matrix is used to avoid the bias that arises as the number of instruments climbs toward the number of observations. The initial debt stock, aid, investment, share of health and education, budget balance, and trade openness variables are expressed in percent of GDP. As diagnostic, the table reports the p-values of the Sargan and Hansen-J tests for overidentifying restrictions (OIR, the null is the validity of the instrument set), and of the Arellano and Bond autocorrelation tests of first order (AR (1), the null is no autocorrelation).

SELECTED POST-COMPLETION POINT HIPCS: COUNTRY PROFILES

While in Section III of the paper we compare the macroeconomic performance of two groups of low-income countries: post-CP HIPCs that benefited from debt relief and the non-HIPC LICs; in this section, we focus on the macroeconomic performance of nine selected post-CP HIPCs to discuss the impact of debt relief on these countries. Table 1A provides the list of post-CP HIPCs ranked by average GDP per capita growth rate in the most recent four-year period of 2008-11[19] and highlights the nine selected countries. These countries are selected based on a full-range of data availability from each of the following three groups: (i) average growth rate of 4 percent and above (Liberia, Ethiopia, and Rwanda); (ii) average growth rate above zero and below 4 percent (Zambia, Burkina Faso, and Nicaragua); and (iii) average growth rate below zero percent (Haiti, Côte d'Ivoire, and Madagascar). We focus on the following variables to assess the impact of debt relief: real GDP growth; external debt burden versus public investment; and debt service versus pro-poor spending, with the latter defined as government spending on education and health. We also show the medium-term outlook of debt sustainability and growth, which were obtained from the respective countries' Debt Sustainability Assessment (DSA) papers.

The assessment of nine country cases illustrates that, in principle, debt relief contributed to economic growth and improvement of investment climate in post-completion point HIPC countries. Moreover, due to the reduction in the debt service, the freed-up resources could have been directed to pro-poor spending to foster countries' growth and development. After debt relief, the most of external debt in these countries remained owed to multilateral and official bilateral creditors with a significant share of concessional debt. As a common trend, there was some deterioration in the indicators around the global crisis of 2008-09. In some countries, post-HIPC deterioration could be explained by either a natural disaster (Haiti) or a political instability either in the country or in neighboring countries (Côte d'Ivoire, Madagascar, and Nicaragua). Overall, the most recent DSAs envisaged sustainable medium-term external debt outlook. For all of the nine countries, the external debt was projected to remain at a sustainable level, below the policy-related thresholds. The real GDP growth was projected for the most of the countries at an average of 6, 7, or 8 percent over the medium term. Nicaragua's relatively lower real GDP growth projections (4 percent on average) in the last two (2010 and 2013) DSA exercise were attributable to the weaker global outlook.

Analysis of post-completion point HIPCs' DSAs suggests that ongoing challenges remain: maintaining prudent debt management and sound macroeconomic policies, as well as preserving debt sustainability over a medium term (in the absence of other endogenous and exogenous risk factors), would help to further improve investment climate and, therefore, would be fundamental for the stable economic growth and development.[20]

[19] The end-2011 data are the most recent ones available in the World Development Indicators database, at end-December 2013.

[20]For LIC DSAs, see http://www.imf.org/external/pubs/ft/dsa/lic.aspx.

Table 1A. Post-Completion Point Heavily Indebted Poor Countries: 2008-11 Average Annual GDP per Capita Growth

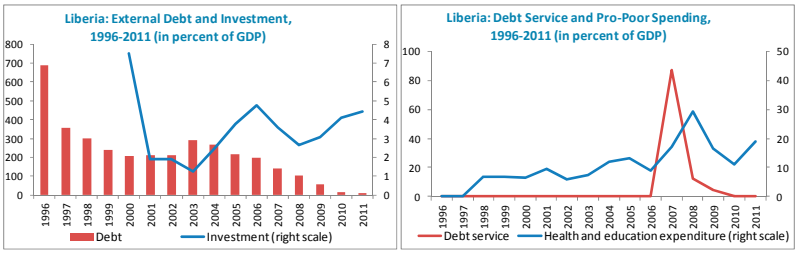
Country	GDP per Capita Average Growth, 2008-11	Ranking by 2008-11 Average Growth Rate
Afghanistan	7.31	1
Liberia	***7.16***	***2***
Ethiopia	***6.36***	***3***
Ghana	6.25	4
Rwanda	***5.13***	***5***
Mozambique	4.17	6
Malawi	3.91	7
Tanzania	3.59	8
Uganda	3.57	9
Zambia	***3.52***	***10***
Congo, Republic of	3.24	11
Guyana	3.10	12
Bolivia	3.02	13
Sierra Leone	2.94	14
Congo, the Democratic Republic of	2.85	15
São Tomé and Príncipe	2.66	16
Guinea-Bissau	2.42	17
Burkina Faso	***2.21***	***18***
Nicaragua	***1.35***	***19***
Mali	1.29	20
Togo	0.98	21
Burundi	0.65	22
Central African Republic	0.57	23
Benin	0.48	24
Gambia, The	0.39	25
Cameroon	0.38	26
Senegal	0.26	27
Mauritania	0.14	28
Honduras	0.10	29
Guinea	-0.04	30
Haiti	***-0.36***	***31***
Comoros	-0.78	32
Côte d'Ivoire	***-0.99***	***33***
Madagascar	***-1.46***	***34***
Niger	-2.98	35

Source: *World Development Indicators* , the World Bank.

Liberia

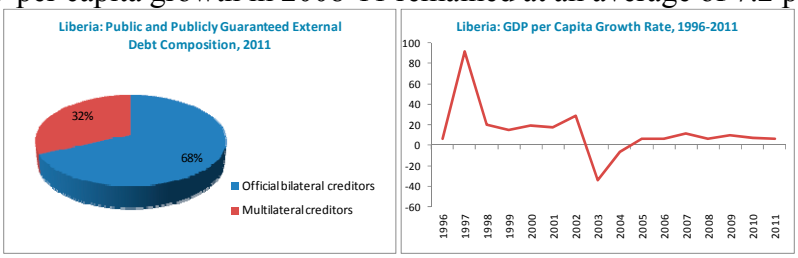
In March 2008, following its arrears clearance, Liberia reached the decision point under the HIPC Initiative. In June 2010, after reaching HIPC completion point, the country received irrevocable debt relief estimated at total US$4.86 billion in nominal terms under both HIPC Initiative and MDRI.[21]

While external debt and debt service (as a percent of GDP) continued to decrease under the HIPC Initiative, the investment and pro-poor (also in percent of GDP) spending picked up again in 2008 and 2010, respectively, and continued growing after HIPC completion point and MDRI.



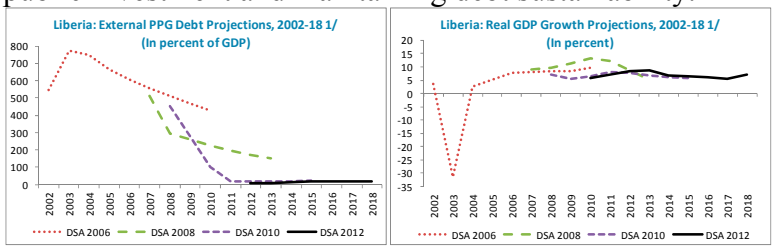
Source: *World Development Indicators and International Debt Statistics*, the World Bank.

Following debt relief, Liberia's external debt in 2011 was owed only to official bilateral and multilateral creditors, with concessional debt comprising 94 percent of total external debt; and annual GDP per capita growth in 2008-11 remained at an average of 7.2 percent.



Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In the 2010 and 2012 DSA exercises, it was projected that external debt (after debt relief) would remain below 22 percent of GDP 2018—compared to over 500 percent of GDP before HIPC (2006 and 2008 DSAs)—which is durably below the policy-related threshold; while the real GDP growth would continue around 7 percent on average. These projections are based on the assumptions of new external borrowing of 4 percent of GDP on concessional terms to support public investment and maintaining debt sustainability.



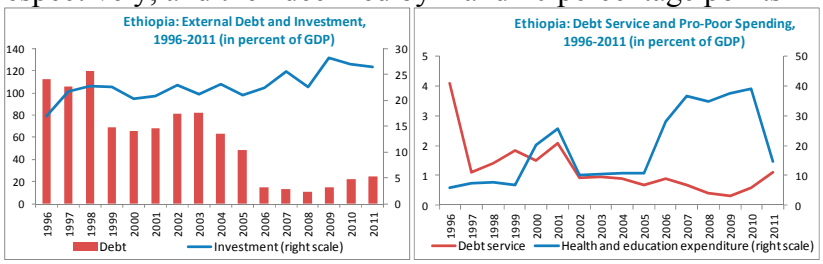
Source: *Debt Sustainability Analysis (DSA)*, country documents.
1/For DSA 2008 and DSA 2010, the calendar year data derived from the average of corresponding two fiscal years data, e.g. for 2003, average of 2002-03 and 2003-04.

[21] For total debt relief under both Initiatives in nominal terms, see Heavily Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI) – Statistical Update, December 19, 2013.

Ethiopia

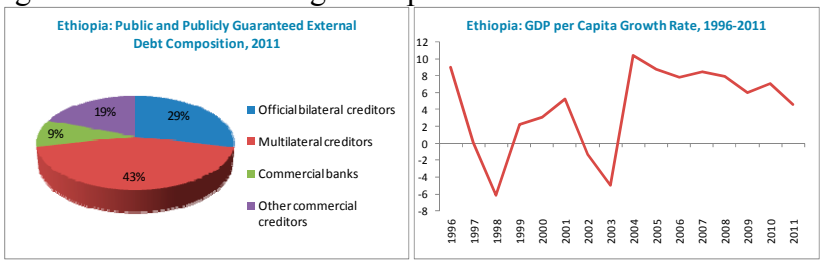
Ethiopia reached the decision point under the HIPC Initiative in November 2001 and the completion point in April 2004. The country received additional debt relief under the MDRI in January 2006. Ethiopia's total debt relief was estimated at US$6.57 billion in nominal terms under both Initiatives.

While external debt and debt service continued decreasing in percent of GDP in 2006-08, then went up again after these years and reached 20 and 1.1 percent of GDP in 2011, compared to 15 and 0.3 percent of GDP in 2009, respectively; investment and pro-poor spending had increased since 2008 peaking at 28 percent of GDP in 2009 and 39 percent of GDP in 2010, respectively, and then declined by 2 and 20 percentage points in 2011.



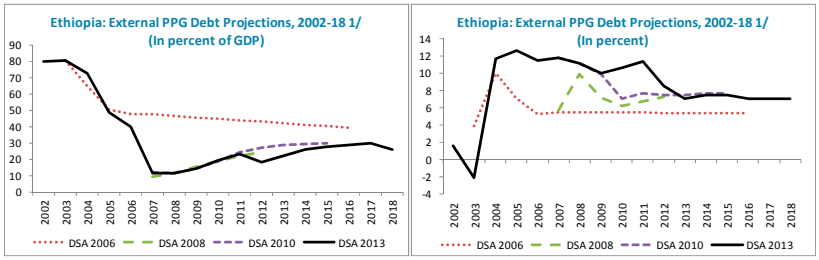
Source: *World Development Indicators and International Debt Statistics*, the World Bank.

As of 2011, Ethiopia's external debt was largely owed to multilateral and official bilateral creditors, while the share of concessional debt in total external debt was 67 percent. Annual GDP per capita growth was at an average of 7 percent in 2006-11.



Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In the DSA exercises, conducted since 2006, it was projected that Ethiopia's external debt after debt relief would remain below 30 percent of GDP until 2018 compared to 80 percent of GDP in 2002; while the real GDP growth in 2012-18 would be at an average 7 percent. The 2012 DSA suggests that prudent macroeconomic policies aimed at maintaining the growth of exports through diversification of the export sector, developing a medium-term debt strategy for the public sector, and limiting non-concessional borrowing remain crucial to maintaining Ethiopia's low risk of external debt distress.

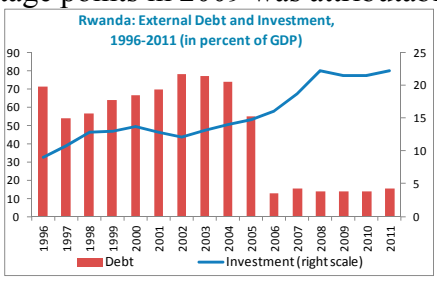


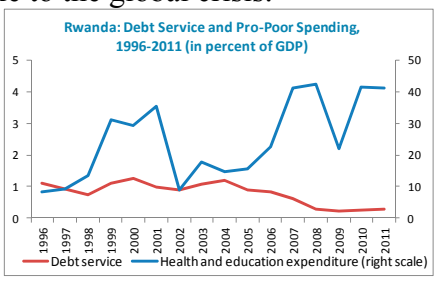
Source: *Debt Sustainability Analysis (DSA)*, country documents.
1/For DSA 2006 and DSA 2008, the calendar year data derived from the average of corresponding two fiscal years data, e.g. for 2003, average of 2002-03 and 2003-04.

Rwanda

Rwanda reached the decision point under the HIPC Initiative in December 2000, and the completion point in April 2005. The country received additional debt relief under the MDRI in January 2006. Rwanda's total debt relief was estimated at US$1.83 billion in nominal terms under both Initiatives.

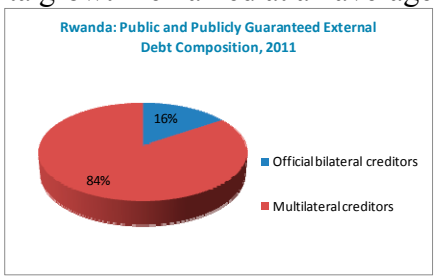
In 2007-11, external debt and debt service remained stable at below 15.3 and 0.3 percent of GDP, respectively; while investment and pro-poor spending increased reaching 22 and 41 percent of GDP in 2011, correspondingly. The shrinkage in government's pro-poor spending by 20 percentage points in 2009 was attributable to the global crisis.

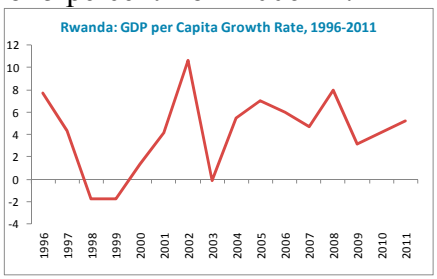




Source: *World Development Indicators and International Debt Statistics*, the World Bank.

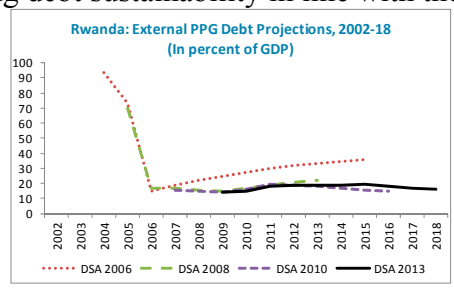
In 2011, Rwanda's external debt was owed to multilateral and official bilateral creditors. The share of concessional debt in total external debt was 99 percent. After debt relief, annual GDP per capita growth remained at an average of 5 percent from 2006-11.

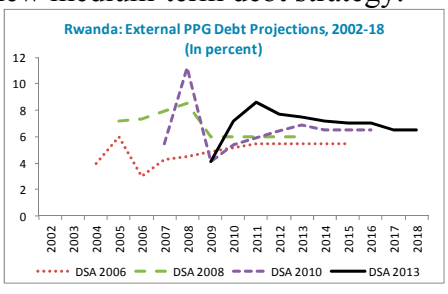




Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In the DSA exercises, conducted since 2006, Rwanda's external debt after debt relief was projected to remain below 20 percent of GDP until 2018 compared to over 90 percent of GDP in 2004. In the 2012 updated DSA, the real GDP growth was projected at an average 7 percent in 2012-18, assuming the authorities continue implementing sound macroeconomic policies and maintaining relatively higher concessionality of new borrowing while maintaining debt sustainability in line with the new medium-term debt strategy.



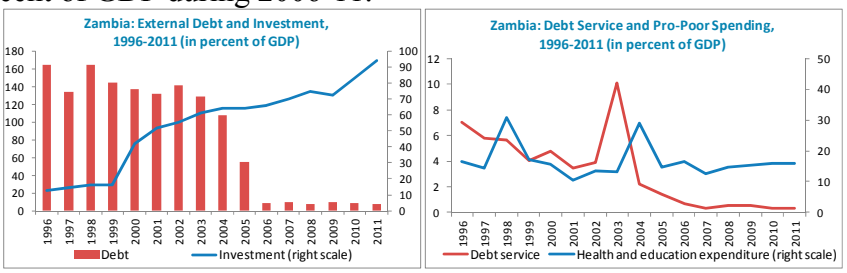


Source: *Debt Sustainability Analysis (DSA)*, country documents.

Zambia

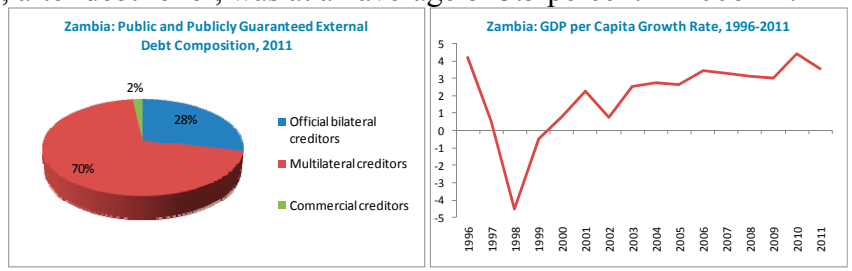
Zambia reached the decision point under the HIPC Initiative in December 2000, and the completion point in April 2005. The country received additional debt relief under the MDRI in January 2006. Zambia's total debt relief was estimated at US$6.7 billion in nominal terms under both Initiatives.

While external debt and debt service remained stable in 2006-11 at below 9.5 and 0.7 percent of GDP, respectively; the investment continued increasing up to 94 percent of GDP in 2011 compared to 66 percent of GDP in 2006, and pro-poor spending was slightly fluctuating around 16 percent of GDP during 2006-11.



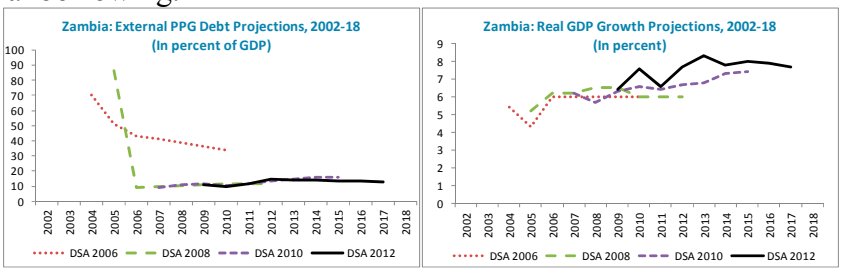
Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In 2011, 98 percent of Zambia's external debt was owed to multilateral and official bilateral creditors; and concessional debt comprised 88 percent of total external debt. Annual GDP per capita growth, after debt relief, was at an average of 3.5 percent in 2006-11.



Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In the DSA exercises, conducted since 2006, it was projected that external debt (after debt relief) would remain below 15 percent of GDP until 2018 compared to 86 percent of GDP before debt relief. At the same time, the real GDP growth was projected to be around 8 percent on average in 2012-18. The projections of stable growth are based on implementation of sound macroeconomic policies, and, as the 2012 DSA suggests, on both strong debt management and project appraisal capacity, which are needed to maintain debt sustainability in the face of access to international capital markets and a gradual increase in nonconcessional borrowing.

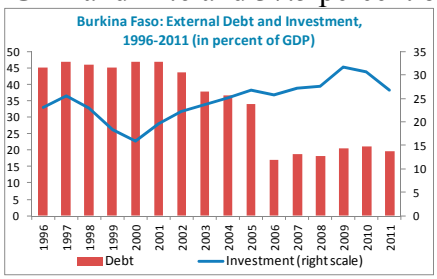


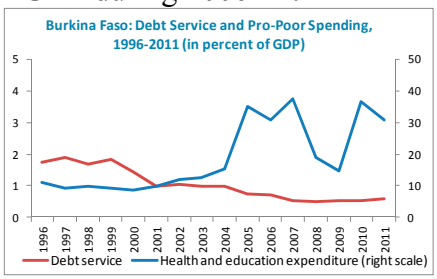
Source: *Debt Sustainability Analysis (DSA)*, country documents.

Burkina Faso

Burkina Faso reached the decision point under the Original and Enhanced HIPC Initiatives in September 1997 and July 2000, respectively, and had its completion point in April 2002. MDRI debt relief was provided in January 2006. Burkina Faso's total debt relief, including under both HIPC Initiative and MDRI, was estimated at US$2.1 billion in nominal terms.

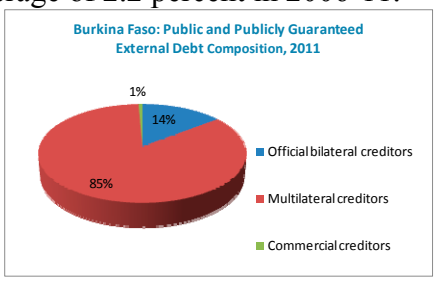
While external debt and debt service remained stable in 2006-11 at below 21 and 0.7 percent of GDP, respectively; the investment and pro-poor spending were fluctuating between 26 and 32 percent of GDP and 14.6 and 37.5 percent of GDP during 2006-11.

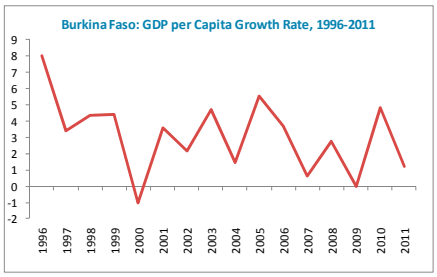




Source: *World Development Indicators and International Debt Statistics*, the World Bank.

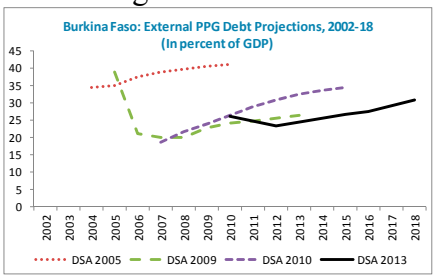
In 2011, most of Burkina Faso's external debt was owed to multilateral and official bilateral creditors, 99 percent of which was on concessional terms; and annual GDP per capita growth was at an average of 2.2 percent in 2006-11.

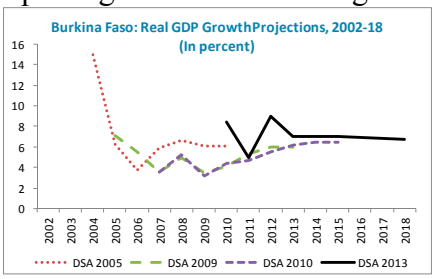




Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In the DSA exercises, conducted since 2006, it was projected that Burkina Faso's external debt after debt relief would remain below 31 percent of GDP until 2018, which is 19 percentage points below the policy-related threshold for countries with strong policy performance, such as Burkina Faso. In the 2012 DSA, the real GDP growth was projected to be around 7 percent on average in 2012-18, based on the assumptions of continued improvements in the agricultural sector and anticipated growth in the mining sector.



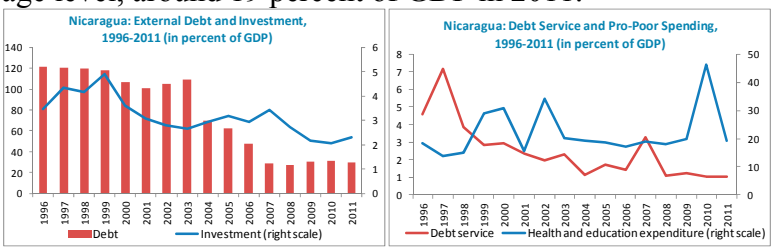


Source: *Debt Sustainability Analysis (DSA)*, country documents.

Nicaragua

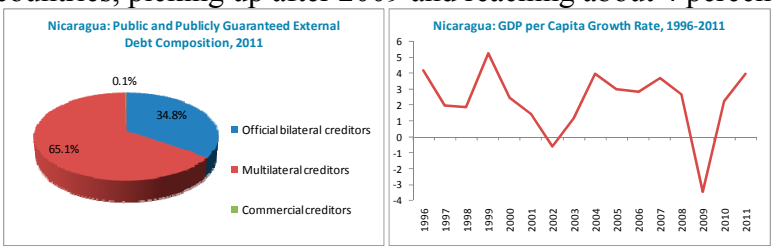
Nicaragua reached the decision point under the HIPC Initiatives in December 2000, and the completion point in January 2004. The country received MDRI debt relief in January 2006. Total debt relief to Nicaragua under both Initiatives was estimated at US$6.4 billion in nominal terms.

While external debt and debt service remained stable in 2008-11 at below 31 and 1.2 percent of GDP, respectively; the investment was fluctuating between 3 and 2 percent of GDP during 2006-11, and pro-poor spending increased to 46.2 percent of GDP in 2010 declining back to the 2008-09 average level, around 19 percent of GDP in 2011.



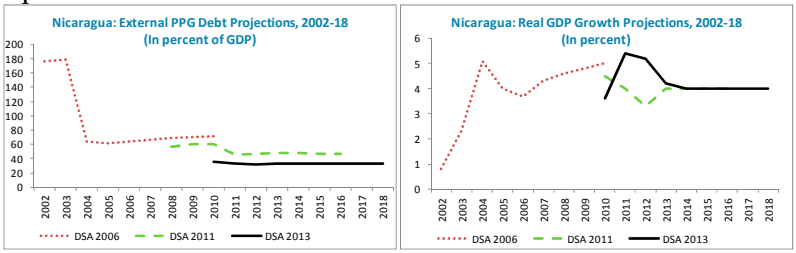
Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In 2011, almost all of Nicaragua's external debt was owed to multilateral and official bilateral creditors, with 77 percent of concessional debt in total external debt; and annual GDP per capita growth was at an average of 1.35 percent in 2008-11 with a sharp decrease in 2009 from 2.7 percent to -3.5 percent due to political instabilities within the country and in the neighboring countries, picking up after 2009 and reaching about 4 percent in 2011.



Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In the most recent 2013 DSA exercise, external debt was projected to remain below 35 percent of GDP on average over the medium-term outlook, compared to 179 percent of GDP in 2003; while the real GDP growth in 2013-18 was projected to be at an average of 4 percent, the same as in 2010 DSA. This is less than it was projected for the most of other post-completion point HIPCs by 2 or 3 percentage points, mainly owing to a weaker global outlook. The staff projections assume the continuation of prudent macroeconomic management policies, strong fiscal performance, and relatively high concessionality of existing and new public external debt.

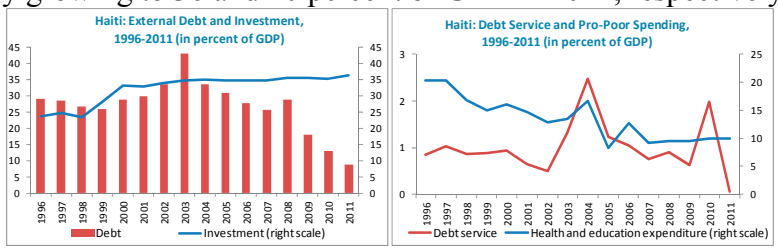


Source: *Debt Sustainability Analysis (DSA)*, country documents.

Haiti

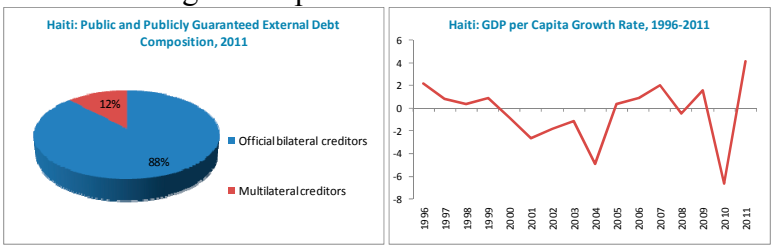
Haiti received debt relief under the HIPC Initiatives in November 2006-June 2009, and debt relief under the MDRI after the completion point. Total debt relief to Haiti under both Initiatives was estimated at US$1.2 billion in nominal terms. In July 2010, following the devastating earthquake in Haiti, the IMF provided additional debt relief equivalent to around US$268 million under the Post-Catastrophe Debt Relief Initiative, eliminating Haiti's entire outstanding debt stock to the IMF.

While external debt was steadily going down from 28.8 percent of GDP in 2008 to 8.6 percent of GDP in 2011 and debt service (as a percent of GDP) fluctuating between 0.9 and 2 percent and going down to 0.1 percent in 2011; the investment and pro-poor spending continued slightly growing to 36 and 10 percent of GDP in 2011, respectively.



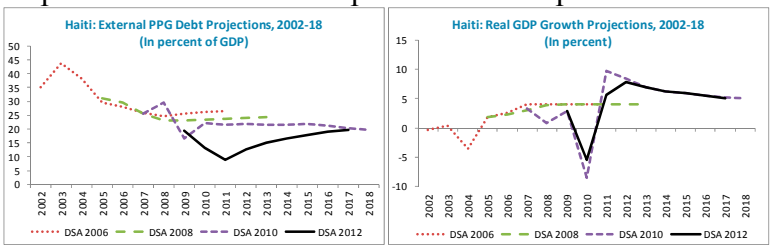
Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In 2011, Haiti's external debt was 100 percent concessional and owed to official bilateral and multilateral creditors only; while annual GDP per capita growth was at an average of -0.36 percent in 2008-11 with a sharp decrease in 2010 to -6.7 percent as a result of earthquake, picking up in 2011 and reaching over 4 percent.



Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In the DSA exercises, conducted since 2006, Haiti's external debt in percent of GDP was projected to remain below 20 percent after debt relief until 2018, compared to 43.9 percent in 2003. Nevertheless, Haiti's risk of debt distress remained high. The 2012 DSA assumed external assistance of US$1.3 billion annually with the 74 percent grant element on average and a mix of 60 percent grants and 40 percent loans. The real GDP growth was projected at an average of 6 percent over the medium term, assuming several large infrastructure projects and the adoption of public sector reforms expected to foster private sector-led growth.

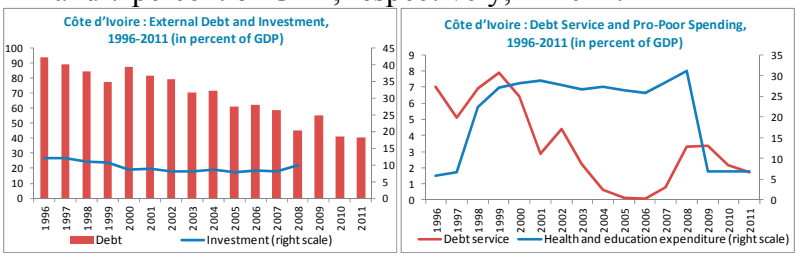


Source: *Debt Sustainability Analysis (DSA)*, country documents.

Côte d'Ivoire

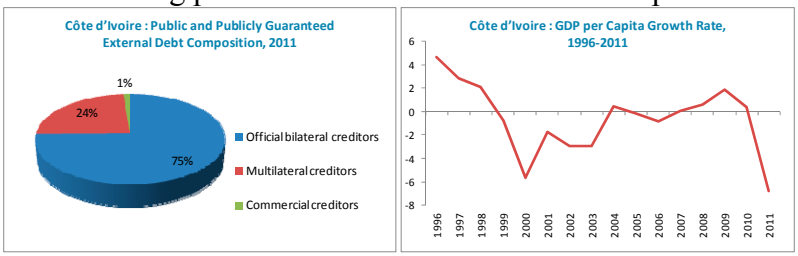
Côte d'Ivoire received debt relief under the HIPC Initiatives in March 2009-June 2012, and debt relief under the MDRI after the completion point. Total debt relief to Côte d'Ivoire under both Initiatives was estimated at US$5.25 billion in nominal terms.

While Côte d'Ivoire's external debt declined from 94 percent of GDP in 1996 to 41 percent of GDP in 2011, the investment remained stable at 9 percent of GDP on average. External debt service and pro-poor spending fluctuated significantly from 1996 to 2011 declining to 1.7 percent of GDP and 7 percent of GDP, respectively, in 2011.



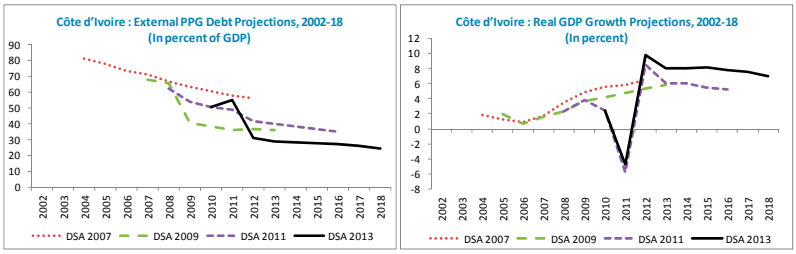
Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In 2011, Côte d'Ivoire's external debt was owed largely to official bilateral and multilateral creditors, with 62 percent of concessional debt in total external debt; and annual GDP per capita growth was at an average of -0.99 percent of GDP in 2008-11 with a sharp decrease in 2011 to -6.8 percent reflecting political crisis in December 2010-April 2011.



Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In the DSA exercises, conducted since 2006, external debt was projected to remain below 62 percent of GDP after debt relief, reaching down to 24.3 percent of GDP in 2018, compared to 81 percent of GDP in 2004. In 2009 and 2011 DSAs, the real GDP growth was projected at around 4.3 percent on average in 2008-13 and at an average 4.2 percent in 2011-16, respectively; while in 2013 DSA, after Côte d'Ivoire reached HIPC completion point, the real GDP growth was projected to be at an average of 7.7 percent in 2013-18. The 2013 DSA underscores the importance of sound macroeconomic policies and public investment, while borrowing predominantly on concessional terms and maintaining debt sustainability and low vulnerability.

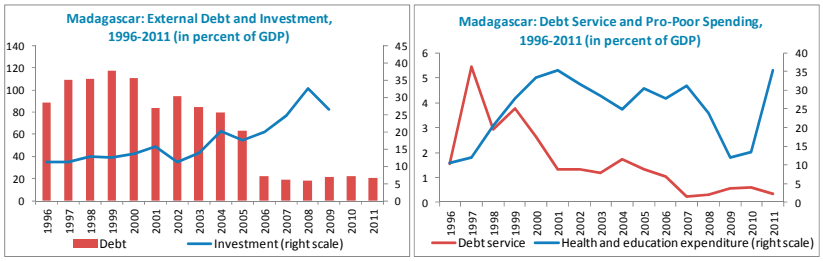


Source: *Debt Sustainability Analysis (DSA)*, country documents.

Madagascar

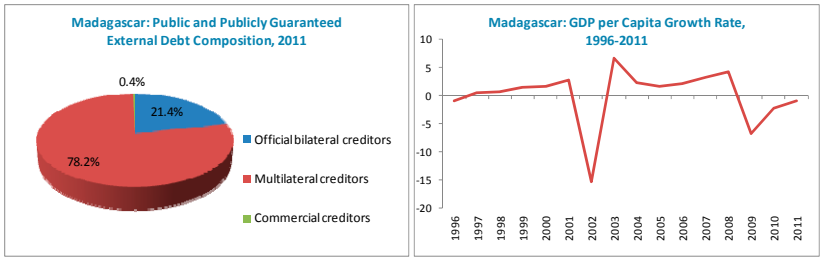
Madagascar reached the decision point under the HIPC Initiatives in December 2000, and the completion point in October 2004. In January 2006, the country also received MDRI debt relief. Total debt relief under both Initiatives was estimated at US$4.3 billion in nominal terms.

While external debt and debt service declined significantly in 2006 and remained at below 23 and 0.6 percent of GDP, respectively, in 2007-2011; the investment increased to 26.5 percent of GDP in 2009, while due to the political instabilities the pro-poor spending declined in 2009 by 19 percentage points compared to the 2007 level, it went up reaching 35.4 percent of GDP in 2011.



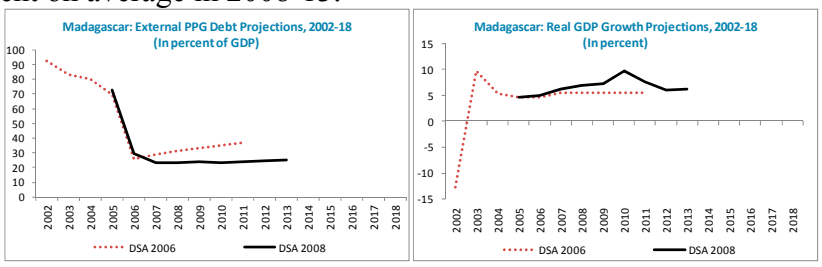
Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In 2011, the external debt was owed largely to multilateral and official bilateral creditors, with 88 percent of concessional debt in total external debt; whereas annual GDP per capita growth was at an average of -0.1 percent in 2006-11, declining to -6.8 in 2009, again owing to political instabilities and global crisis, and improving by 5.8 percentage points to -1 in 2011.



Source: *World Development Indicators and International Debt Statistics*, the World Bank.

In the DSAs of 2006 and 2008, external debt was projected to remain below 25 percent of GDP after debt relief, slightly increasing to 26.3 percent of GDP in 2018 compared to 92.7 percent of GDP in 2002. At the same time, the real GDP growth was projected to remain at about 7 percent on average in 2008-13.



Source: *Debt Sustainability Analysis (DSA)*, country documents.